Α					

**APPENDIX I: Traffic Data** 

Dallas District											February	
									Single	Axle Lo	of Equivalent 18l bad Applications a Expected for a	
				Base	Year			Percent		20 Ye	ar Period	
	Averag	e Daily	Dir		Per	cent		Tandem		(2030	to 2050)	
Description of Location		ıffic	Dist	K		cks	ATHWLD	Axles in	Flexible	S	Rigid	SLAB
	2030	2050	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement	
US 380 Proposed Mainlanes From Coit Road to FM 1827												
Segment A - Section #1												
From Coit Road	93,000	142,900	58 - 42	8.5	4.9	2.9	12,500	30	17,659,000	3	23,776,000	8"
To Exit to Coit Road	00,000	142,000	00 12	0.0	1.0	2.0	12,000		17,000,000	J	20,770,000	
Collin County												
,												
Data for Use in Air & Noise A	nalysis											
		Base Y										
Vehicle Class	% of		% of									
Light Duty	95		97	<sup>7</sup> .1								
Medium Duty	1		1									
Heavy Duty	3	.1	1	.8								
									Single One D	Axle Lo	of Equivalent 18l pad Applications n Expected for a	
	_			Base				Percent			ar Period	
	Averag		Dir			cent		Tandem			to 2060)	
Description of Location		offic	Dist	K	Tru		ATHWLD	Axles in	Flexible	S	Rigid	SLAB
US ass B	2030	2060	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement	
<u>US 380 Proposed Mainlanes</u> From Coit Road to FM 1827												
Segment A - Section #1												
From Coit Road	93,000	162,500	58 - 42	8.5	4.9	2.9	12,600	30	28,689,000	3	38,627,500	8"
To Exit to Coit Road	00,000	102,000	30 -72	0.0	1.5	2.0	12,000		20,000,000		30,027,000	
Collin County												
<b>1</b>												

Description of Location	-	Percent Tandem	Single A	Axle Lo	of Equivalent 18l pad Applications Expected for a	
Average Daily Traffic   Dist   K   Trucks	ATHWLD		One Di	irection	Expected for a	
Average Daily Traffic   Dist   K   Trucks	ATHWLD				•	
Average Daily Traffic   Dist   K   Trucks	ATHWLD				ar Period	
Description of Location  Traffic  Dist K Factor ADT Di  US 380 Proposed Mainlanes From Coit Road to FM 1827  Segment A - Section #2 From Exit to Coit Road To Future Bloomdale Road  Collin County  Data for Use in Air & Noise Analysis  Base Year			i		to 2050)	
US 380 Proposed Mainlanes From Coit Road to FM 1827  Segment A - Section #2 From Exit to Coit Road To Future Bloomdale Road  Collin County  Data for Use in Air & Noise Analysis  Base Year	OHV	Axles in	Flexible	S	Rigid	SLAB
From Coit Road to FM 1827  Segment A - Section #2 From Exit to Coit Road To Future Bloomdale Road  Collin County  Data for Use in Air & Noise Analysis  Base Year		ATHWLD	Pavement	Ν	Pavement	
From Exit to Coit Road To Future Bloomdale Road Collin County  Data for Use in Air & Noise Analysis Base Year						
From Exit to Coit Road To Future Bloomdale Road Collin County  Data for Use in Air & Noise Analysis Base Year						
To Future Bloomdale Road  Collin County  Data for Use in Air & Noise Analysis  Base Year	3.1 12,400	40	15,183,500	3	20,452,500	8"
Data for Use in Air & Noise Analysis  Base Year	,				, ,	
Base Year						
Vehicle Class % of ADT % of DHV						
Light Duty         94.8         96.9						
Medium Duty 1.9 1.1						
Heavy Duty 3.3 2.0						
			Single <i>i</i> One Di	Axle Lo	of Equivalent 18l pad Applications n Expected for a	
Base Year		Percent			ar Period	
Average Daily Dir Percent		Tandem			to 2060)	OL AD
Description of Location Traffic Dist K Trucks 2030 2060 % Factor ADT DI	ATHWLD OHV	Axles in ATHWLD	Flexible Pavement	S N	Rigid Pavement	SLAB
US 380 Proposed Mainlanes From Coit Road to FM 1827			- arement		- avee	
Segment A - Section #2 From Exit to Coit Road To Future Bloomdale Road  75,400 131,700 58 - 42 8.5 5.2	3.1 12,500	40	24,656,500	3	33,213,000	8"
Collin County	12,000					

Dallas District												y 15, 2022
							<u>-</u>				of Equivalent 18	
											oad Applications n Expected for a	
				Base	Year			Percent			ar Period	
	Averag	e Daily	Dir	Вазс		cent		Tandem			to 2050)	
Description of Location	Tra		Dist	К	Tru		ATHWLD	Axles in	Flexible	S	Rigid	SLAB
	2030	2050	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement	
US 380 Proposed Mainlanes From Coit Road to FM 1827												
Segment B - Section #1												
From Coit Road	93,000	142,900	58 - 42	8.5	4.9	2.9	12,500	30	17,659,000	3	23,776,000	8"
To Exit to Coit Road	00,000	1 12,000	00 12	0.0	1.0	2.0	12,000	00	17,000,000	Ŭ	20,770,000	
Collin County												
Data for Use in Air & Noise Ar	nalveie											
Data for ose in All & Noise Al												
Vehicle Class	Base Ye		% of	DHV								
Light Duty	95		97	'.1								
Medium Duty	1.	.8	1	.1								
Heavy Duty	3.	.1	1	.8								
								Single One D	Axle Lo	of Equivalent 18 oad Applications n Expected for a		
				Base				Percent			ar Period	
	Averag	-	Dir			cent		Tandem			to 2060)	
Description of Location	Tra 2030	effic 2060	Dist %	K Factor	Tru ADT	cks DHV	ATHWLD	Axles in ATHWLD	Flexible Pavement	S N	Rigid Pavement	SLAB
<u>US 380 Proposed Mainlanes</u> From Coit Road to FM 1827												
Segment B - Section #1 From Coit Road To Exit to Coit Road	93,000	162,500	58 - 42	8.5	4.9	2.9	12,600	30	28,689,000	3	38,627,500	8"
Collin County												

Dallas District									_			y 15, 2022
									Single	Axle L	of Equivalent 18l oad Applications n Expected for a	
				Base	Year			Percent	1	20 Ye	ar Period	
	Averag	e Daily	Dir		Per	cent		Tandem		(2030	to 2050)	
Description of Location		affic	Dist	K	Tru		ATHWLD	Axles in	Flexible	S	Rigid	SLAB
	2030	2050	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement	
US 380 Proposed Mainlanes From Coit Road to FM 1827												
Segment B - Section #2												
From Exit to Coit Road	76,000	115,900	58 - 42	8.5	5.2	3.1	12,400	40	15,231,000	3	20,516,500	8"
To Future Bloomdale Road West	7 0,000	110,000	00 12	0.0	0.2	0.1	12,400		10,201,000		20,010,000	
To ratare broad read read												
Collin County												
,												
Data for Use in Air & Noise A	nalysis											
		Base Y										
Vehicle Class	% of		% of									
Light Duty		1.8	96	6.9								
Medium Duty	1		1									
Heavy Duty	3	.3	2	.0								
									Single	Axle Lo	of Equivalent 18l oad Applications n Expected for a	
				Base				Percent			ar Period	
5 (1	Averag		Dir		Per		A T   DA /   5	Tandem		_ `	to 2060)	01.45
Description of Location		affic 2060	Dist	K	Tru	cks DHV	ATHWLD	Axles in	Flexible	S N	Rigid	SLAB
LIC 000 Drawaged Mainlanes	2030	2060	%	Factor	ADT	DHV	<u> </u>	ATHWLD	Pavement	IN	Pavement	
US 380 Proposed Mainlanes From Coit Road to FM 1827												
Segment B - Section #2												
From Exit to Coit Road	76,000	133,000	58 - 42	8.5	5.2	3.1	12,500	40	24,882,500	3	33,517,500	8"
To Future Bloomdale Road West		.,					,		, , , , , , ,		, ,	_
Collin County												

Dallas District												y 15, 2022
									Single	Axle L	of Equivalent 18l oad Applications	
					.,				One D		n Expected for a	
	Δ	- D.:I	Б.	Base		1		Percent			ar Period	
Description of Location	Averag Tra	-	Dir Dist	К	_	cent cks	ATHWLD	Tandem Axles in	Flexible	(2030 S	to 2050) Rigid	SLAB
Description of Location	2030	2050	%	Factor	ADT	DHV	AINWLD	ATHWLD	Pavement	o N	Pavement	SLAD
<u>US 380 Proposed Mainlanes</u> From Coit Road to FM 1827												
Segment C												
From McDonald Street To FM 1827	70,600	109,000	58 - 42	8.5	5.4	3.2	12,400	40	14,795,000	3	19,935,000	8"
Collin County												
Data for Use in Air & Noise Ar	nalysis											
Vehicle Class	% of	Base Y	ear % of	DHV								
Light Duty	94			6.8								
Medium Duty	1.		1									
Heavy Duty		.5	2	.1								
									Single	Axle Lo	of Equivalent 18 oad Applications n Expected for a	
				Base				Percent			ar Period	
5	Averag		Dir	14		cent	A T   114 // D	Tandem			to 2060)	01.45
Description of Location	Tra 2030	2060	Dist %	K Factor	Tru ADT	cks DHV	ATHWLD	Axles in ATHWLD	Flexible Pavement	S N	Rigid Pavement	SLAB
<u>US 380 Proposed Mainlanes</u> From Coit Road to FM 1827												
Segment C From McDonald Street To FM 1827	70,600	123,200	58 - 42	8.5	5.4	3.2	12,400	40	23,947,500	3	32,267,000	8"
Collin County												

Dallas District											February	
											of Equivalent 18I pad Applications	
											n Expected for a	
				Base	Year			Percent			ar Period	
	Averag	e Dailv	Dir	2400		cent		Tandem			to 2050)	
Description of Location		affic	Dist	K	Tru	cks	ATHWLD	Axles in	Flexible	S	Rigid	SLAB
'	2030	2050	%	Factor	ADT	DHV		ATHWLD	Pavement	Ν	Pavement	
US 380 Proposed Mainlanes												
From Coit Road to FM 1827												
O B												
Segment D	0.4.000	400.000	50 40	0.5	<b>5</b> 0	0.0	40.500	40	10 150 000	•	00.400.000	0"
From McDonald Street	84,600	130,900	58 - 42	8.5	5.0	3.0	12,500	40	16,456,000	3	22,160,000	8"
To FM 1827												
Collin County												
Commit County												
Data for Use in Air & Nois	e Analysis	•						•				
		Base Y										
Vehicle Class		ADT	% of									
Light Duty		5.0	97									
Medium Duty		.8	1.1									
Heavy Duty	] 3	.2	1	.9					<b>-</b>		(F : 1 : 10)	
											of Equivalent 18	
											oad Applications  Expected for a	
				Base	Year			Percent			ar Period	
	Averag	e Daily	Dir			cent		Tandem			to 2060)	
Description of Location		affic	Dist	K	Tru	cks	ATHWLD	Axles in	Flexible	S	Rigid	SLAB
·	2030	2060	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement	
US 380 Proposed Mainlanes												
From Coit Road to FM 1827												
Segment D	0.4.000	447400	50 40	0.5	<b>5</b> 0	0.0	10.500	00	00 500 500	•	05 700 000	0"
From McDonald Street To FM 1827	84,600	147,100	58 - 42	8.5	5.0	3.0	12,500	30	26,539,500	3	35,739,000	8"
10 FW 1627												
Collin County												
Commit County												

Dallas District												y 15, 2022
									Single	Axle Lo	of Equivalent 18l pad Applications n Expected for a	
				Base	Year			Percent			ar Period	
	Averag	e Daily	Dir		Per	cent		Tandem		(2030	to 2050)	
Description of Location	Tra	ffic	Dist	K	Tru	cks	ATHWLD	Axles in	Flexible	S	Rigid	SLAB
	2030	2050	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement	
US 380 Proposed Mainlanes From Coit Road to FM 1827												
Segment E												
From Future Bloomdale Road To McDonald Street	89,600	137,600	58 - 42	8.5	4.9	2.9	12,500	40	17,007,500	3	22,899,500	8"
Collin County												
Data for Use in Air & Noise Ar	·											
Vehicle Class	% of	Base Y	ear % of	DHV								
Light Duty	95		97									
Medium Duty	1.		1.									
Heavy Duty	3.	.1	1.	.8								
		·							Single One D	Axle Lo	of Equivalent 18l pad Applications n Expected for a	
				Base				Percent			ar Period	
Description of Leading	Averag		Dir	14	Per		A T. DA (1 D	Tandem	EL 201		to 2060)	OLAD
Description of Location	Tra 2030	2060	Dist %	K Factor	Tru ADT	cks DHV	ATHWLD	Axles in ATHWLD	Flexible Pavement	S N	Rigid Pavement	SLAB
<u>US 380 Proposed Mainlanes</u> From Coit Road to FM 1827												
Segment E From Future Bloomdale Road To McDonald Street	89,600	155,800	58 - 42	8.5	4.9	2.9	12,600	30	27,555,000	3	37,100,500	8"
Collin County												

Dallas District												y 15, 202
											of Equivalent 18 oad Applications	
											n Expected for a	
				Base	Year			Percent			ar Period	
	Averaç	e Daily	Dir		Per	cent		Tandem		(2030	to 2050)	
Description of Location		affic	Dist	K		icks	ATHWLD	Axles in	Flexible	S	Rigid	SLAB
	2030	2050	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement	
US 380 Proposed Frontage Roads From Coit Road to FM 1827												
Segment A From Coit Road	30,000	45.900	58 - 42	8.5	3.7	2.8	11,400	30	3,321,500	3	4,057,000	8"
To Future Bloomdale Road							,		-,- ,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Collin County												
Data for Use in Air & Noise	 Analysis											
		Base Y										
Vehicle Class		ADT		DHV								
Light Duty		6.3		7.2								
Medium Duty		.3 2.4		.0 .8	ļ							
Heavy Duty	2	4		.8					Total Nu	ımbar	of Equivalent 18	l <sub>e</sub>
									Single	Axle L	oad Applications n Expected for a	
				Base	Year			Percent			ar Period	
		je Daily	Dir			cent		Tandem			to 2060)	T
Description of Location	2030	affic 2060	Dist %	K Factor	Tru ADT	icks DHV	ATHWLD	Axles in ATHWLD	Flexible Pavement	S N	Rigid Pavement	SLAB
<u>US 380 Proposed Frontage Roads</u> From Coit Road to FM 1827												
Segment A From Coit Road	30,000	53,000	58 - 42	8.5	3.7	2.8	11,500	30	5,448,000	3	6,655,000	8"
To Future Bloomdale Road												
Collin County												

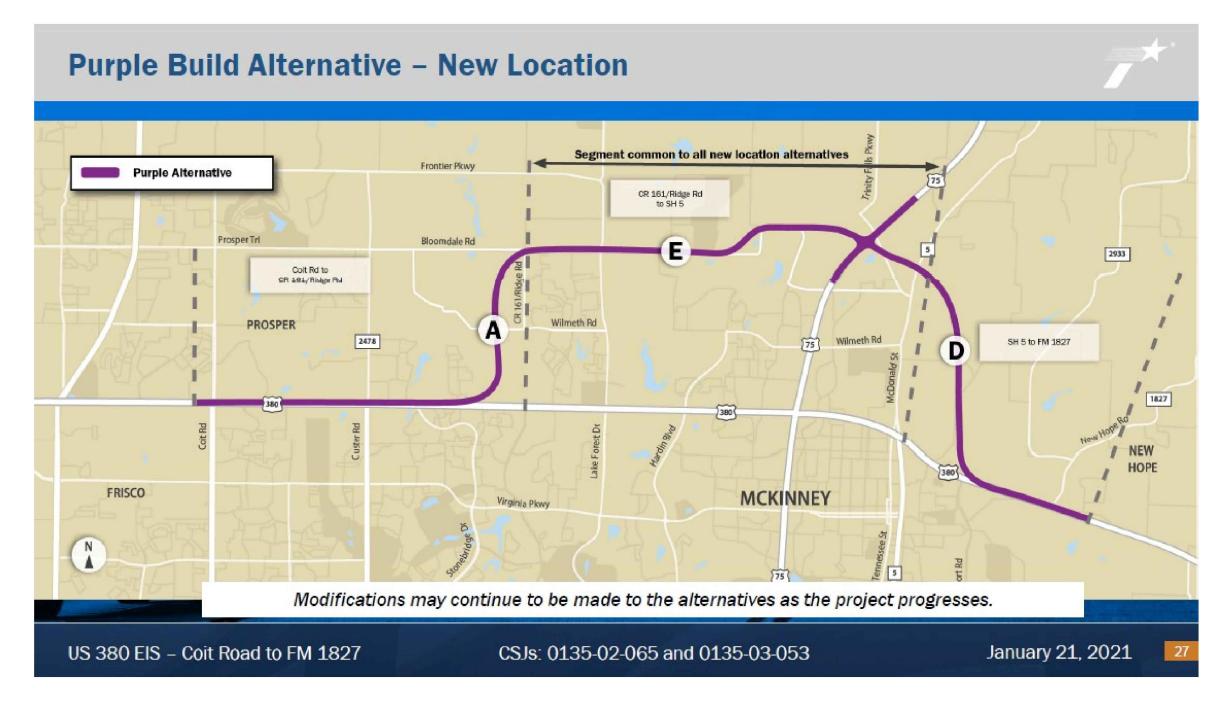
Dallas District												y 15, 2022
									Single	Axle L	of Equivalent 18l oad Applications n Expected for a	k
				Base	Year			Percent			ar Period	
	Averag	e Daily	Dir		Per	cent		Tandem		(2030	to 2050)	
Description of Location	Tra	ıffic	Dist	K	Tru	cks	ATHWLD	Axles in	Flexible	S	Rigid	SLAB
	2030	2050	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement	
US 380 Proposed Frontage Roads From Coit Road to FM 1827												
Segment B												
From Coit Road	21,900	33.700	58 - 42	8.5	3.7	2.8	11,100	40	2,433,000	3	2,972,000	8"
To Future Bloomdale Road		00,700		0.0	0	0	,		_, .00,000		_,0:_,000	
Collin County												
Data for Use in Air & Noise A	nalysis											
Vahiala Olasa	0/ -5	Base Y		DUIV								
Vehicle Class	% <b>of</b>		% of	7.2								
Light Duty Medium Duty	1.			.0								
Heavy Duty	2			.8								
Ticary buty				.0					Total No	ımber	of Equivalent 18I	k
									Single	Axle L	oad Applications  Expected for a	
				Base	Year			Percent		30 Ye	ar Period	
	Averag		Dir		Per	cent		Tandem			to 2060)	
Description of Location		offic	Dist	K	Tru		ATHWLD	Axles in	Flexible	S	Rigid	SLAB
	2030	2060	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement	
<u>US 380 Proposed Frontage Roads</u> From Coit Road to FM 1827												
Segment B												
From Coit Road	21,900	37.900	58 - 42	8.5	3.7	2.8	11,200	40	3,925,500	3	4,795,000	8"
To Future Bloomdale Road	,556	0.,000	55 .2	0.0	0.7	0	,_00		5,525,550		.,. 55,550	
Collin County												

								Total Ni		of Family along 101	
						Total Number of Equivalent 18k Single Axle Load Applications					
										n Expected for a	
			Base	Year			Percent			ar Period	
Averag	e Dailv	Dir	2400		cent		Tandem				
		Dist	K	Tru	cks	ATHWLD	Axles in	Flexible	S	Rigid	SLAB
2030	2050	%	Factor	ADT	DHV		ATHWLD	Pavement	Ν	Pavement	
04 700	00.000	FO 40	۰.	0.7	0.0	11 100	40	0.000.000	_	0.000 500	0"
21,700	32,300	58 - 42	8.5	3.7	2.8	11,100	40	2,363,000	3	2,886,500	8"
nalysis											
			-								
2.	.4	1.	.8					Tatal Ni		-f F	1-
			Base	Year			Percent				
Averag	e Daily	Dir			cent		Tandem				
		Dist	K	Tru	cks	ATHWLD	Axles in	Flexible	S	Rigid	SLAB
2030	2060	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement	
04 700	07.000	50 40	0.5	0.7	0.0	44.000	40	0.070.000	•	4 700 500	0"
21,700	37,300	58 - 42	8.5	3.7	2.8	11,200	40	3,873,000	3	4,730,500	8"
	21,700  21,700  nalysis  % of  1 2  Averag  Tra 2030	21,700 32,300  nalysis  Base Y % of ADT  96.3  1.3  2.4  Average Daily Traffic  2030 2060	Traffic         Dist           2030         2050         %           21,700         32,300         58 - 42           Base Year           % of ADT         % of           96.3         97           1.3         1           2.4         1   Average Daily Traffic Dist 2030 2060 %	Average Daily   Dir   Dist   K	Traffic   Dist   K   Factor   ADT	Average Daily   Dir   Traffic   Dist   K   Factor   ADT   DHV	Average Daily   Dir   Dist   K   Trucks   ATHWLD	Average Daily   Dist   K   Trucks   ATHWLD   Axles in ATHWLD	Average Daily   Dir   Dist   K   Factor   ADT   DHV   ATHWLD   Tandem   Axles in ATHWLD   AXLES in AXLES in AXLES in A	Average Daily   Dist   K   Trucks   ATHWLD   Axles in   ATHWLD   ATHWLD   AXles in   ATHWLD   AXles in   ATHWLD   ATHWLD   AXles in   ATHWLD   ATHWLD   AXles in   ATHWLD   ATHWLD   AXLes in   AX	Average Daily   Dir   Traffic   Dist   K   Trucks   ATHWLD   ATH

Dallas District											February	
									Single	Axle L	of Equivalent 18l cad Applications n Expected for a	
				Base	Year			Percent			ar Period	
	Average	e Dailv	Dir	Bacc		cent		Tandem			to 2050)	
Description of Location	Tra	-	Dist	K	Tru	cks	ATHWLD	Axles in	Flexible	S	Rigid	SLAB
'	2030	2050	%	Factor	ADT	DHV		ATHWLD	Pavement	Ν	Pavement	
<u>US 380 Proposed Frontage Roads</u> From Coit Road to FM 1827												
Segment D (Section #1)												
From McDonald Street	6,900	10.500	58 - 42	8.5	5.8	4.4	10,800	40	1,182,000	3	1,450,500	8"
To Entrance From Airport Drive	0,000	. 0,000		0.0	0.0		. 0,000		.,.0=,000	Ū	.,,	
·												
Collin County												
Data for Use in Air & Noise Ar	nalysis											
	-	Base Y	ear									
Vehicle Class	% of	ADT	% of	DHV								
Light Duty	94		95									
Medium Duty	2.		1.6									
Heavy Duty	3.	7	2	.8								
									Single One D	Axle Lo	of Equivalent 18l pad Applications n Expected for a	
				Base				Percent			ar Period	
Description of Leading	Average		Dir	14	Per		A T. DA (1 D	Tandem	EL 201		to 2060)	OL AD
Description of Location	Tra 2030	2060	Dist %	K Factor	Tru ADT	cks DHV	ATHWLD	Axles in ATHWLD	Flexible Pavement	S N	Rigid Pavement	SLAB
<u>US 380 Proposed Frontage Roads</u> From Coit Road to FM 1827												
Segment D (Section #1) From McDonald Street To Entrance From Airport Drive	6,900	12,000	58 - 42	8.5	5.8	4.4	10,800	40	1,926,000	3	2,363,000	8"
Collin County												

Dallas District												y 15, 2022	
									Single	Axle Lo	of Equivalent 18l pad Applications		
			l	Paca	ise Year			Percent	One Direction Expected for a 20 Year Period				
	Average Daily		Dir		Percent		ł	Tandem	(2030 to 2050)				
Description of Location	Traffic		Dist	К	Trucks		ATHWLD	Axles in	Flexible S Rigid			SLAB	
	2030	2050	%	Factor	ADT	DHV	1	ATHWLD	Pavement	N	Pavement		
<u>US 380 Proposed Frontage Roads</u> From Coit Road to FM 1827													
Segment D (Section #2)													
From Entrance From Airport Drive To FM 1827	25,100	37,600	58 - 42	8.5	3.6	2.7	11,200	40	2,671,500	3	3,262,000	8"	
Collin County													
Data for Use in Air & Noise A	nalysis	V	·										
Vehicle Class	Base Y		ear % of DHV										
Light Duty	96.4		97.3										
Medium Duty	1.3		1.0										
Heavy Duty	2.3 1.7												
									Single One D	Axle Lo	of Equivalent 18l pad Applications n Expected for a		
	T -			Base	Year			Percent	30 Year Period				
Description of Leading		Average Daily Dir Traffic Dist		14	Percent Trucks		ATUNAU D	Tandem	FI. 201.	(2030 to 2060) S Rigid		CLAD	
Description of Location	2030	2060	Dist %	K Factor	ADT	CKS DHV	ATHWLD	Axles in ATHWLD	Flexible Pavement	S N	Rigid Pavement	SLAB	
<u>US 380 Proposed Frontage Roads</u> From Coit Road to FM 1827													
Segment D (Section #2) From Entrance From Airport Drive To FM 1827	25,100	43,000	58 - 42	8.5	3.6	2.7	11,300	30	4,352,500	3	5,315,000	8"	
Collin County													

								Single	Axle Lo	of Equivalent 18 bad Applications a Expected for a		
		Base Year					Percent	20 Year Period (2030 to 2050)				
Average Daily		Dir		Percent			Tandem					
Traffic		Dist	K	Trucks		ATHWLD	Axles in	Flexible	S Rigid		SLAB	
2030	2050	%	Factor	ADT	DHV		ATHWLD	Pavement	N	Pavement		
30,700	47,500	58 - 42	8.5	3.6	2.7	11,400	30	3,332,000	3	4,068,500	8"	
Analysis	D	·										
		97.3										
1.	1.3		1.0									
2.	2.3											
								Single One D	Axle Lo	oad Applications  Expected for a		
<u> </u>												
											0	
	2060	Dist %	K Factor	_	cks DHV	ATHWLD	Axies in ATHWLD	Flexible Pavement	S N	0	SLAB	
30,700	53,700	58 - 42	8.5	3.6	2.7	11,500	30	5,394,500	3	6,587,000	8"	
	30,700  Analysis  96 1 2  Averag Tra 2030	Traffic   2030   2050	Traffic   Dist	Average Daily   Dir   Dist   K   Factor	Average Daily   Dir   Dist   K   Tru	Average Daily   Dir   Dist   K   Trucks	Average Daily   Dir   Traffic   Dist   K   Factor   ADT   DHV	Average Daily   Dir   Traffic   Dist   K   Factor   ADT   DHV   ATHWLD   ATHWLD   AXIes in ATHWLD	Base Year	Base Year	Average Daily   Dist   K   Trucks   ATHWLD   Traffic   Dist   K   Factor   ADT   DHV   Traffic   Dist   K   Factor   ADT   DHV   ATHWLD   ATHWLD   Traffic   Dist   K   Factor   ADT   DHV   ATHWLD   ATHWLD   Traffic   Dist   K   Trucks   ATHWLD   ATHWLD   Traffic   Dist   K   Trucks   ATHWLD   ATHW	



NOT TO SCALE

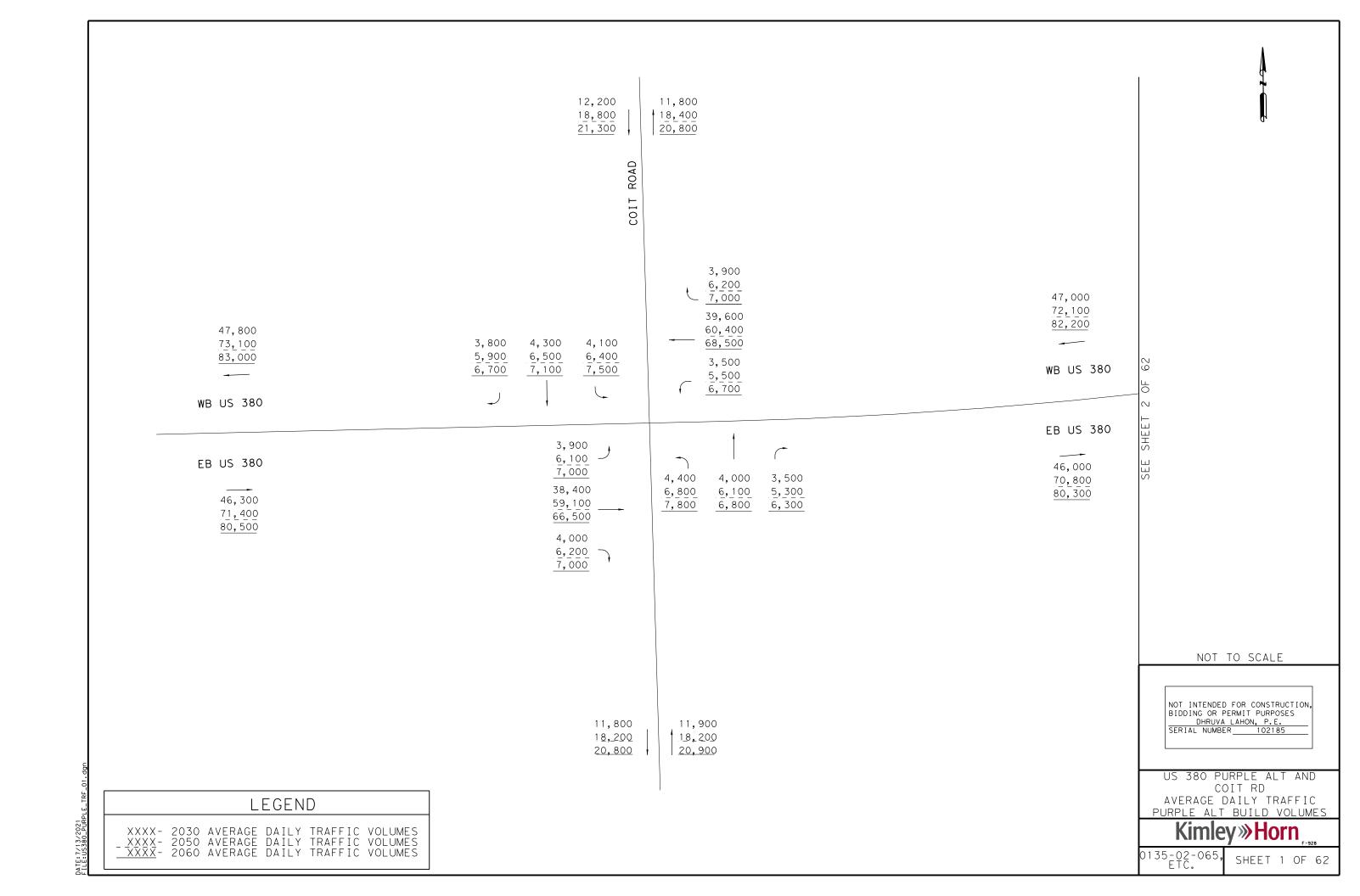
NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185

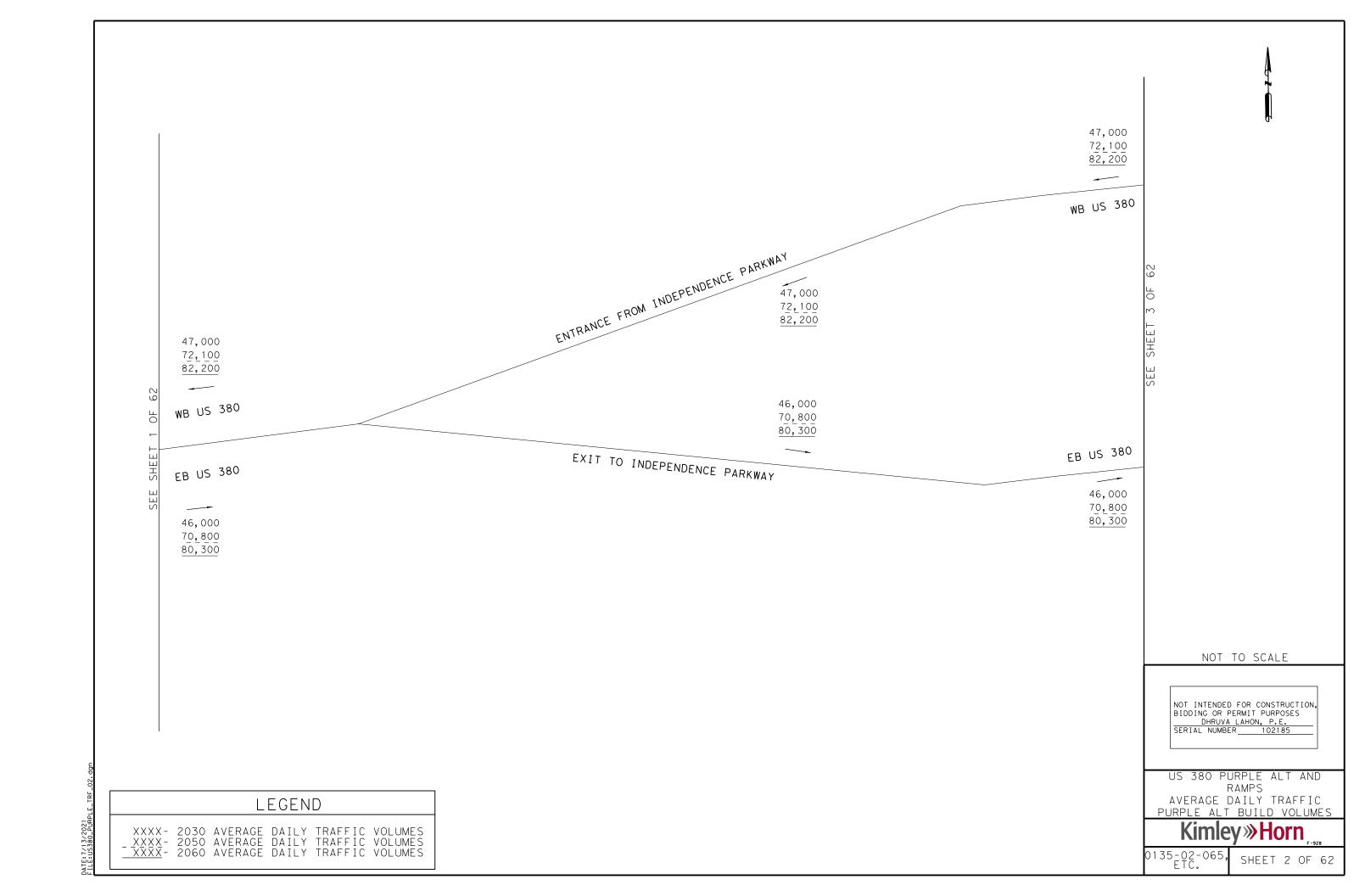
US 380 PURPLE ALT KEYMAP

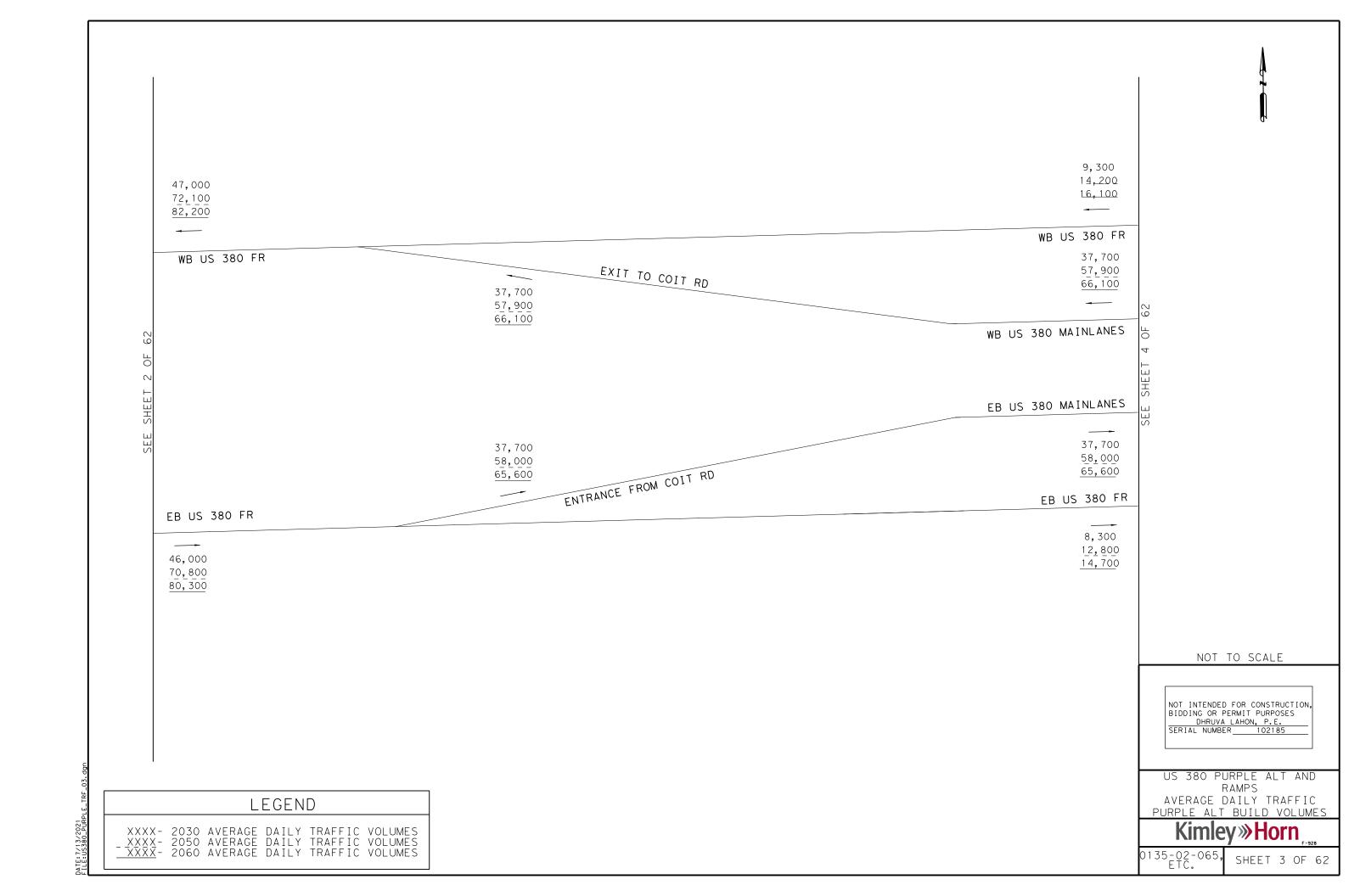


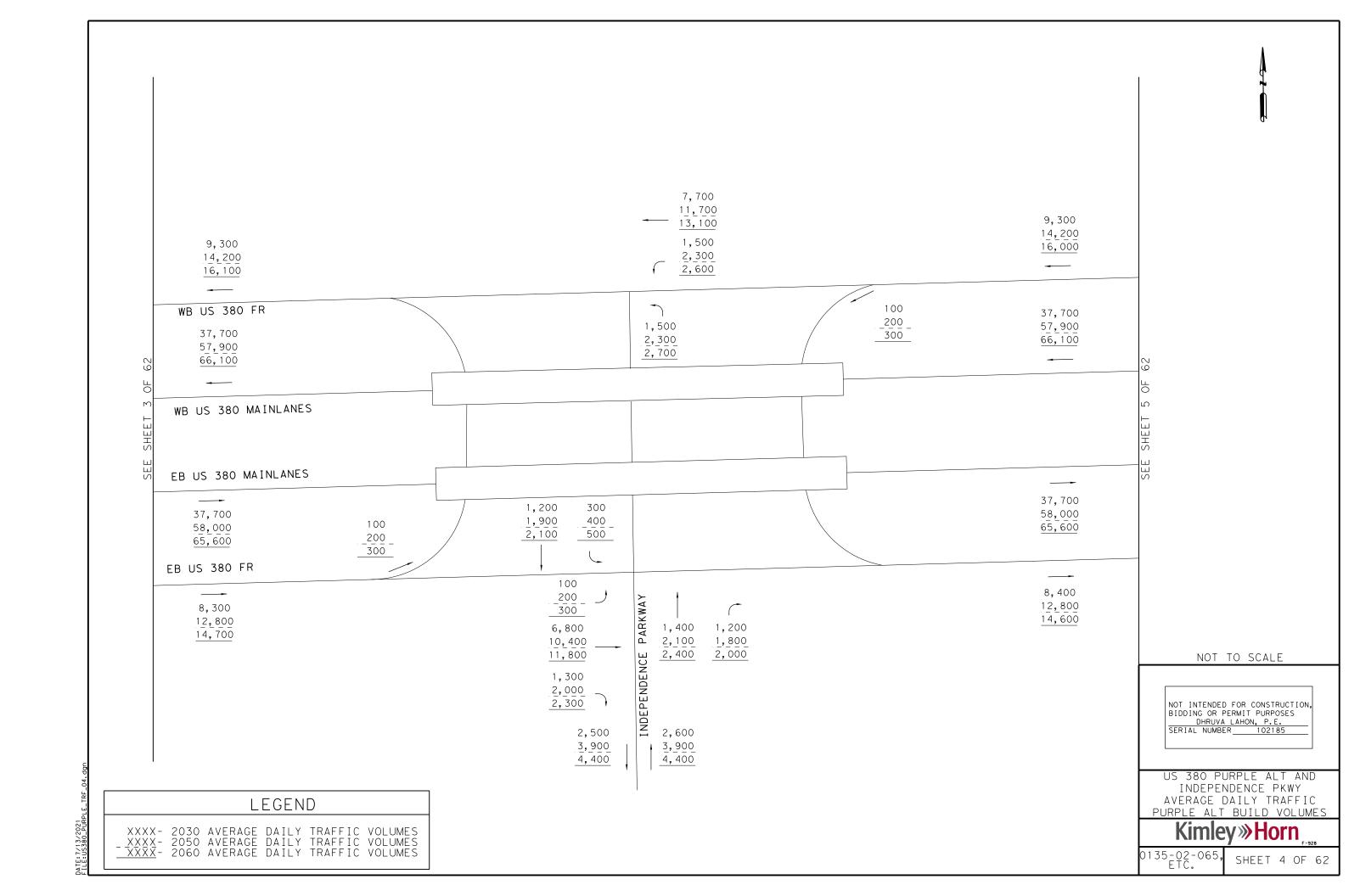
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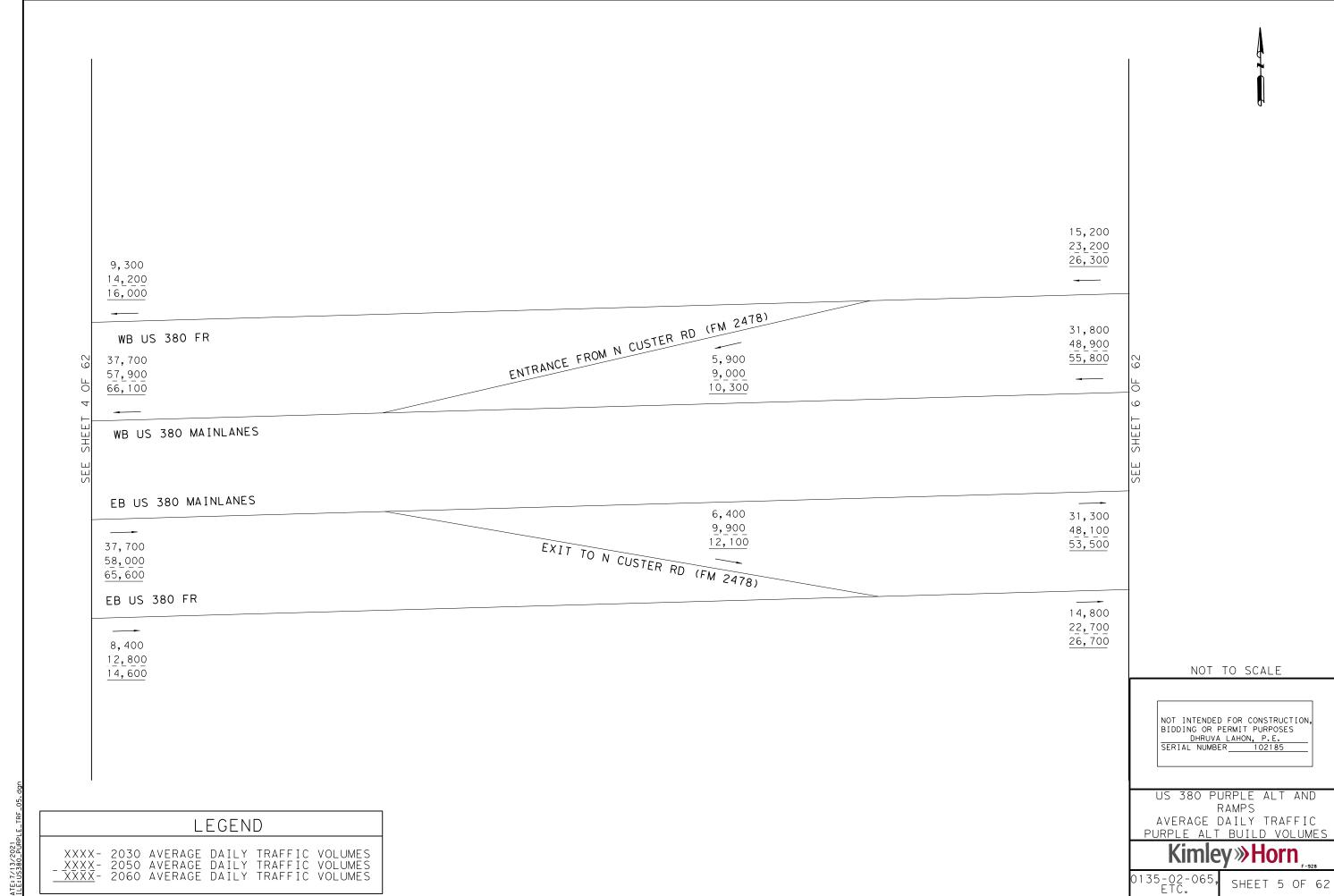
SHEET 1 OF 1

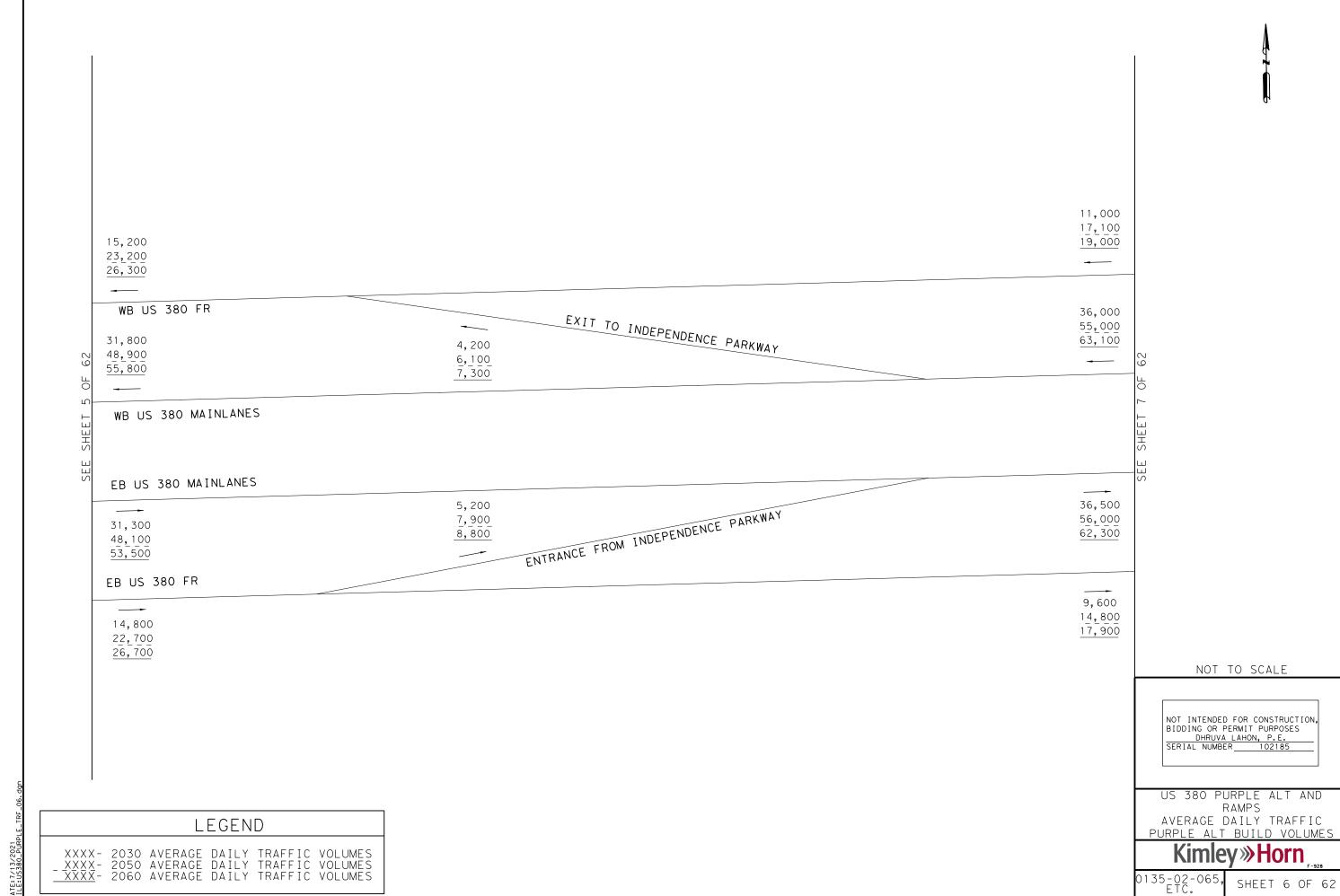


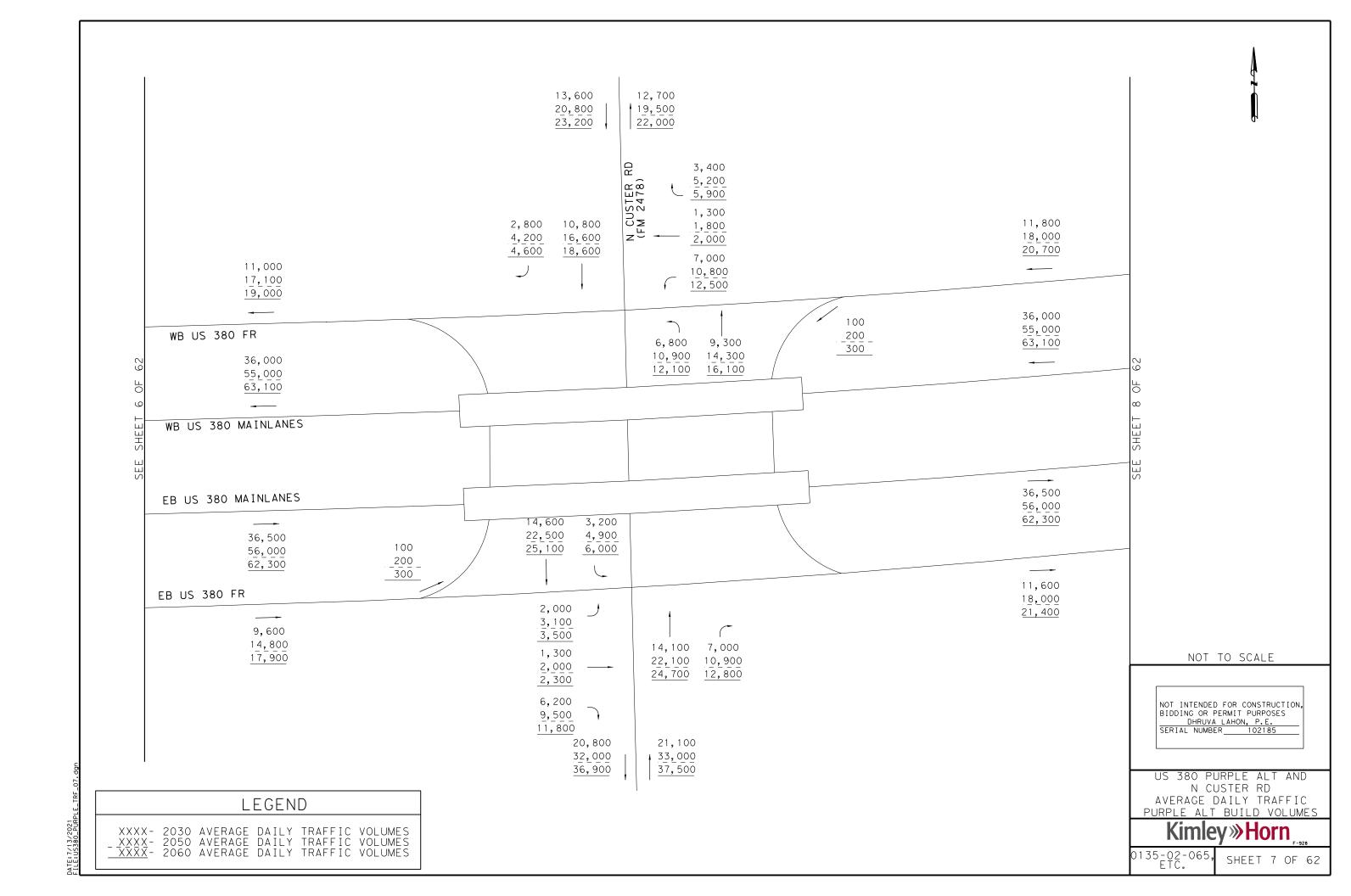


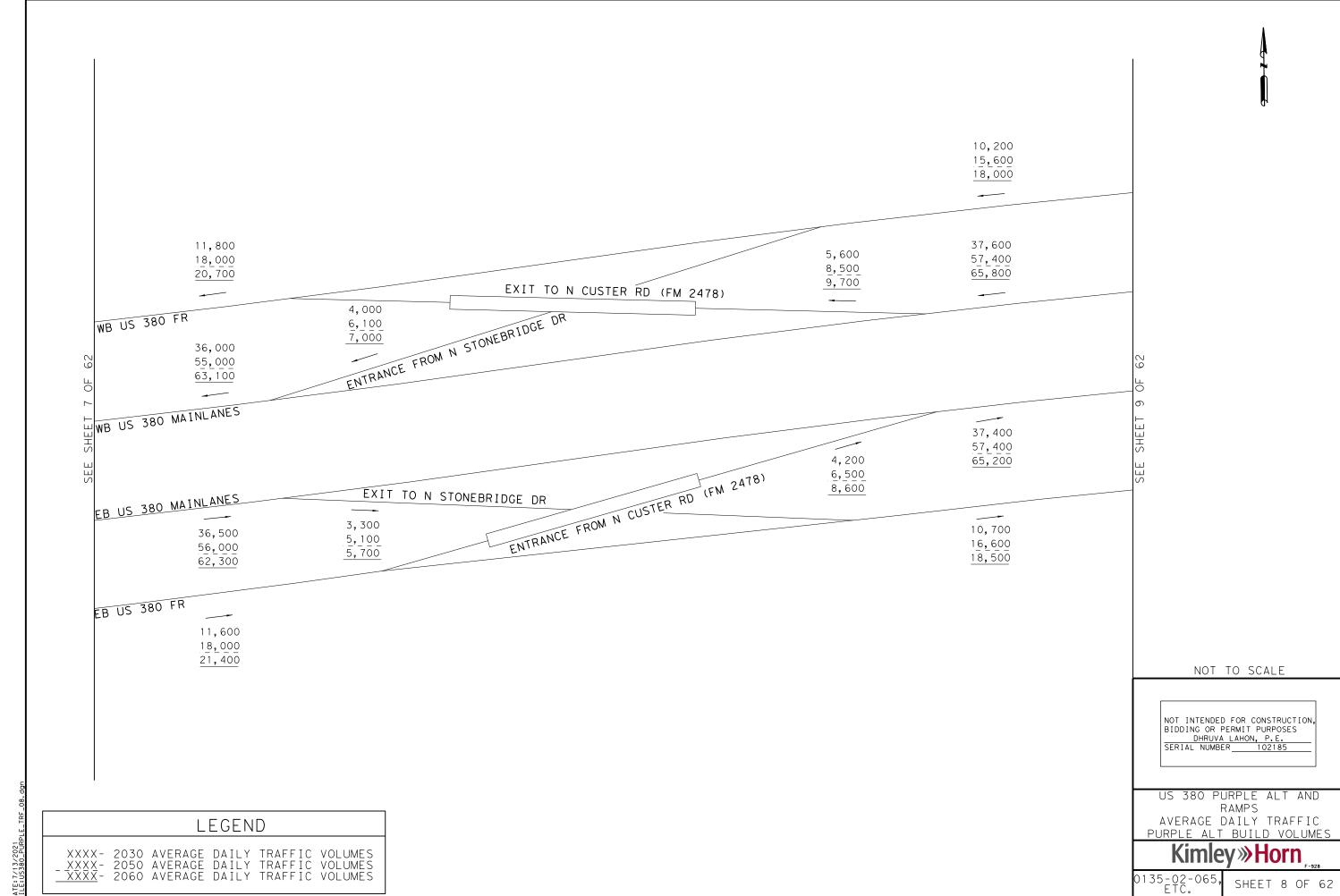


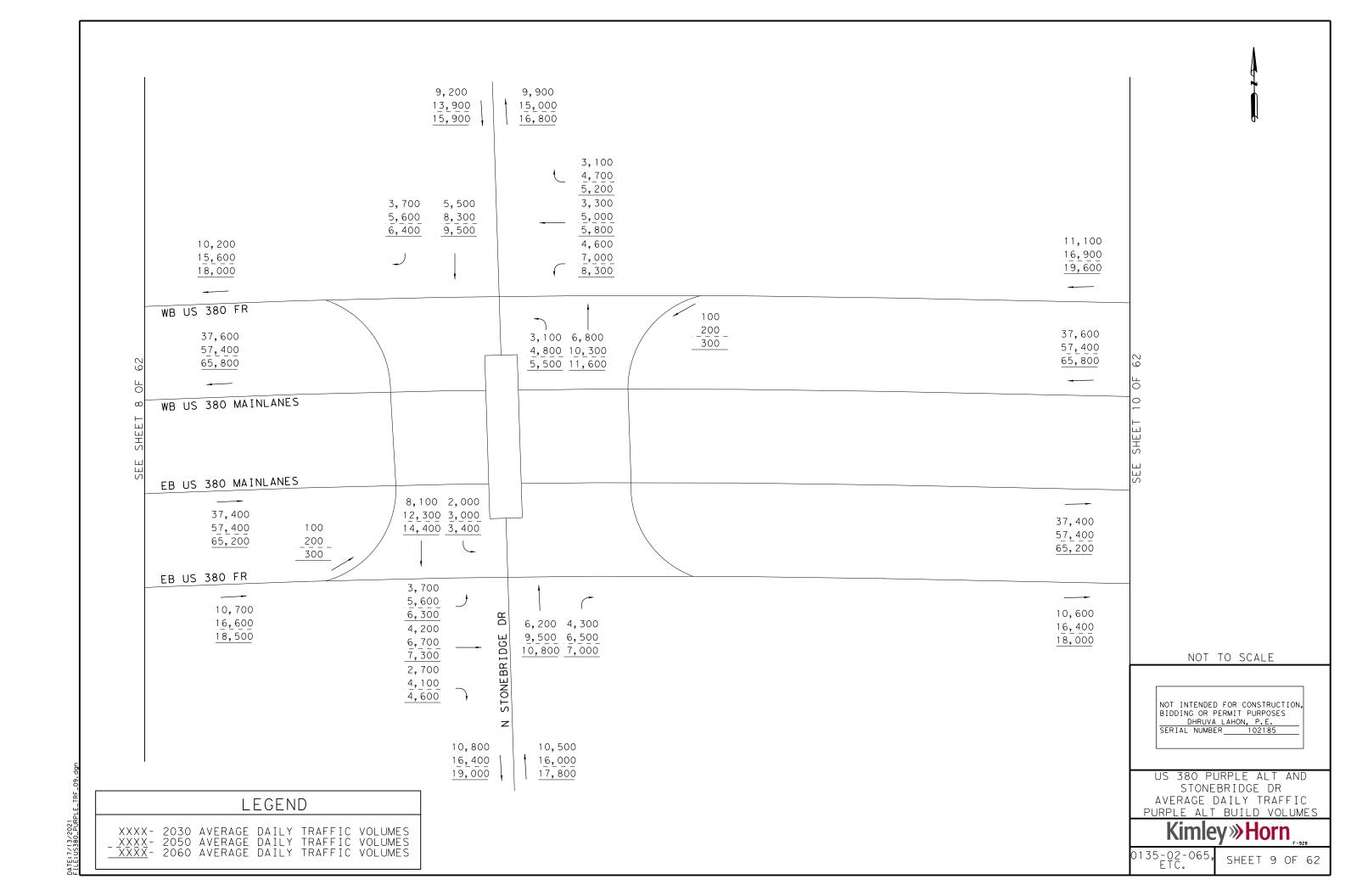


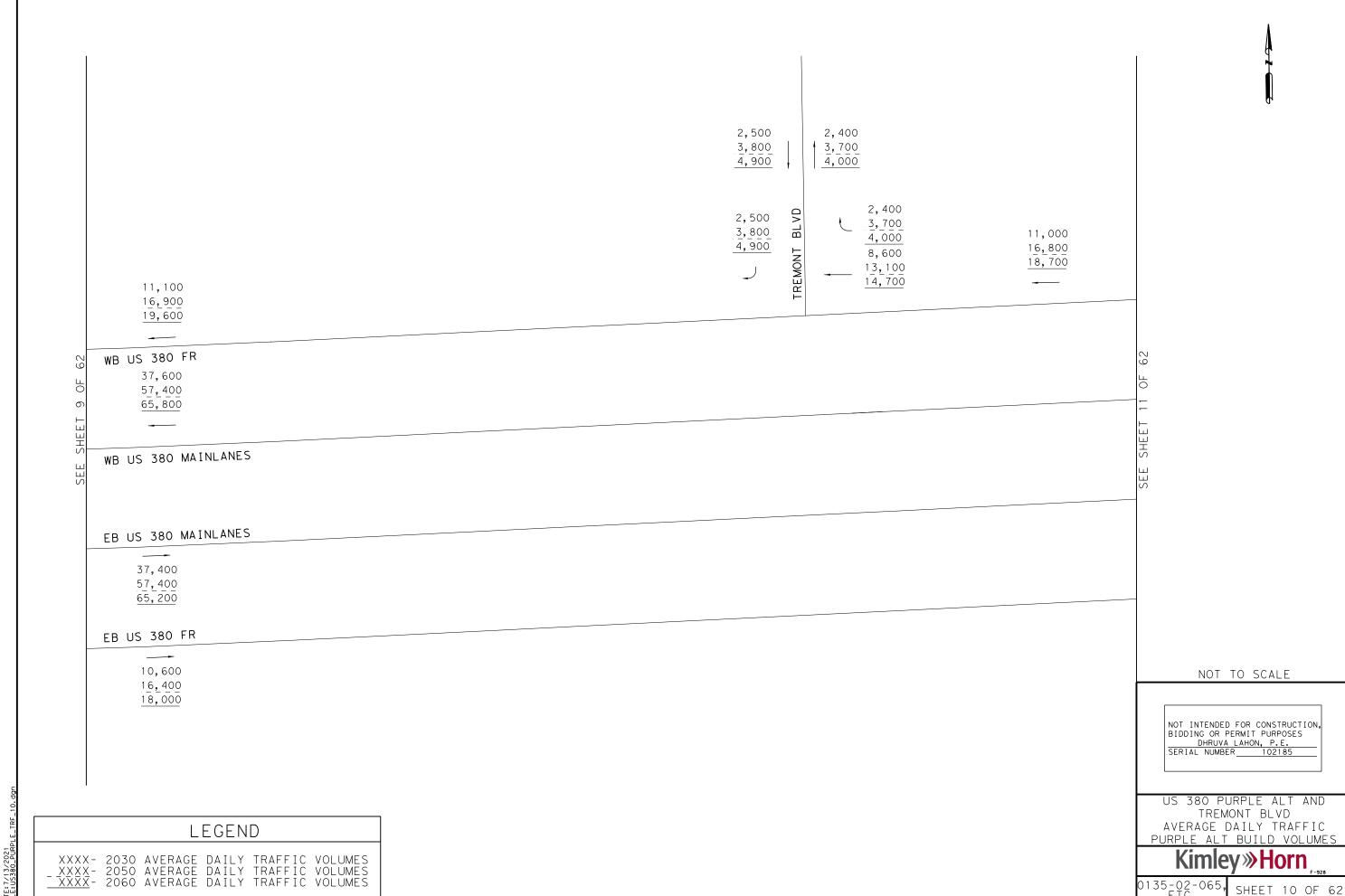




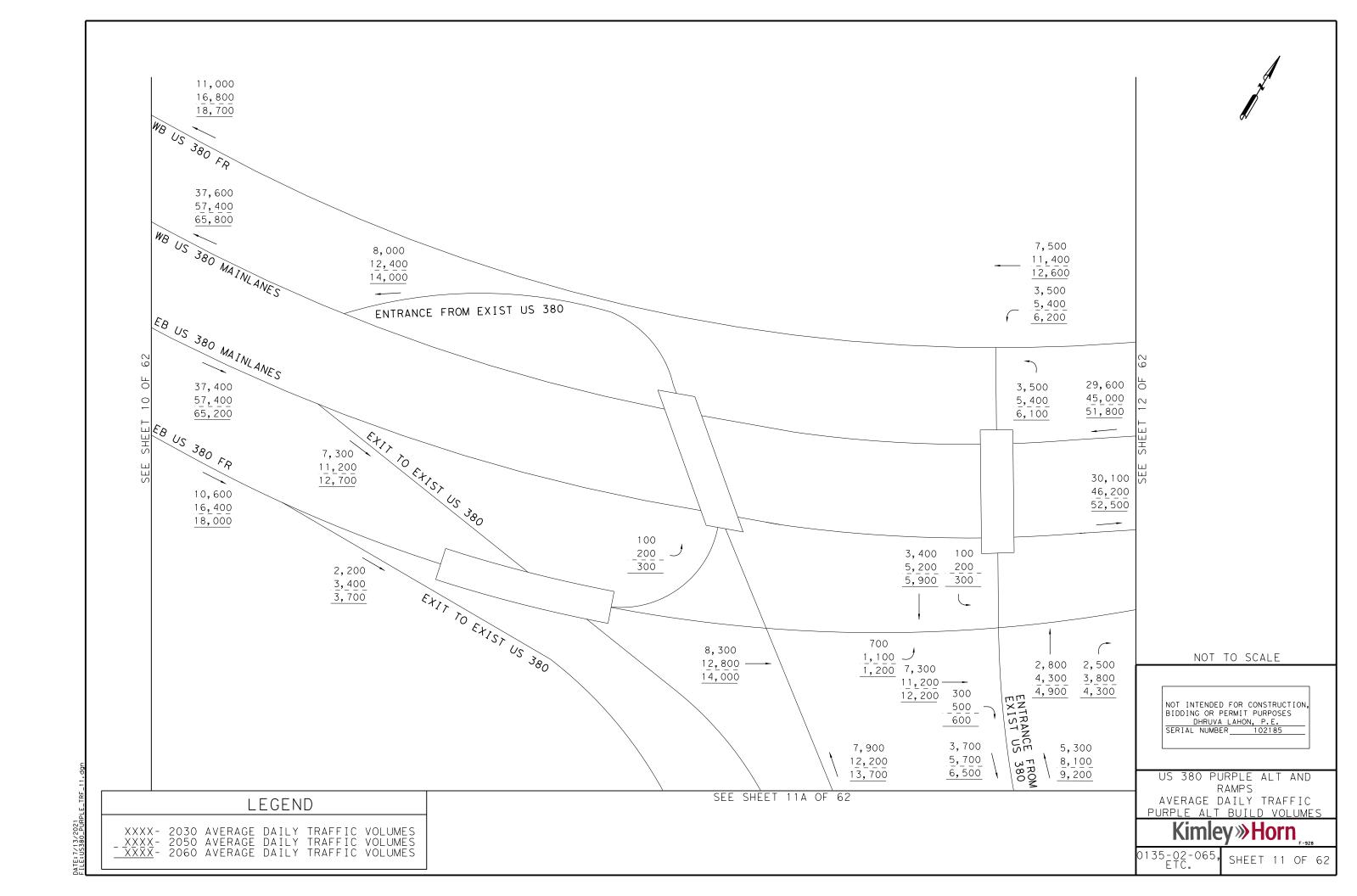


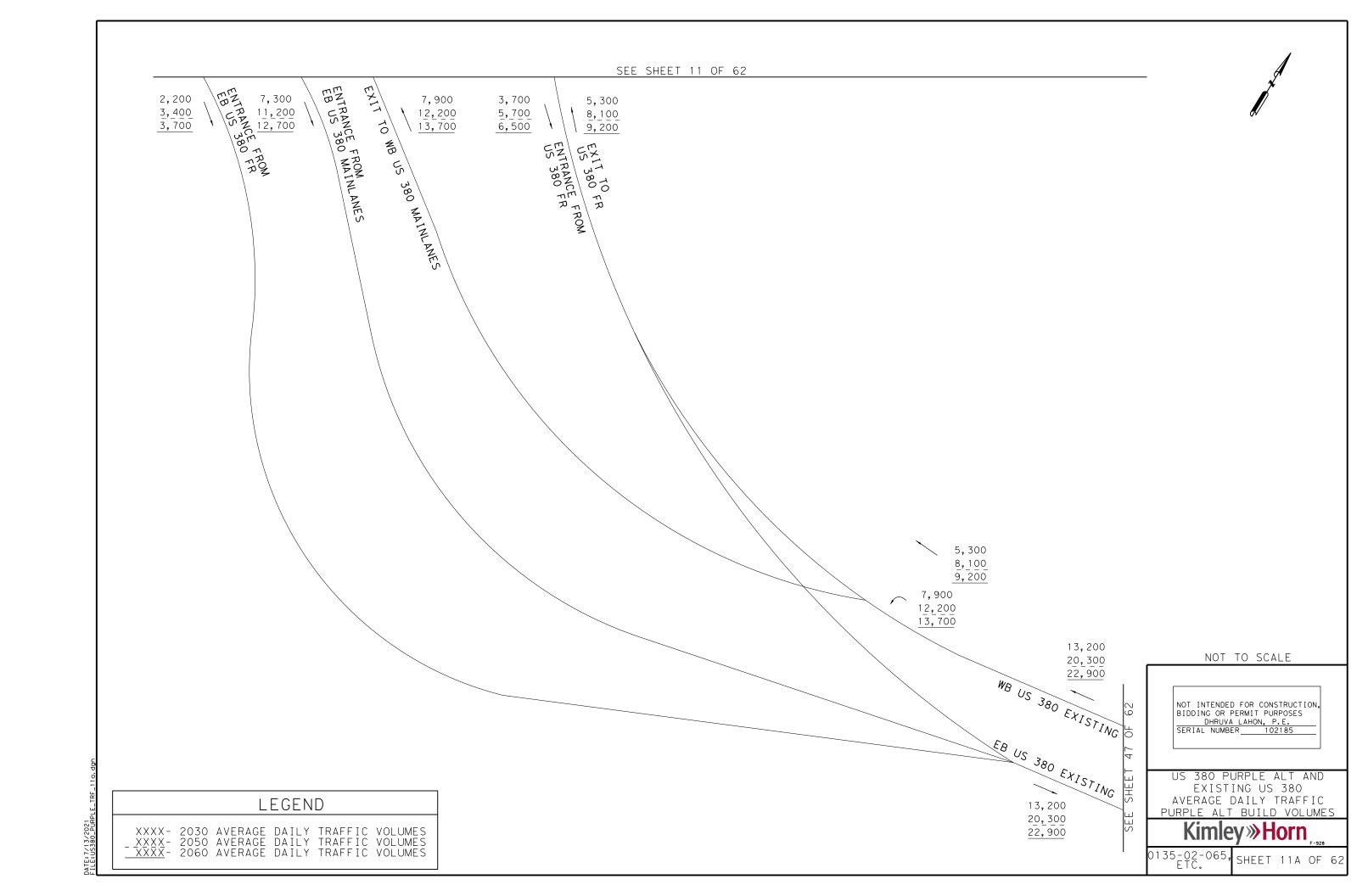


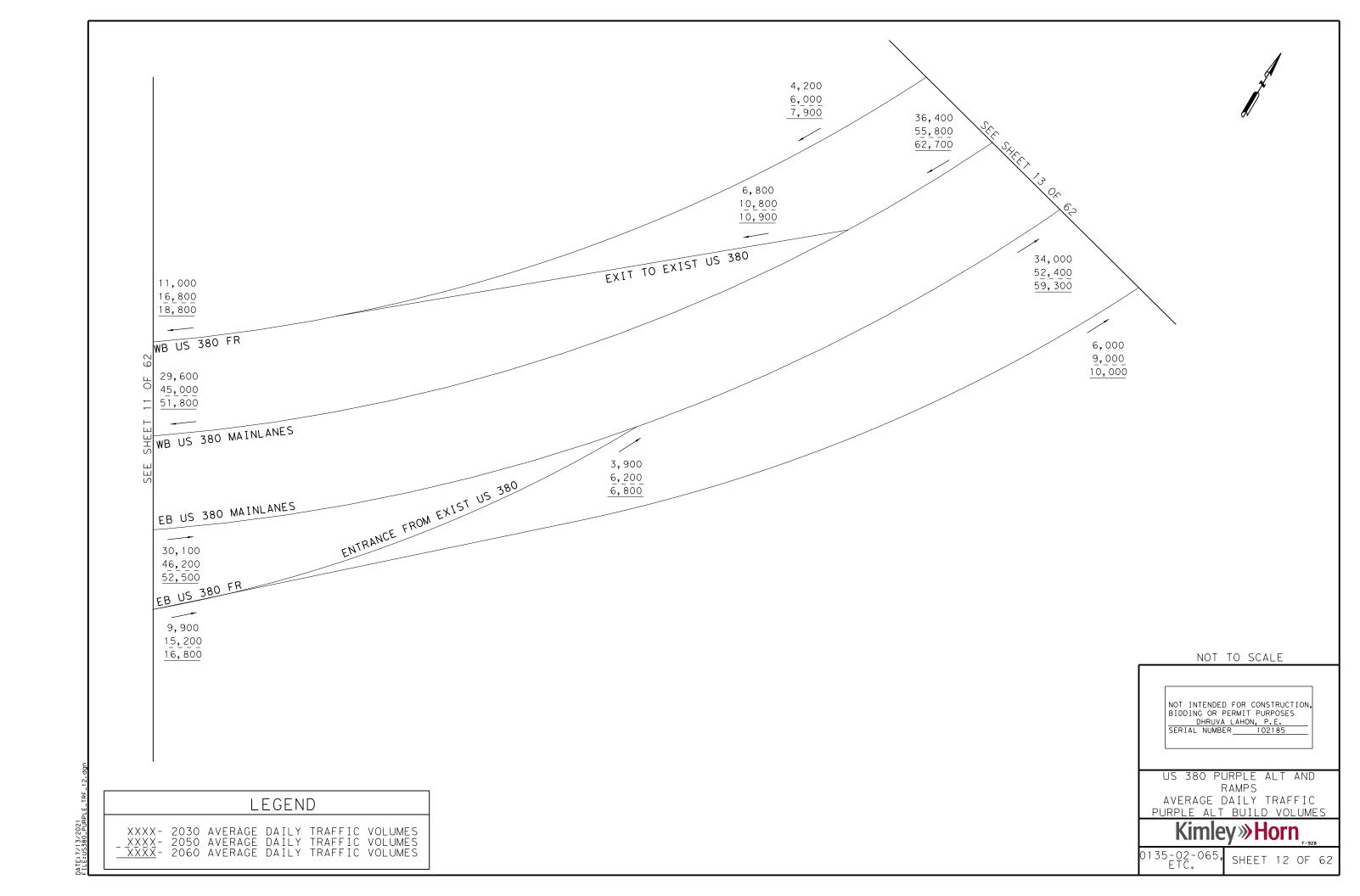


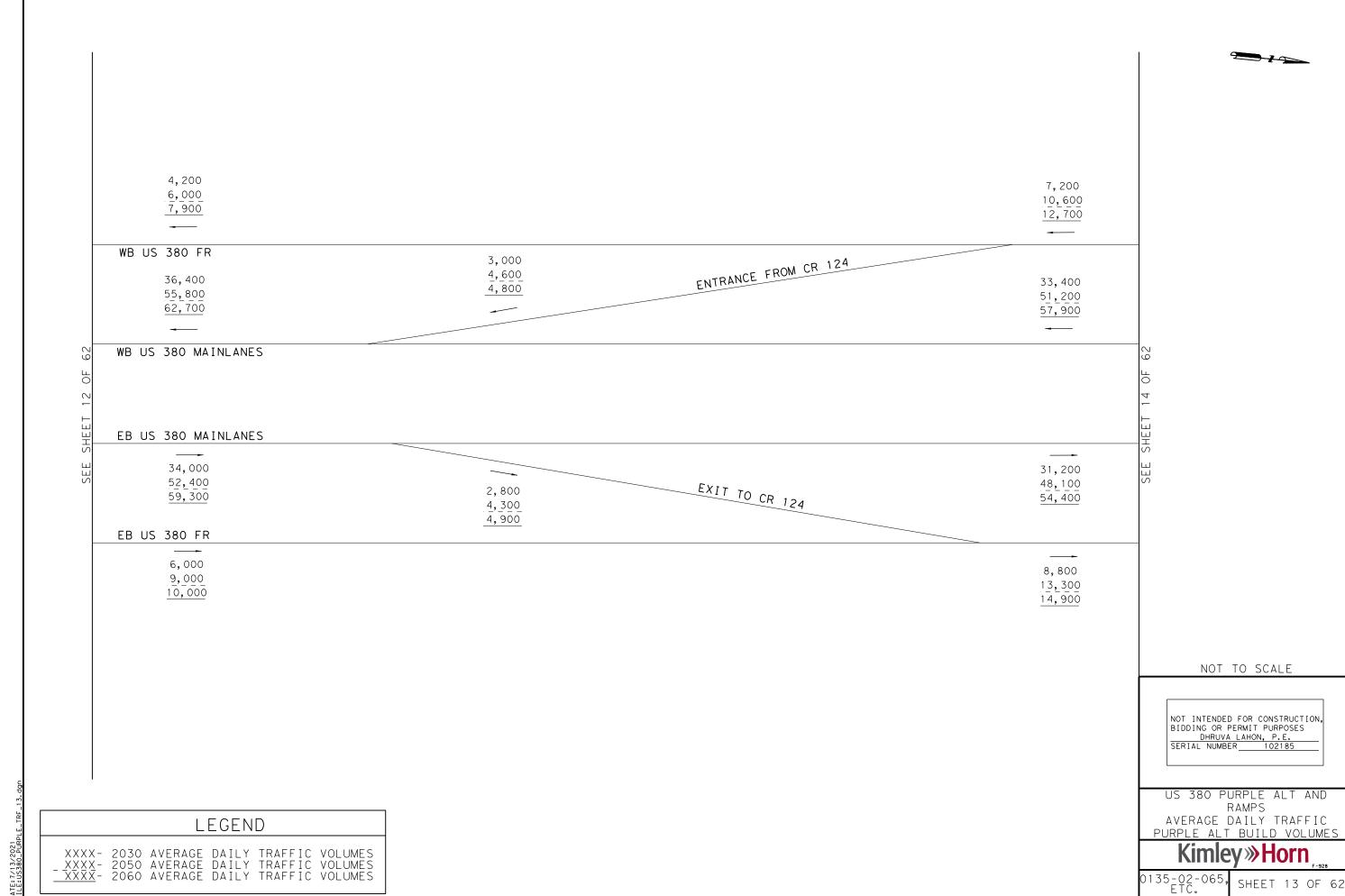


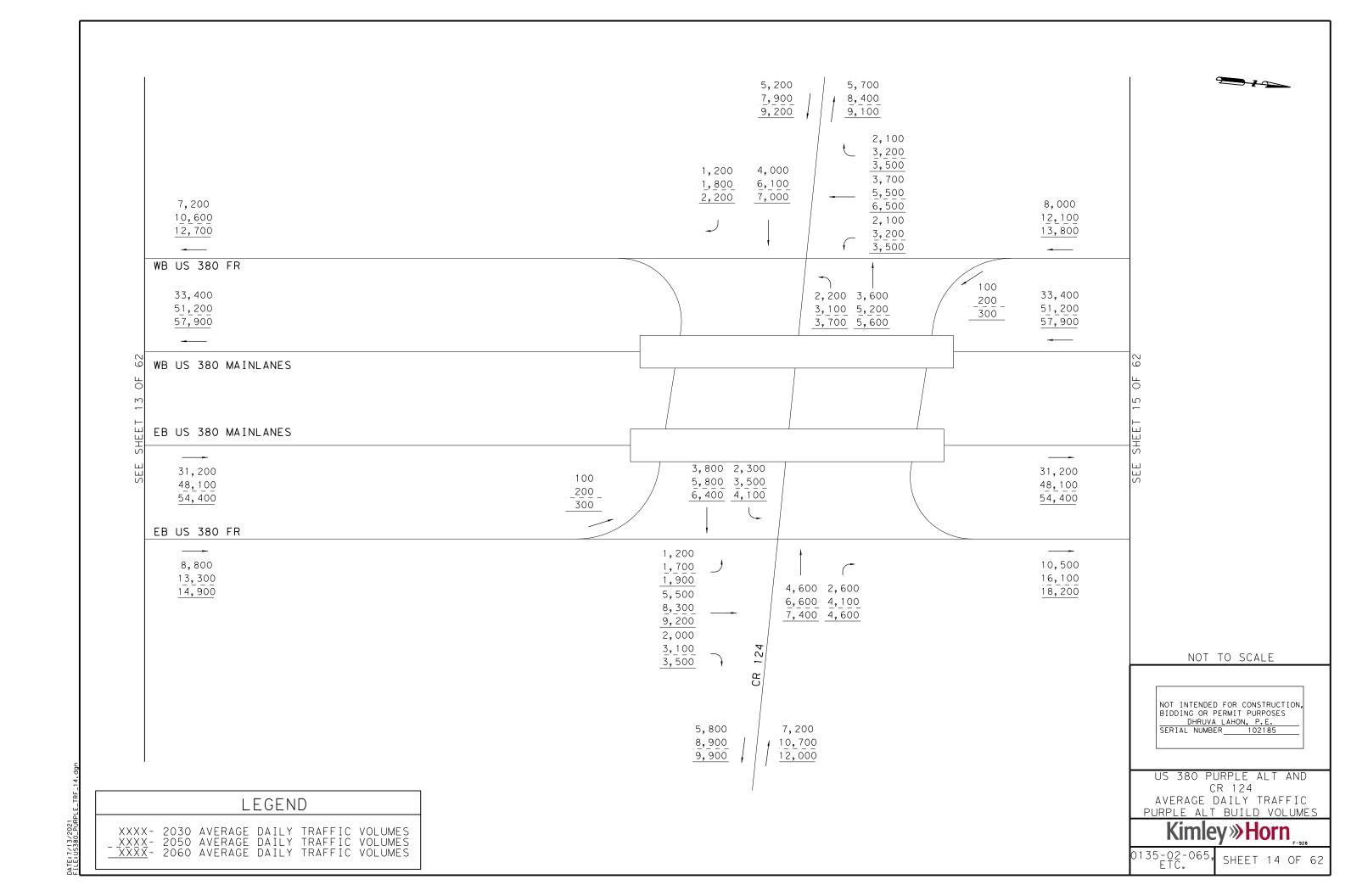
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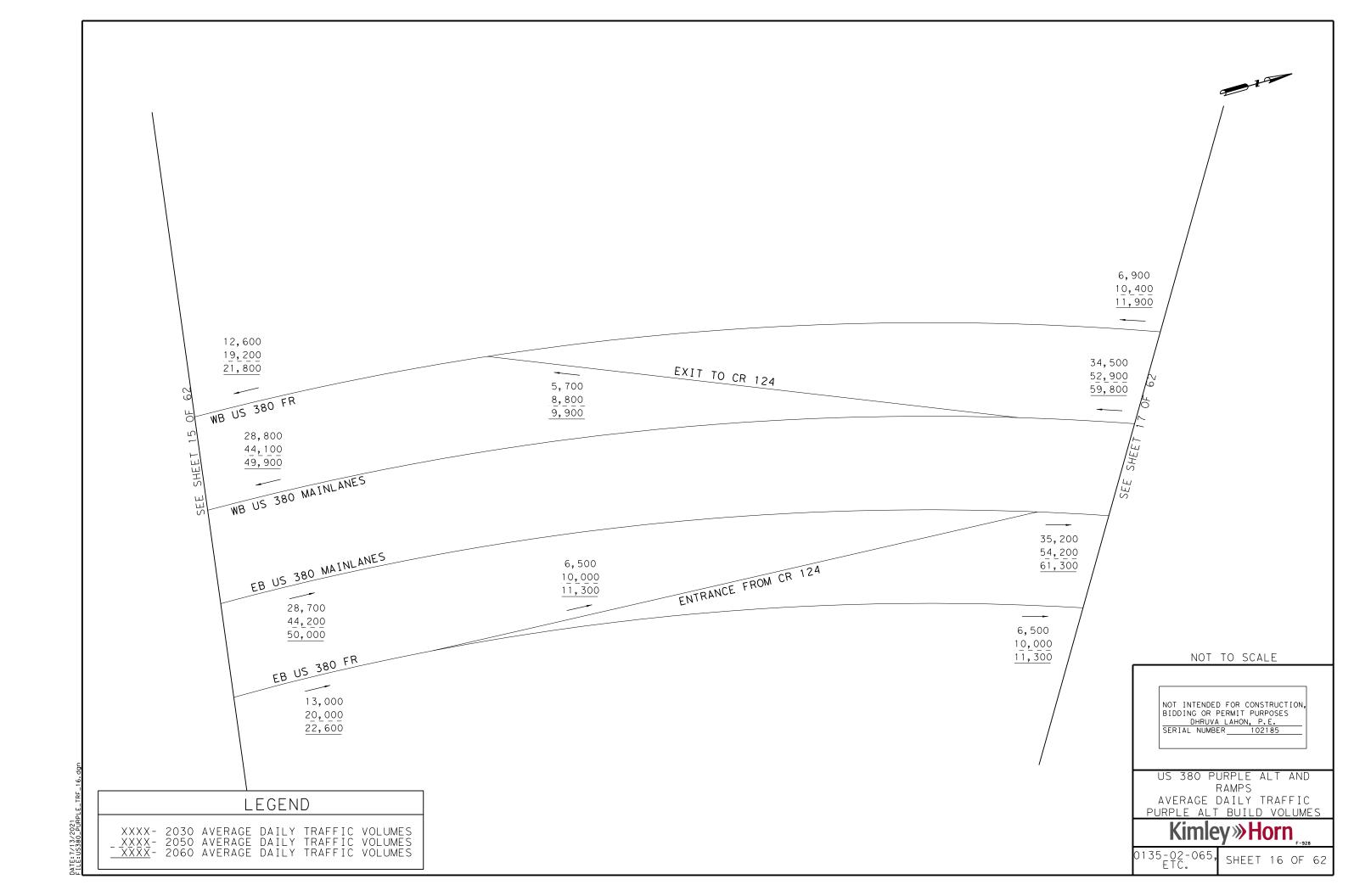


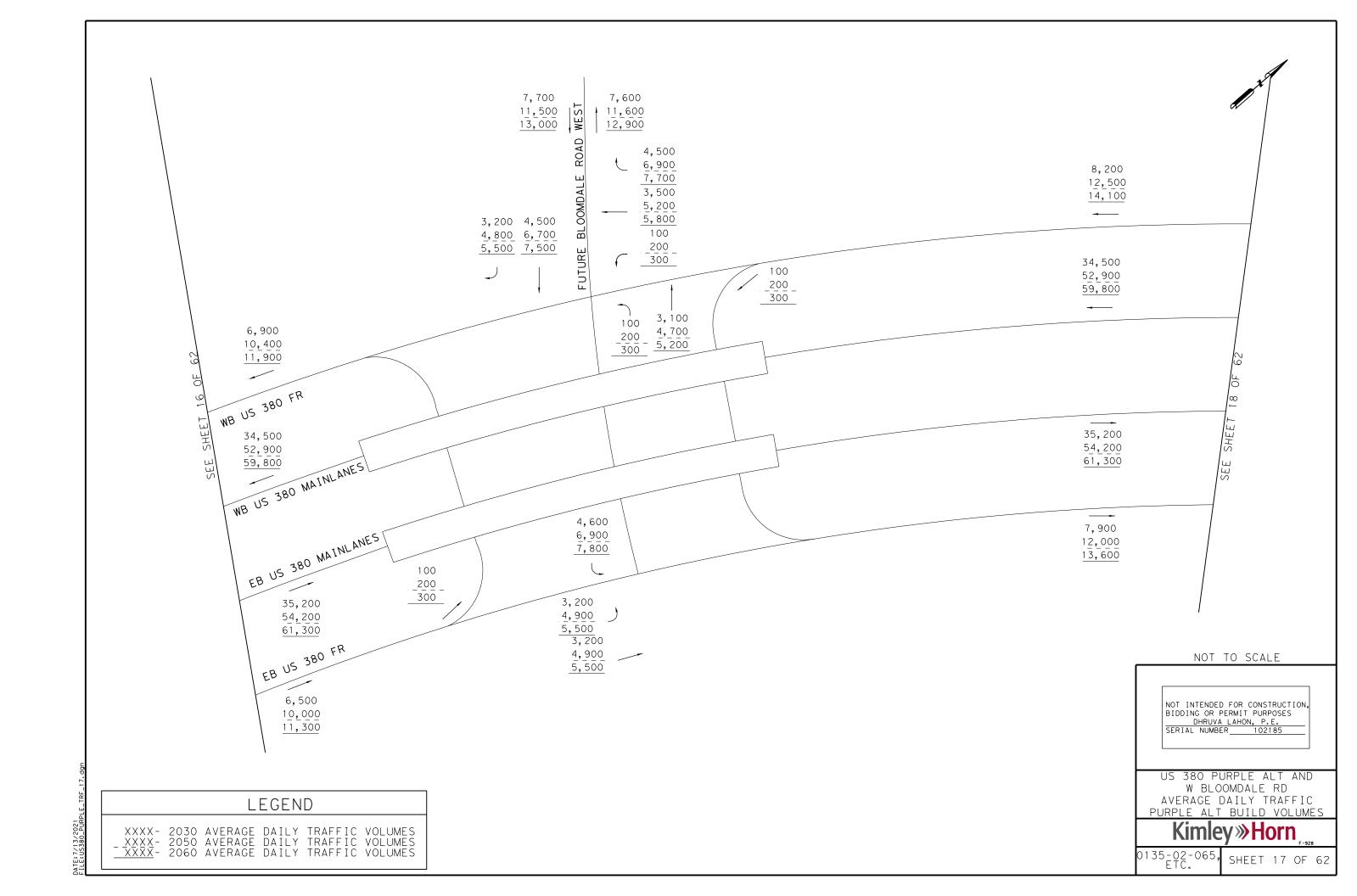


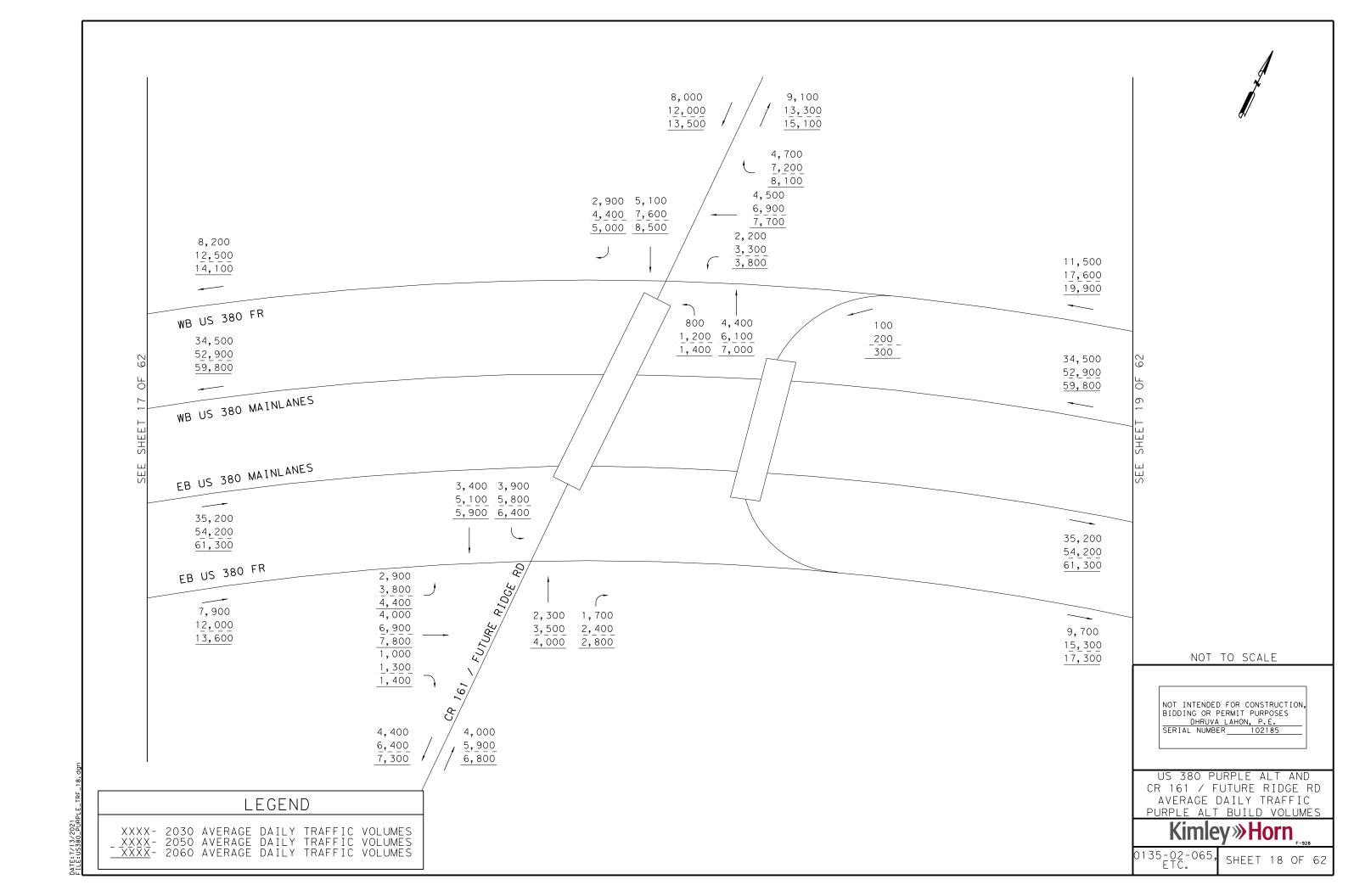


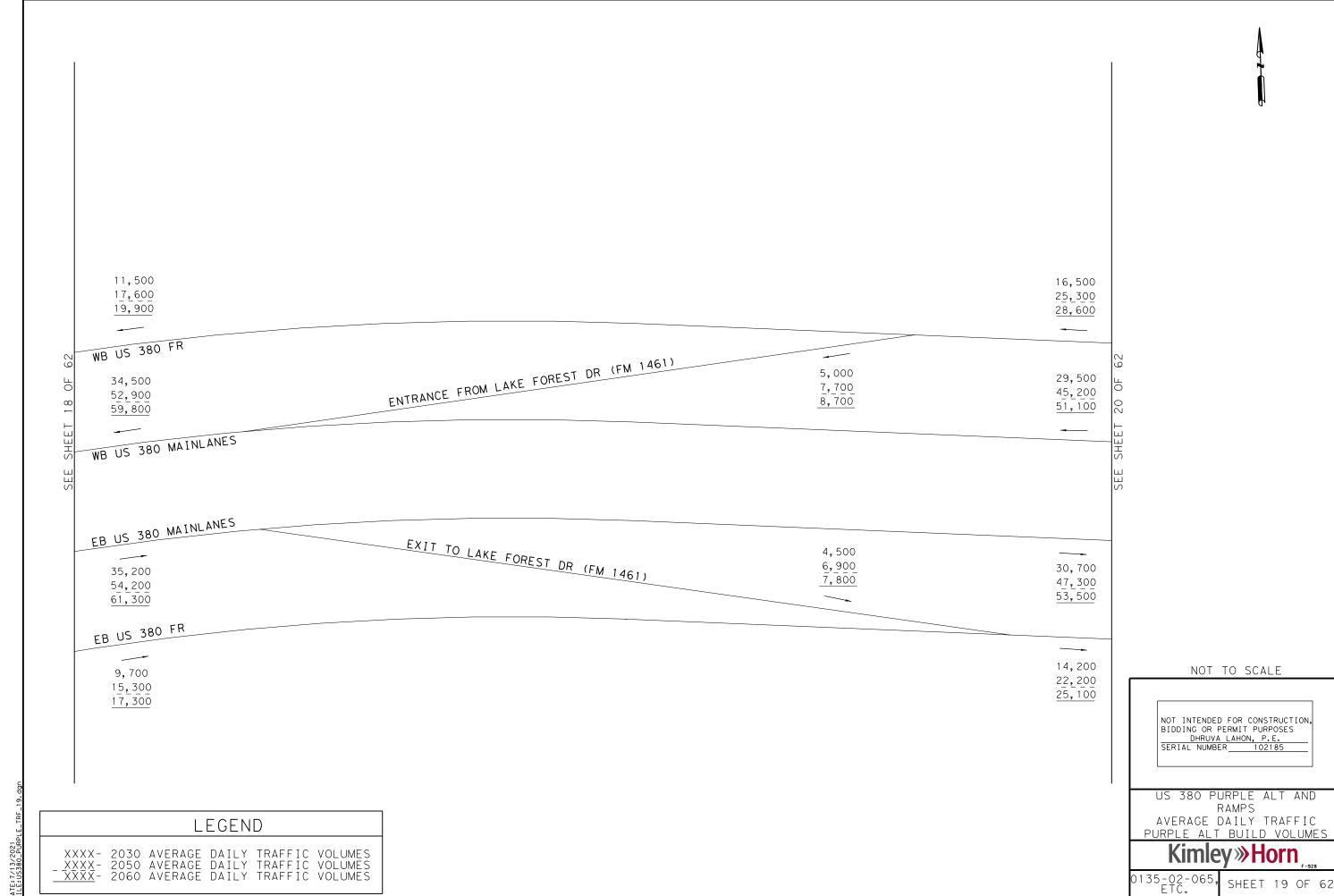


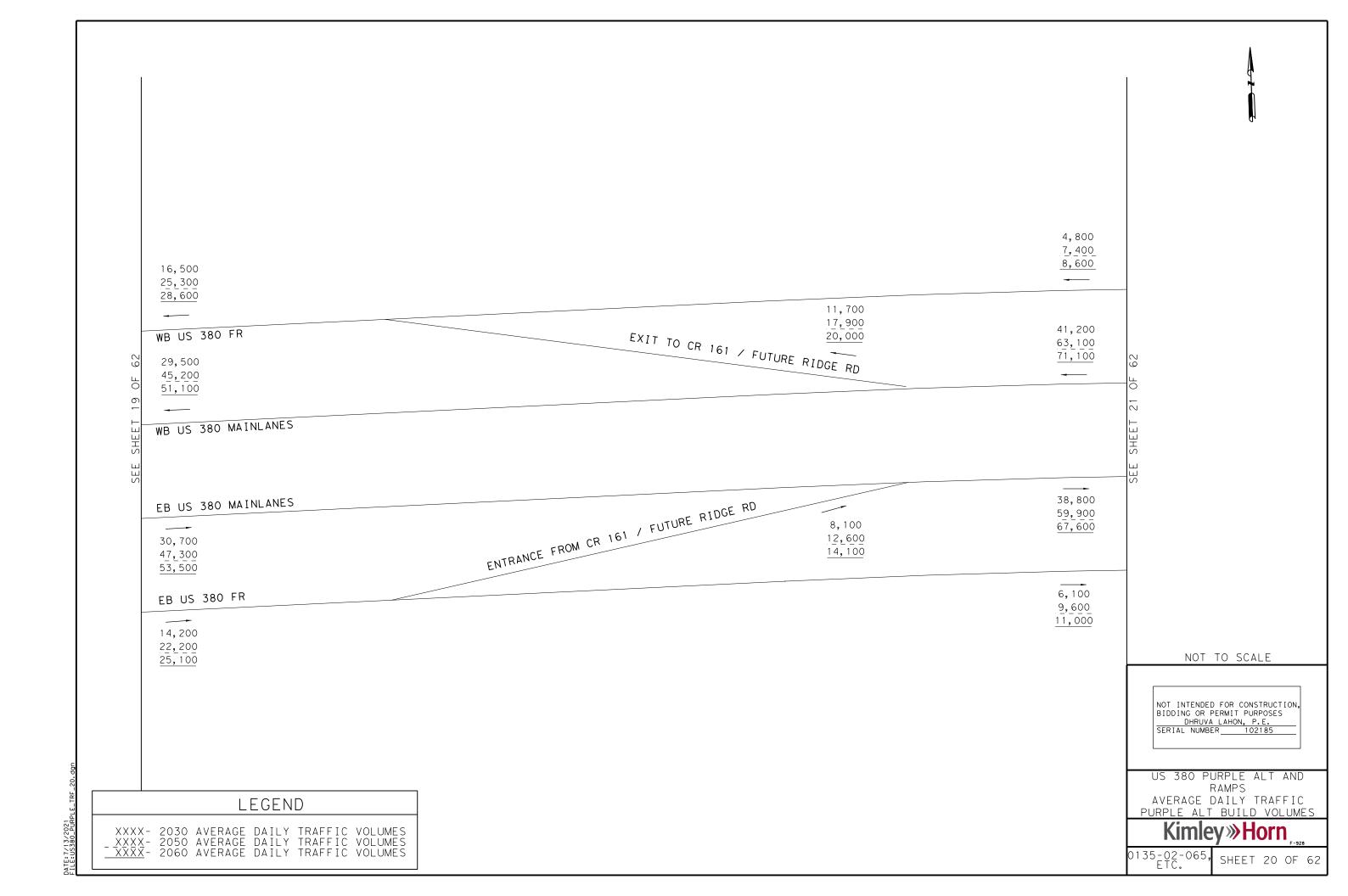


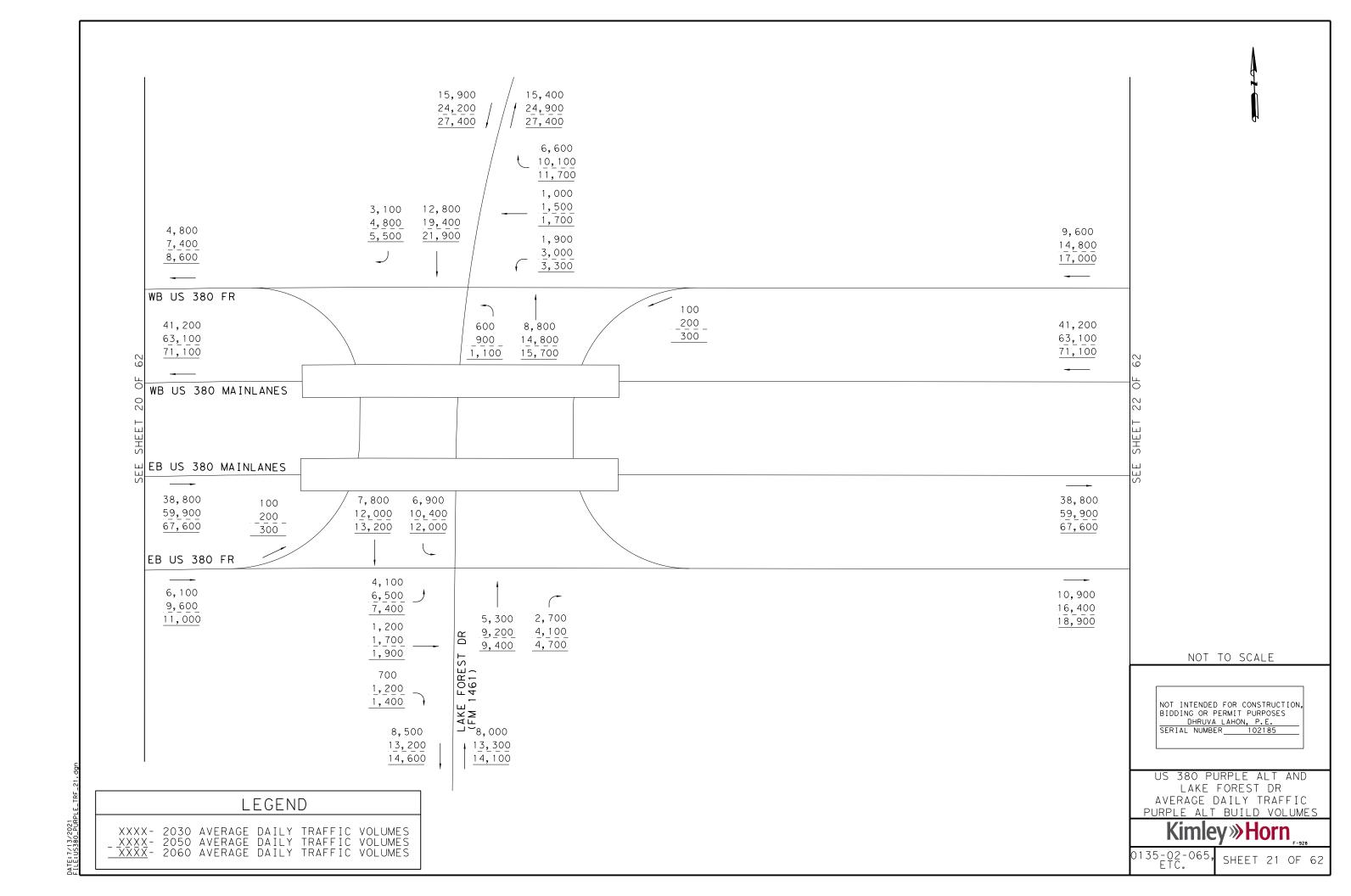


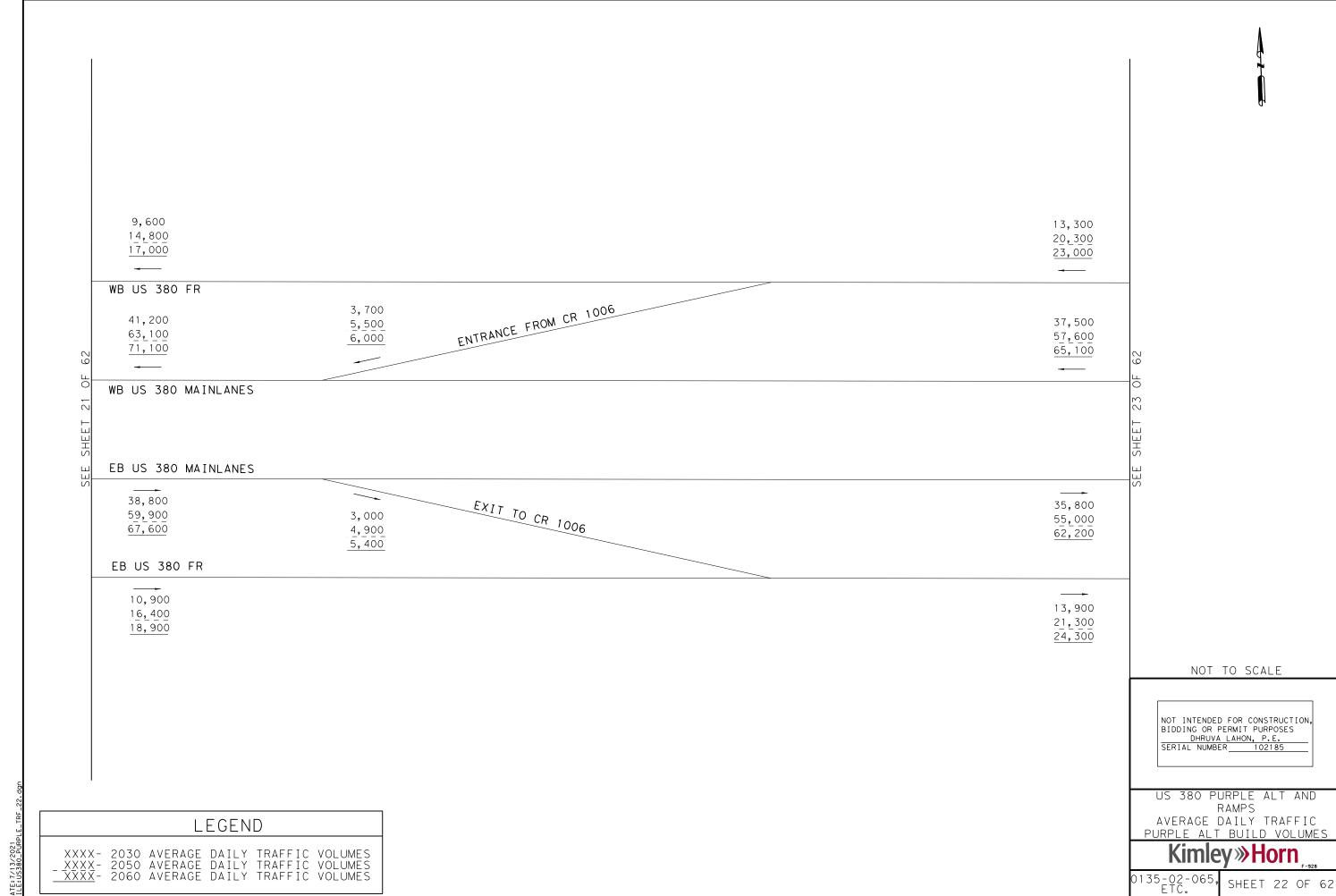


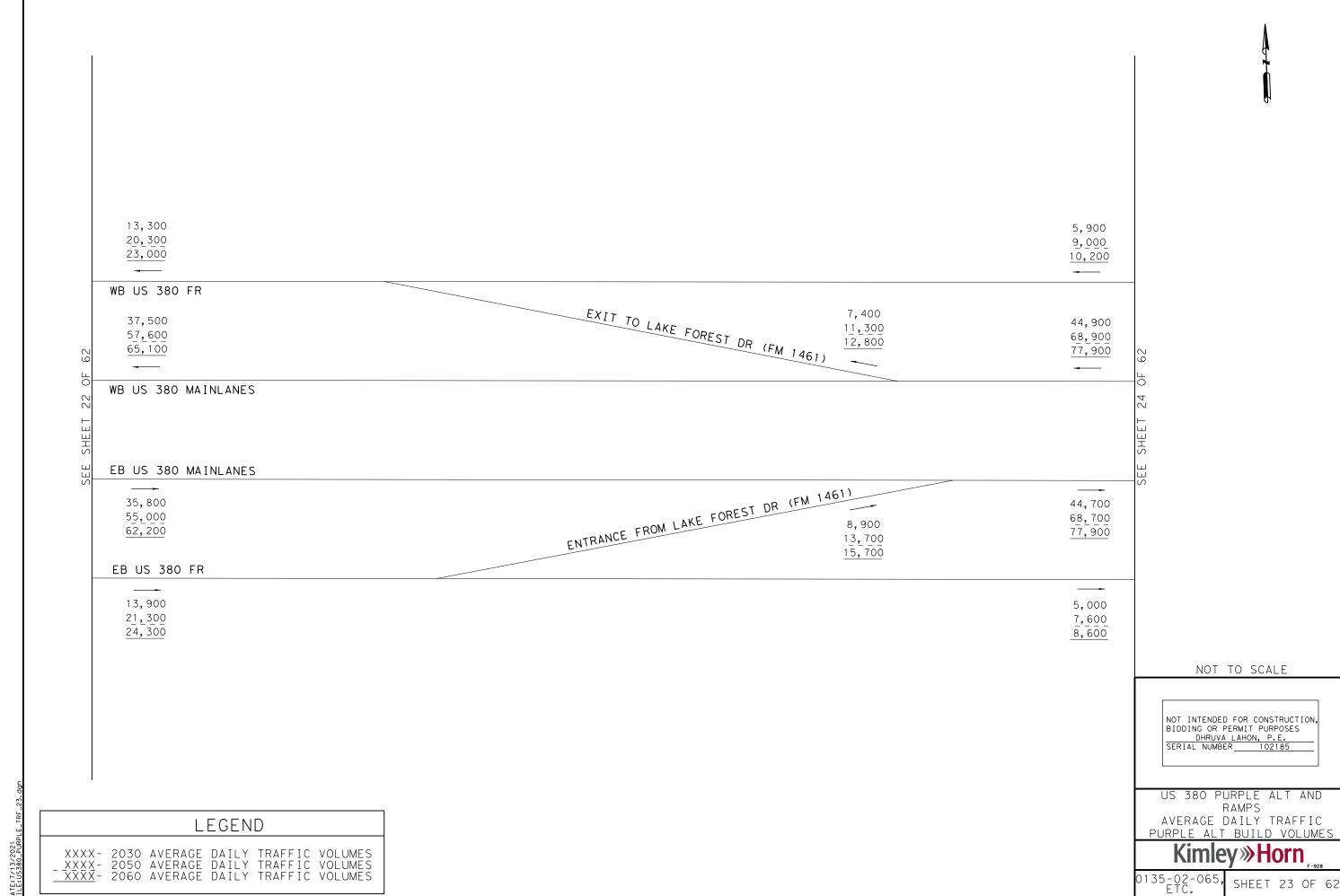


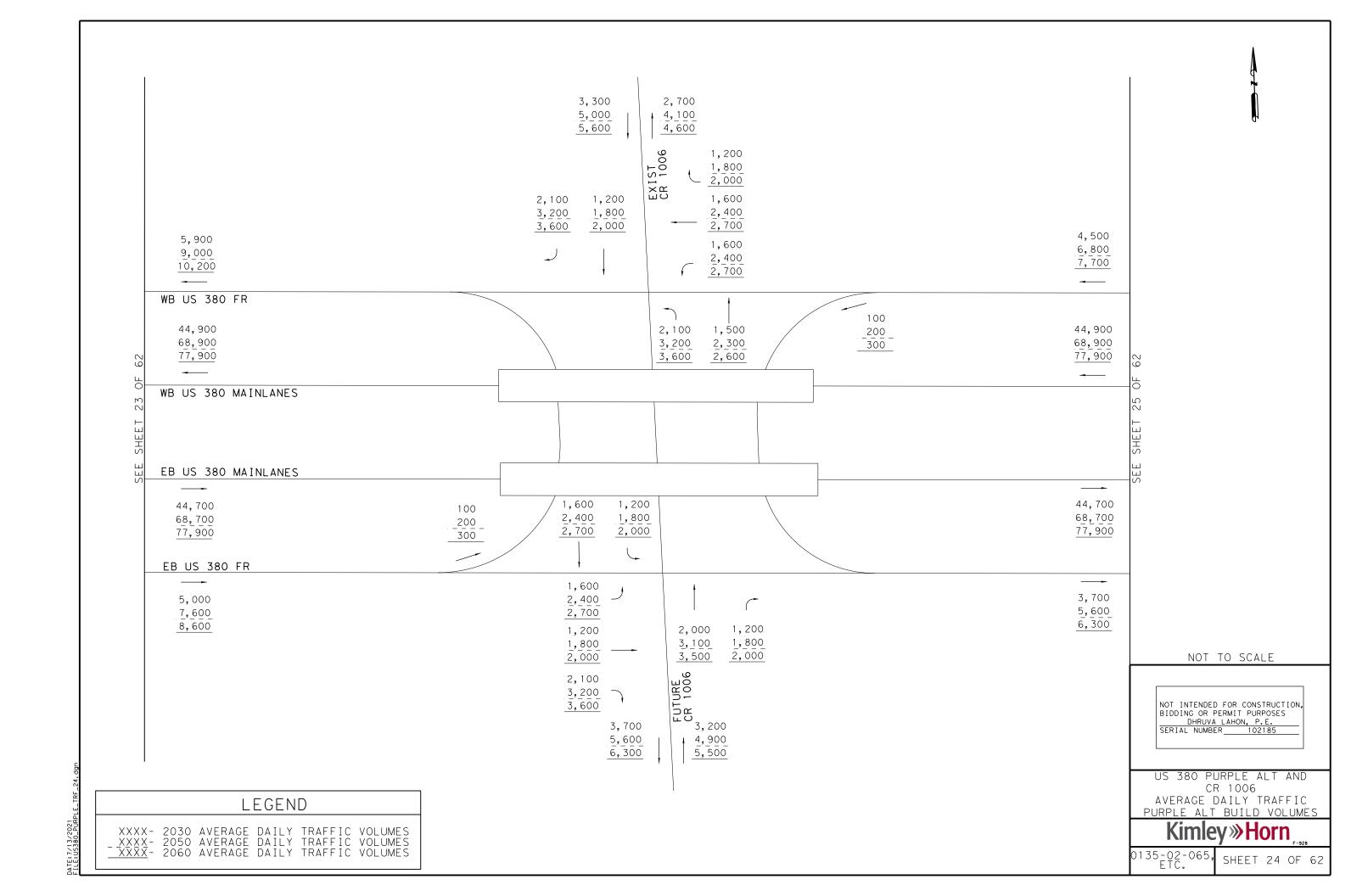


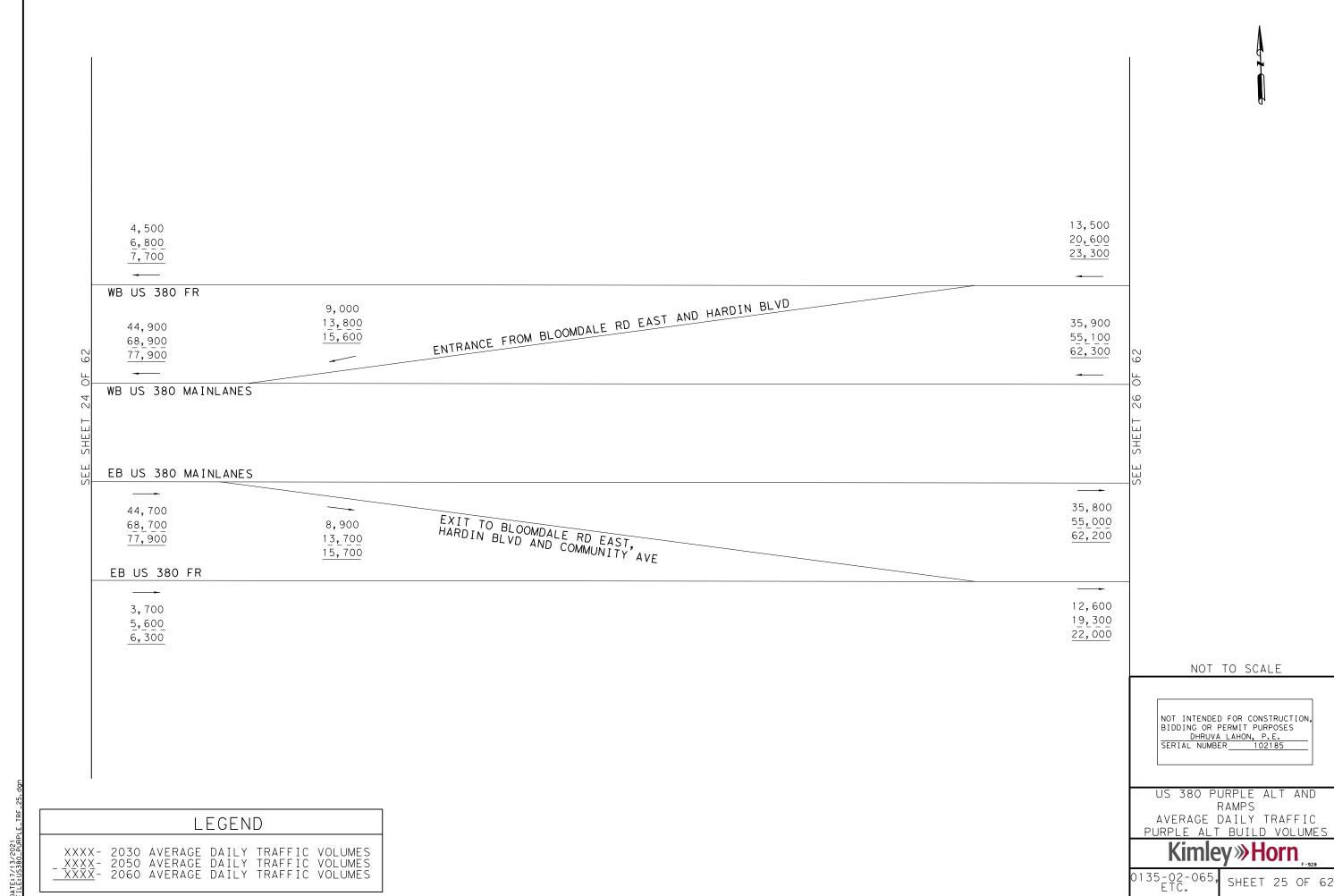


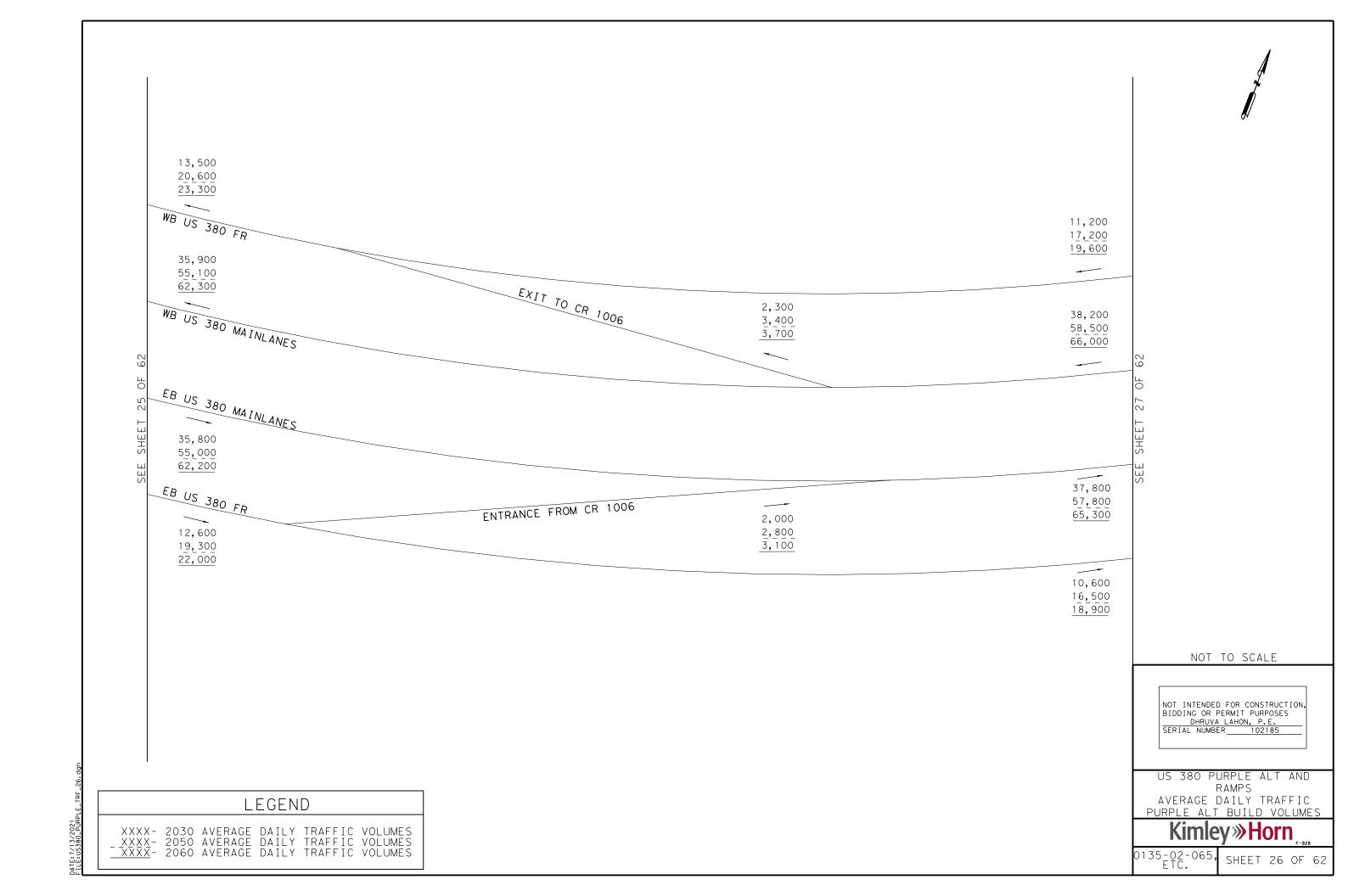


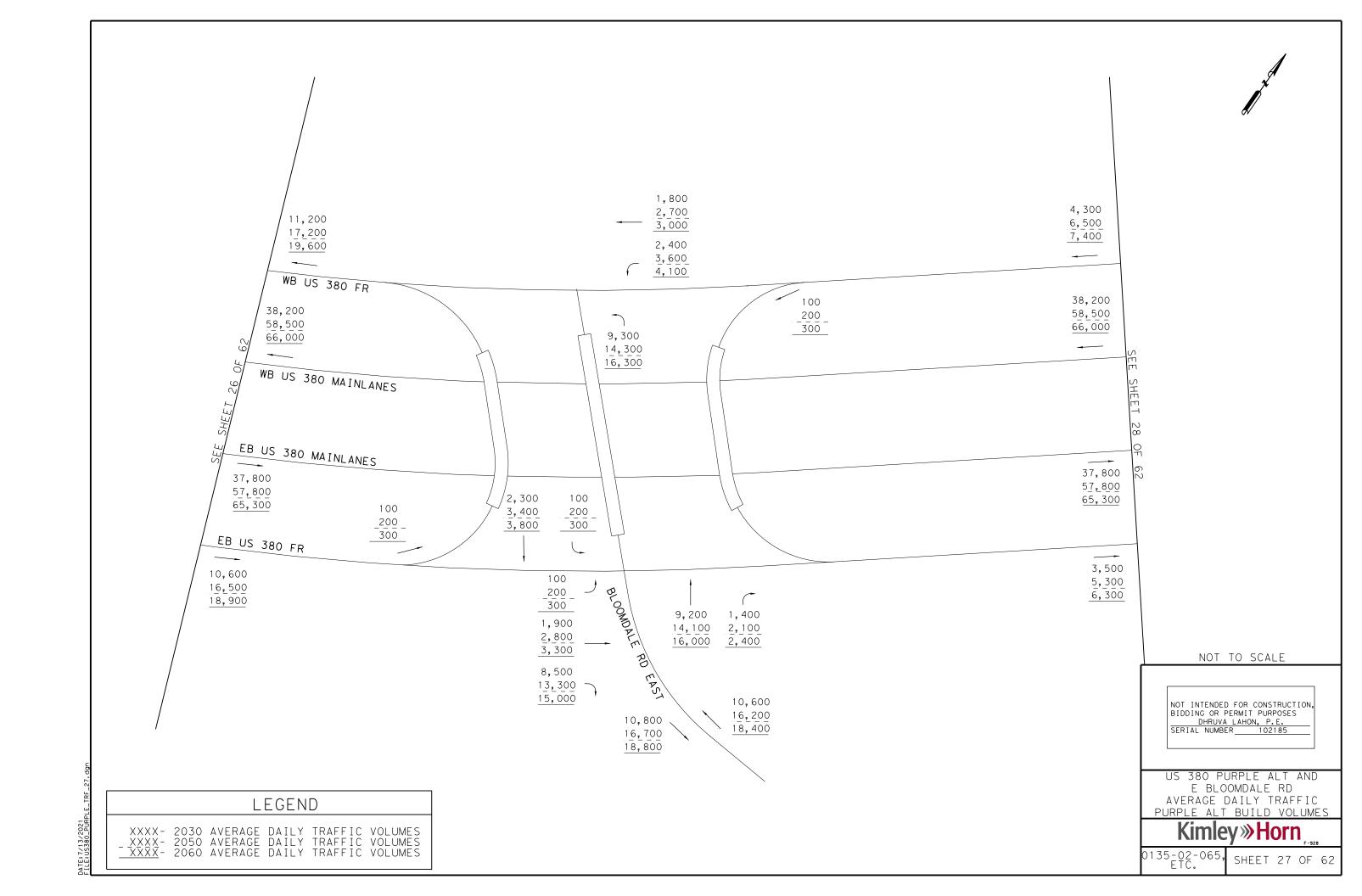


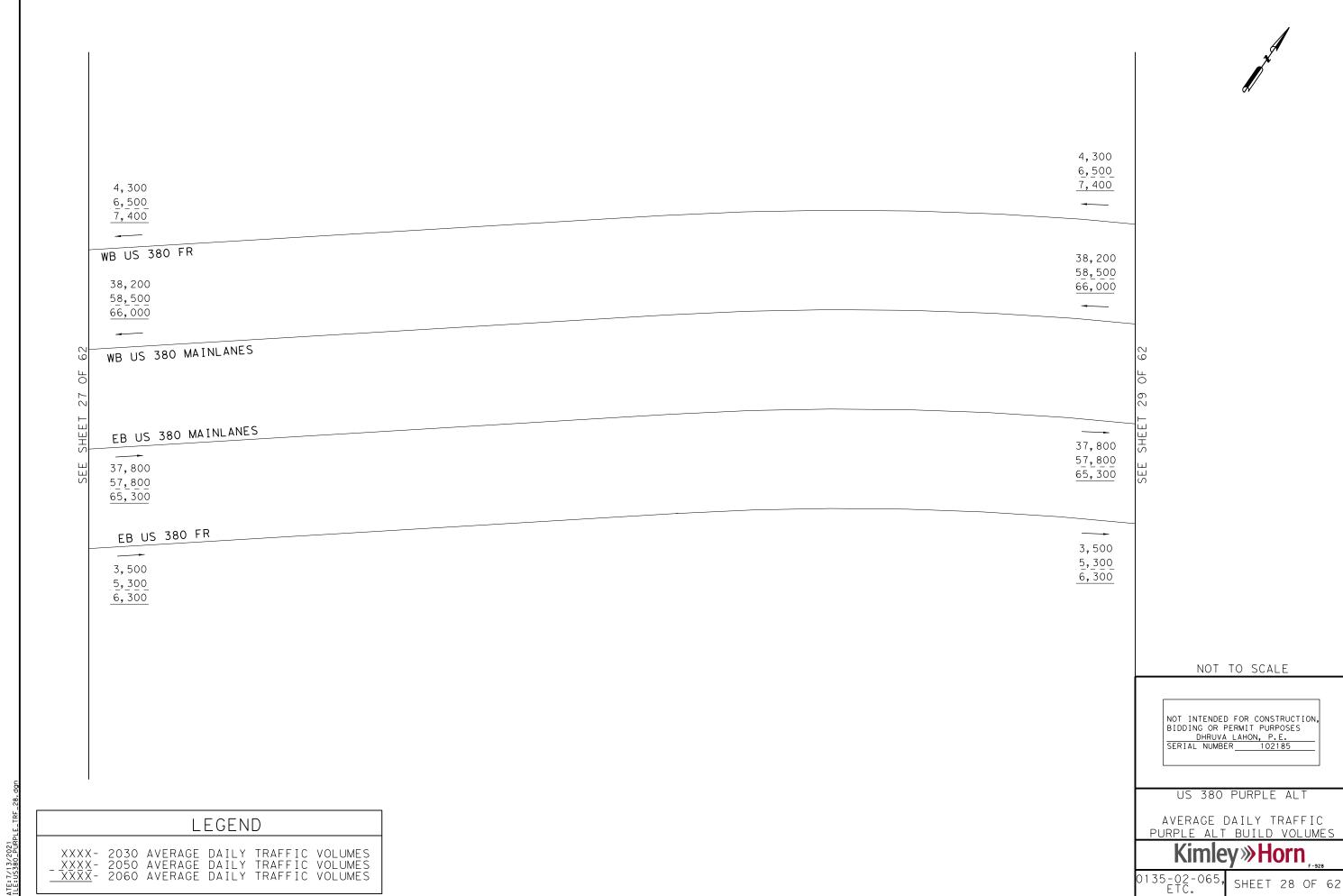


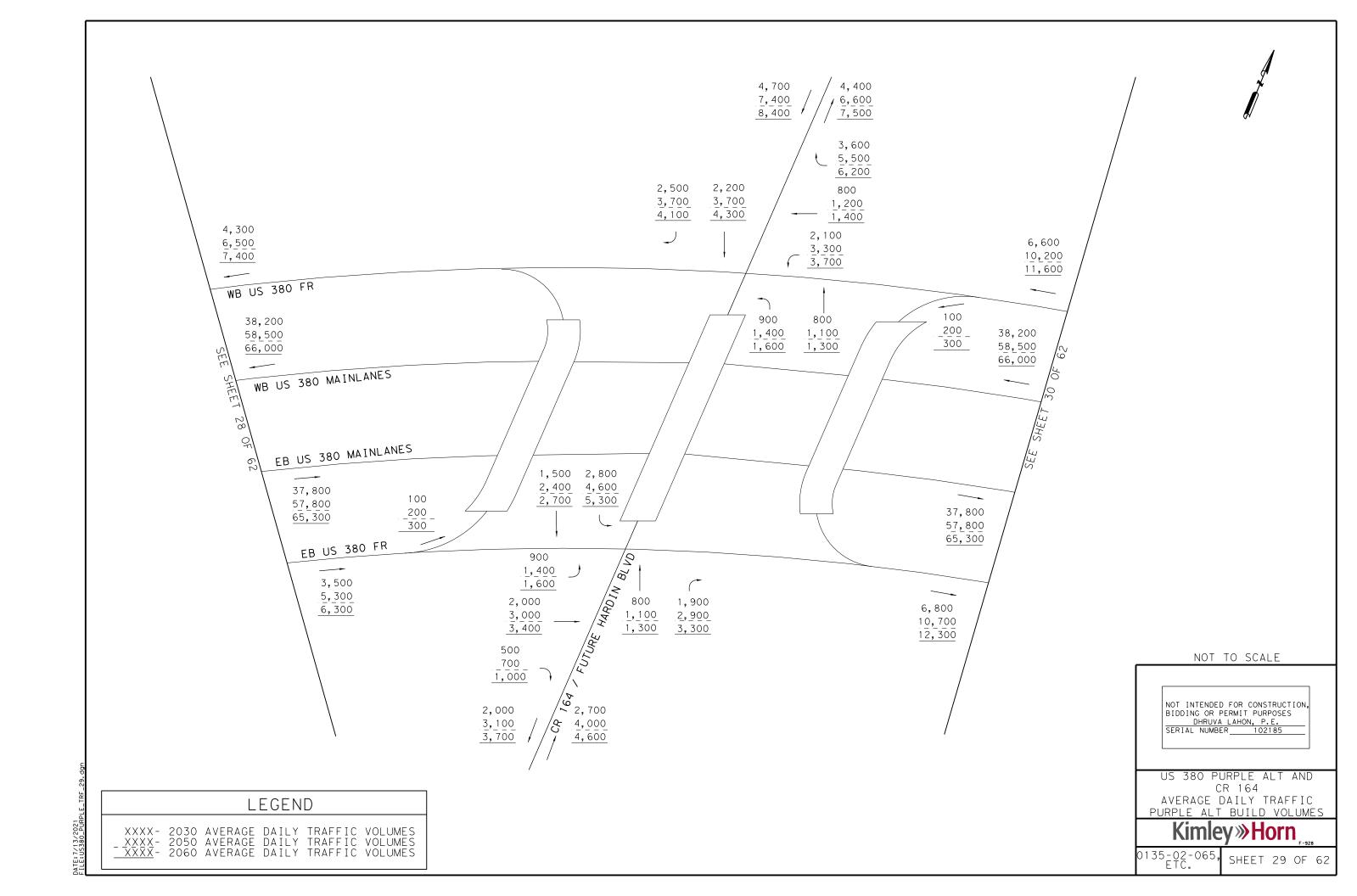


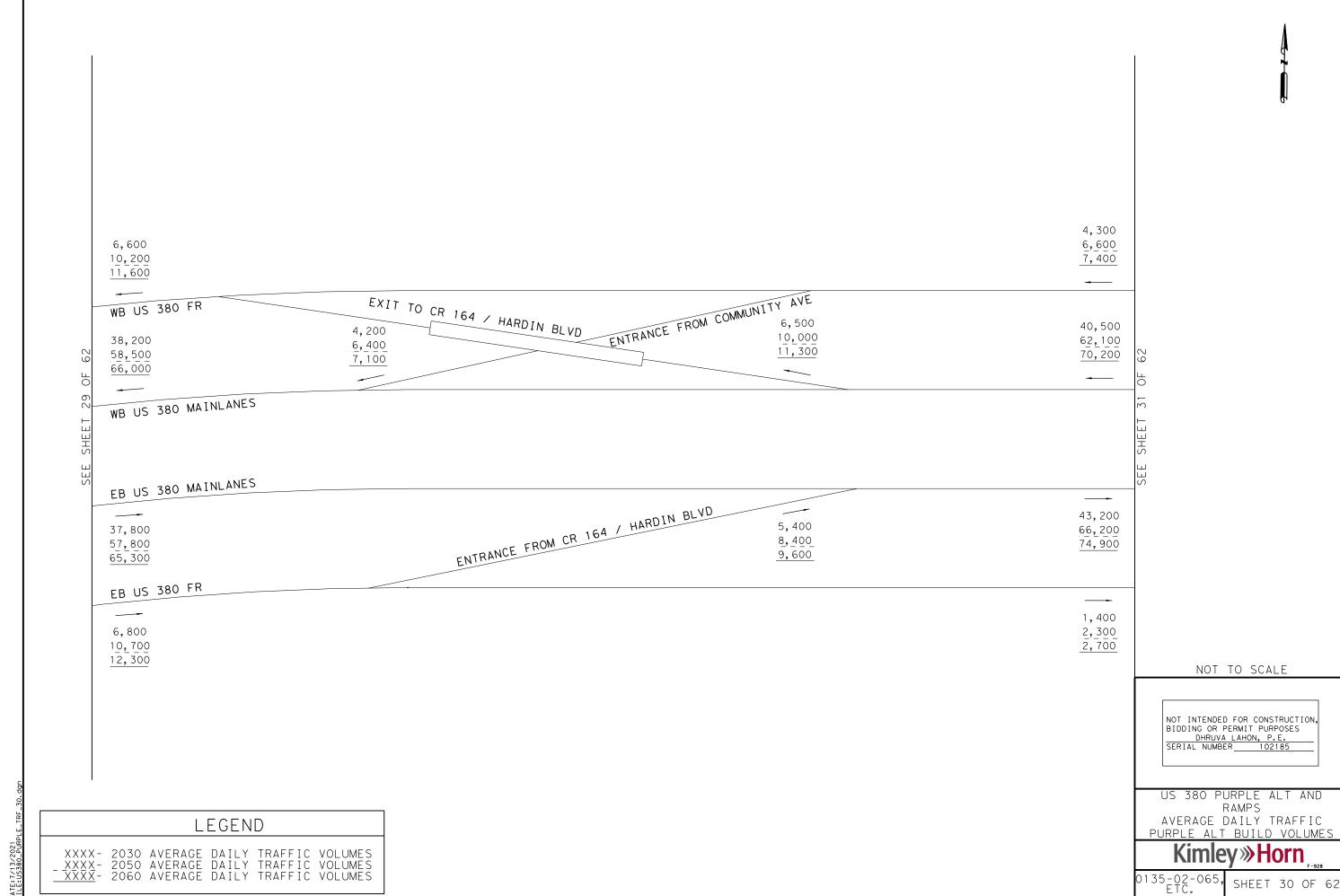


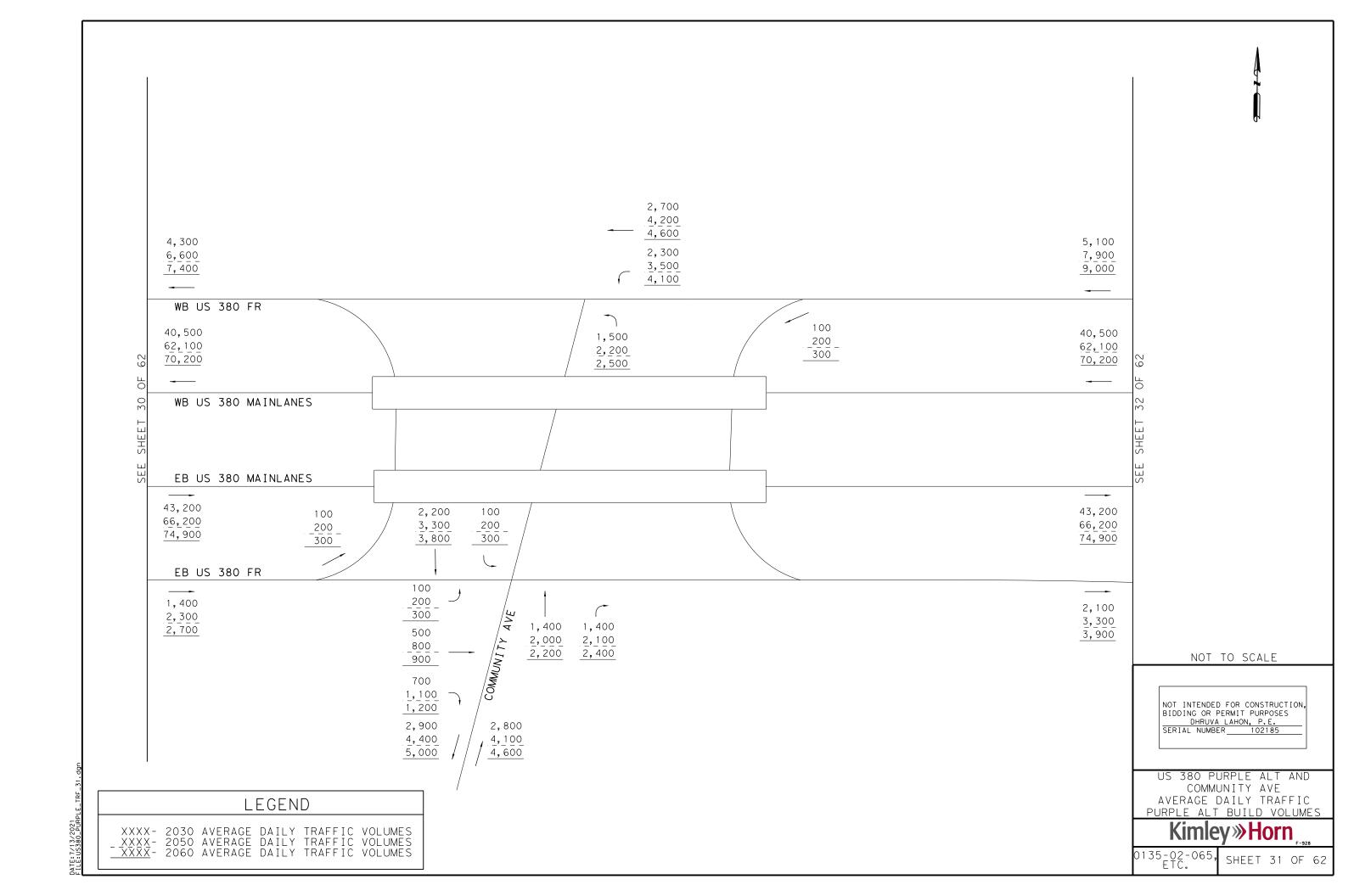


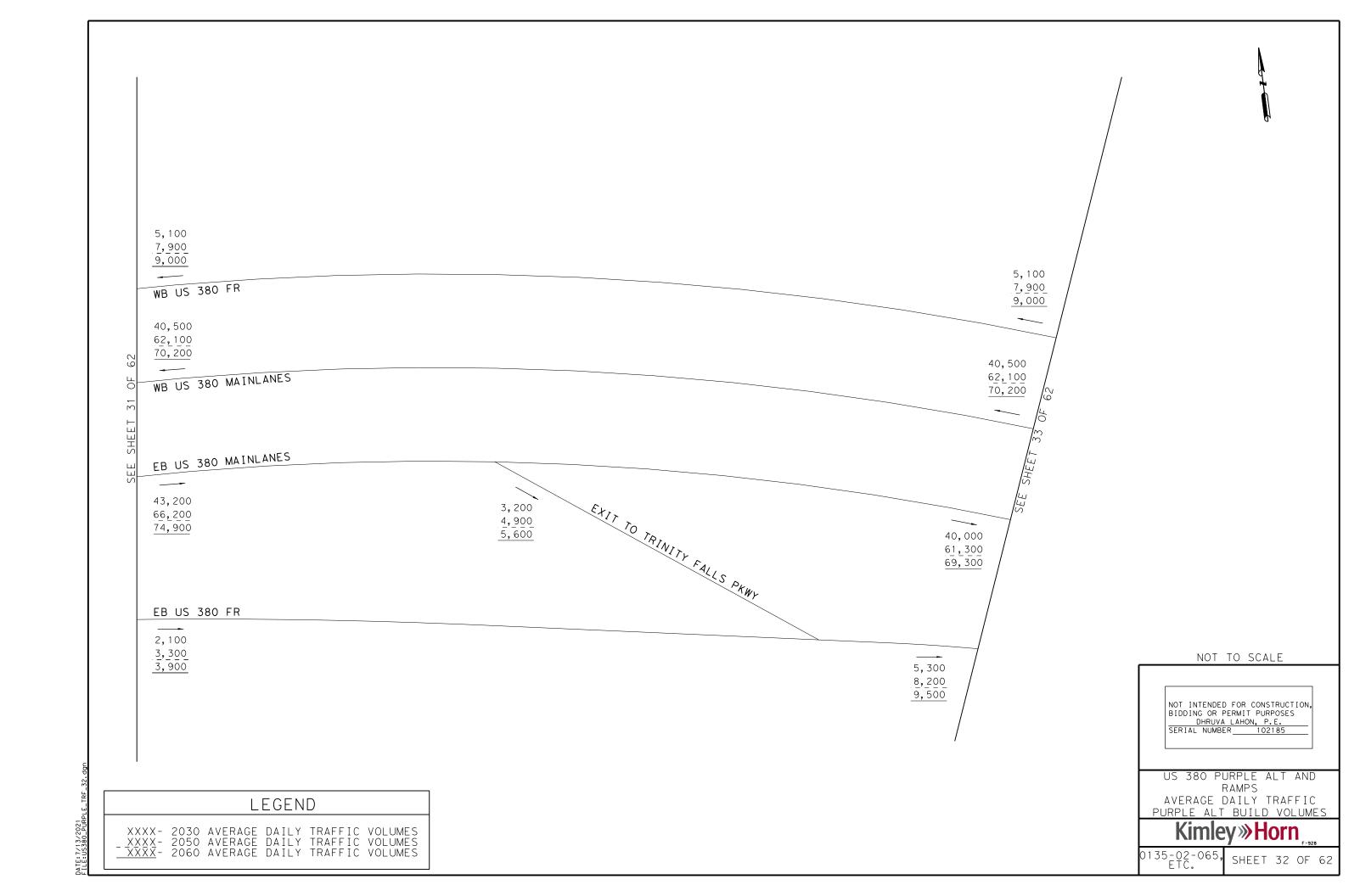


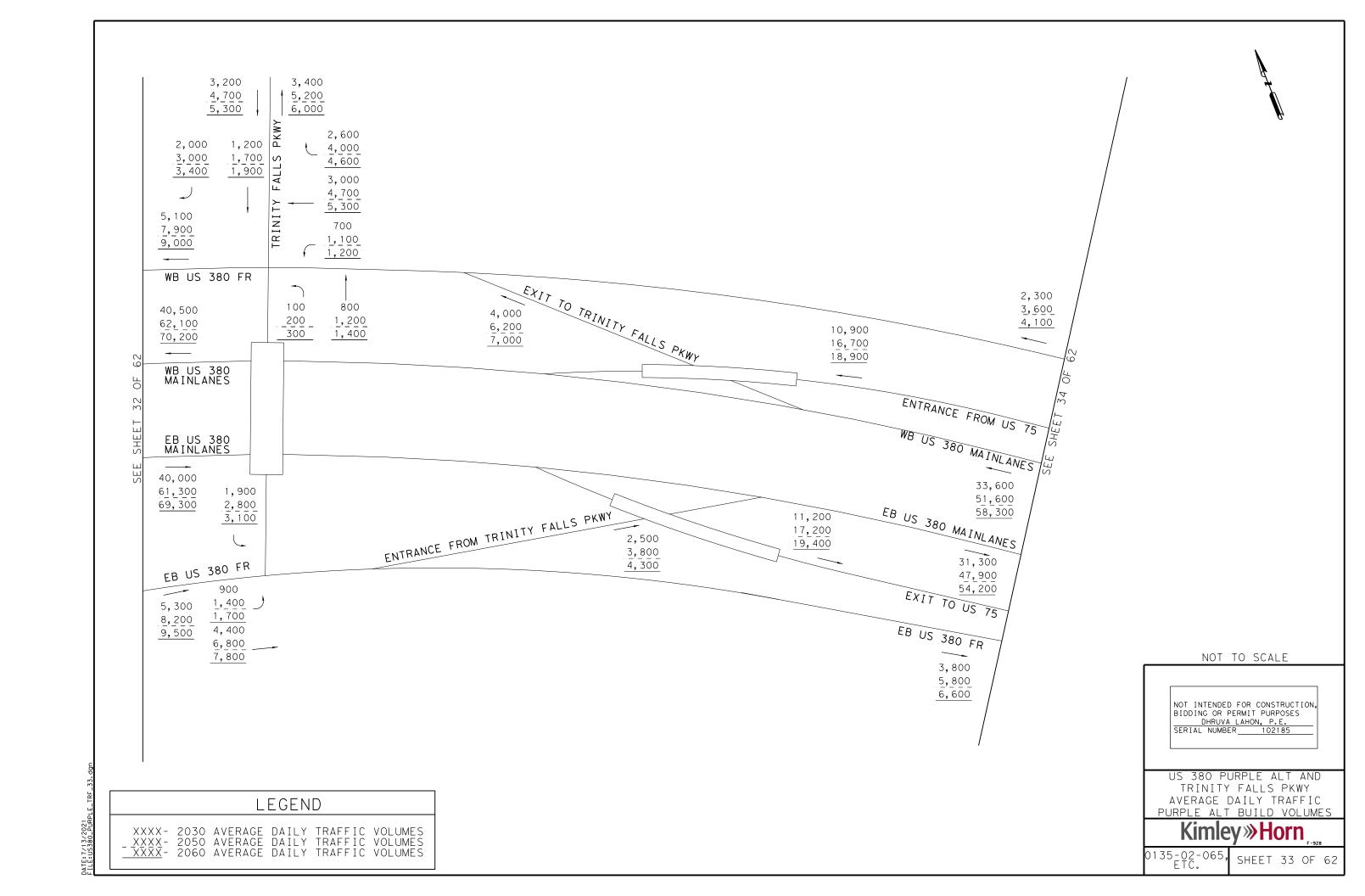


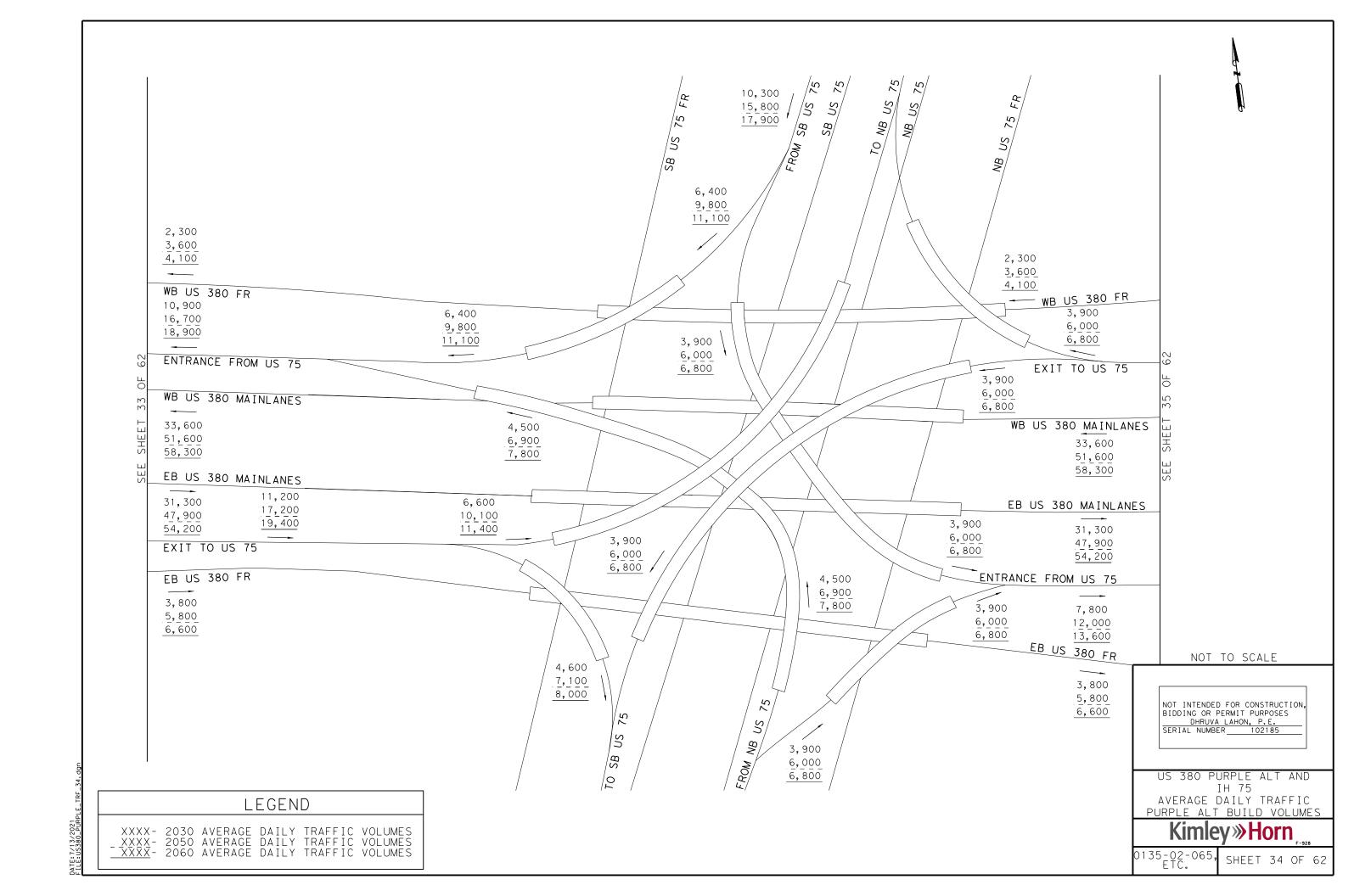


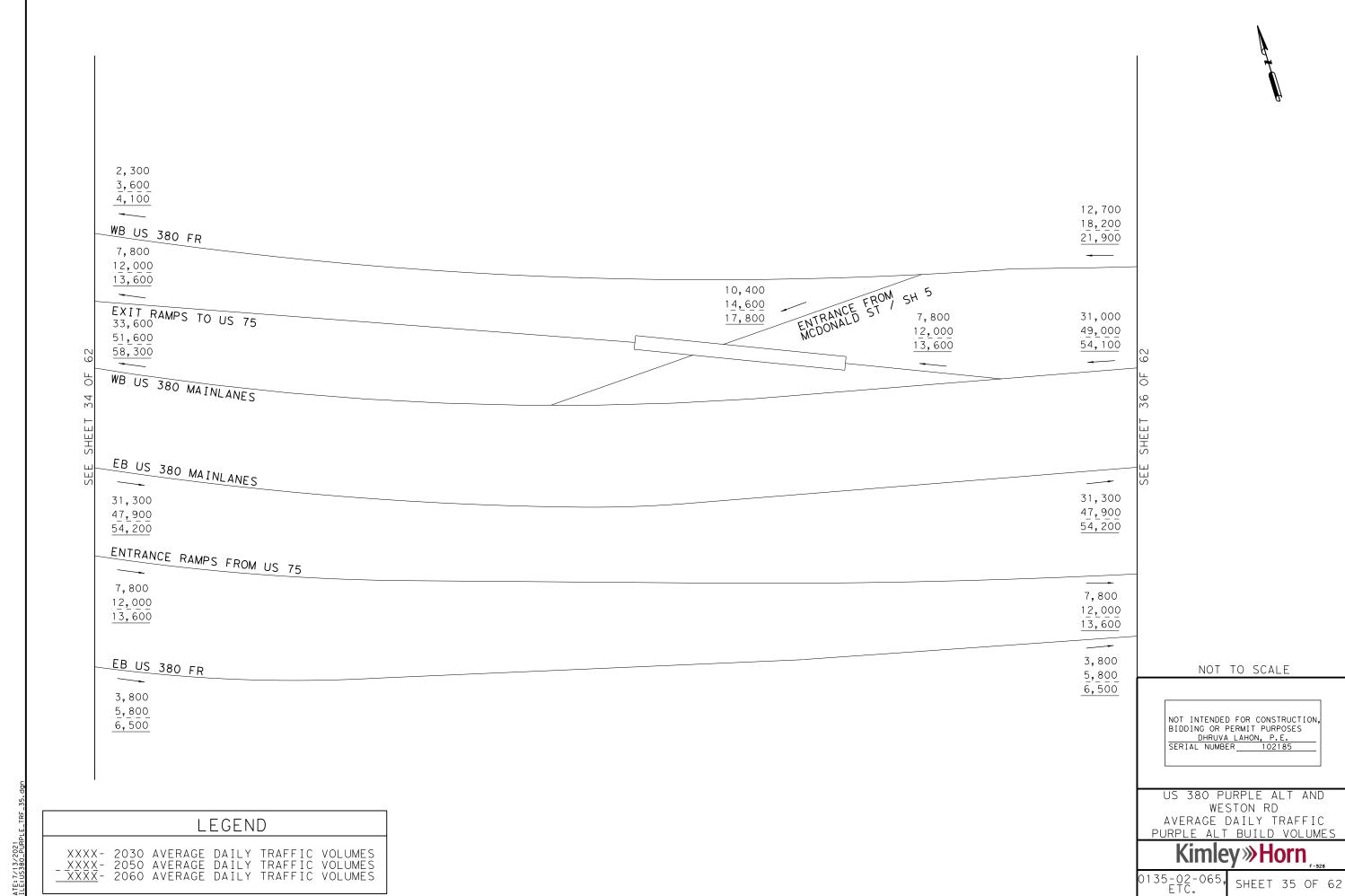


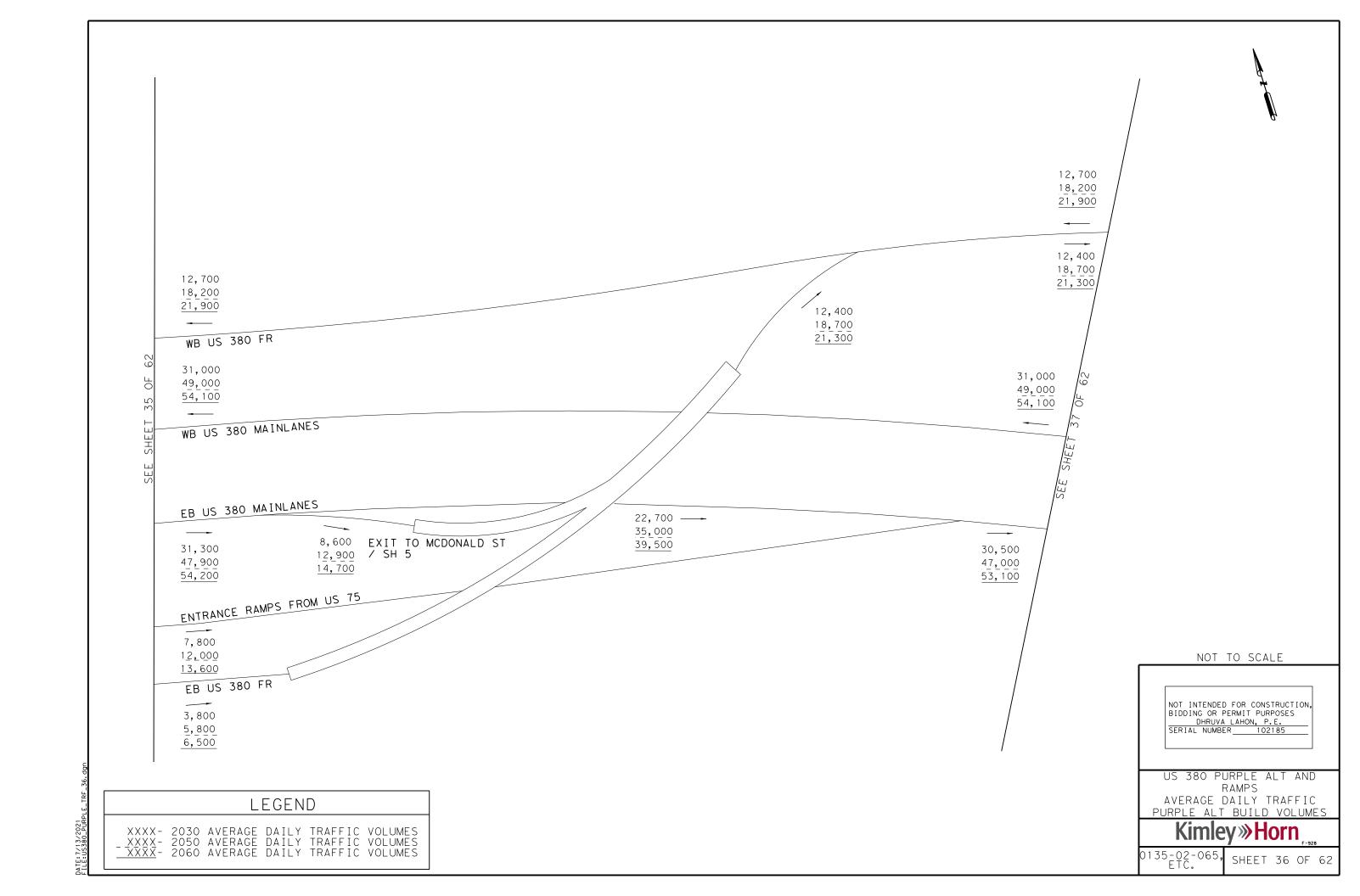


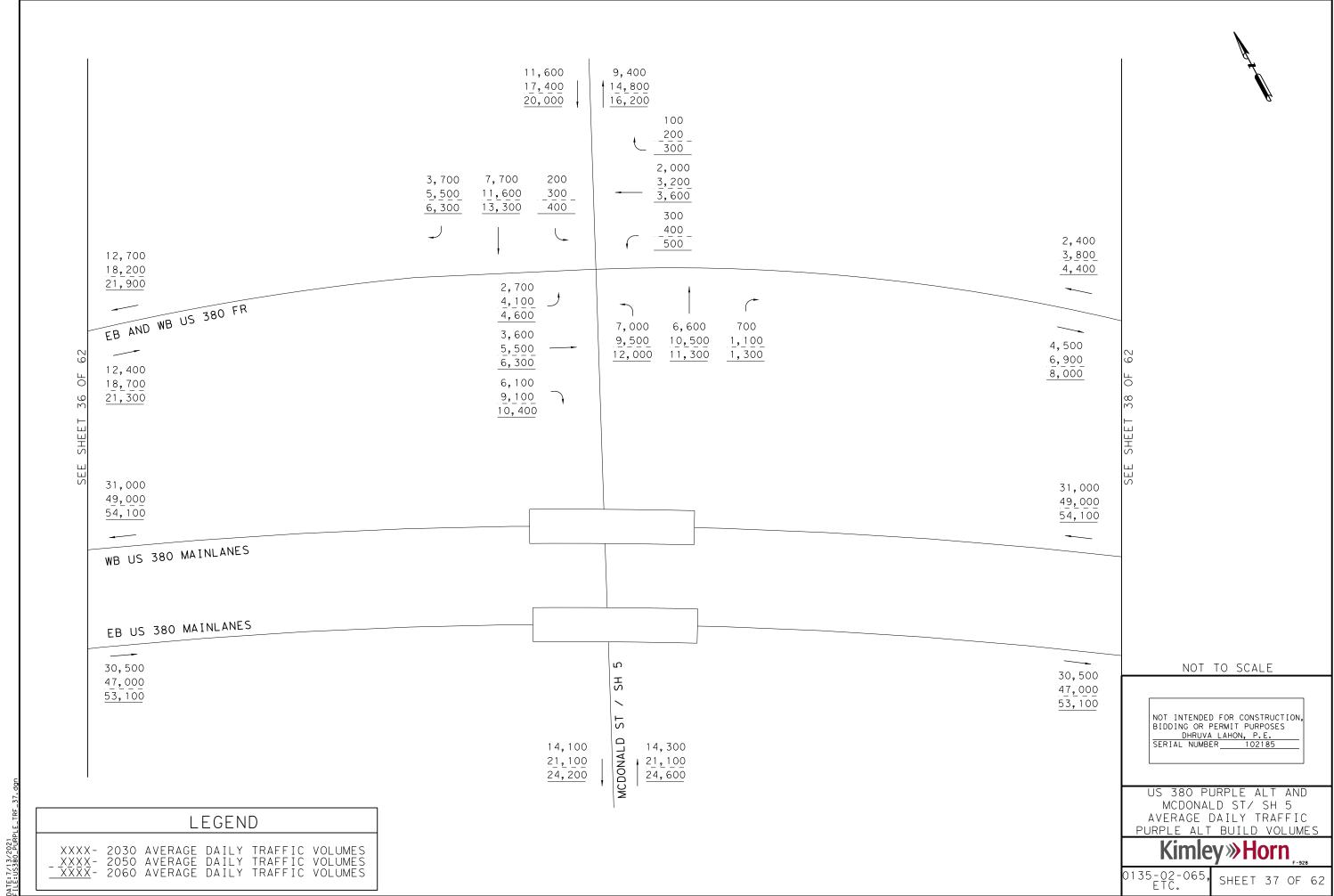


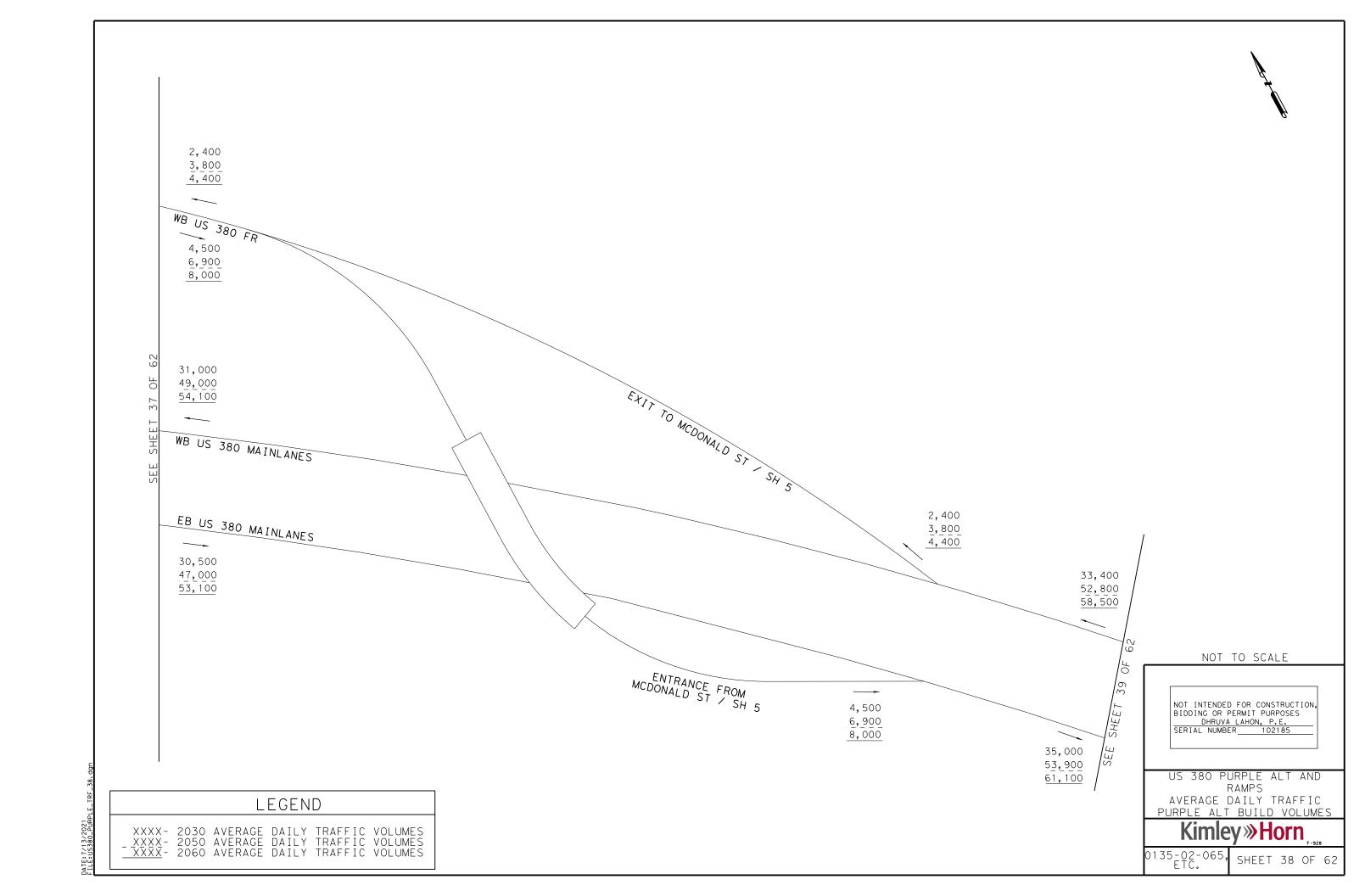


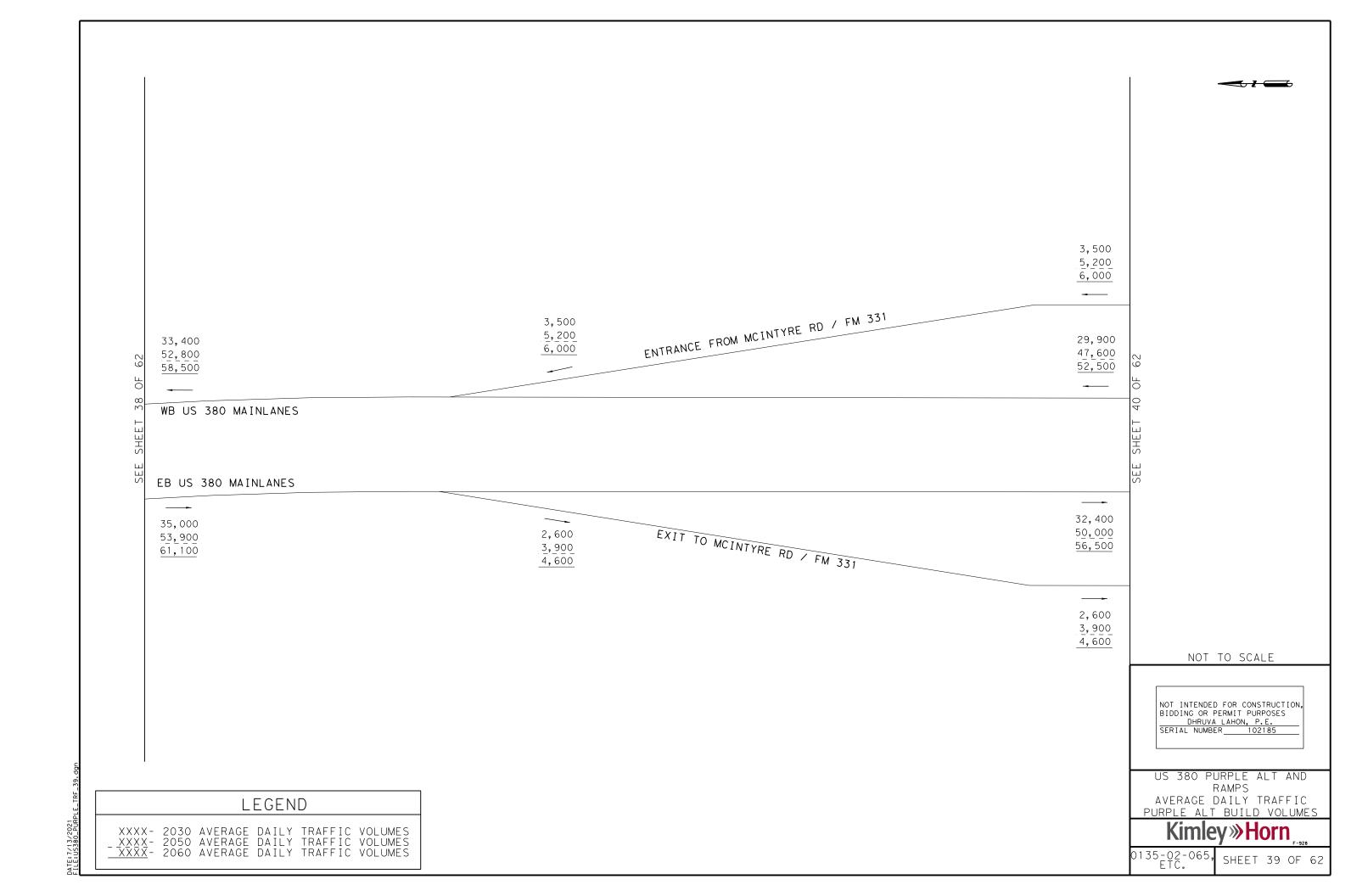


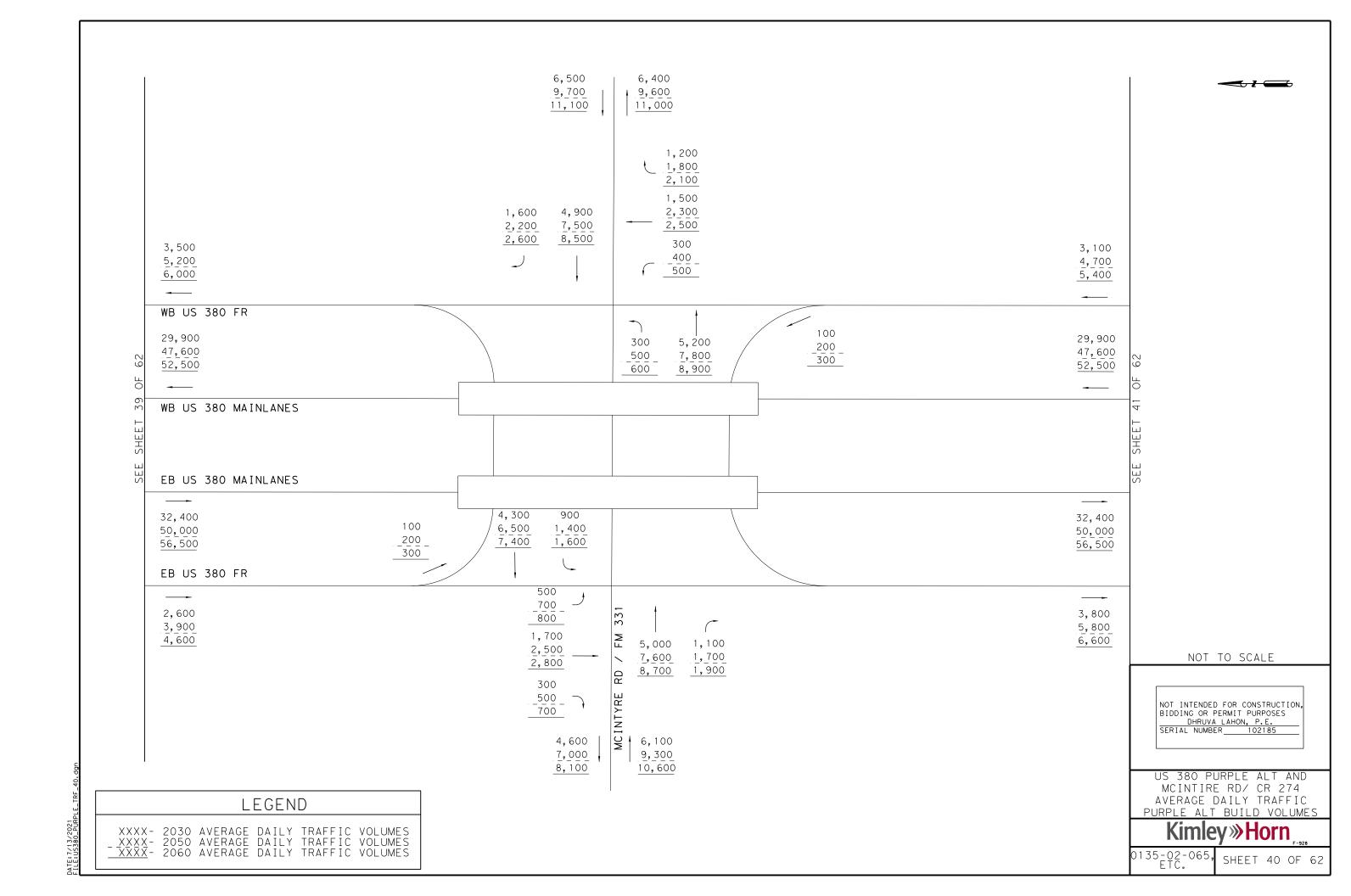


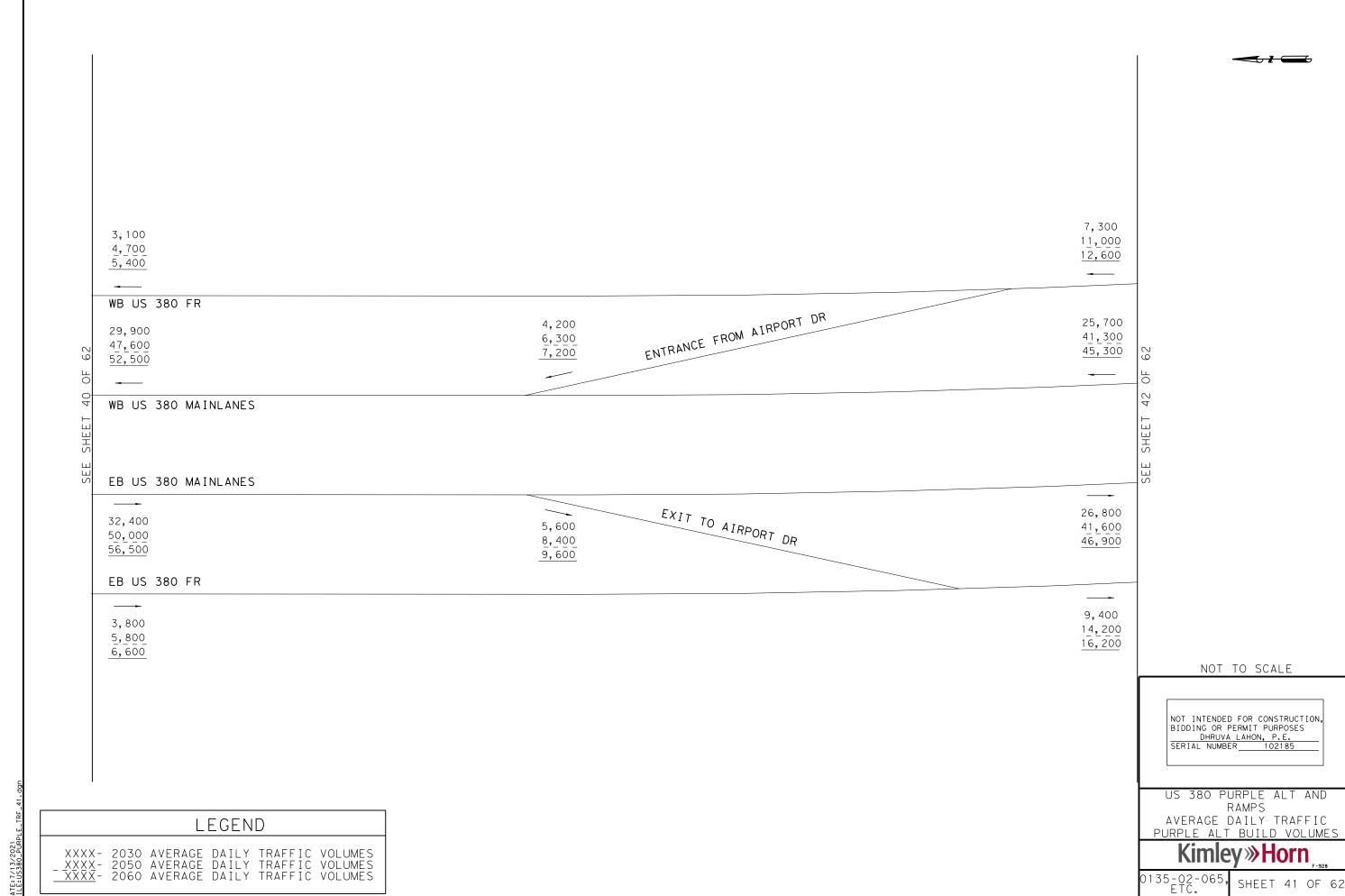


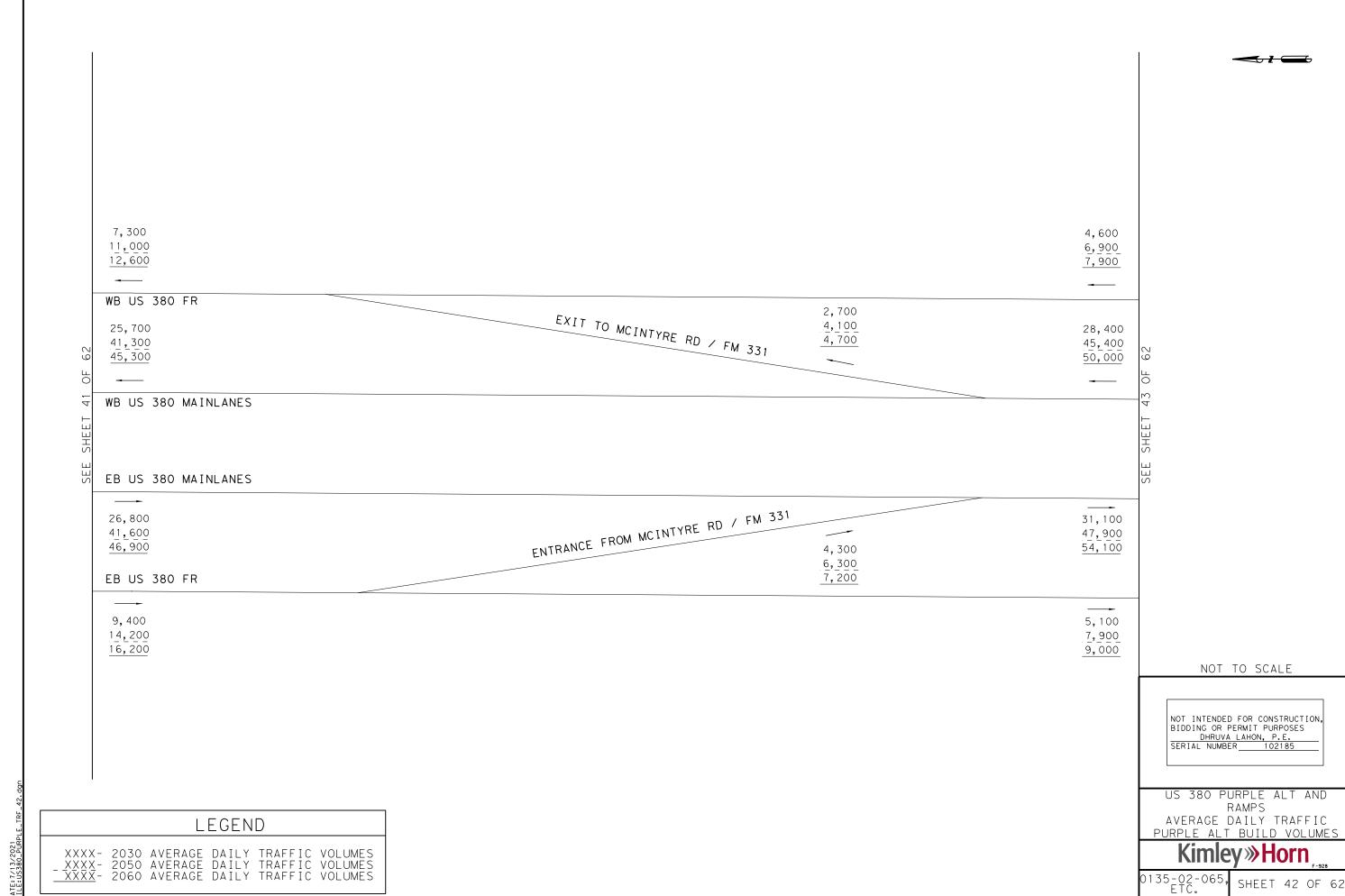


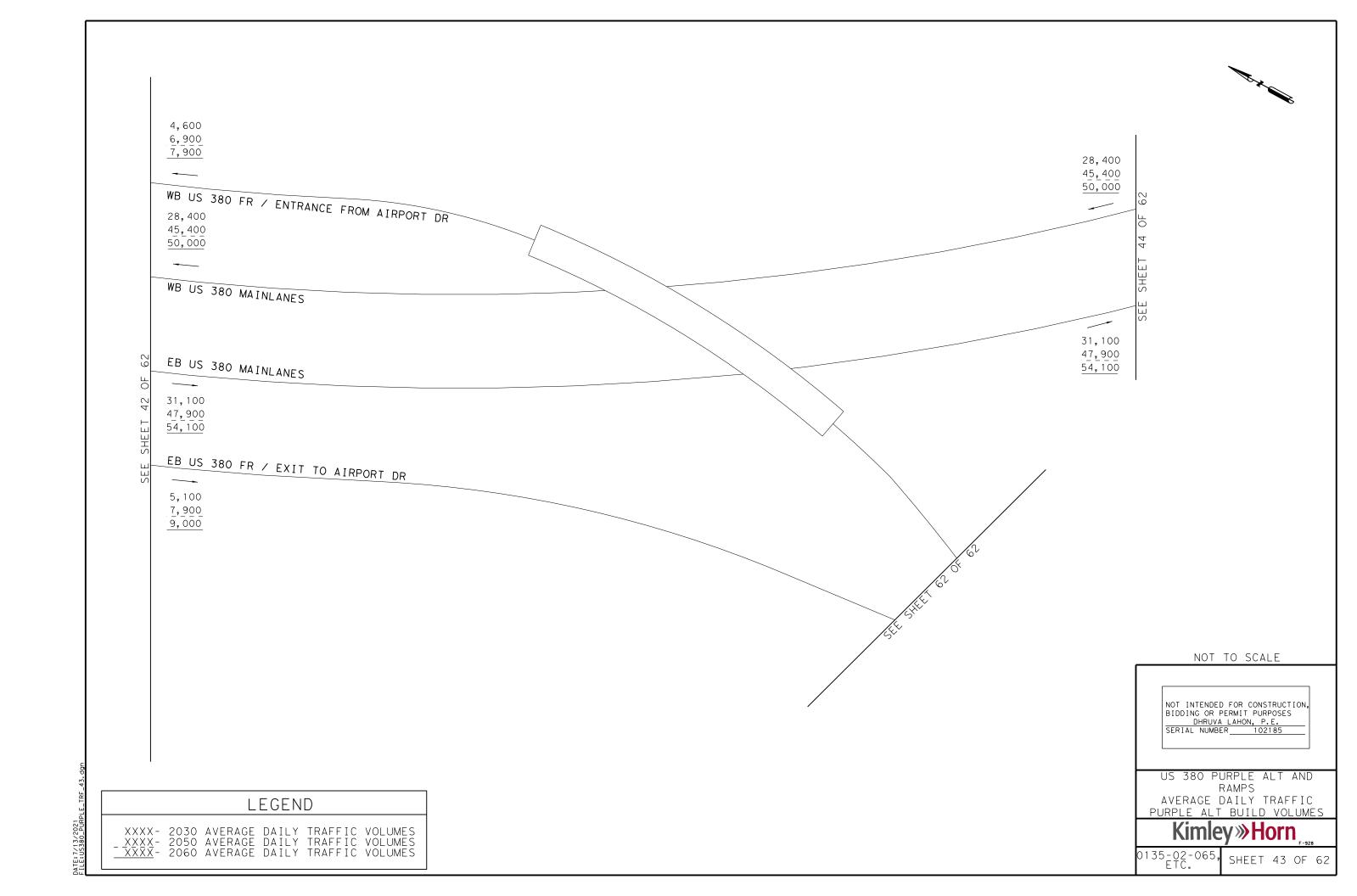


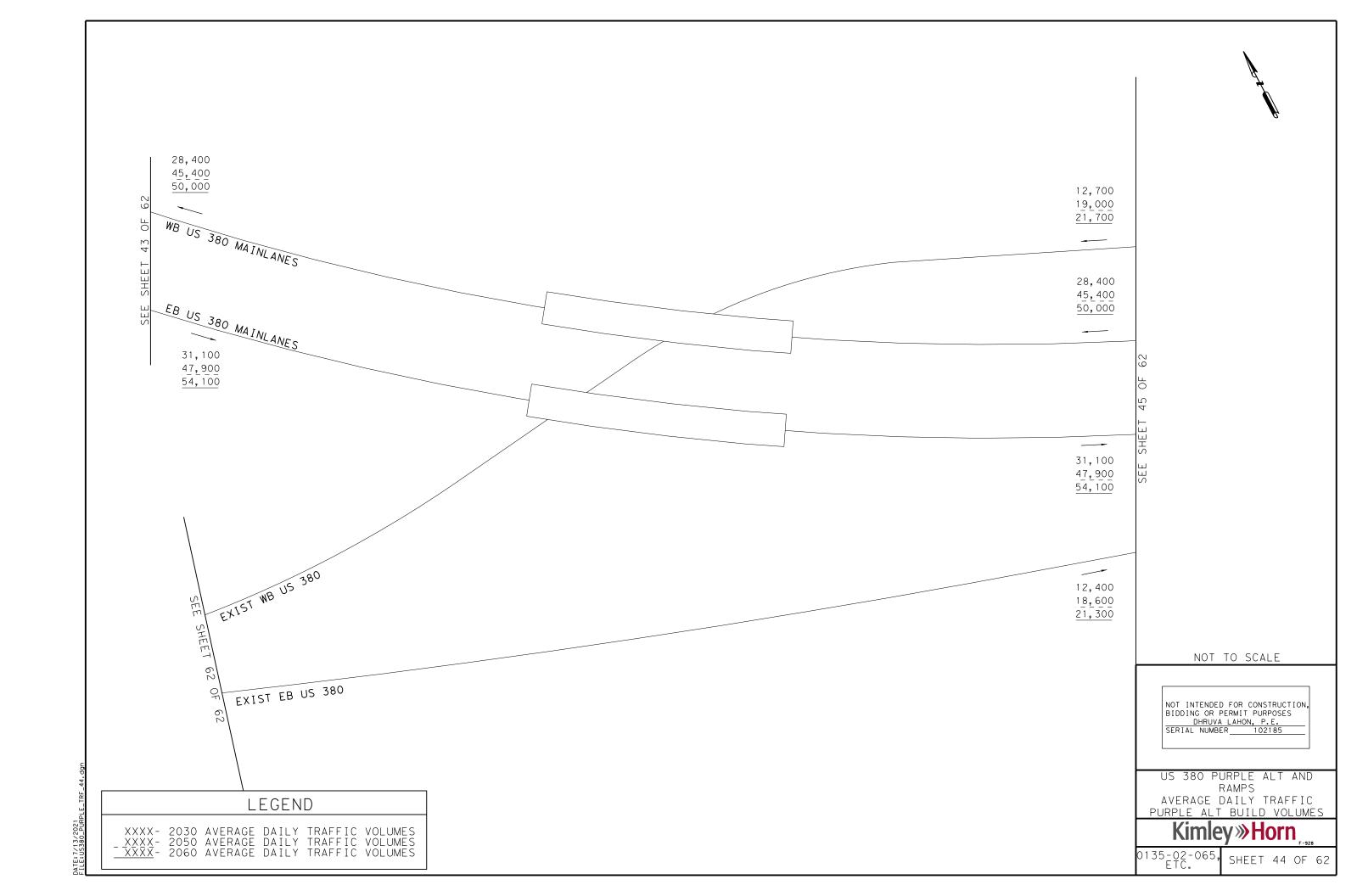


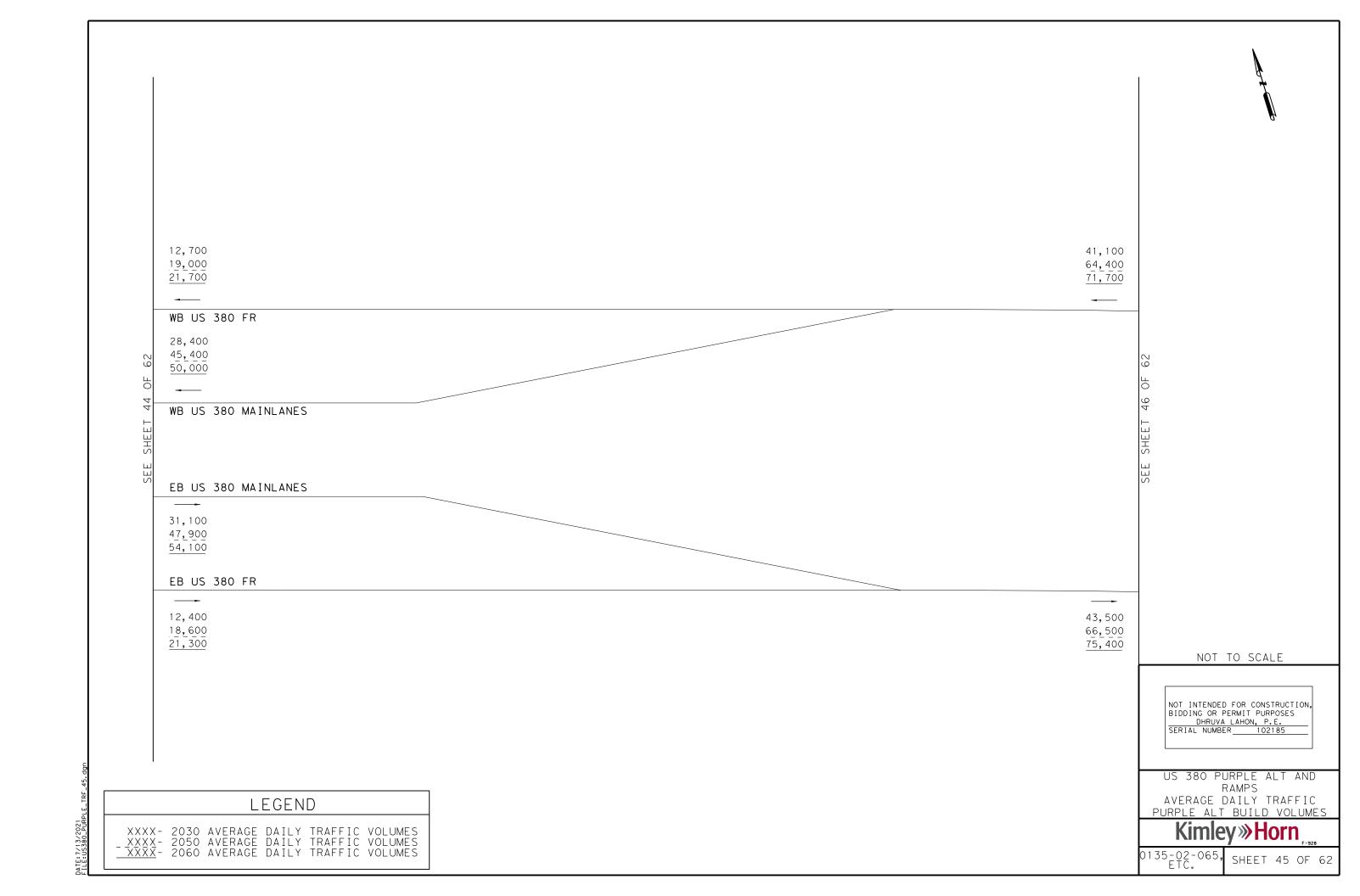


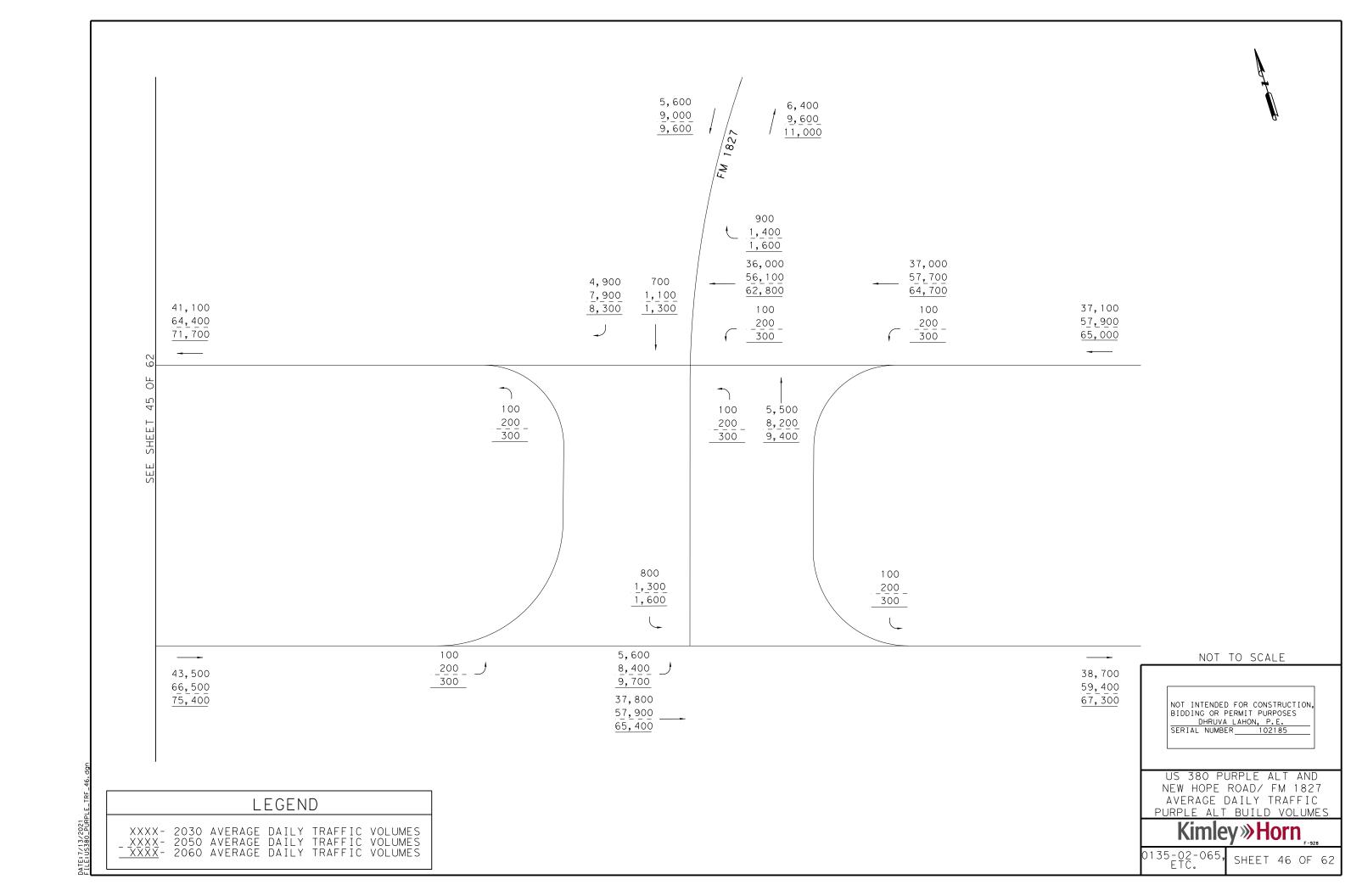


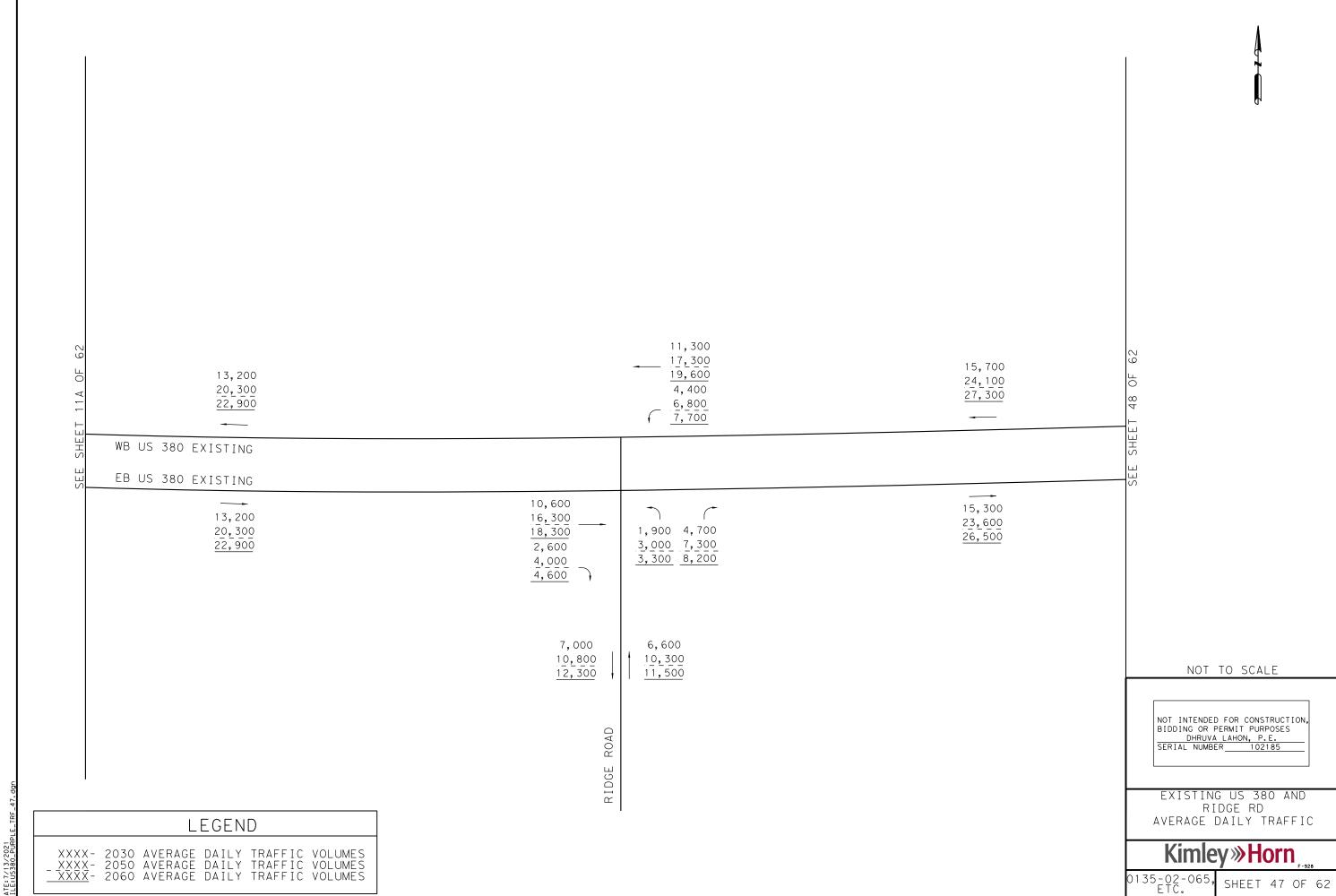


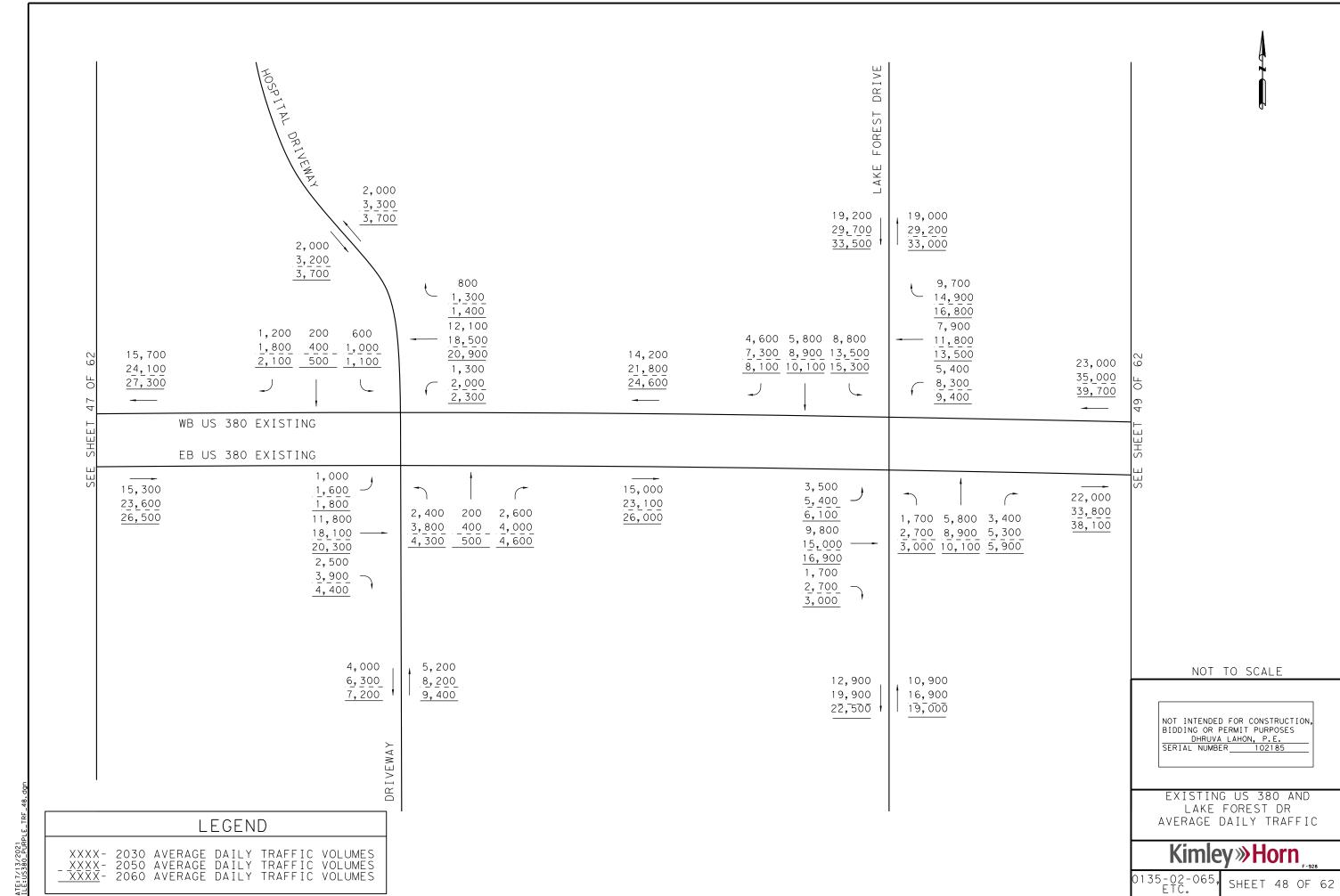


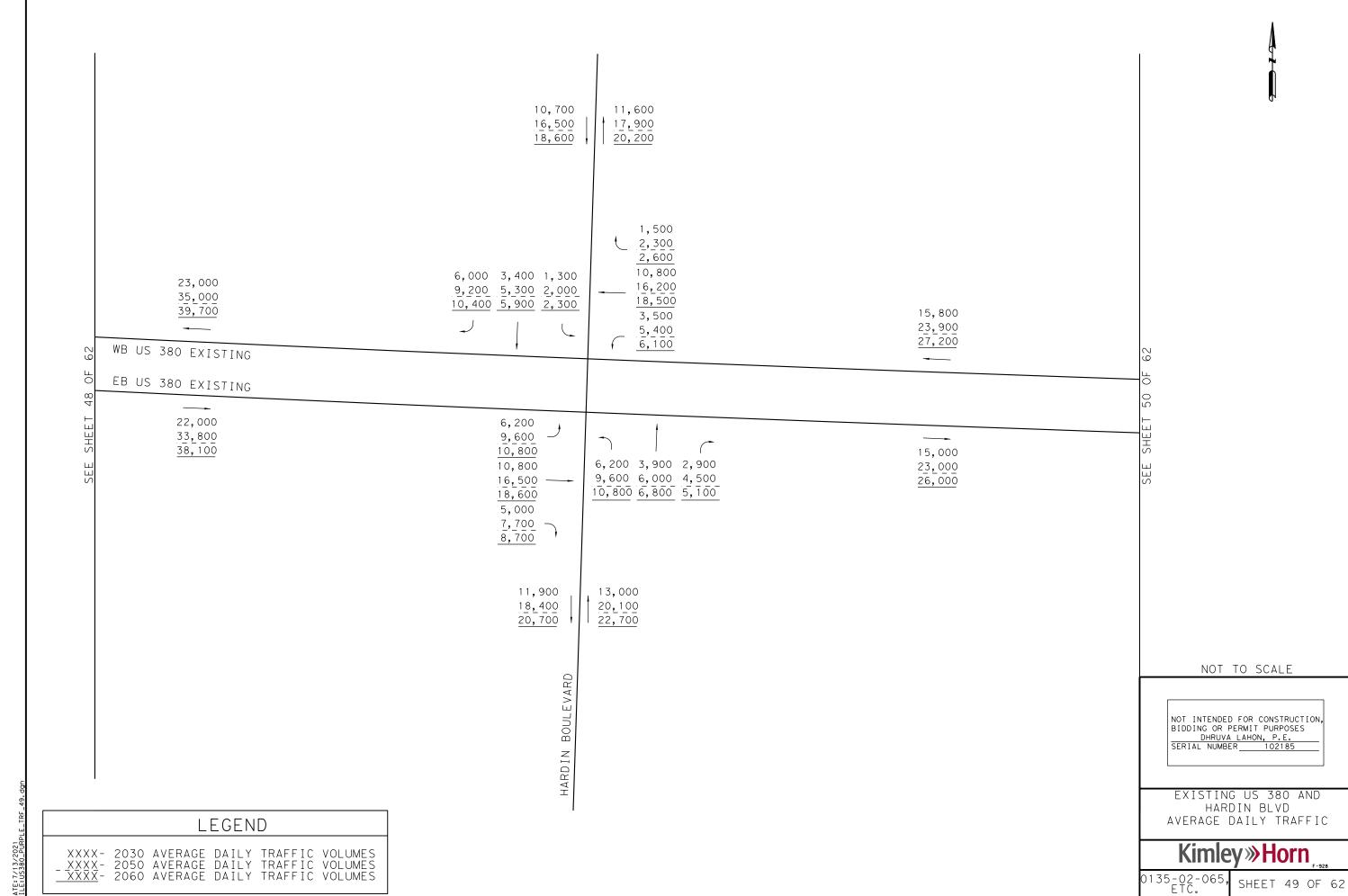




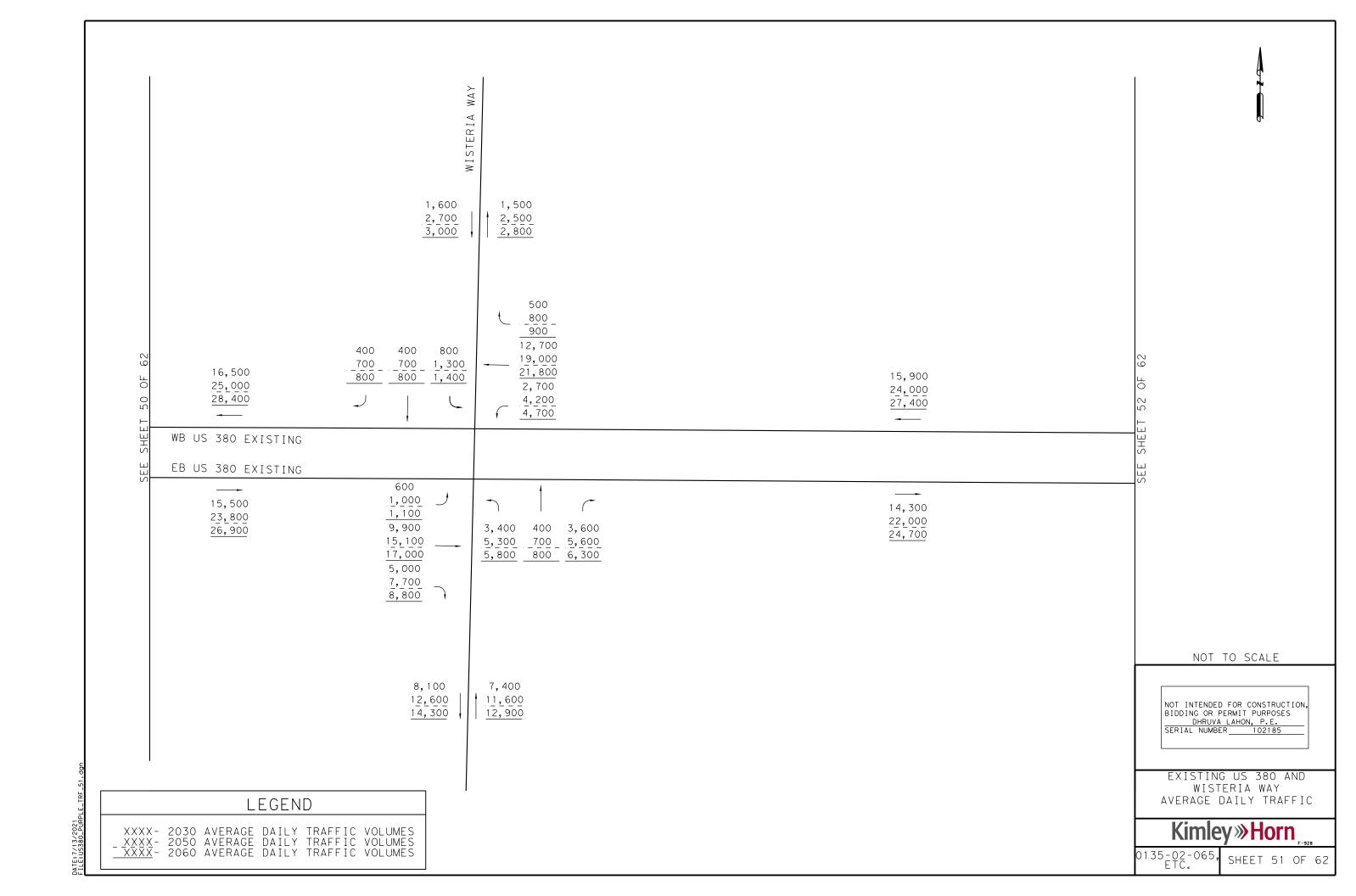


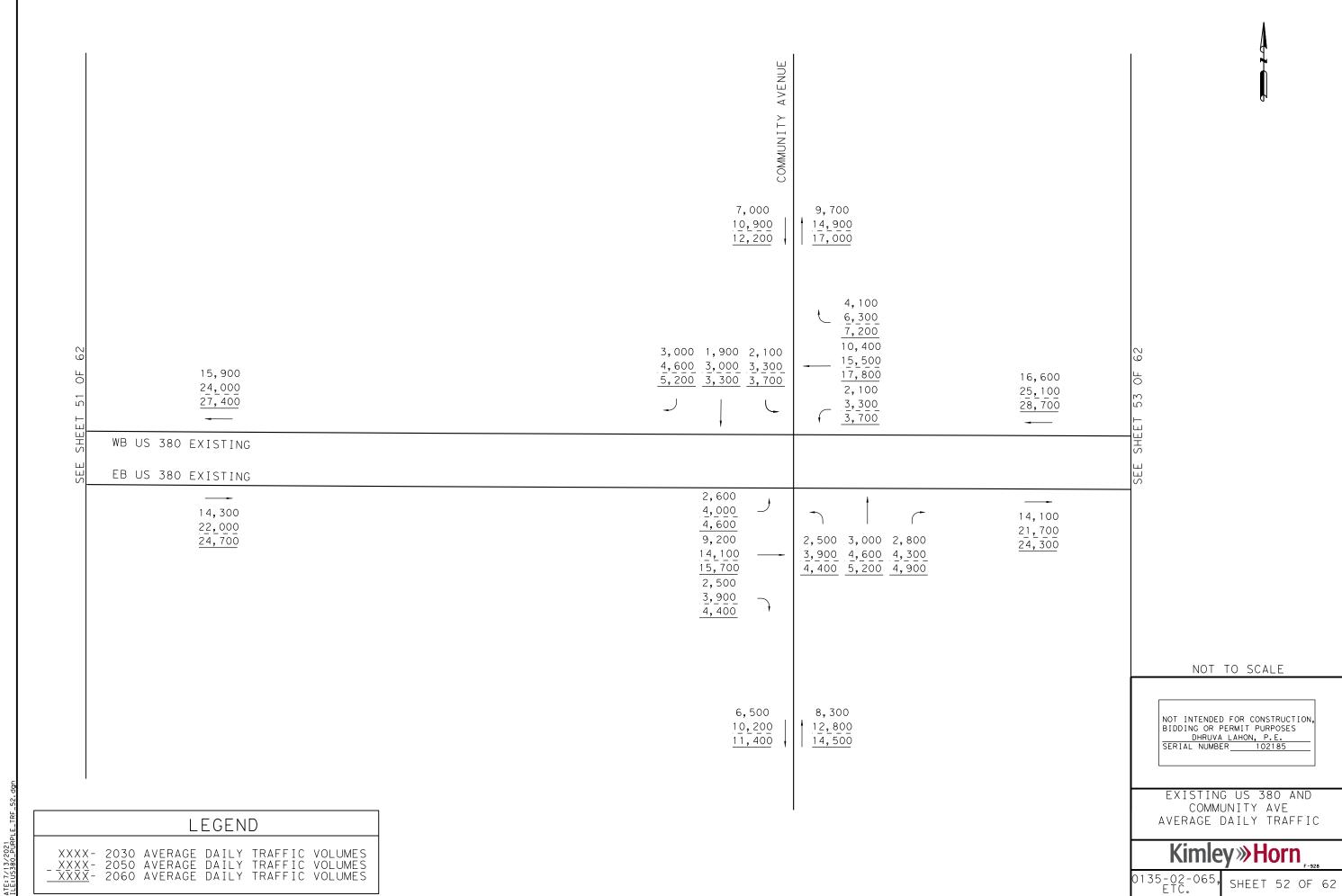


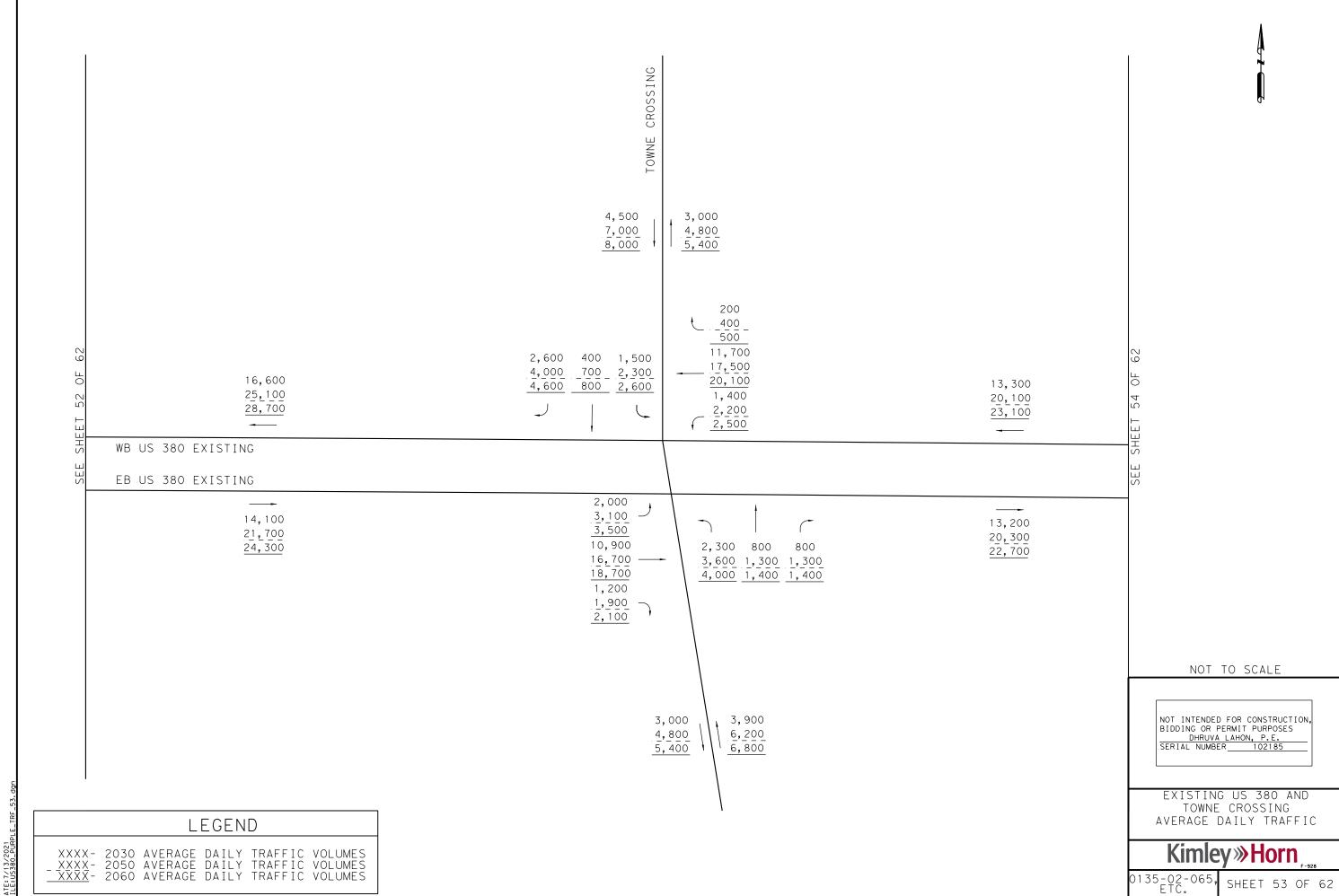


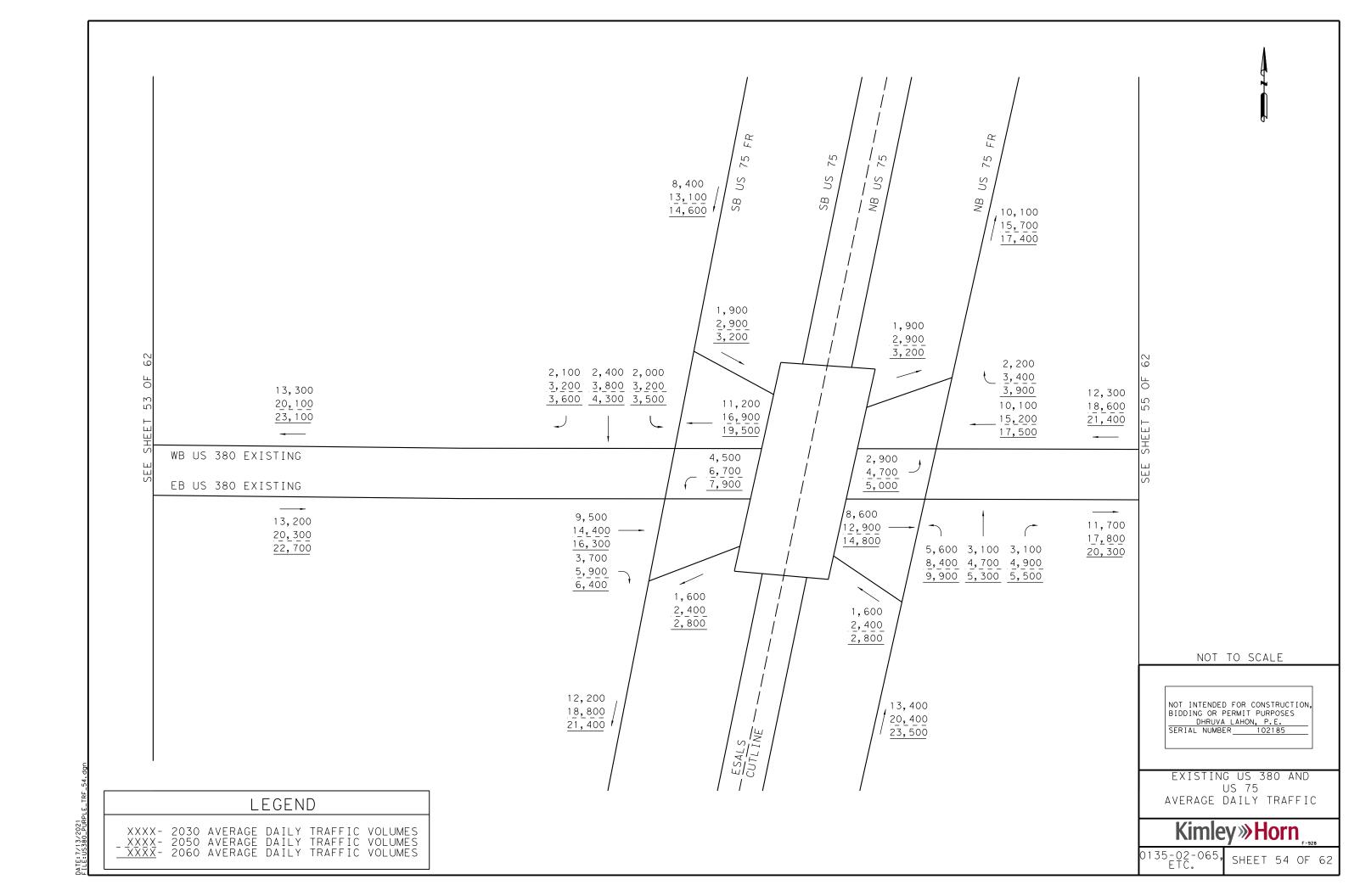


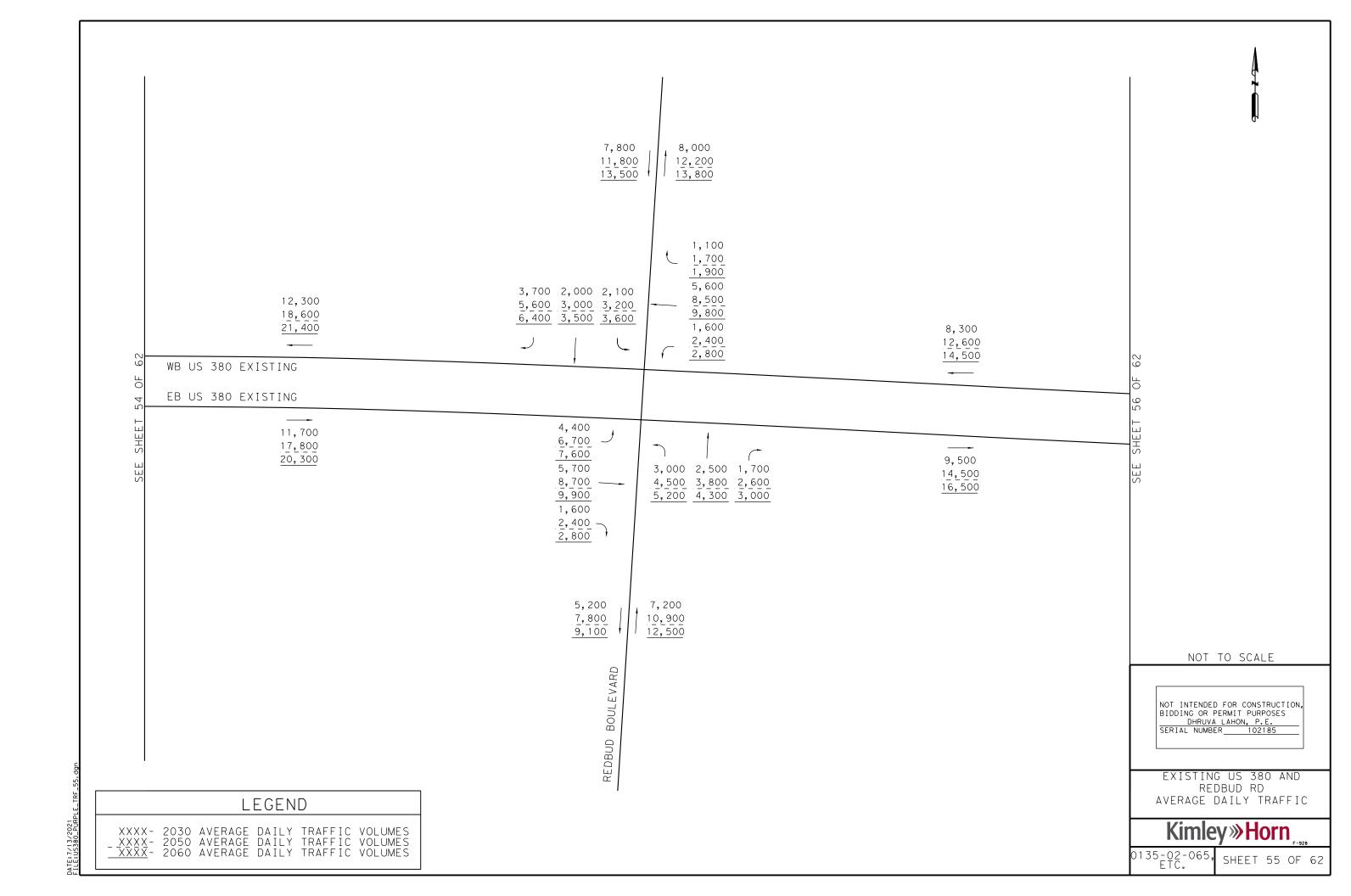
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BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185 EXISTING US 380 AND SKYLINE DR AVERAGE DAILY TRAFFIC LEGEND XXXX- 2030 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2050 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2060 AVERAGE DAILY TRAFFIC VOLUMES Kimley » Horn 0135-02-065, ETC. SHEET 50 OF 62





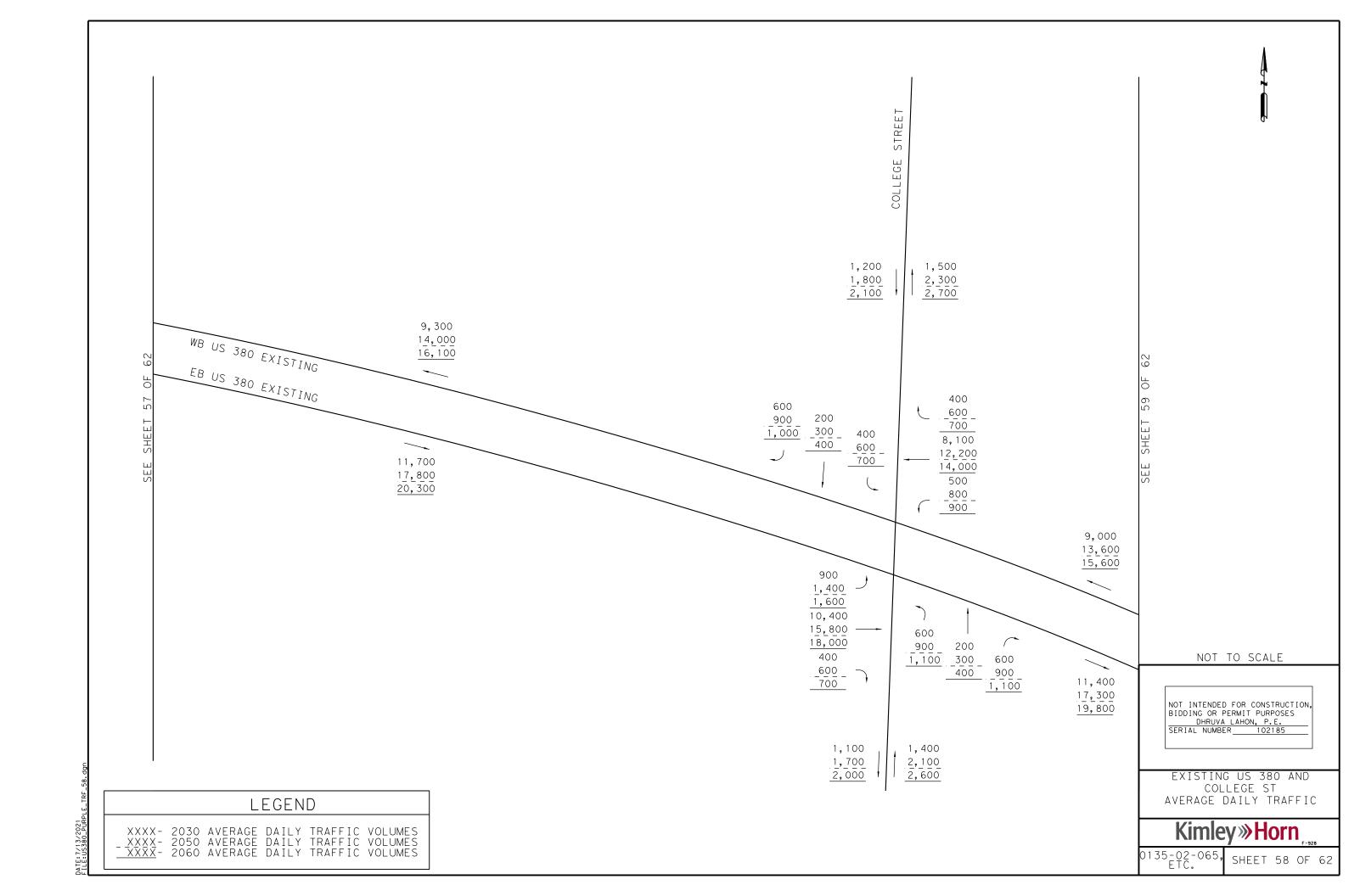


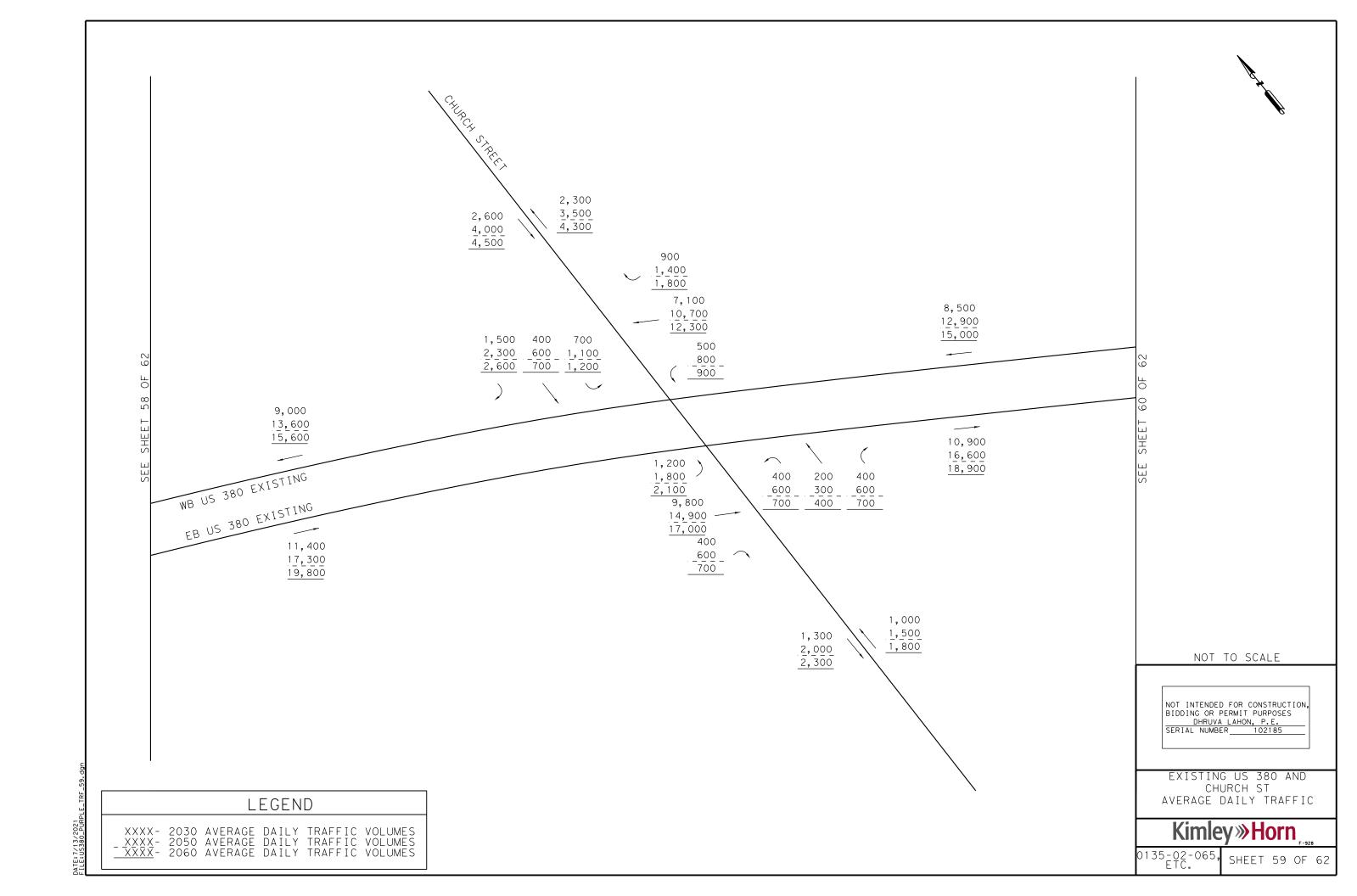


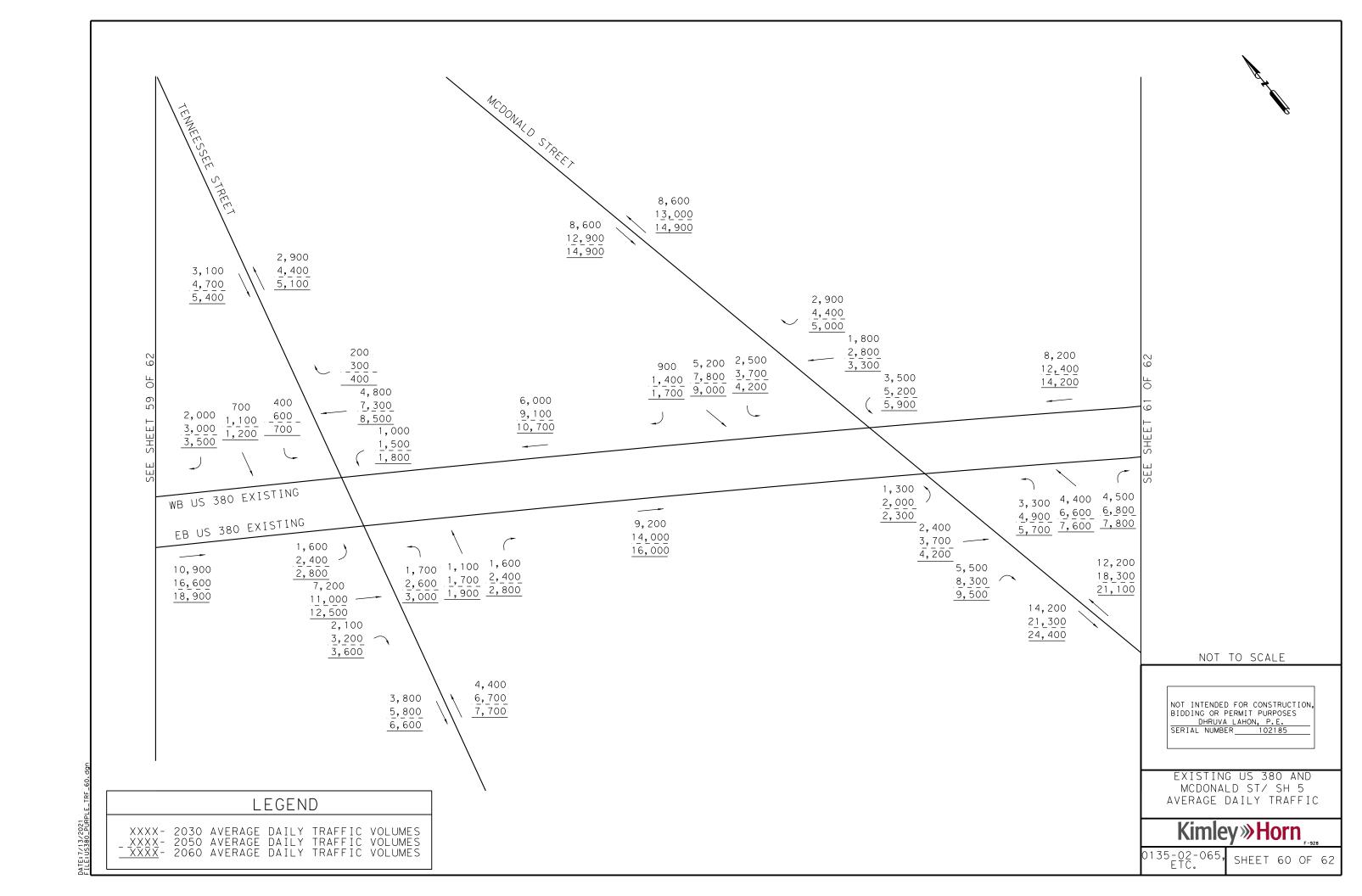


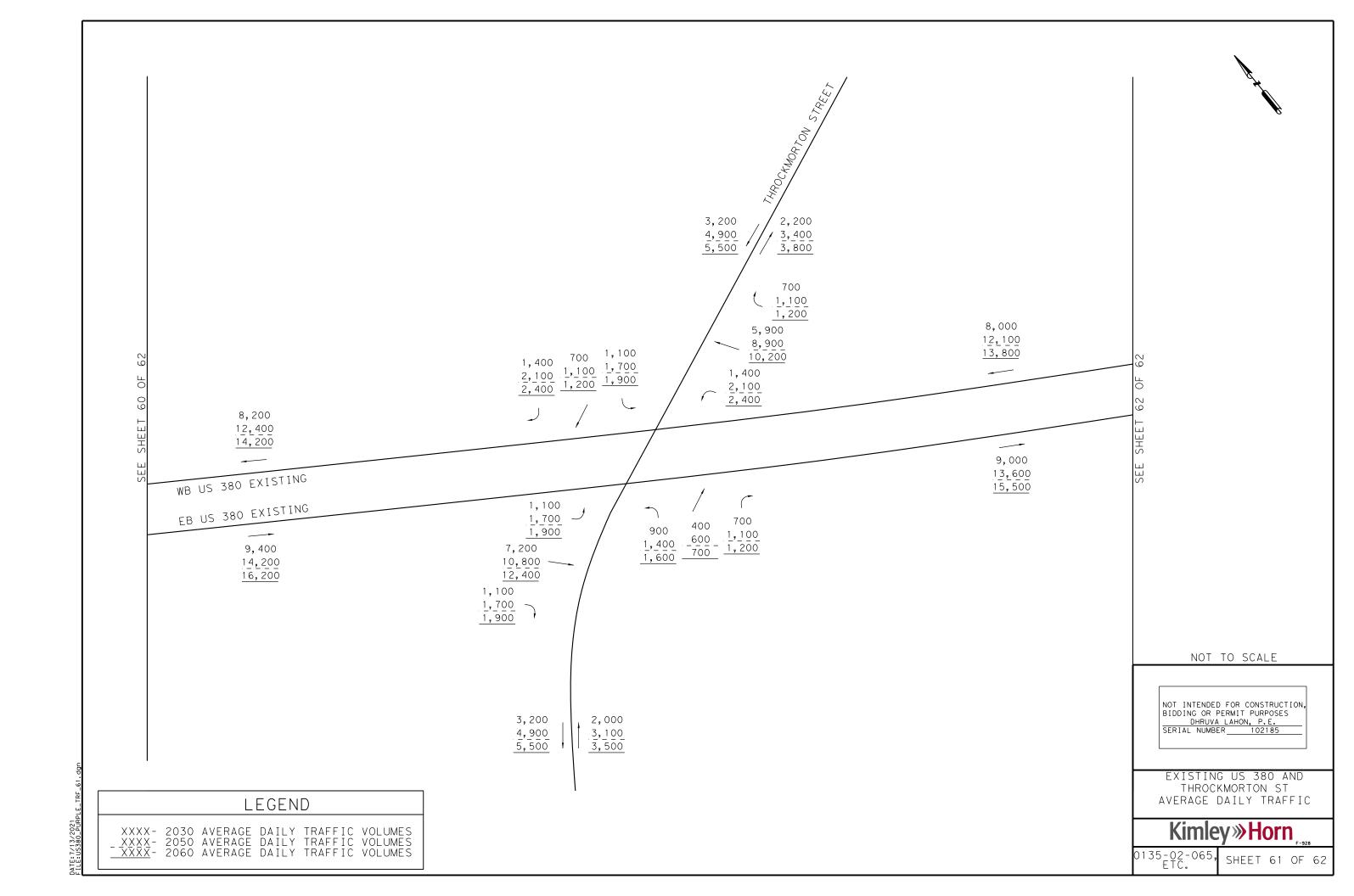
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BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185 EXISTING US 380 AND GRAVES ST AVERAGE DAILY TRAFFIC LEGEND XXXX- 2030 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2050 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2060 AVERAGE DAILY TRAFFIC VOLUMES Kimley » Horn 0135-02-065, ETC. SHEET 56 OF 62

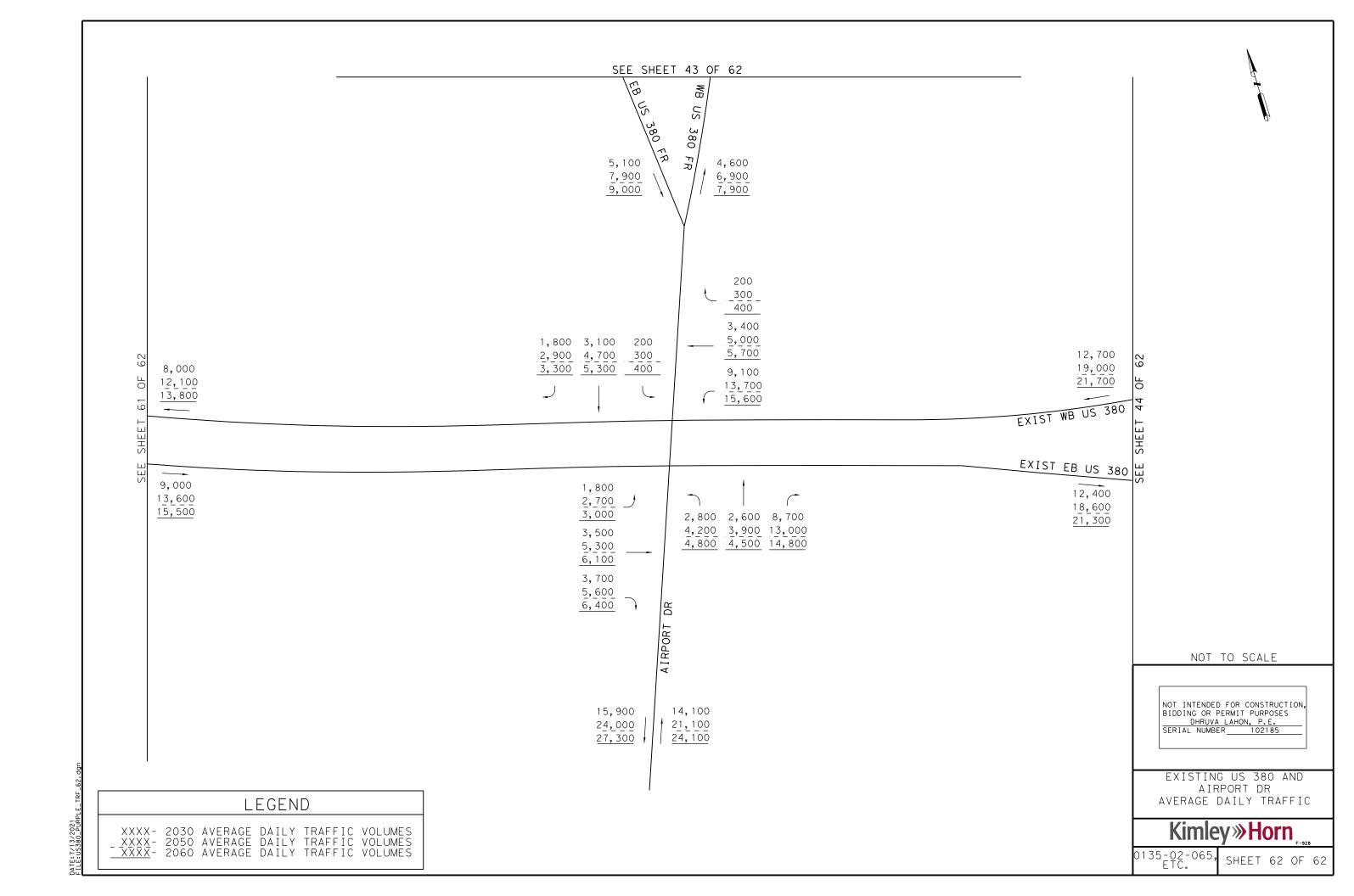
1,000 600 900 1,500 1,900 1,200 200 \_300 400 8,200 200 200 600 9,100 12,300 \_300 400 300 \_900 14,100 13,700 400 <u>1,100</u> 15,800 900 1,400 1,600 9,300 WB US 380 EXISTING 1<u>4</u>,000 16,100 OF. EB US 380 EXISTING SHEET 200 11,100 \_3<u>00</u> -16,900 19,200 9,800 700 200 1,300 14,900 2,000 300 1,100 11,700 16,900 1,300 400 2,300 17,800 1,100 20,300 1,700 1,900 2,200 2,200 3,400 3,400 3,900 4,000 NOT TO SCALE STREET NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185 WADDILL EXISTING US 380 AND WADDILL ST AVERAGE DAILY TRAFFIC LEGEND XXXX- 2030 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2050 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2060 AVERAGE DAILY TRAFFIC VOLUMES Kimley » Horn 0135-02-065, ETC. SHEET 57 OF 62

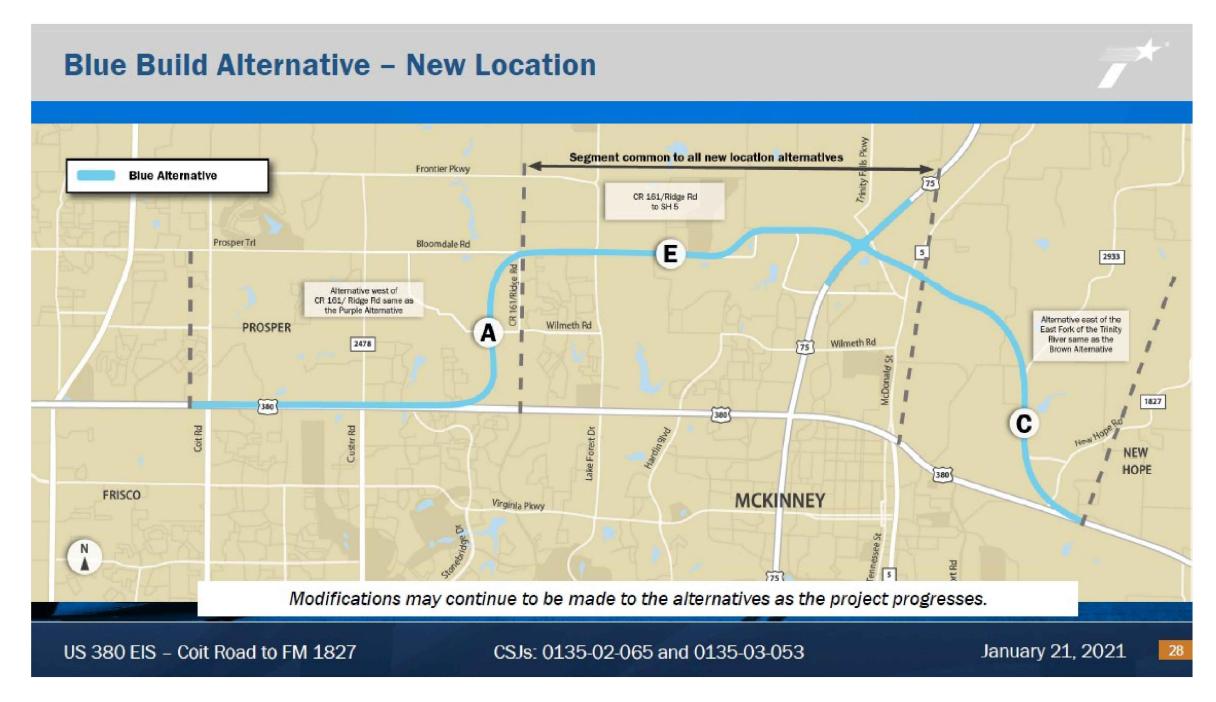












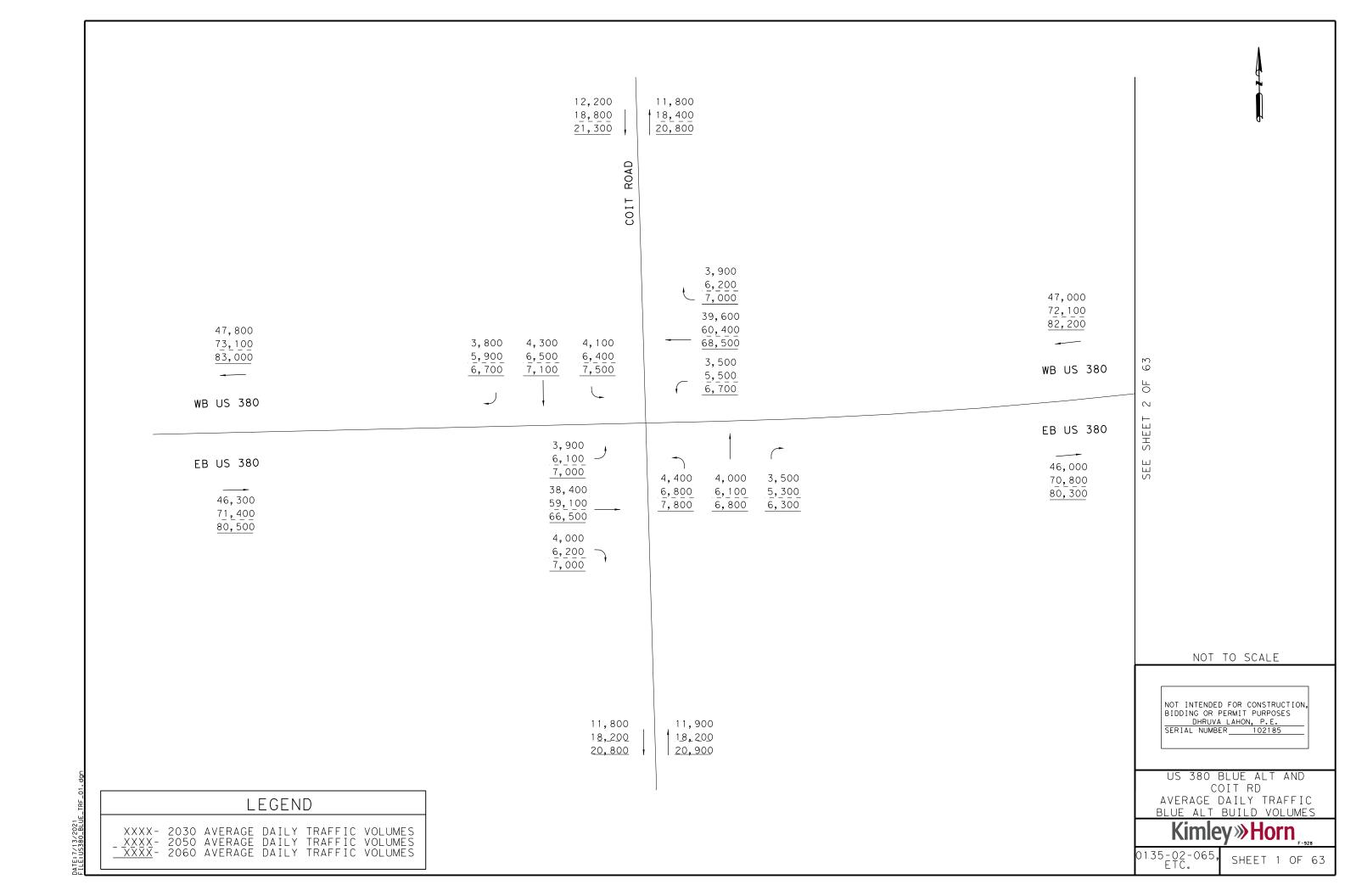
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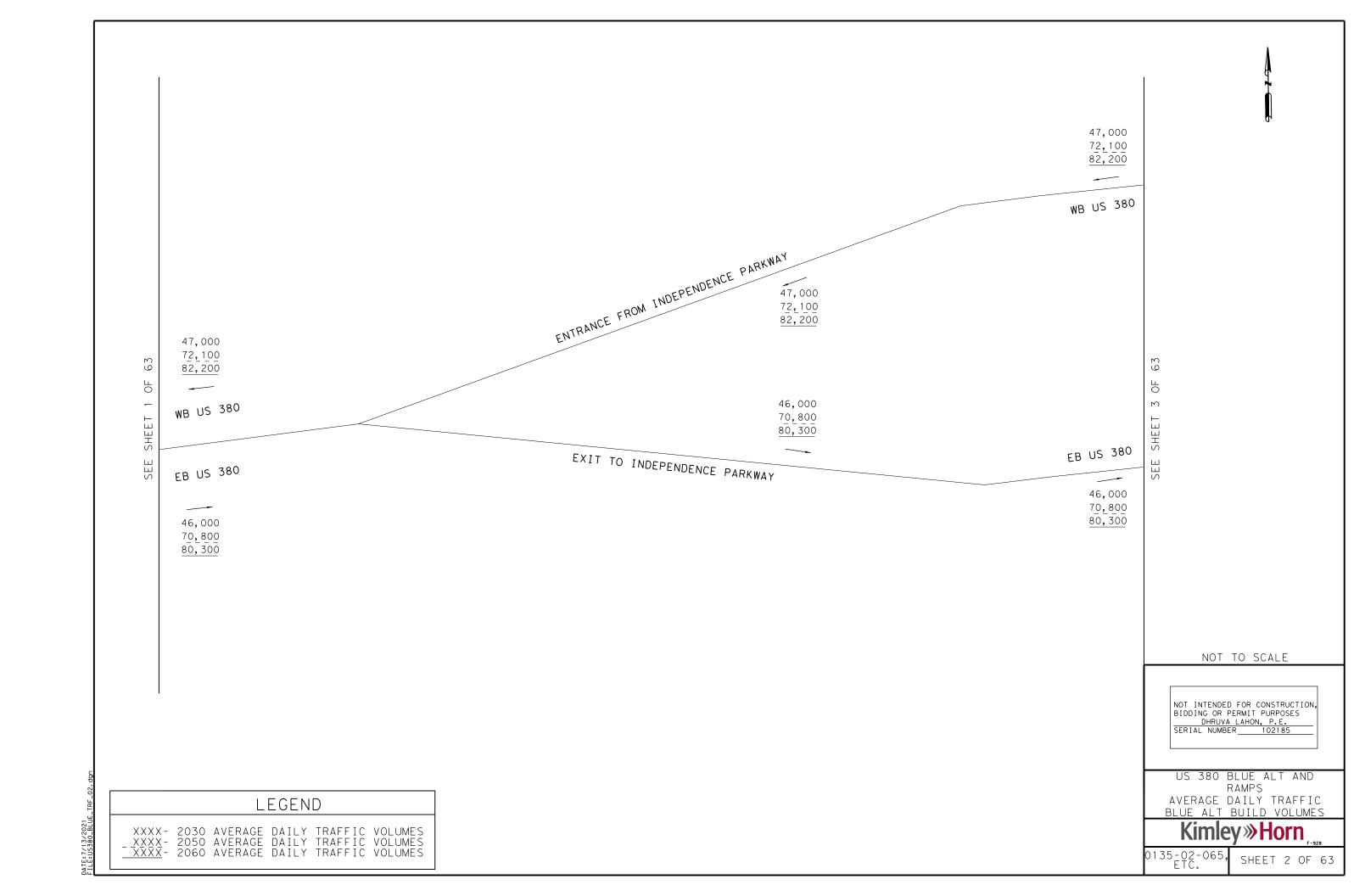
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BIDDING OR PERMIT PURPOSES
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SERIAL NUMBER 102185

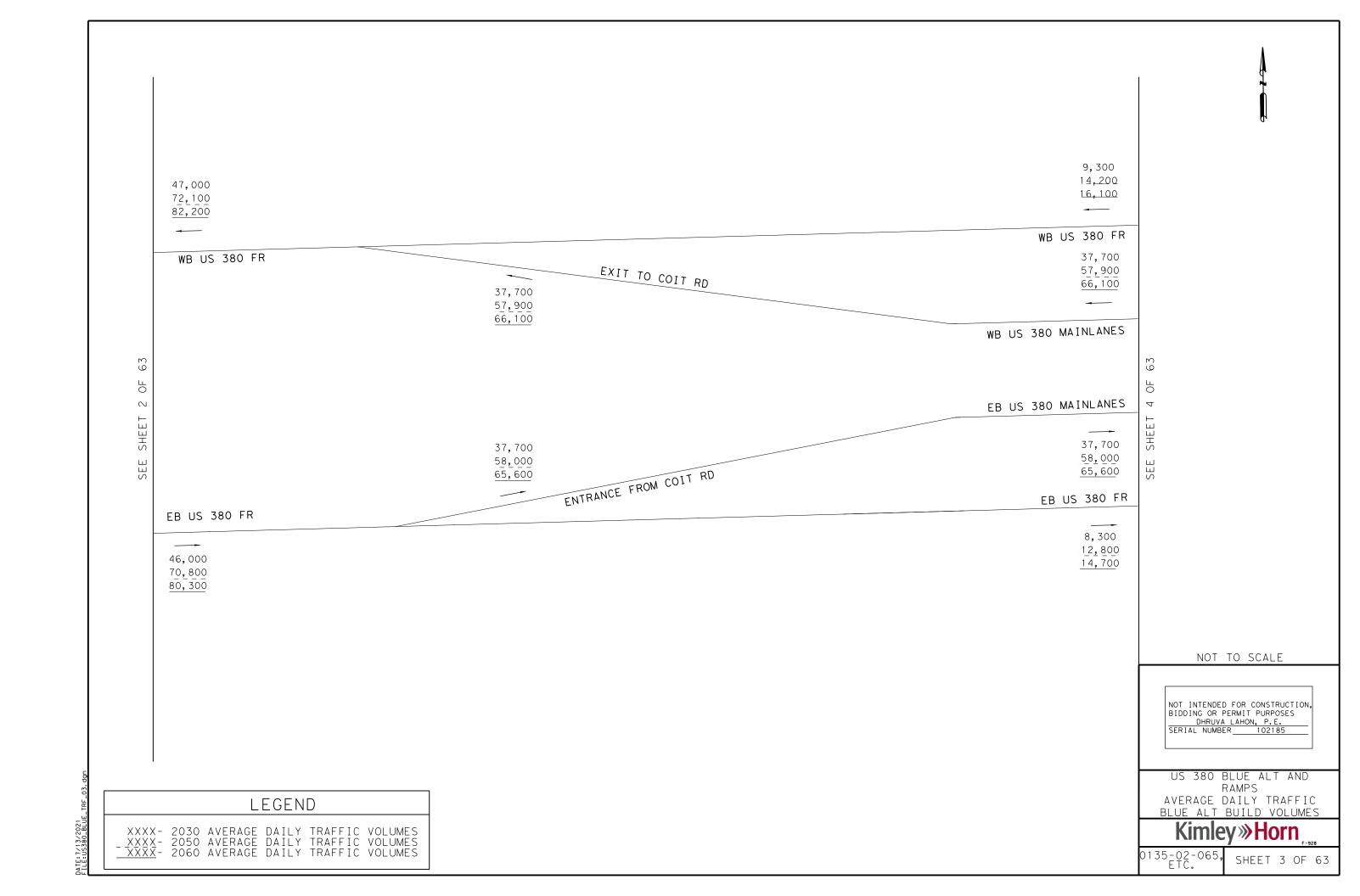
US 380 BLUE ALT KEYMAP

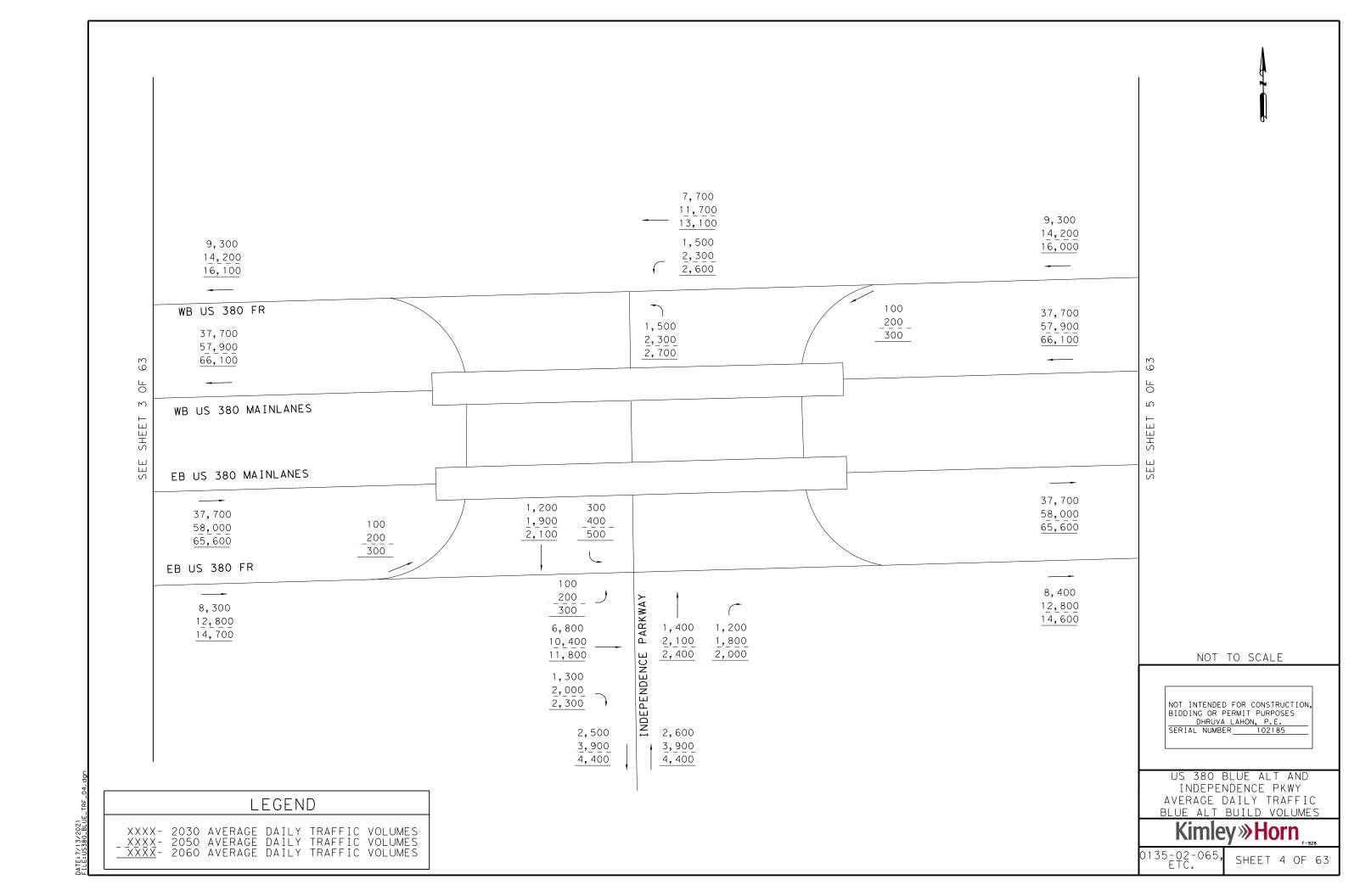
Kimley » Horn
0135-02-065, SHEET 1 OF 1

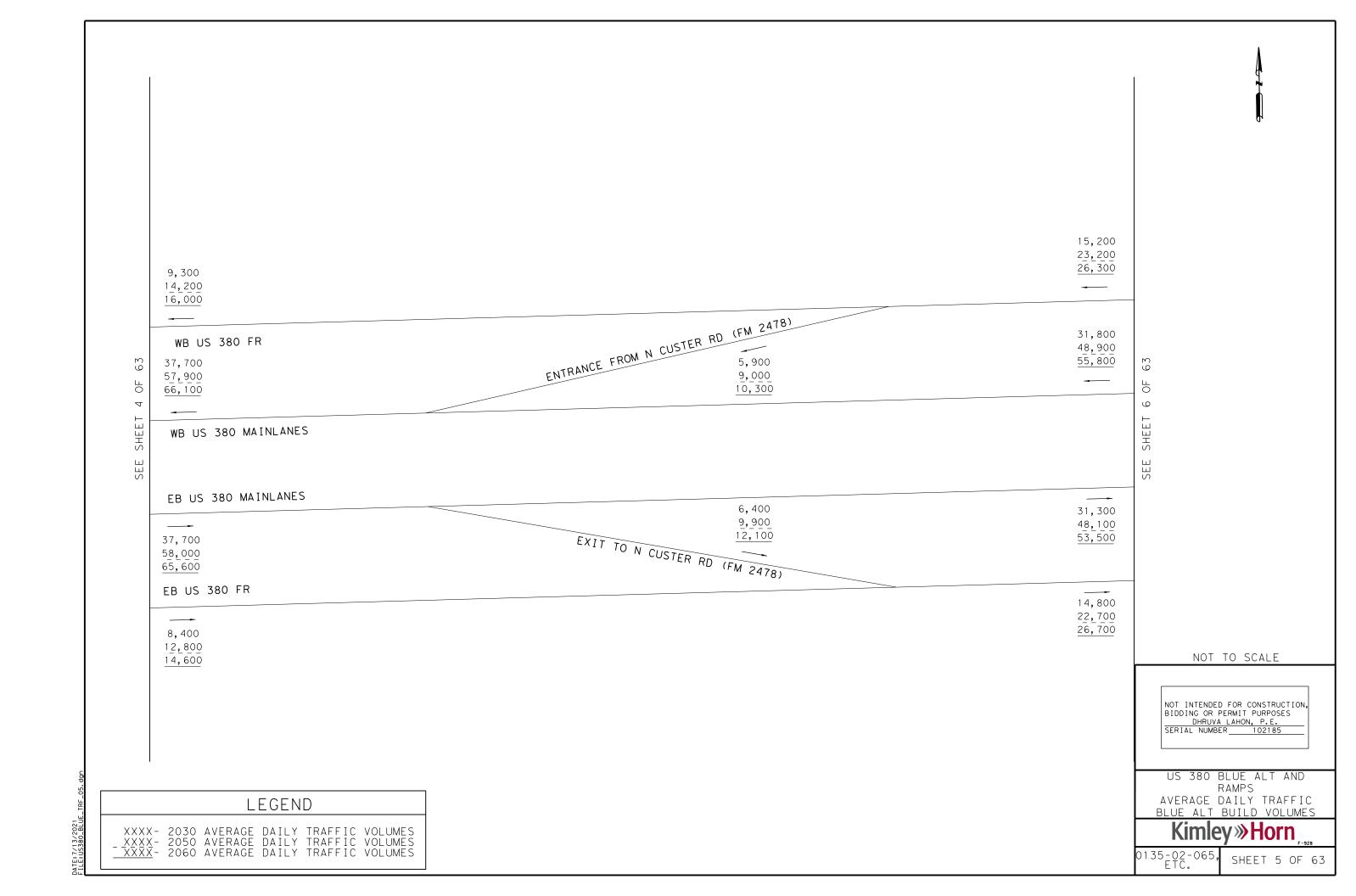
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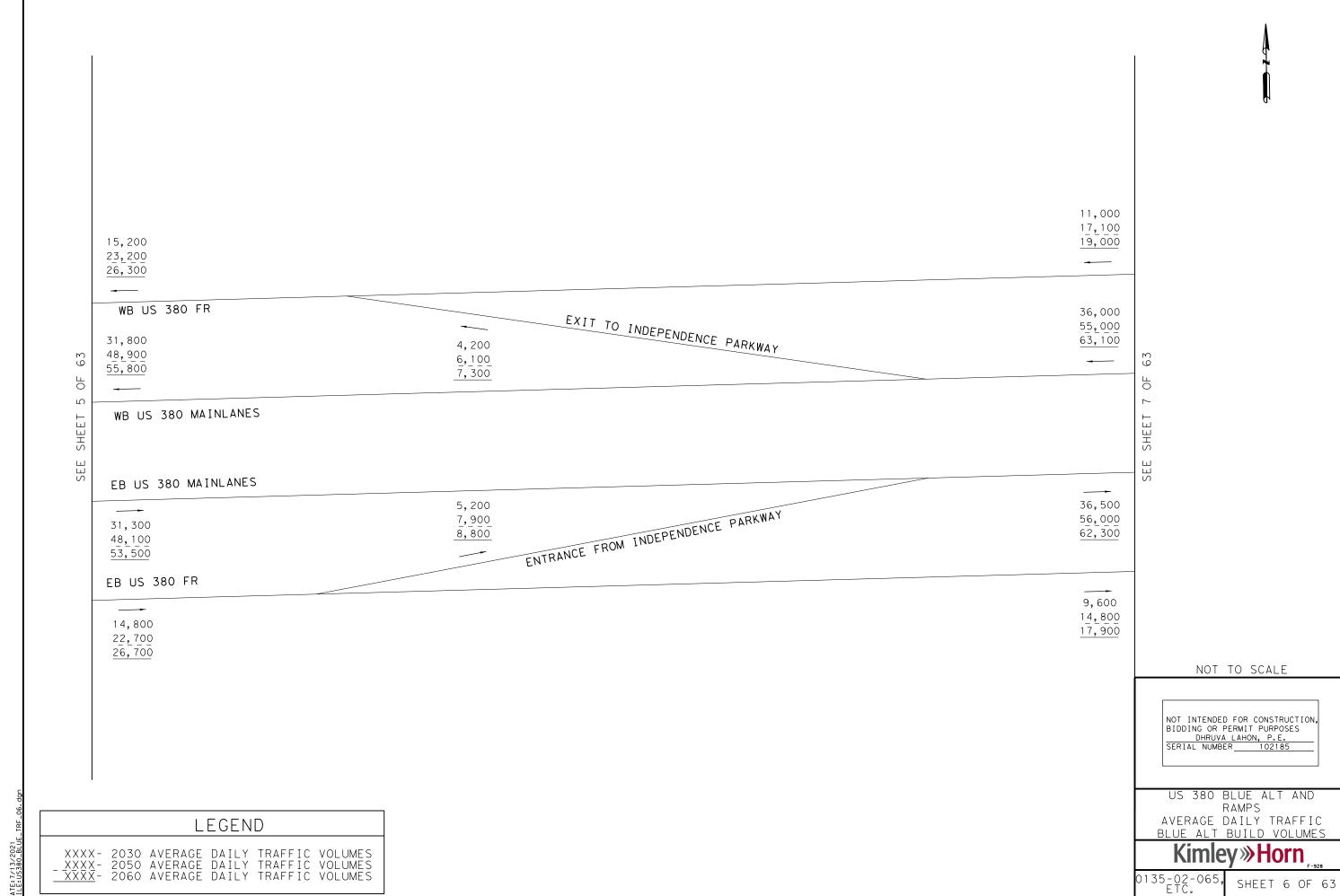


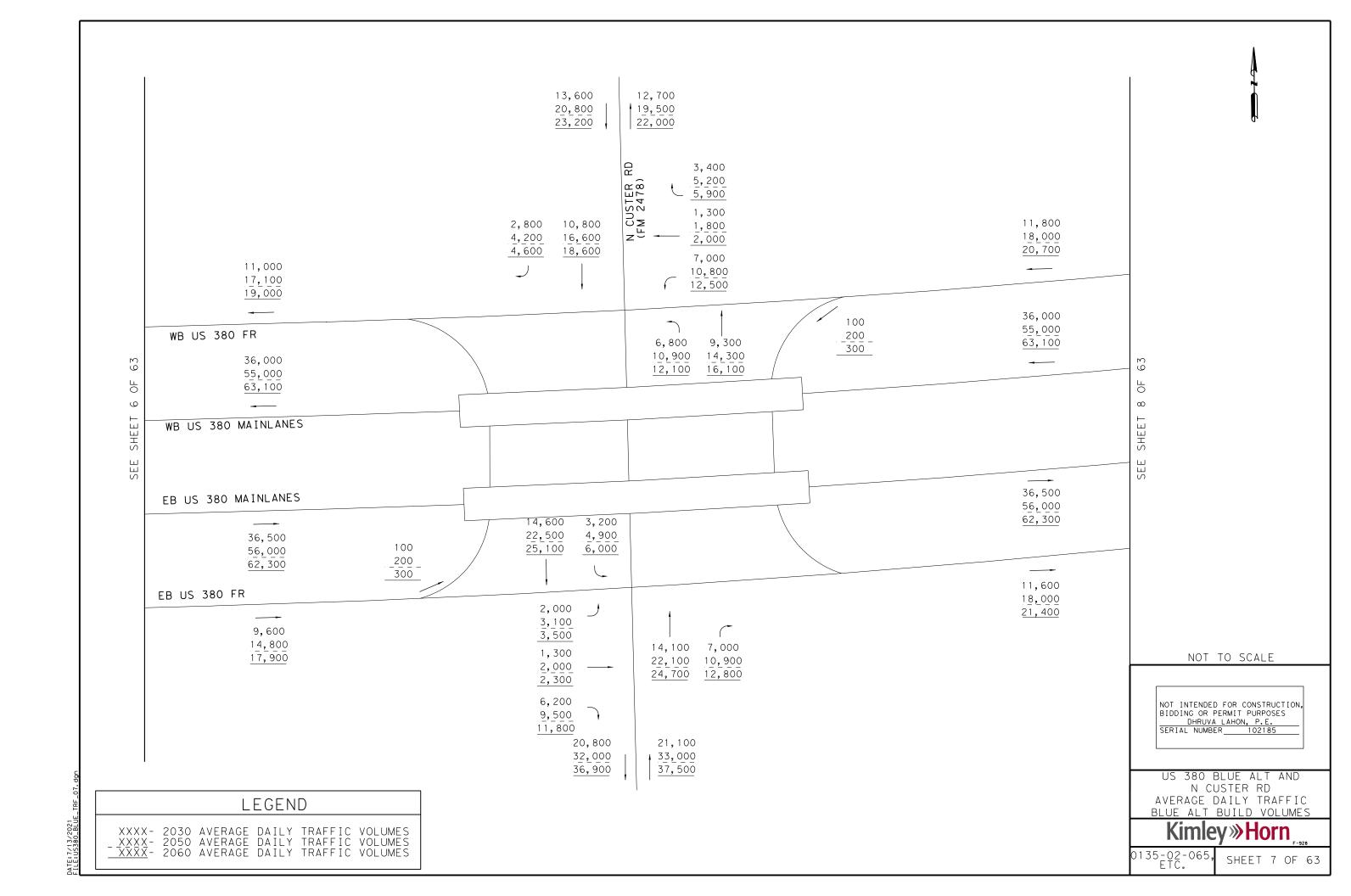


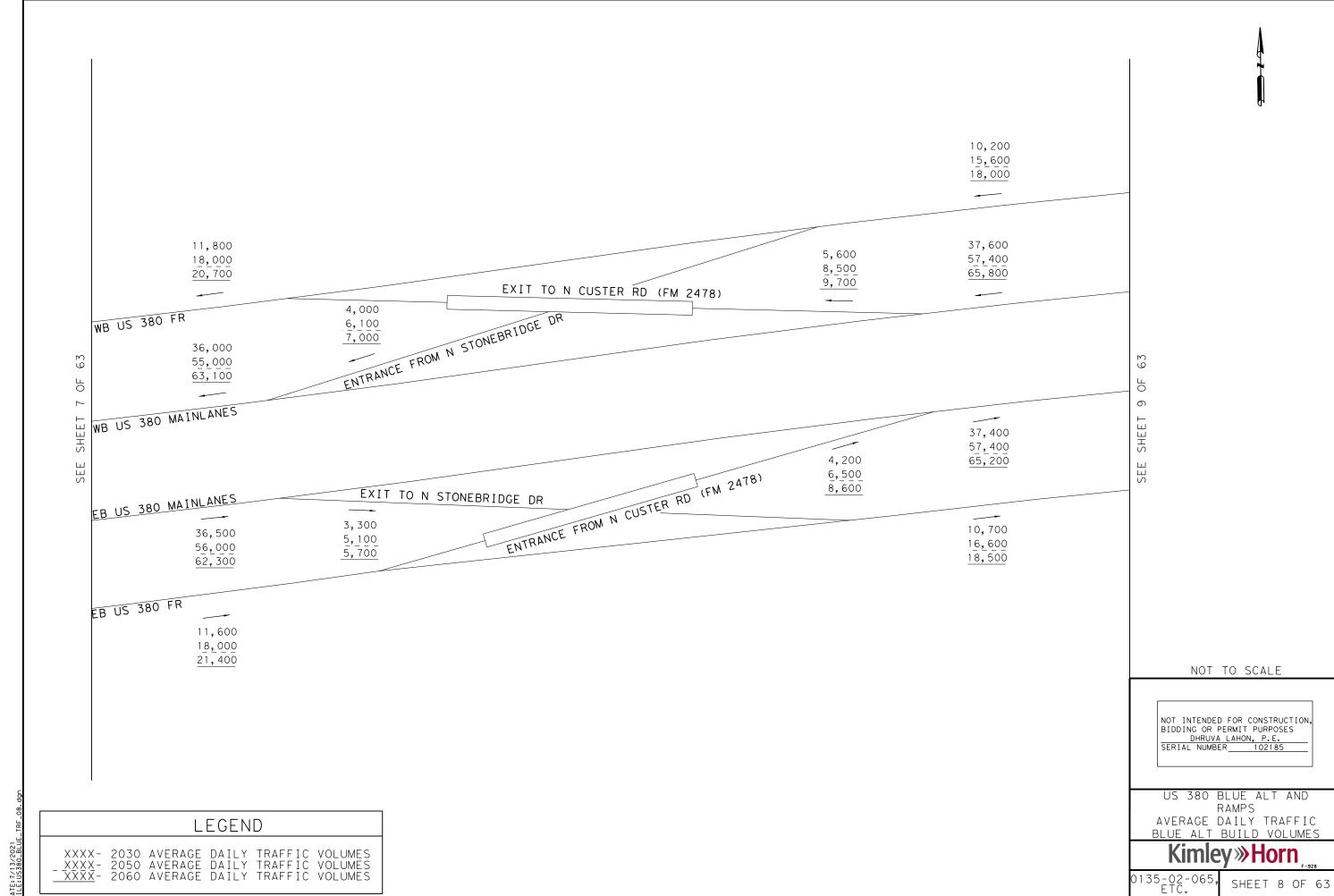


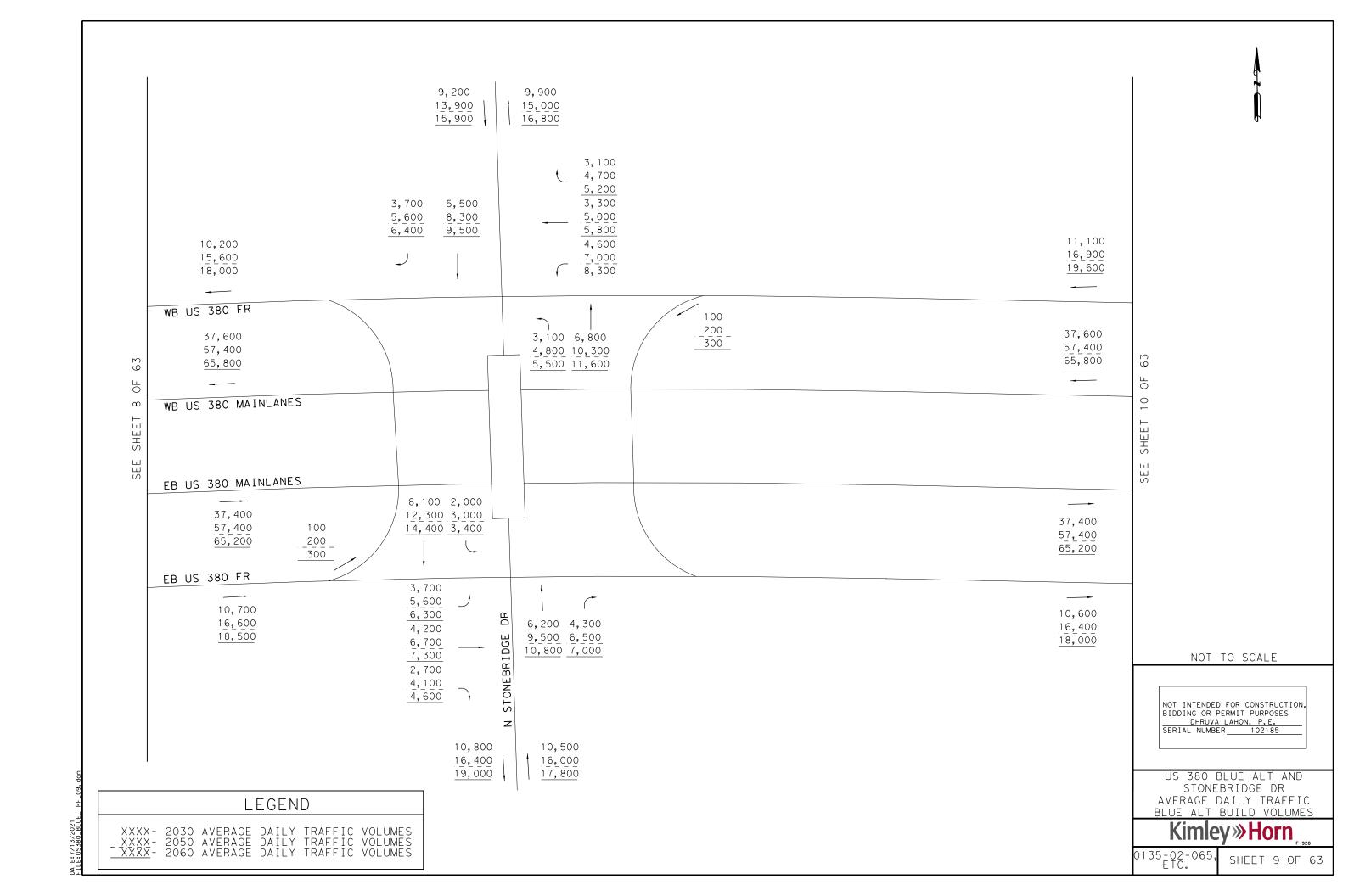


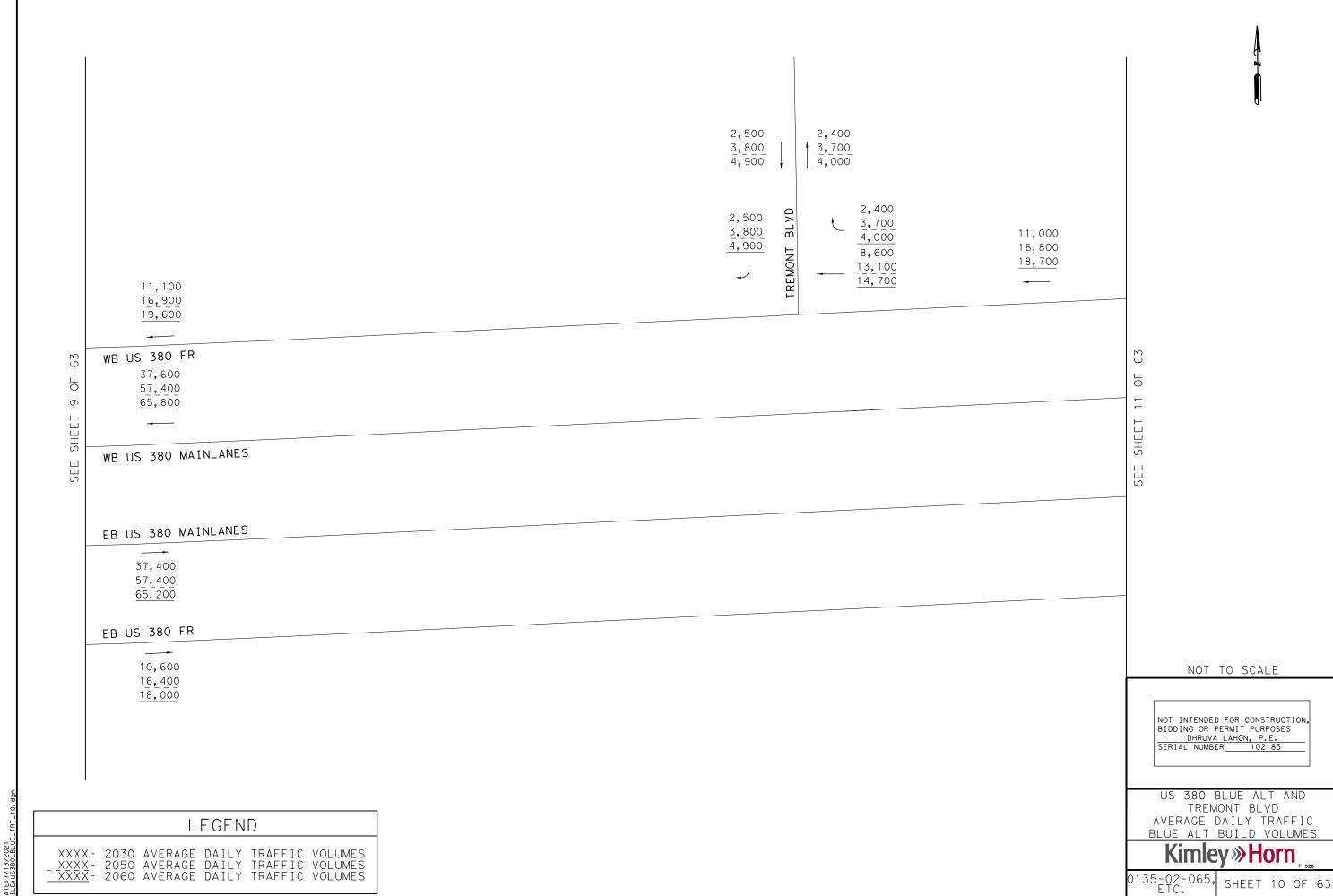


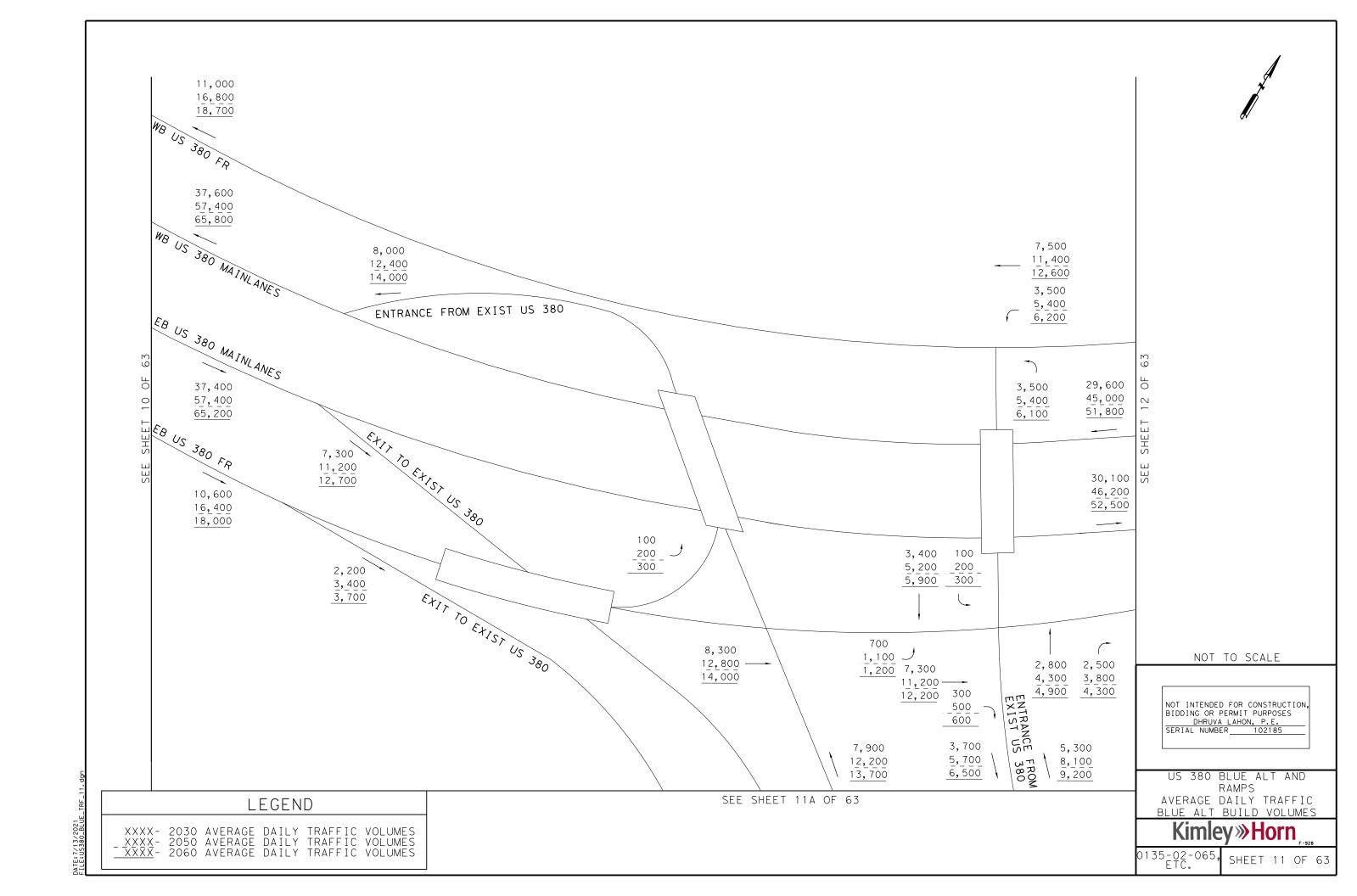


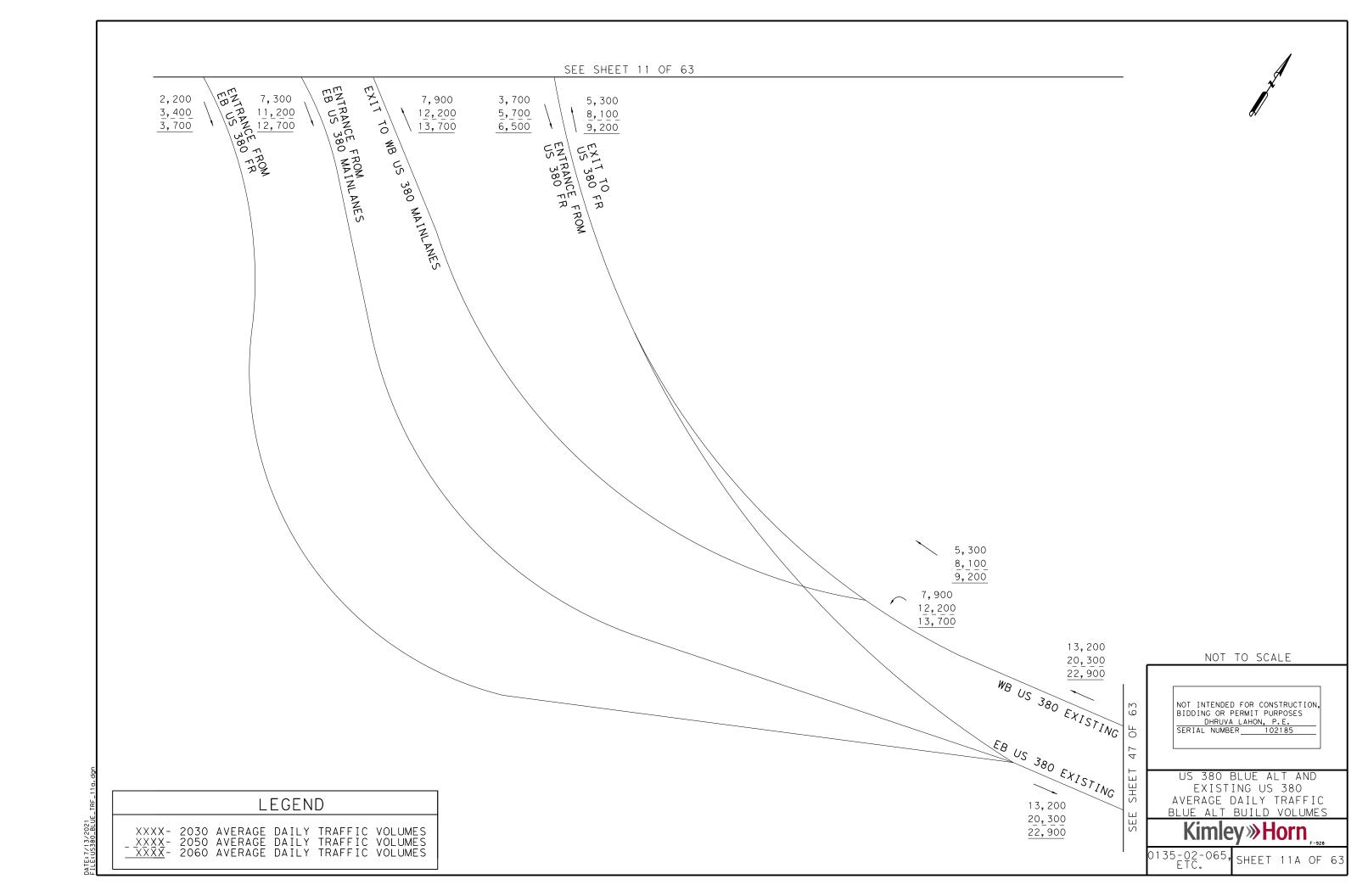


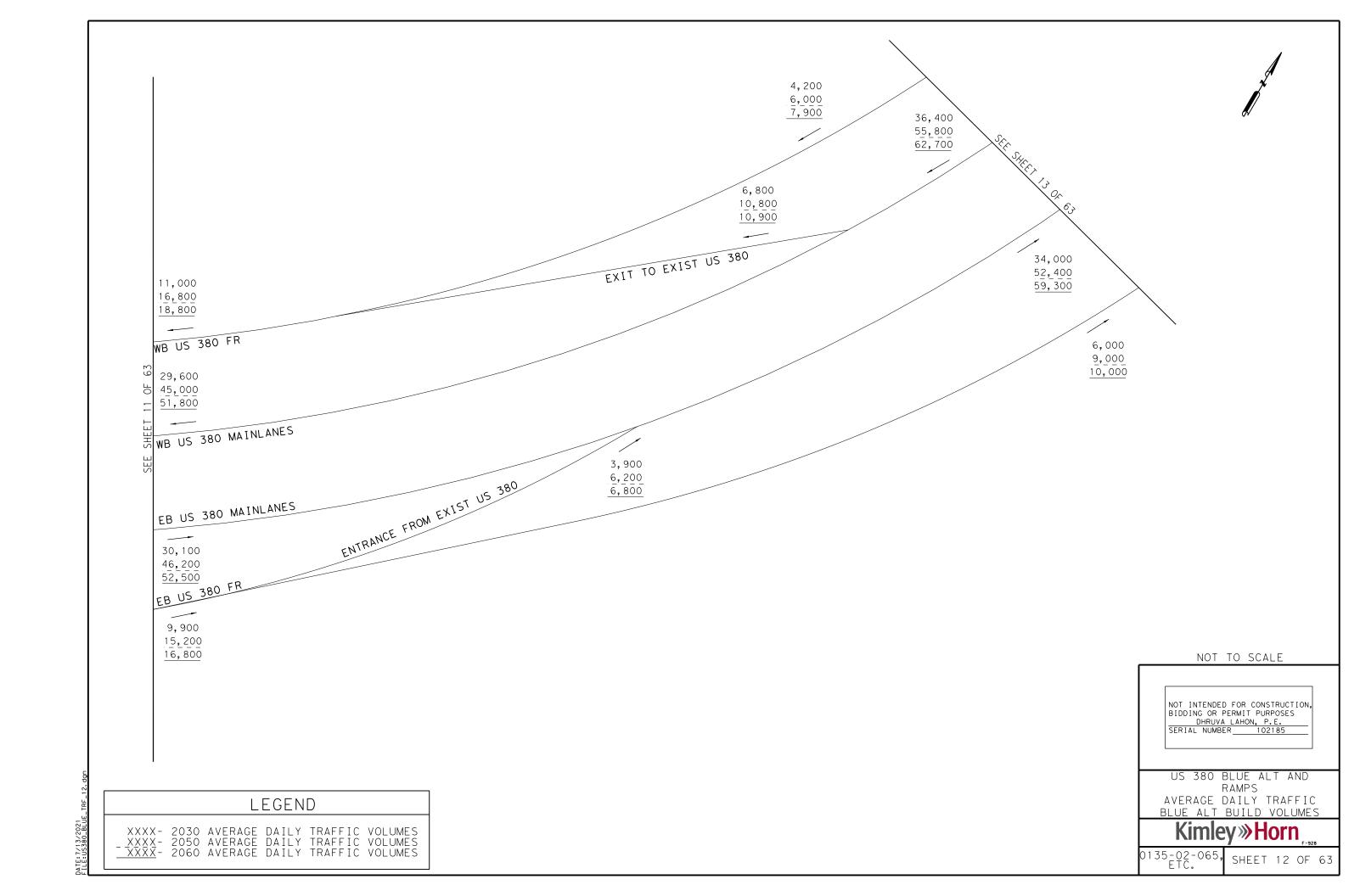


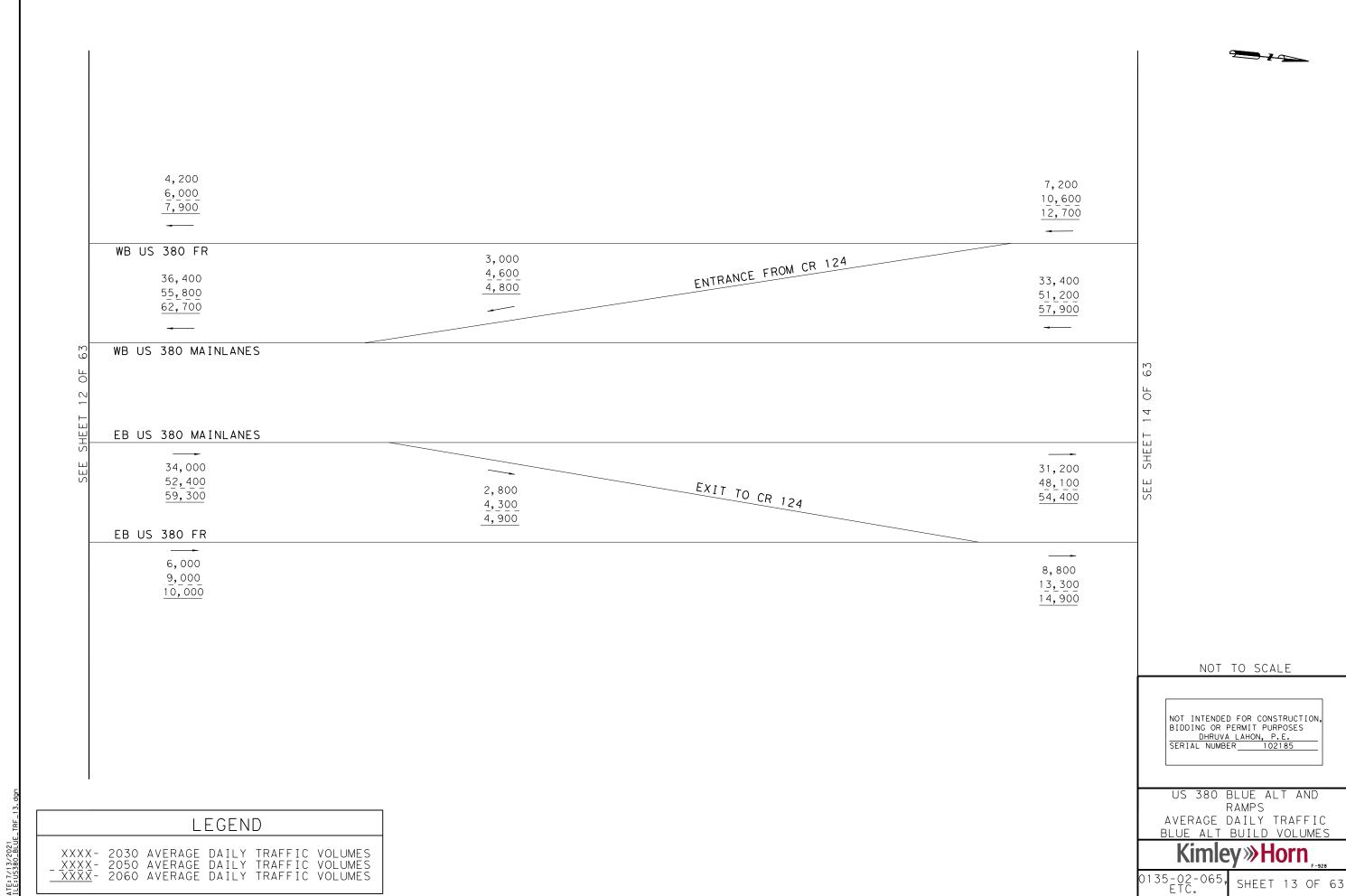


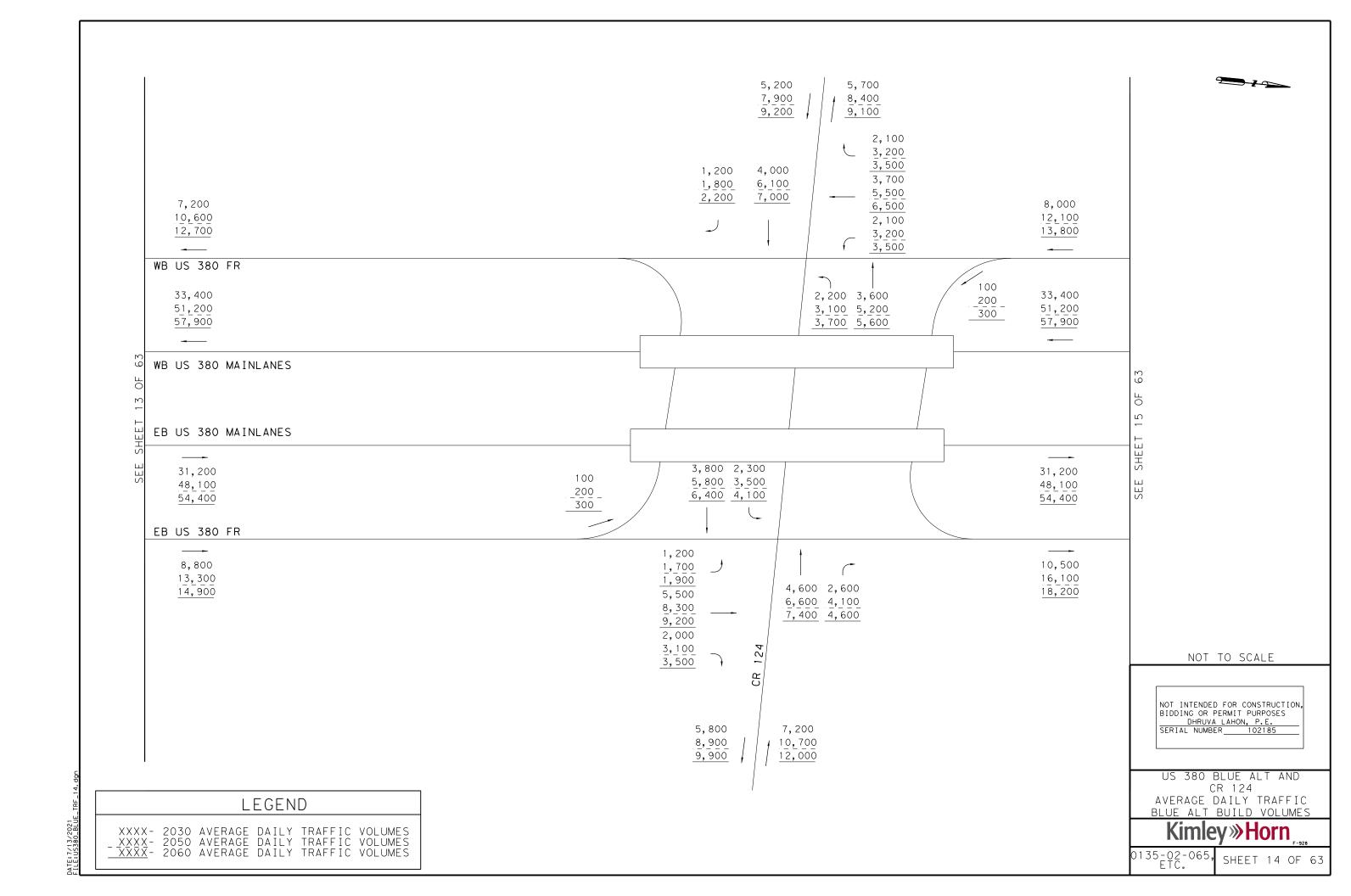




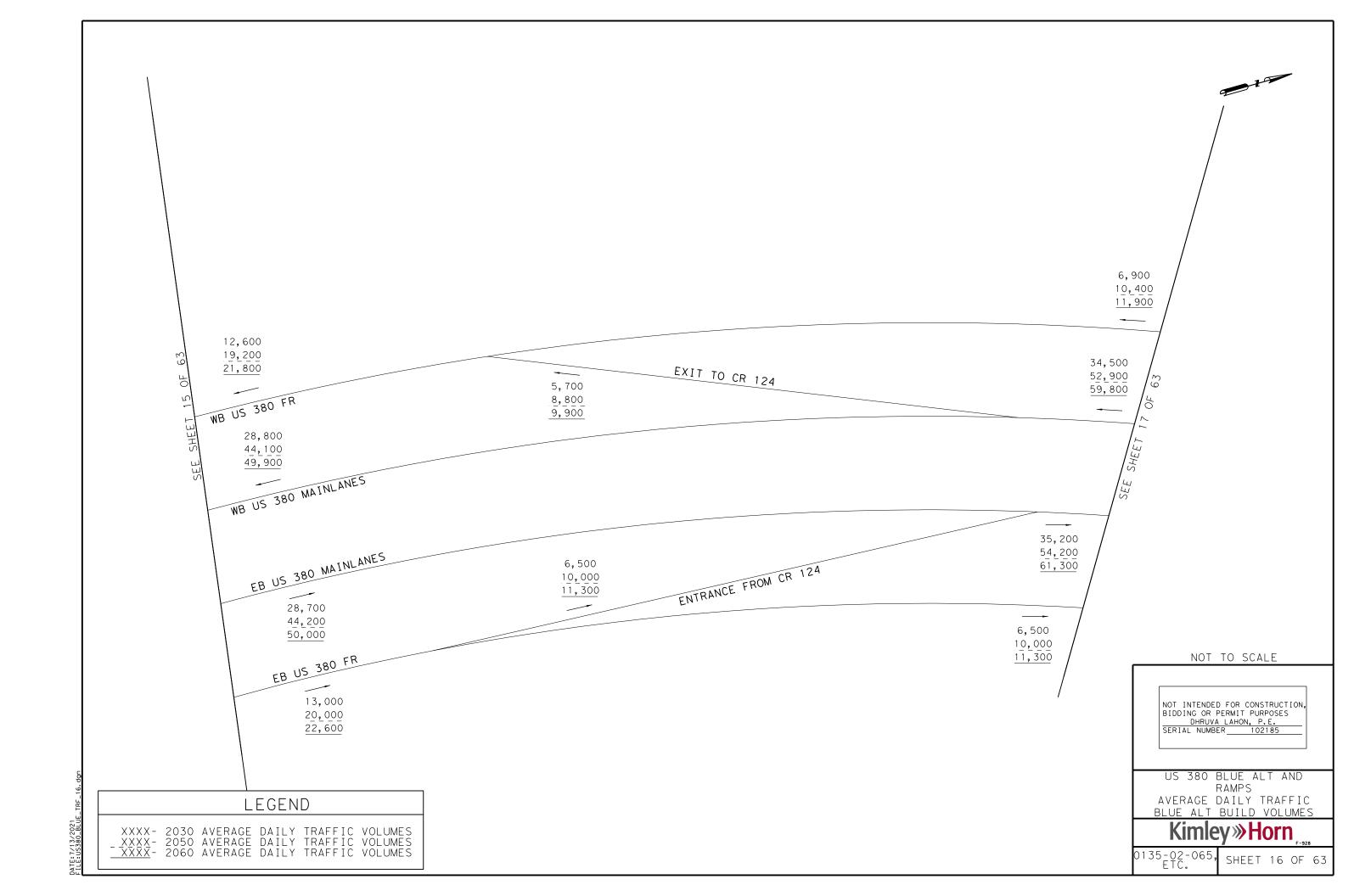


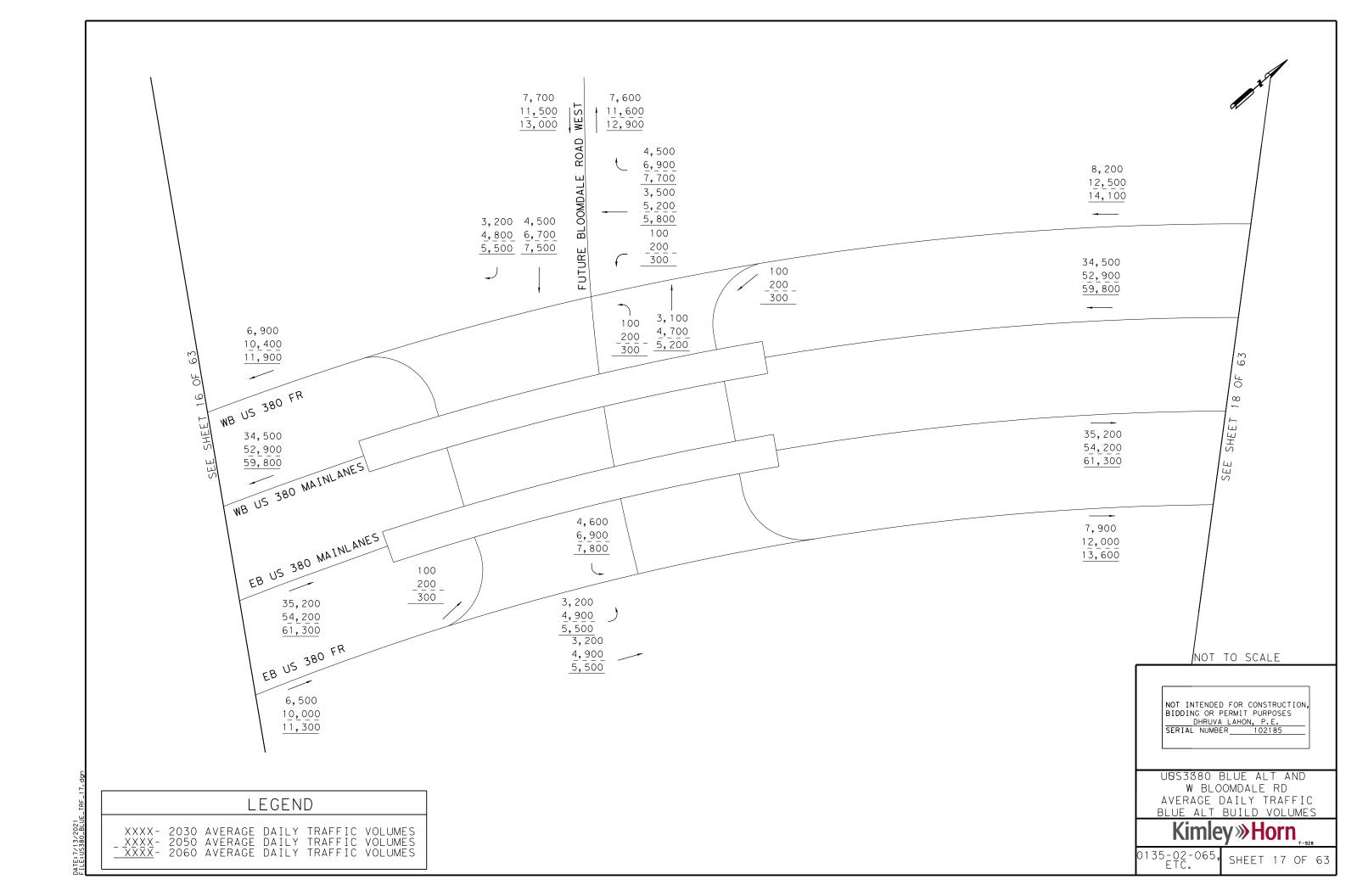


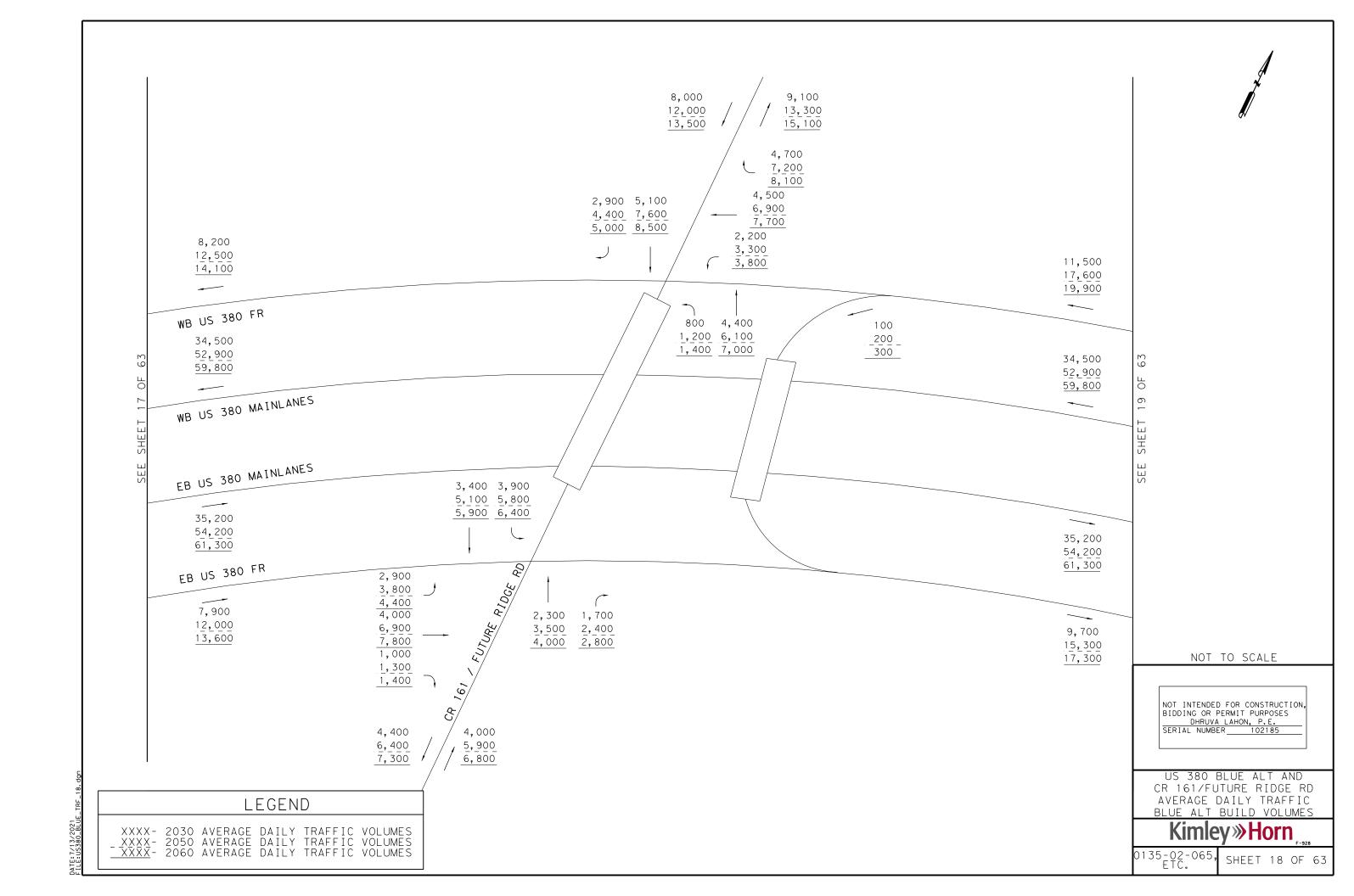


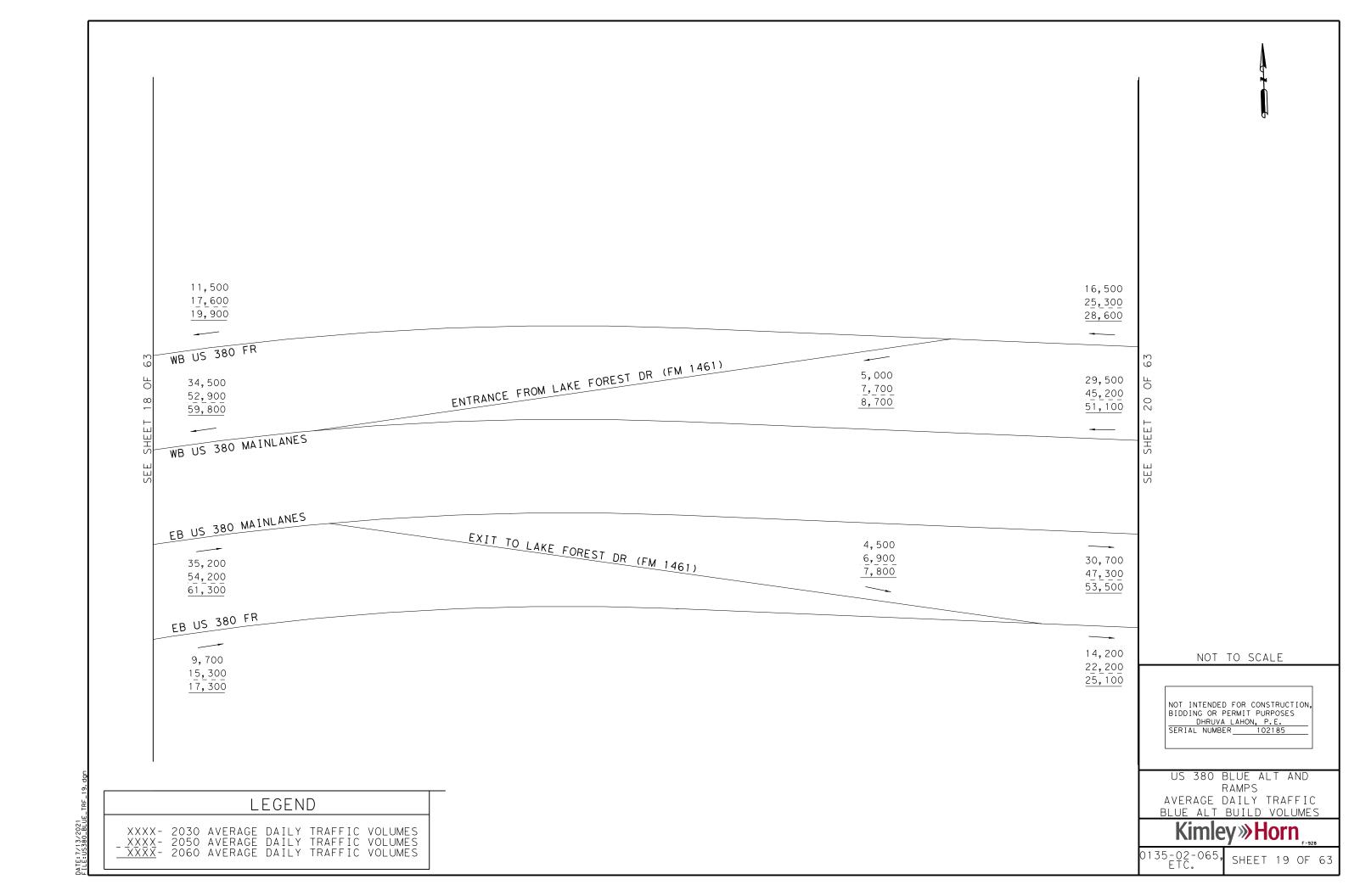


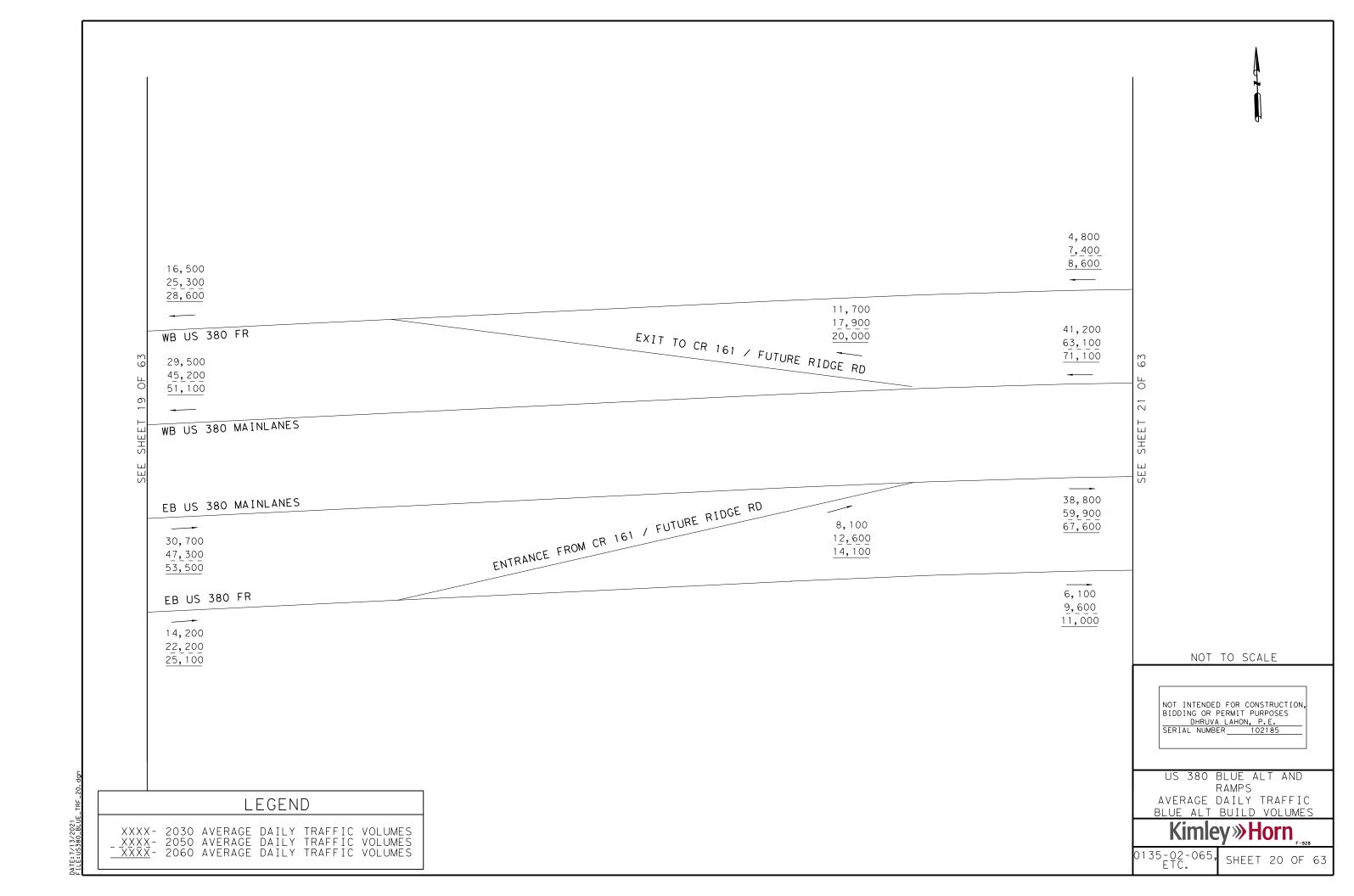


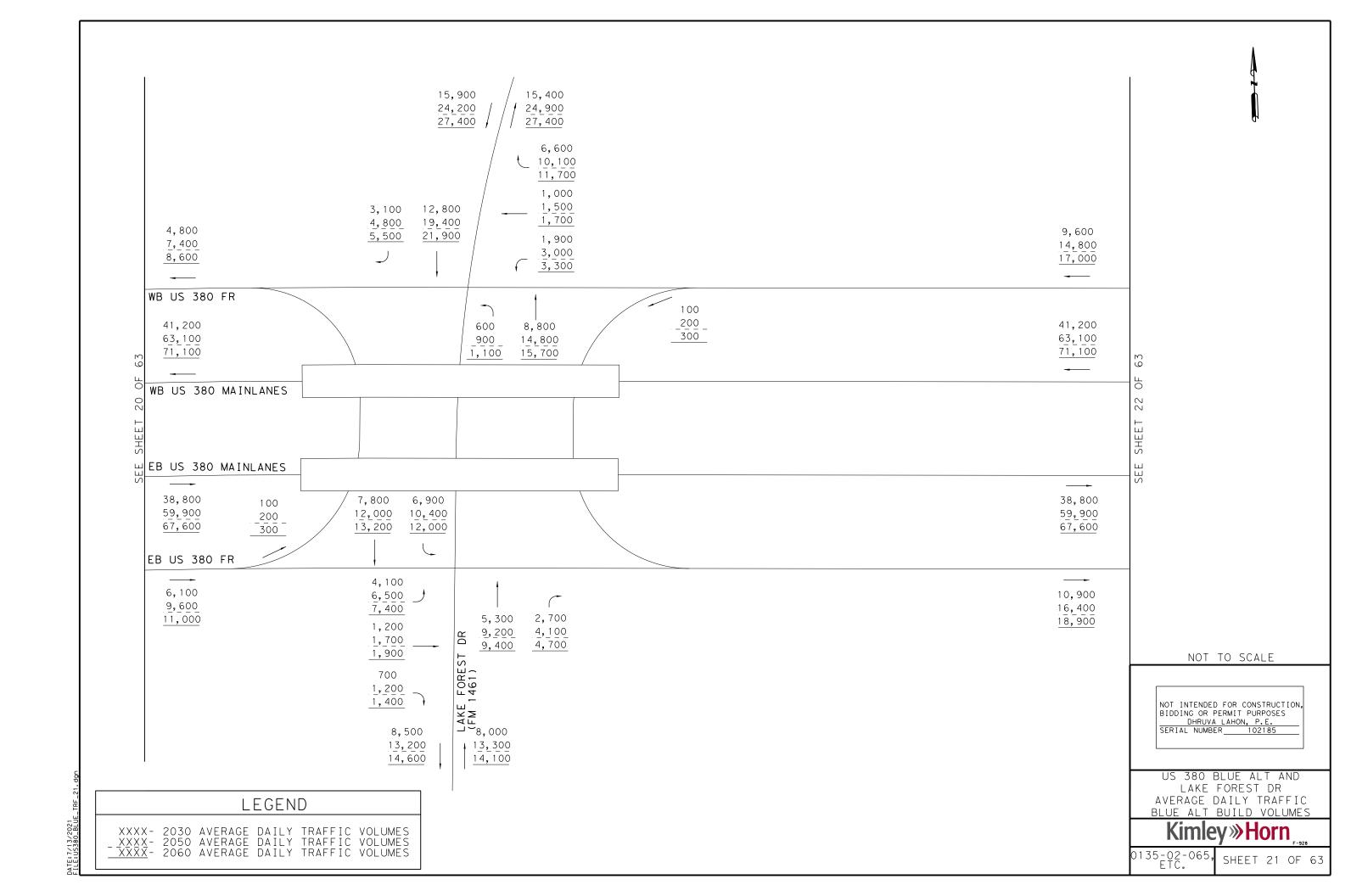


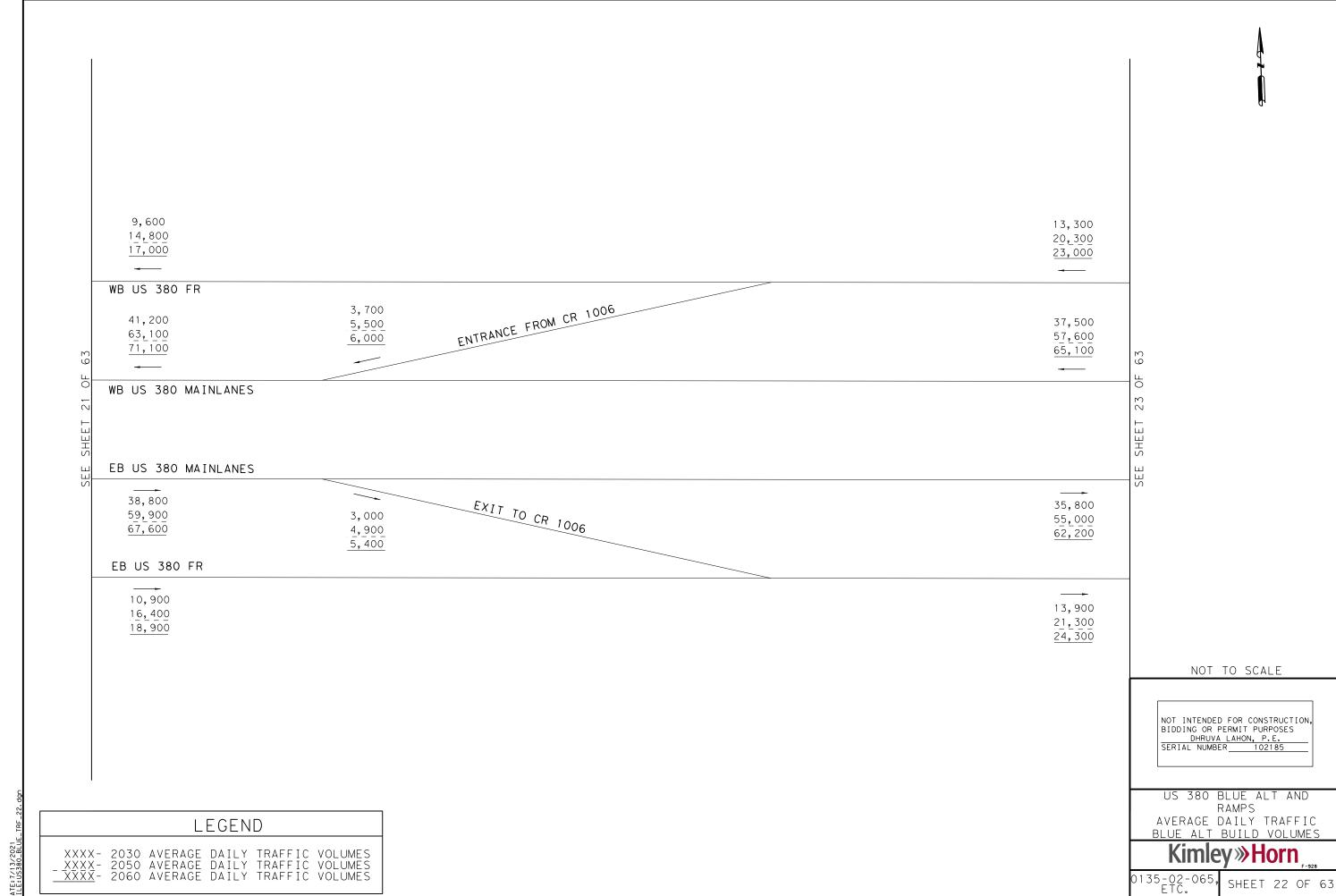


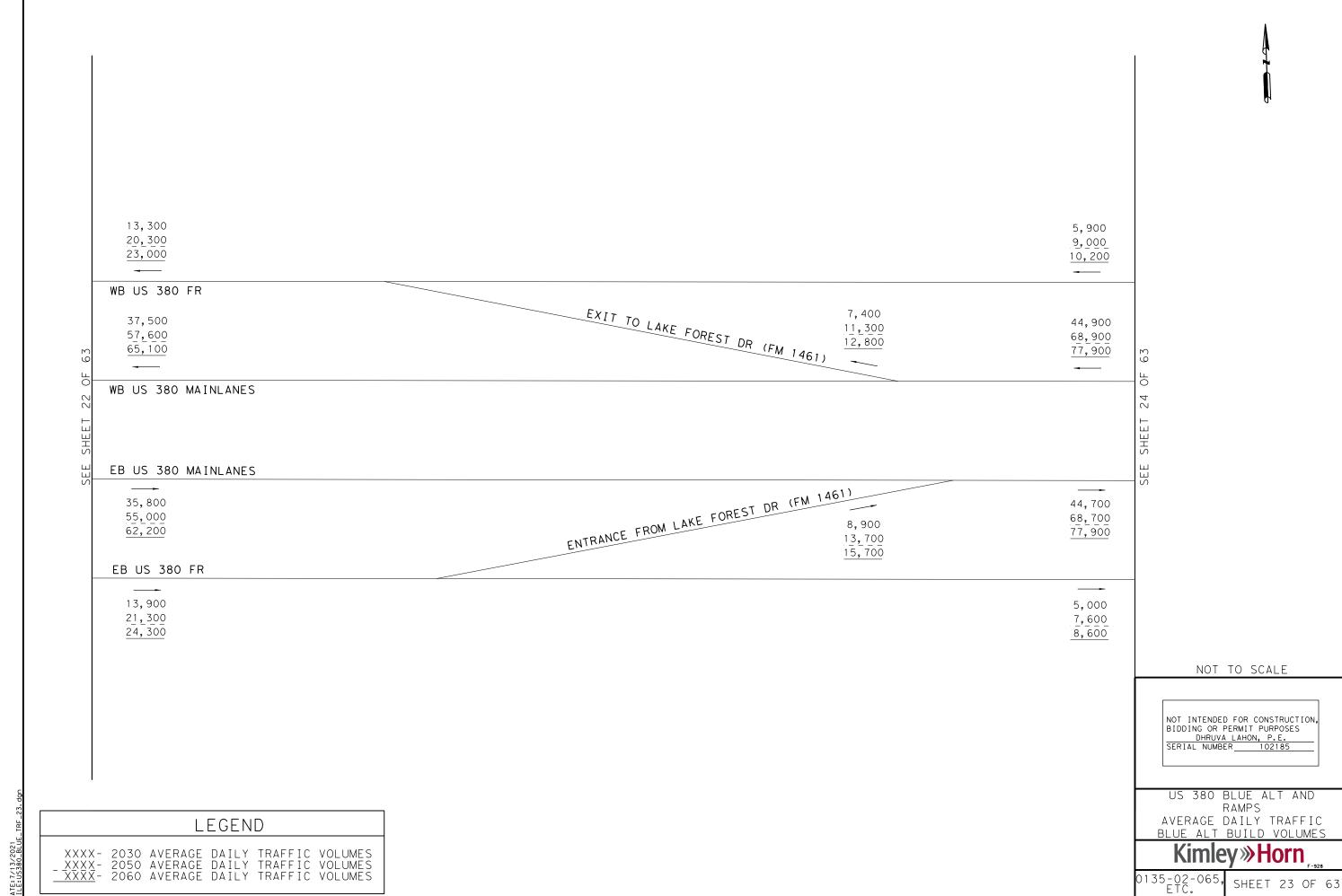


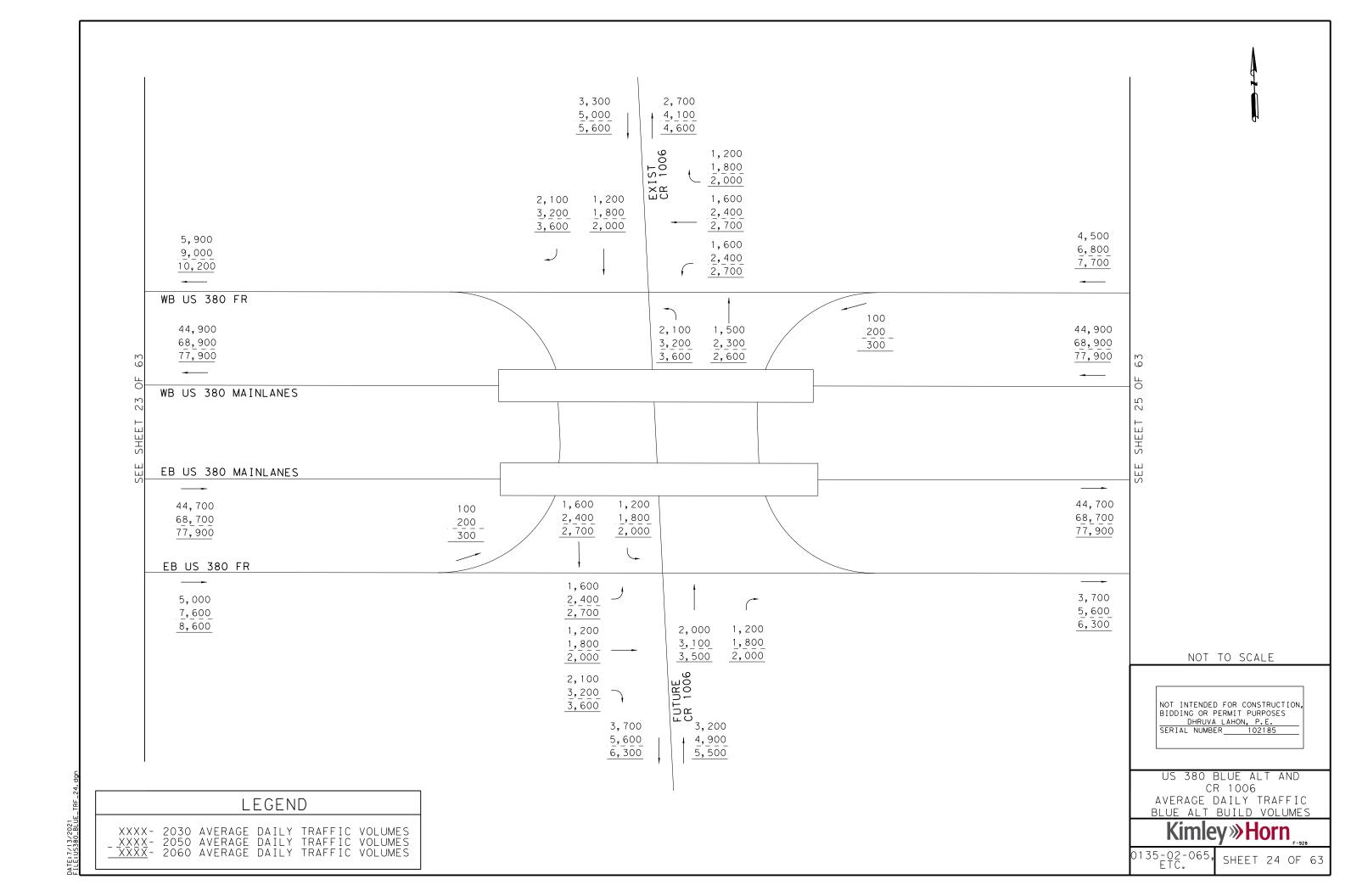


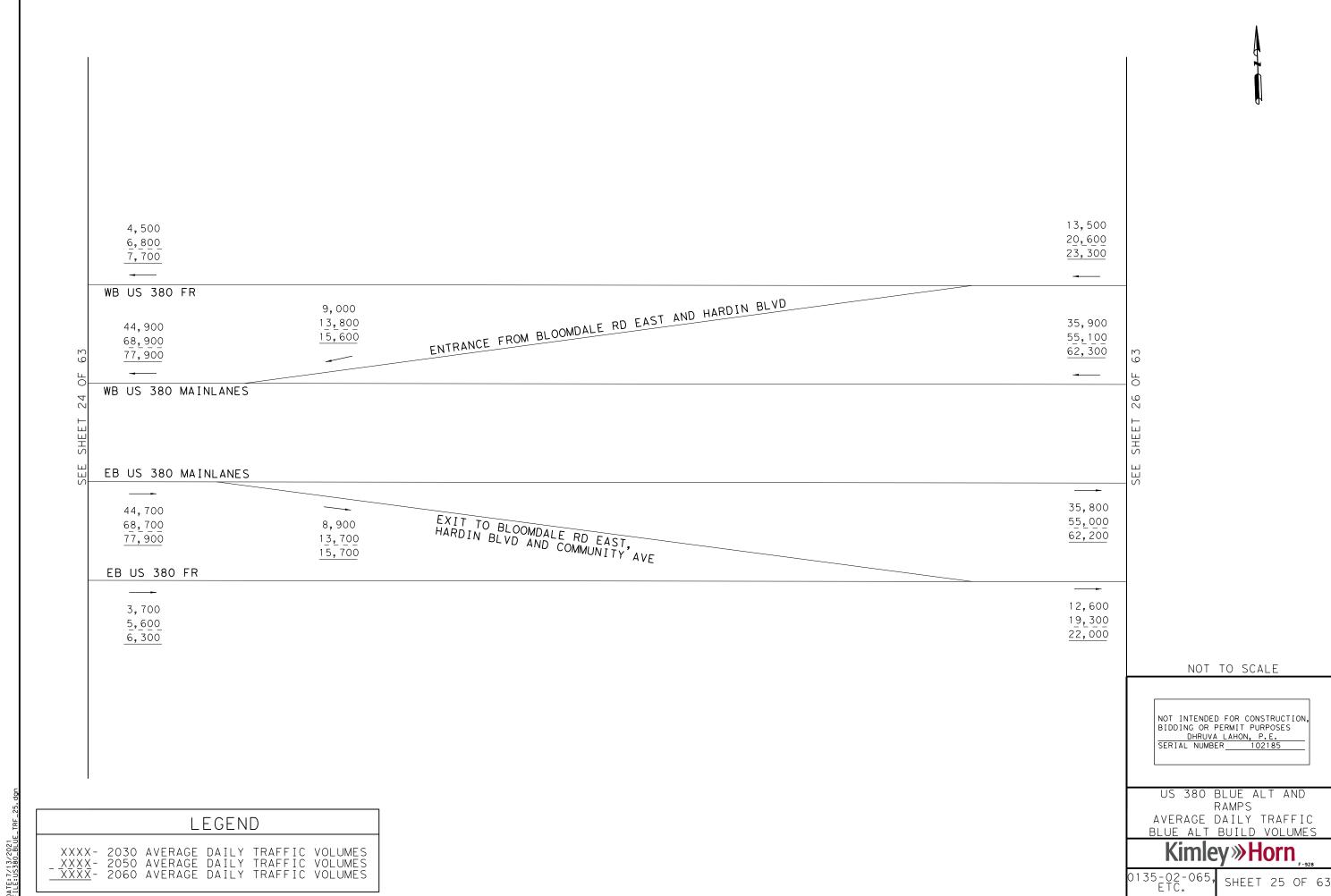


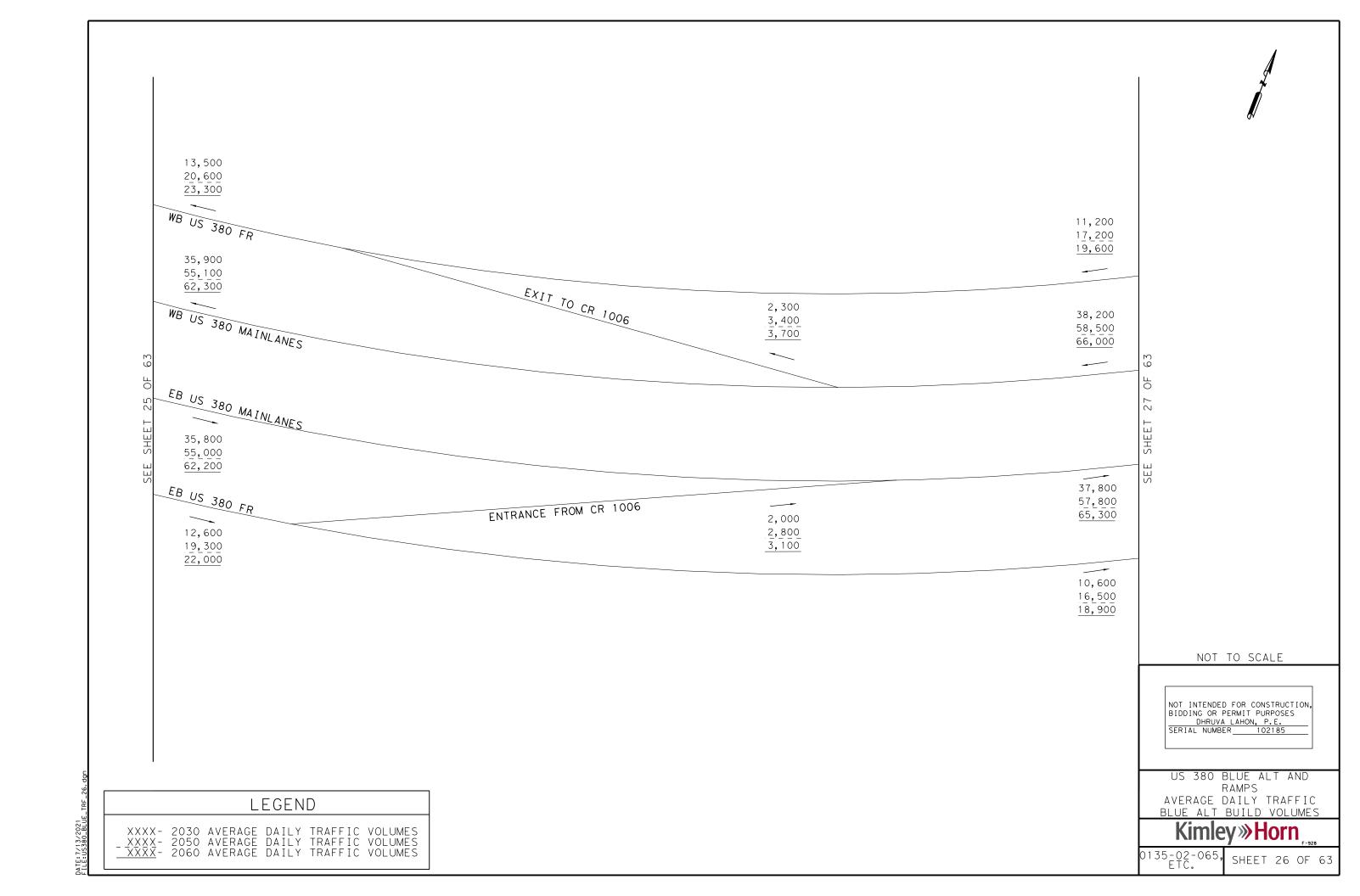


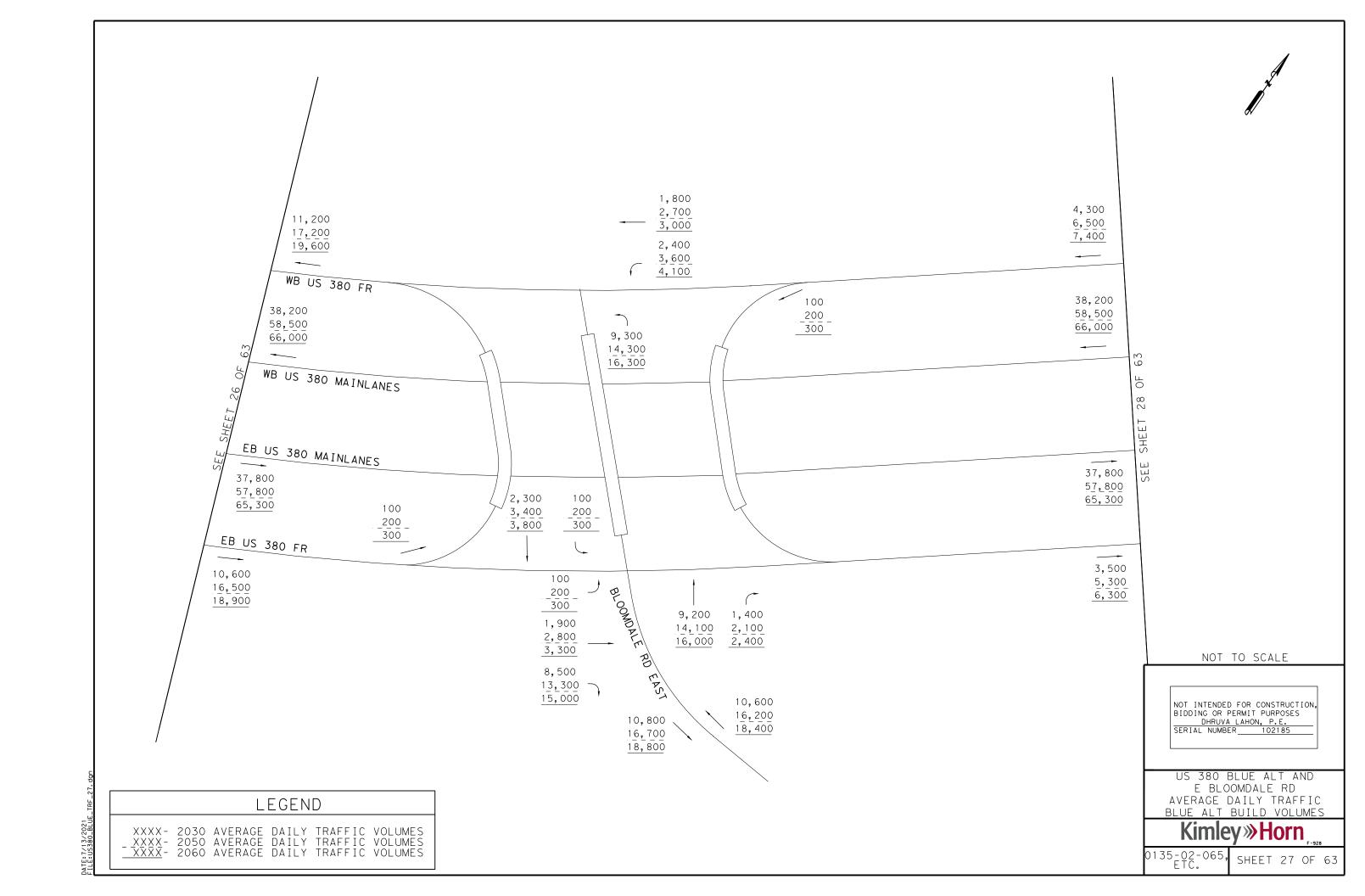


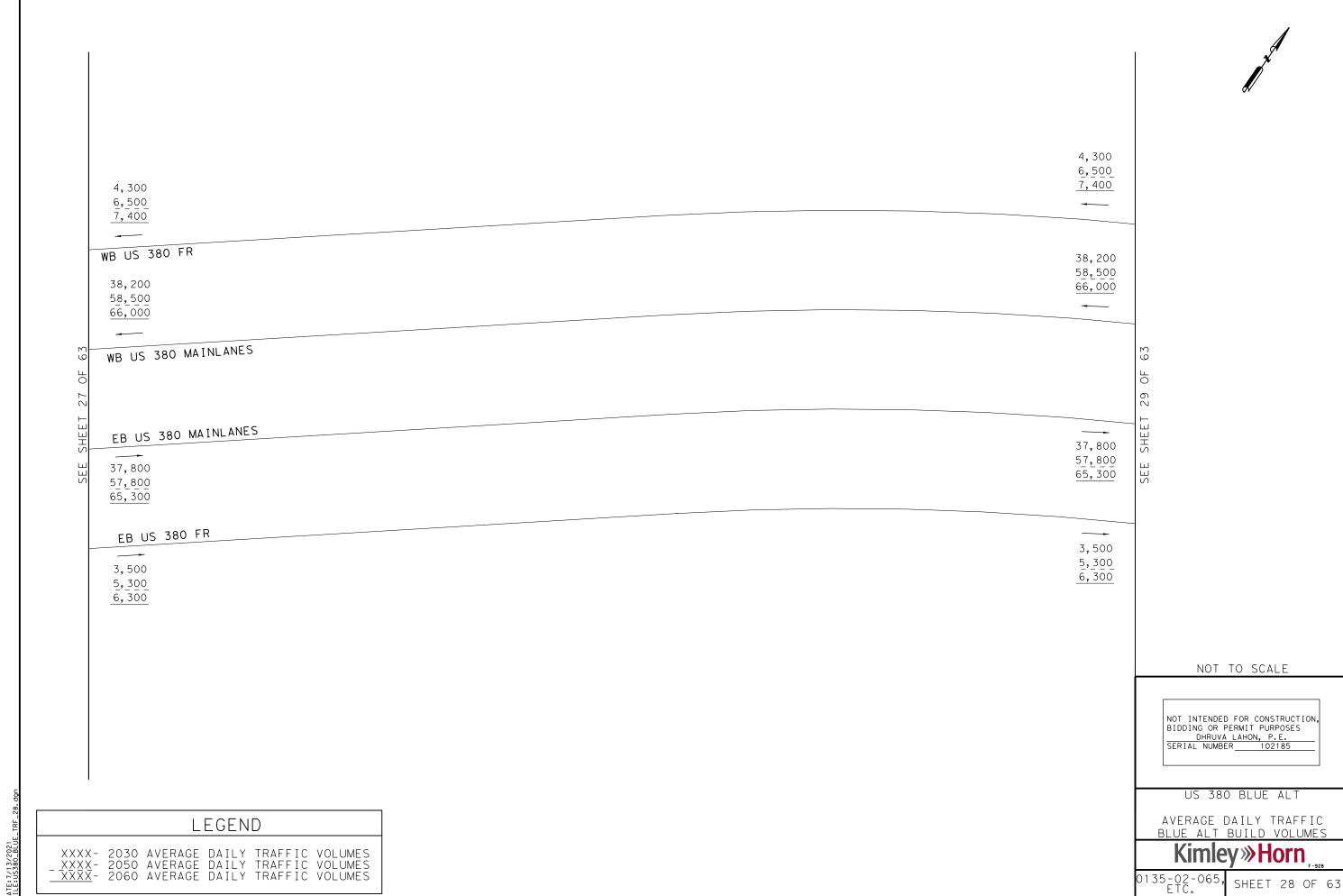


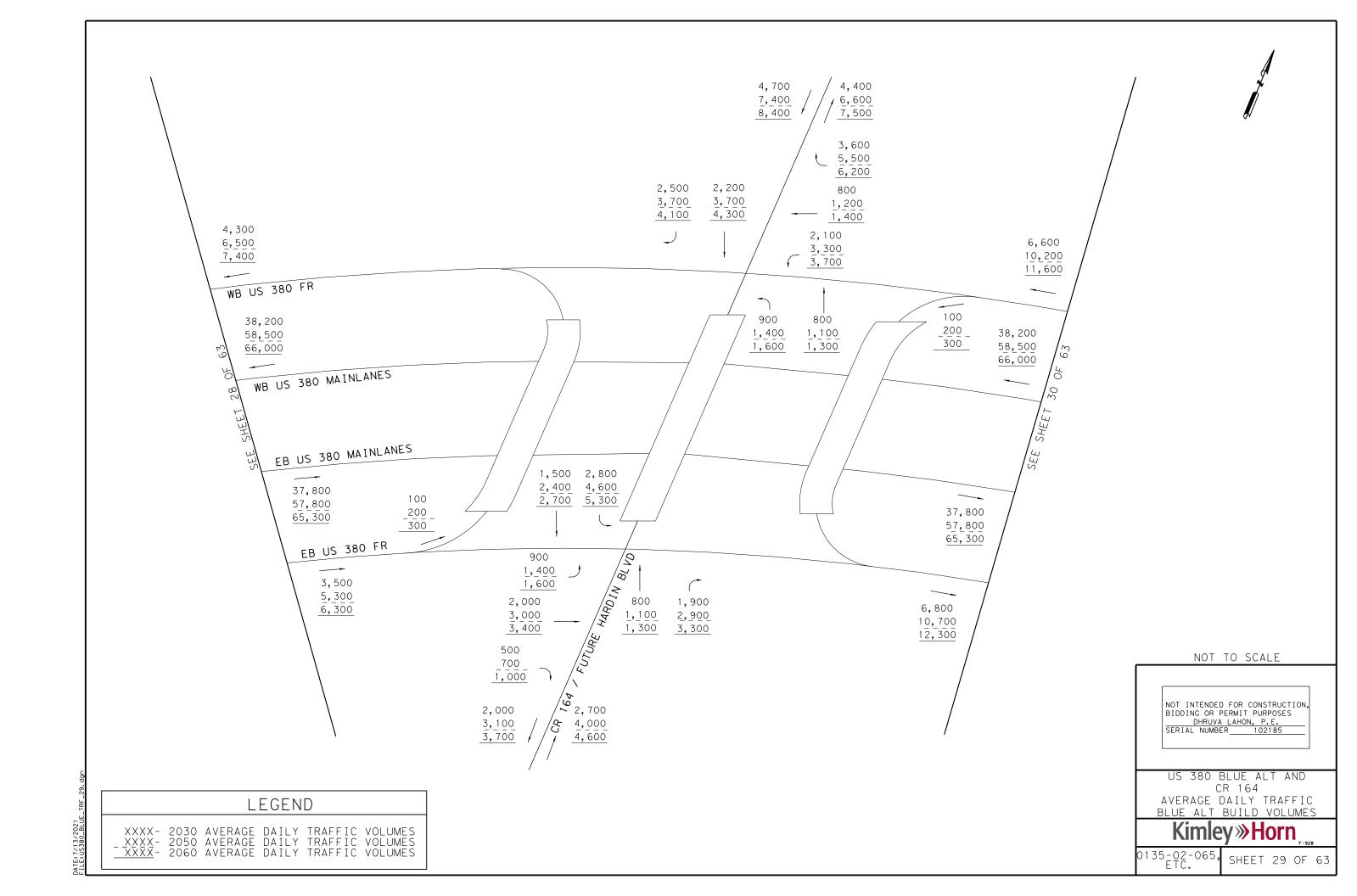


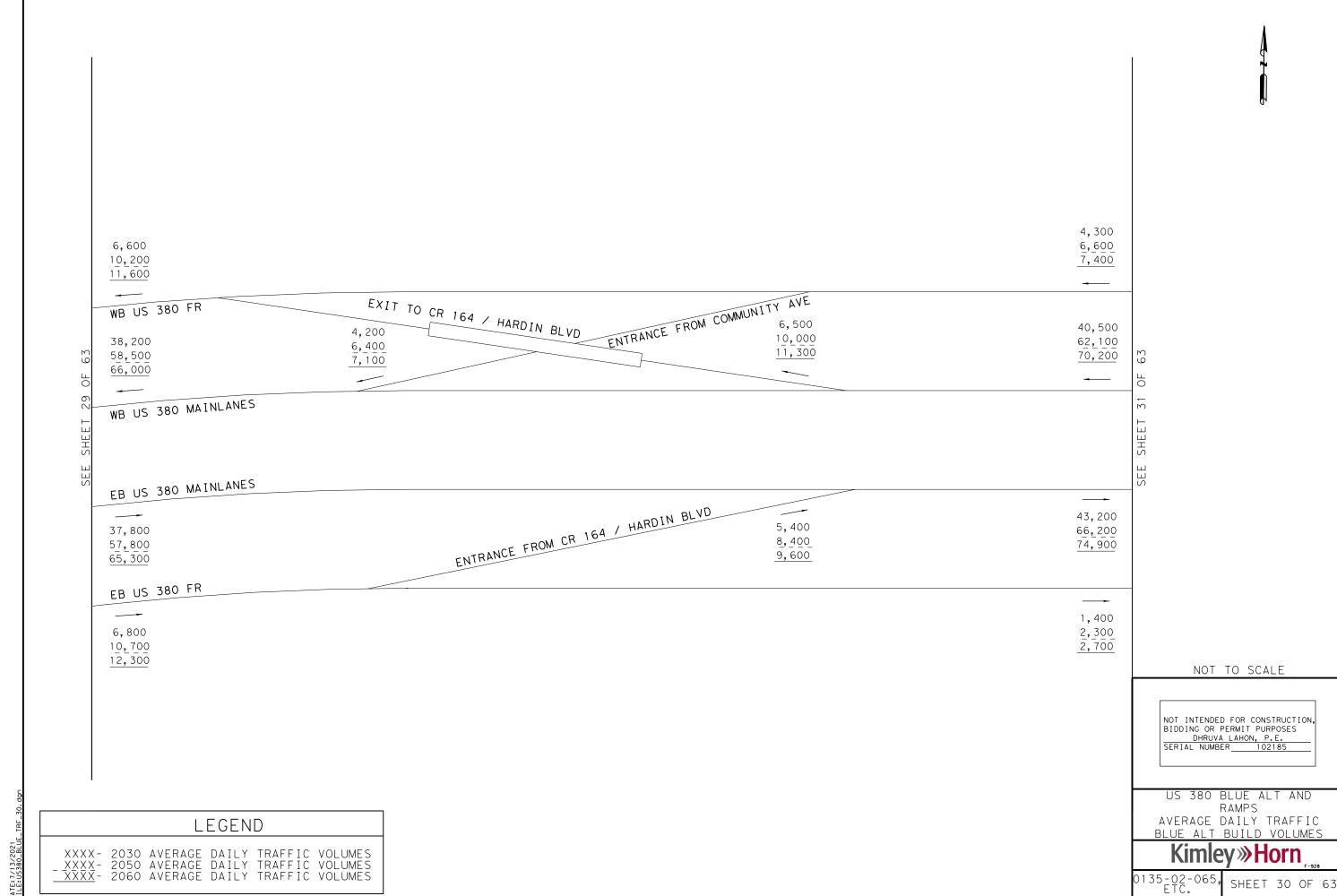


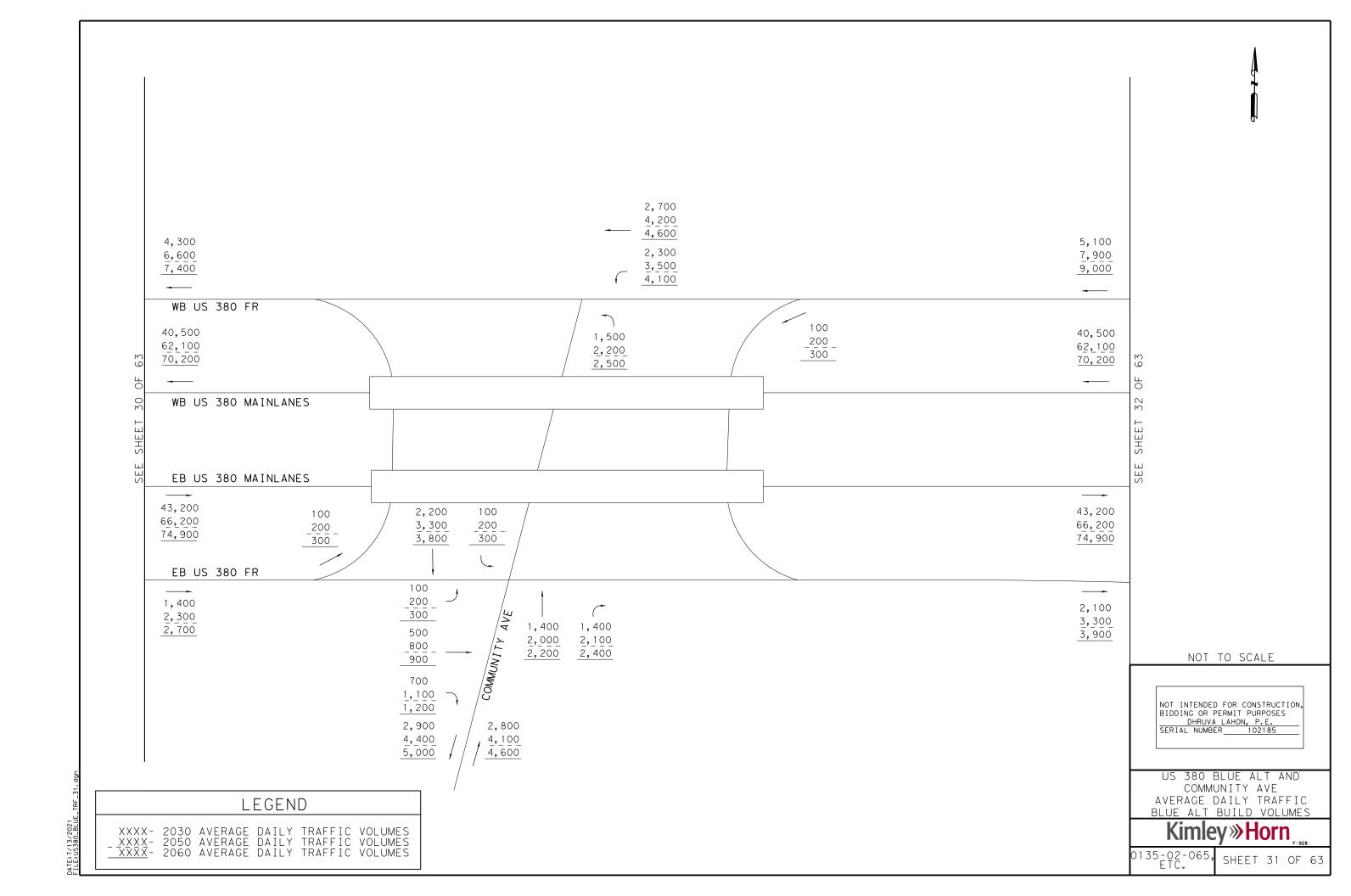


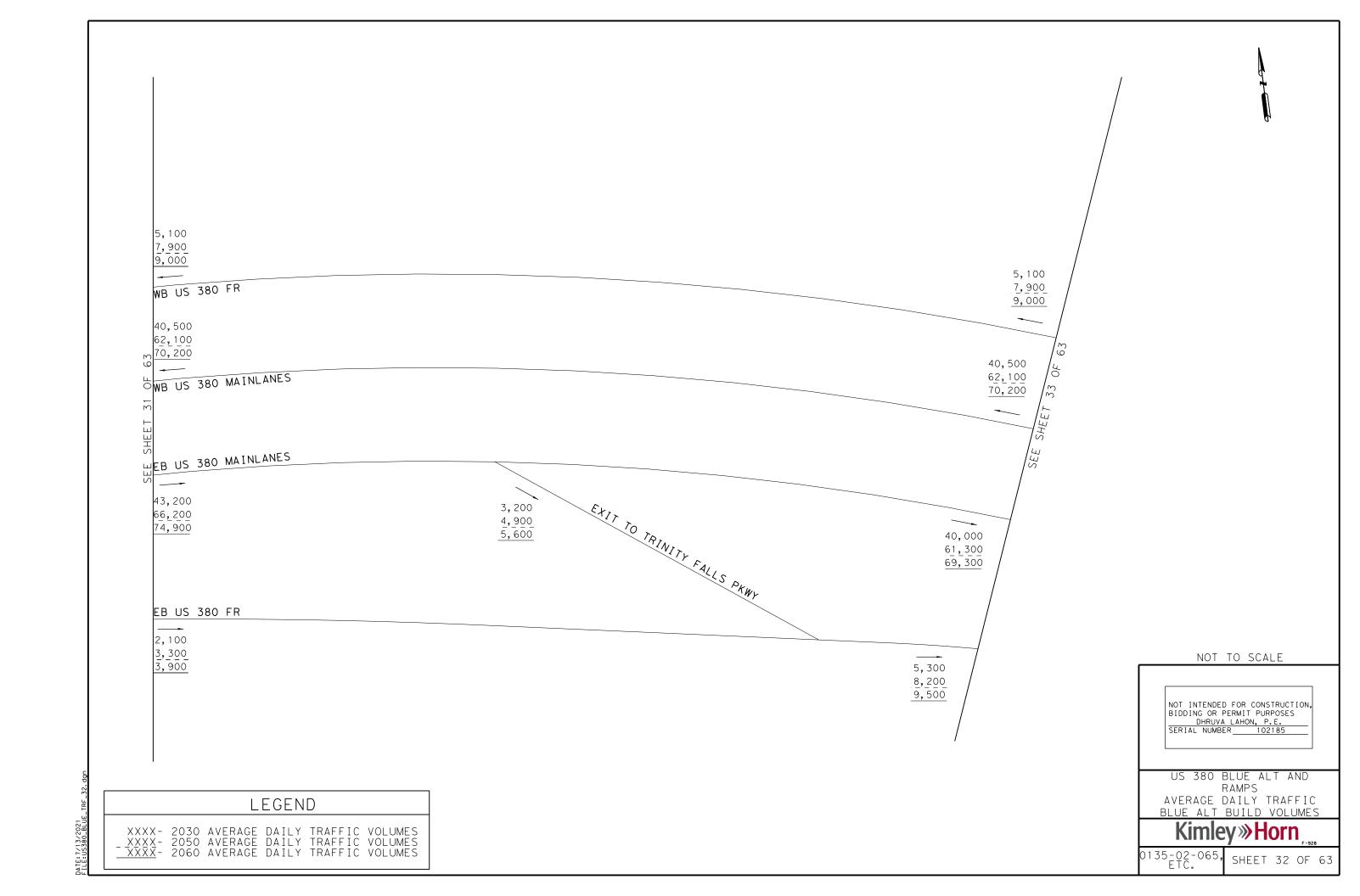


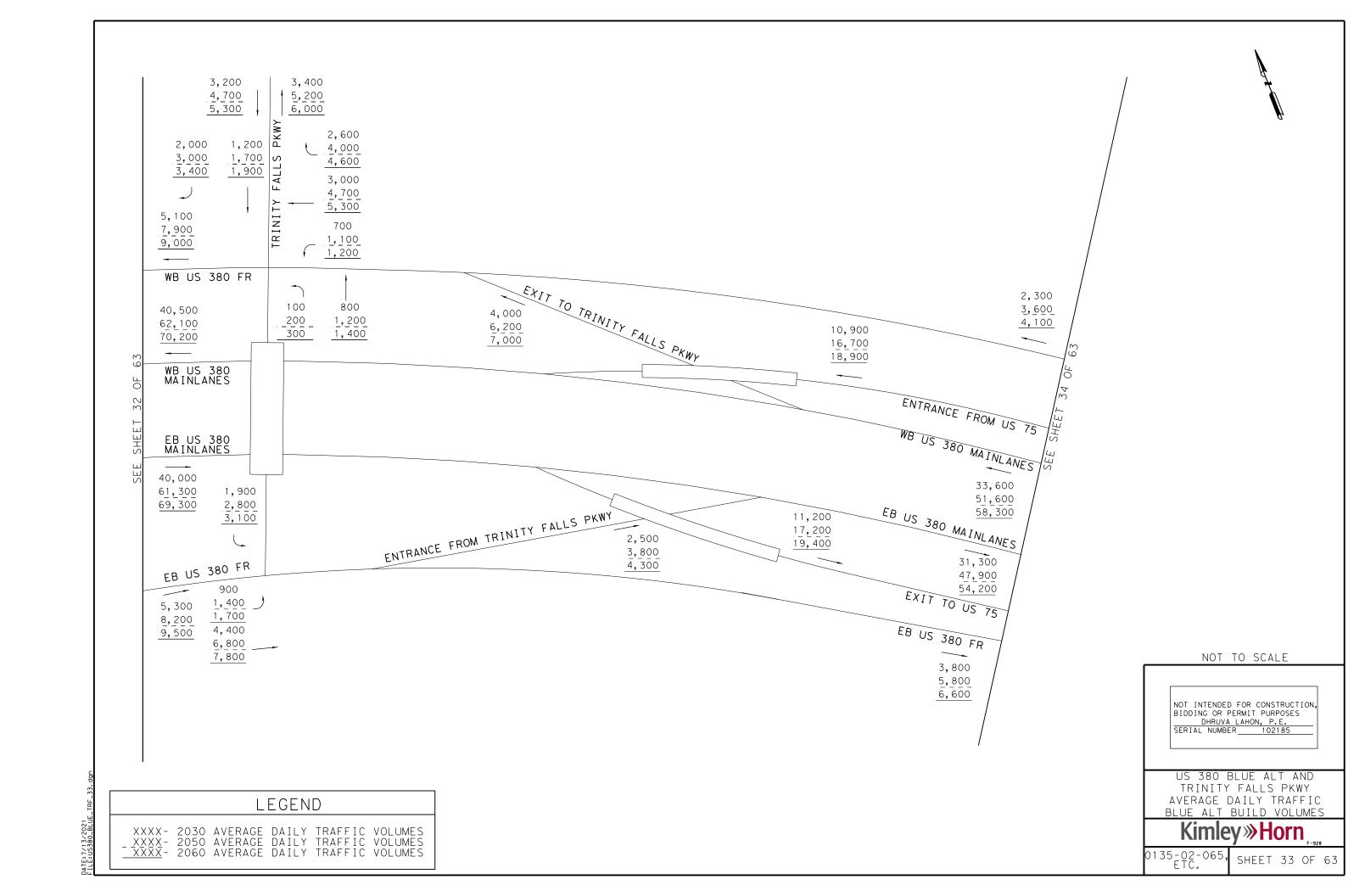


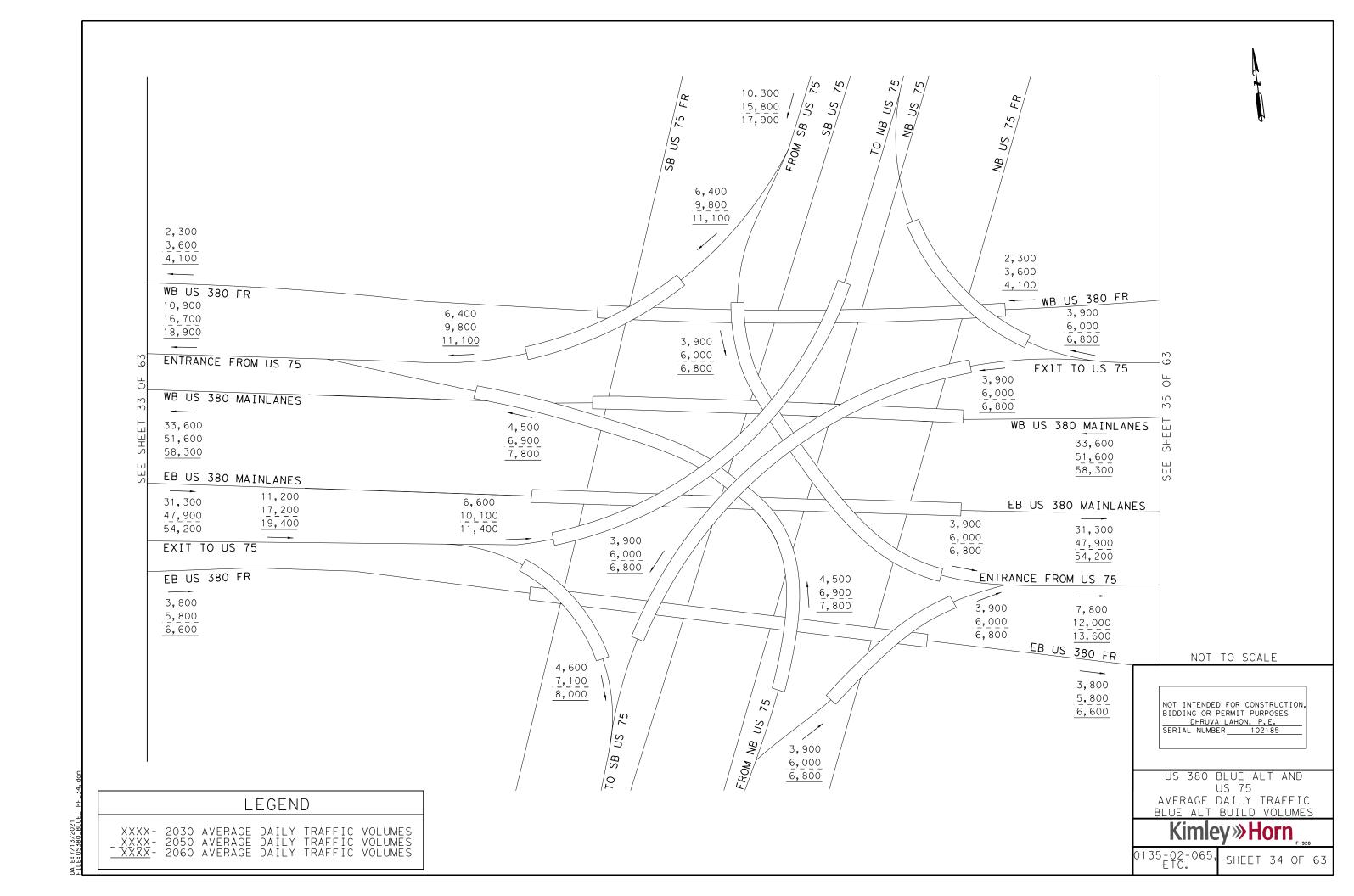


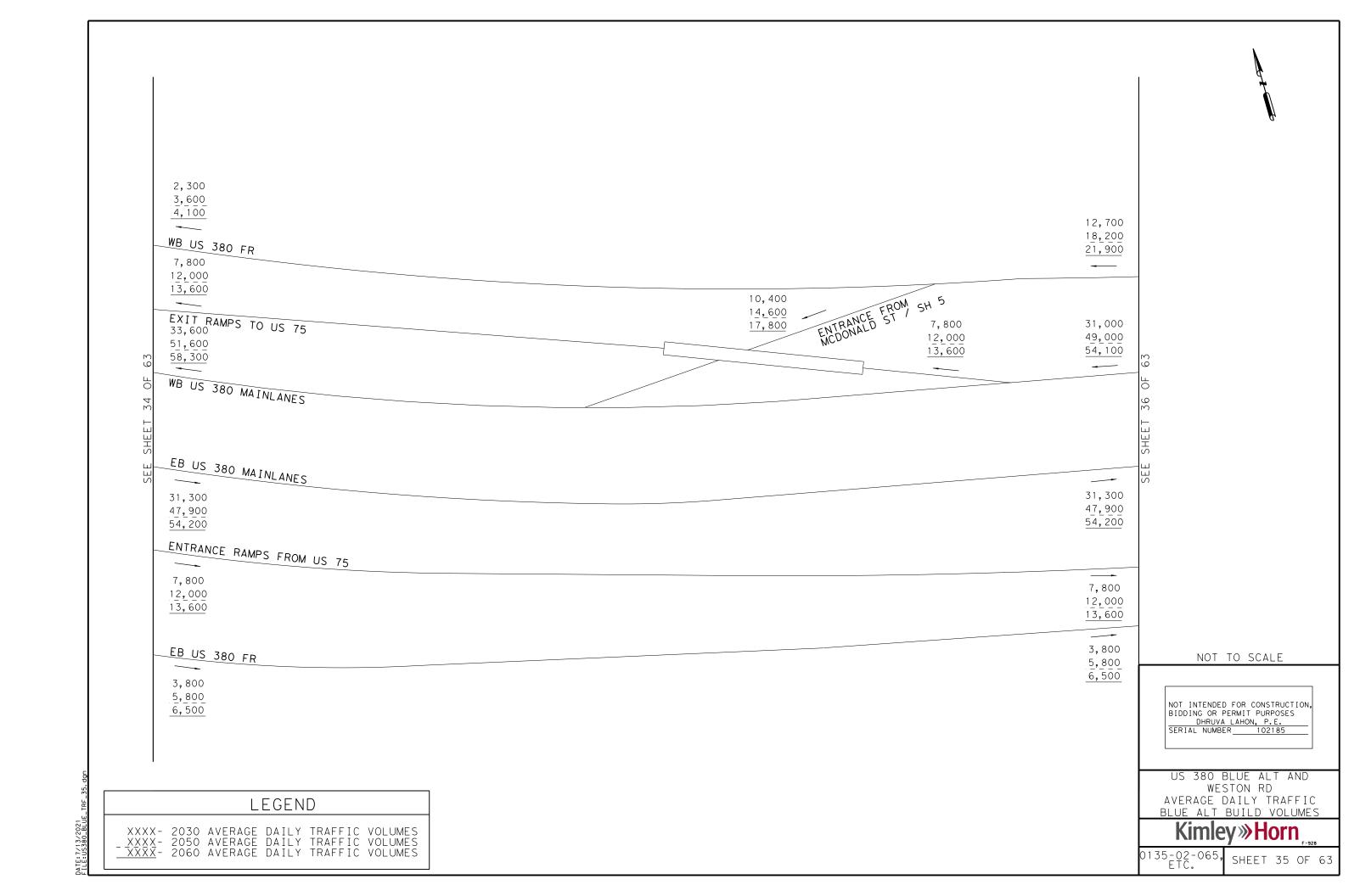


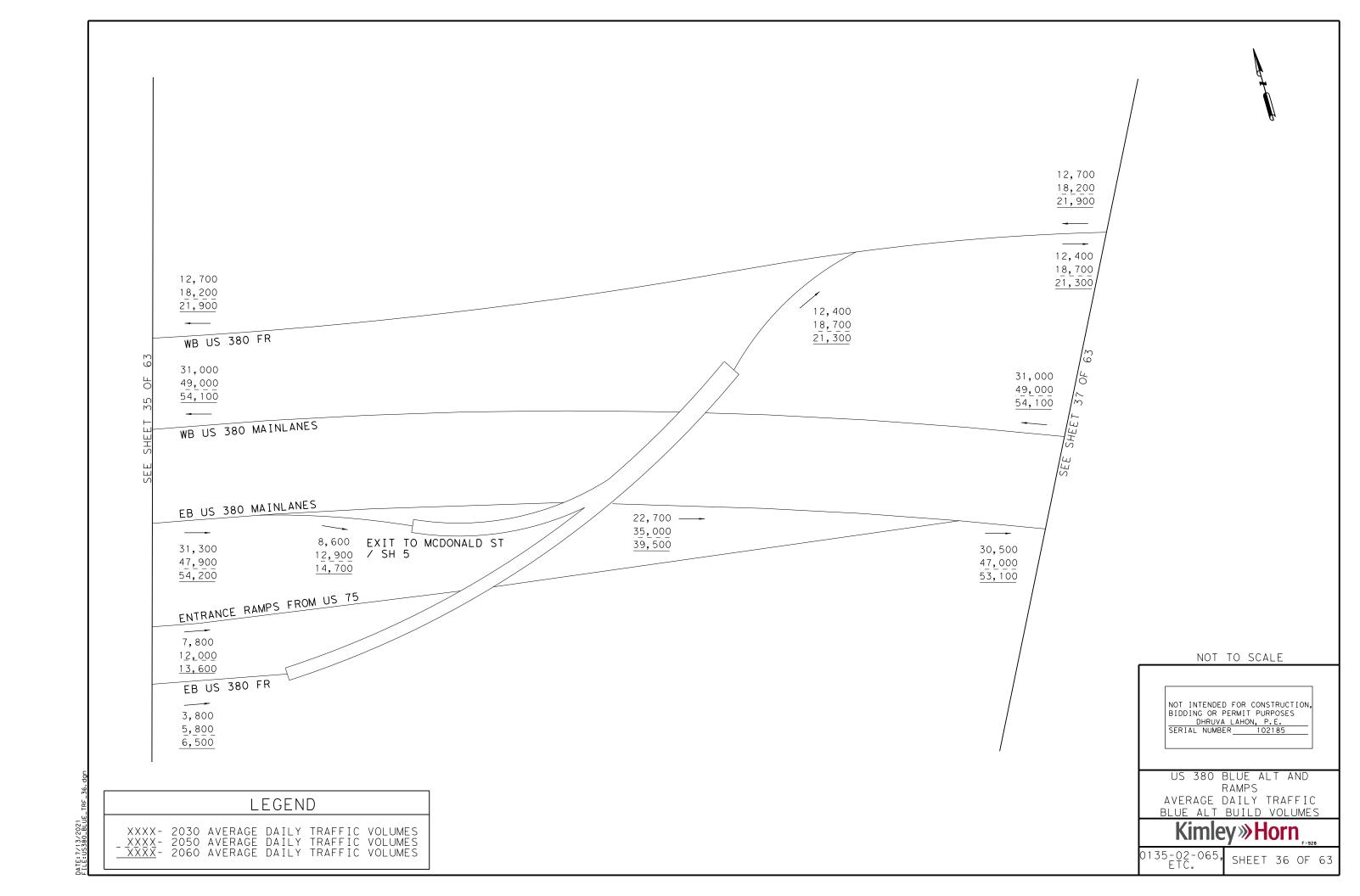


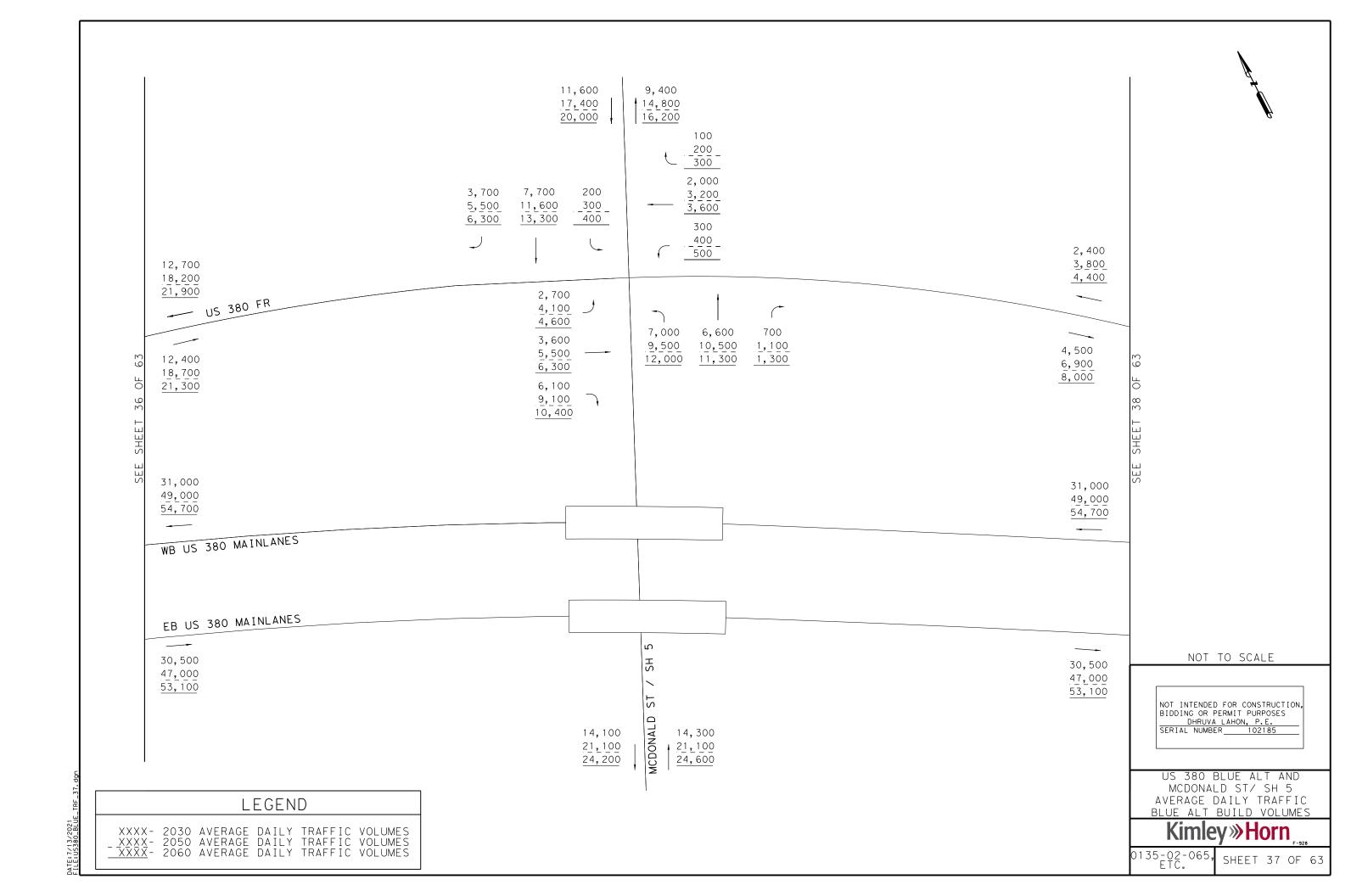


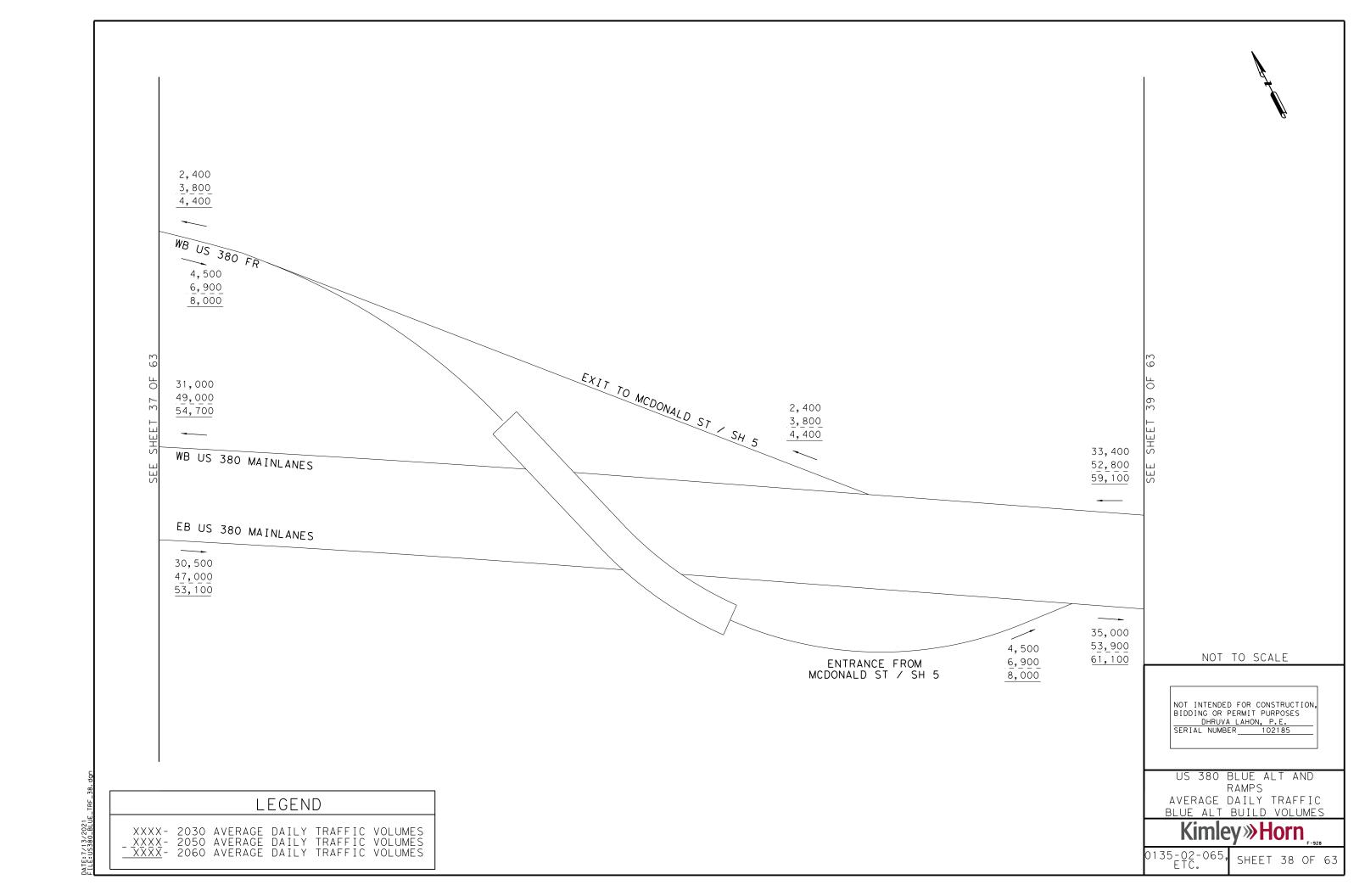


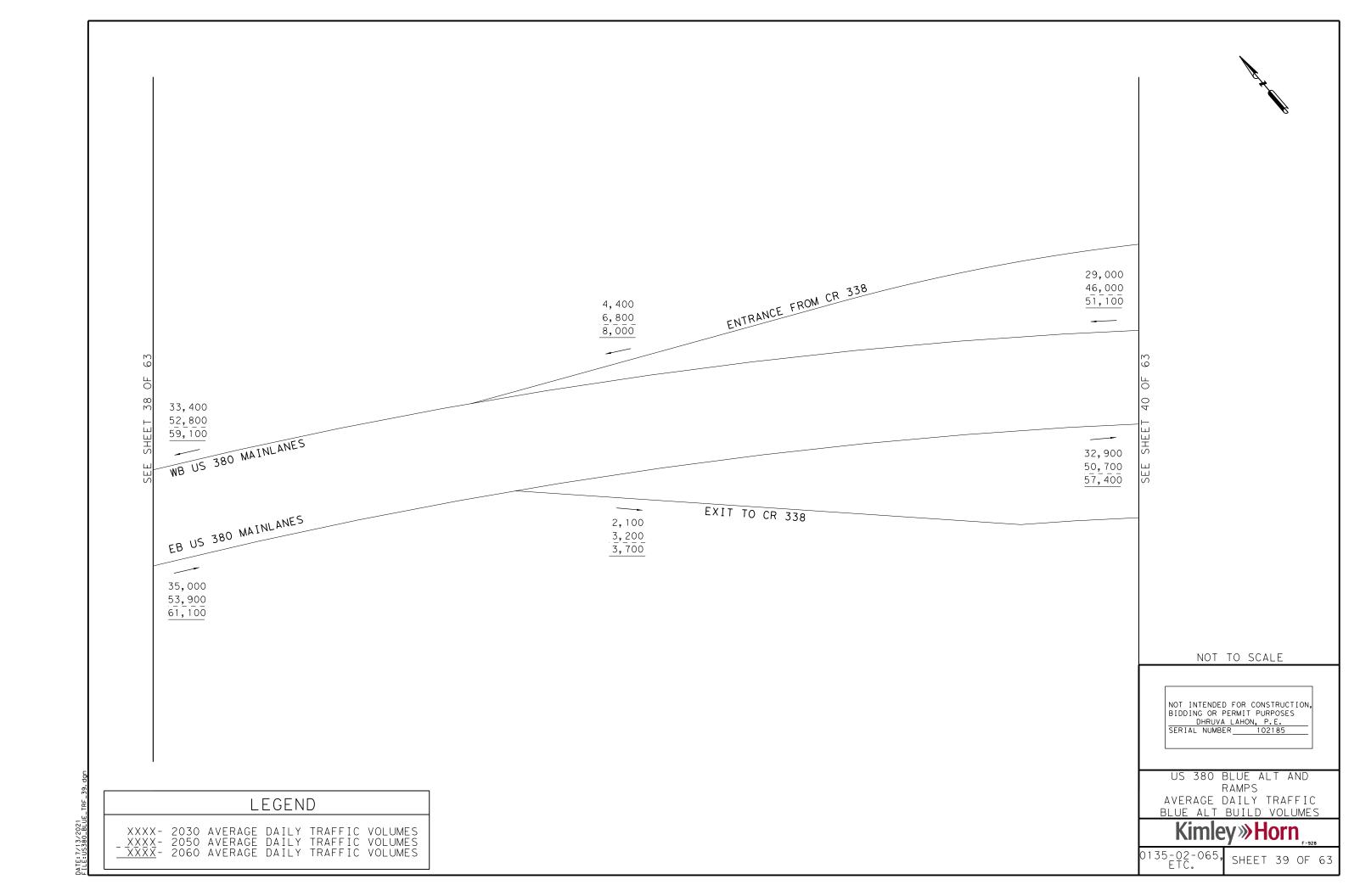


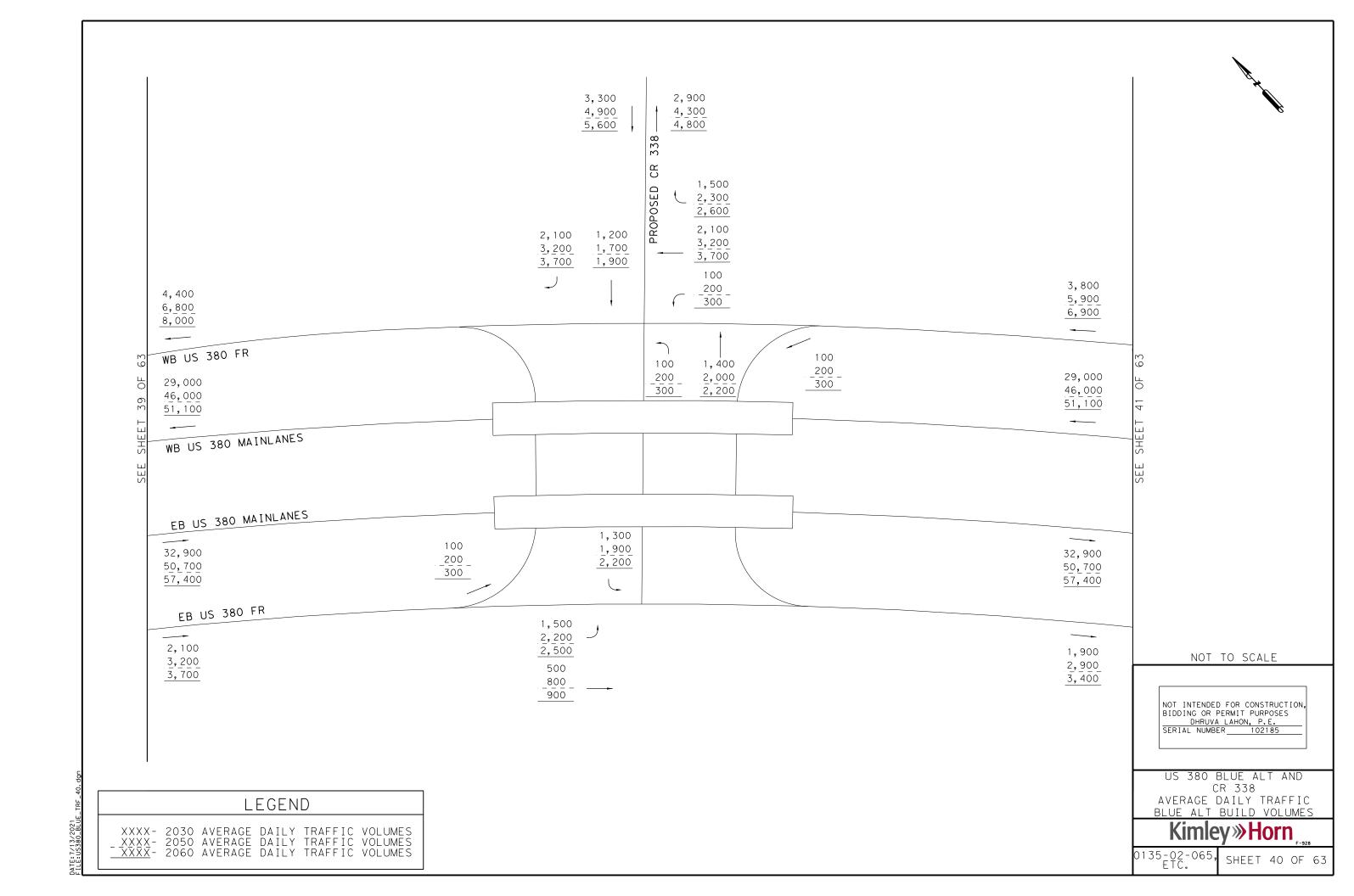


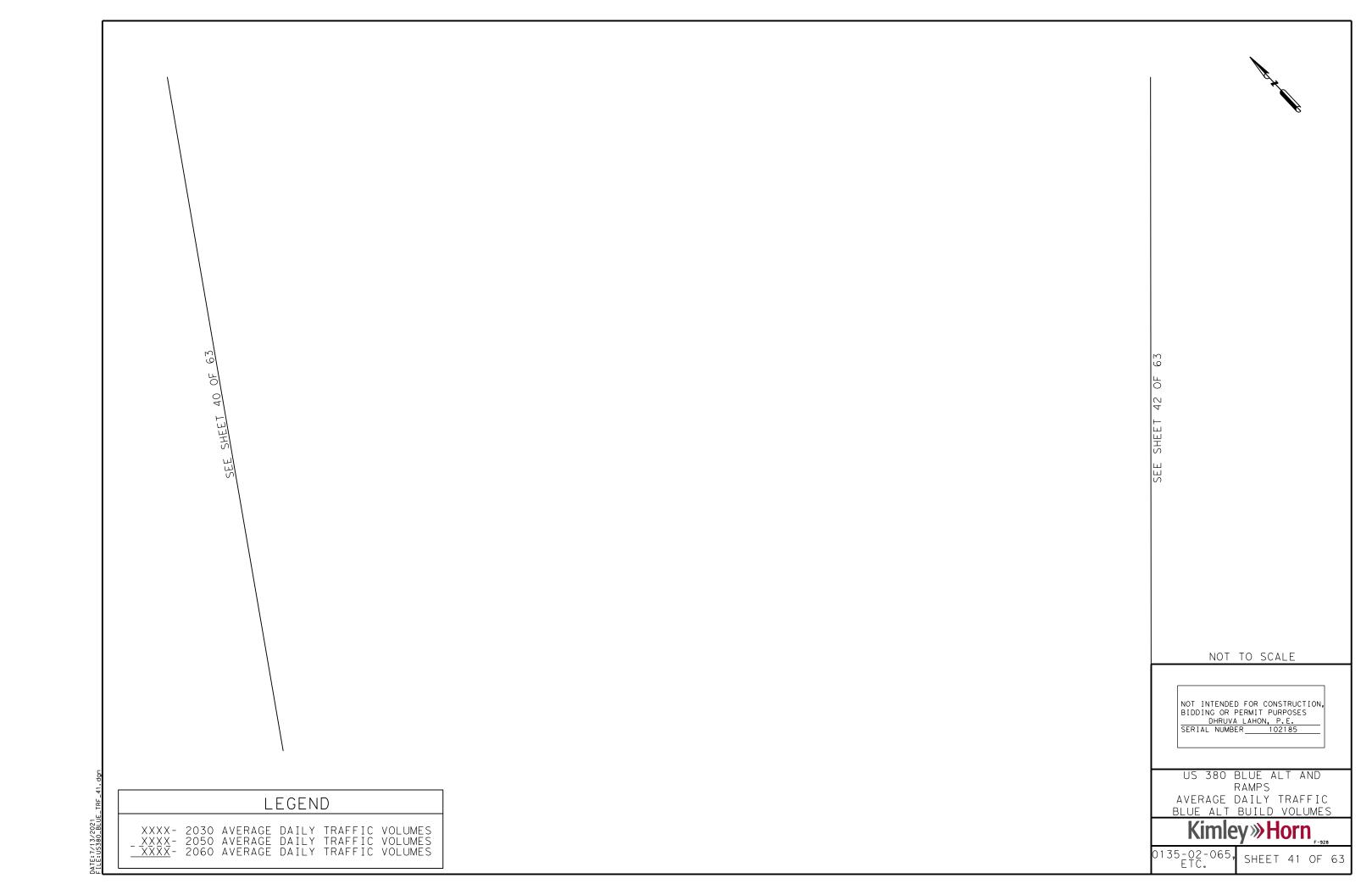


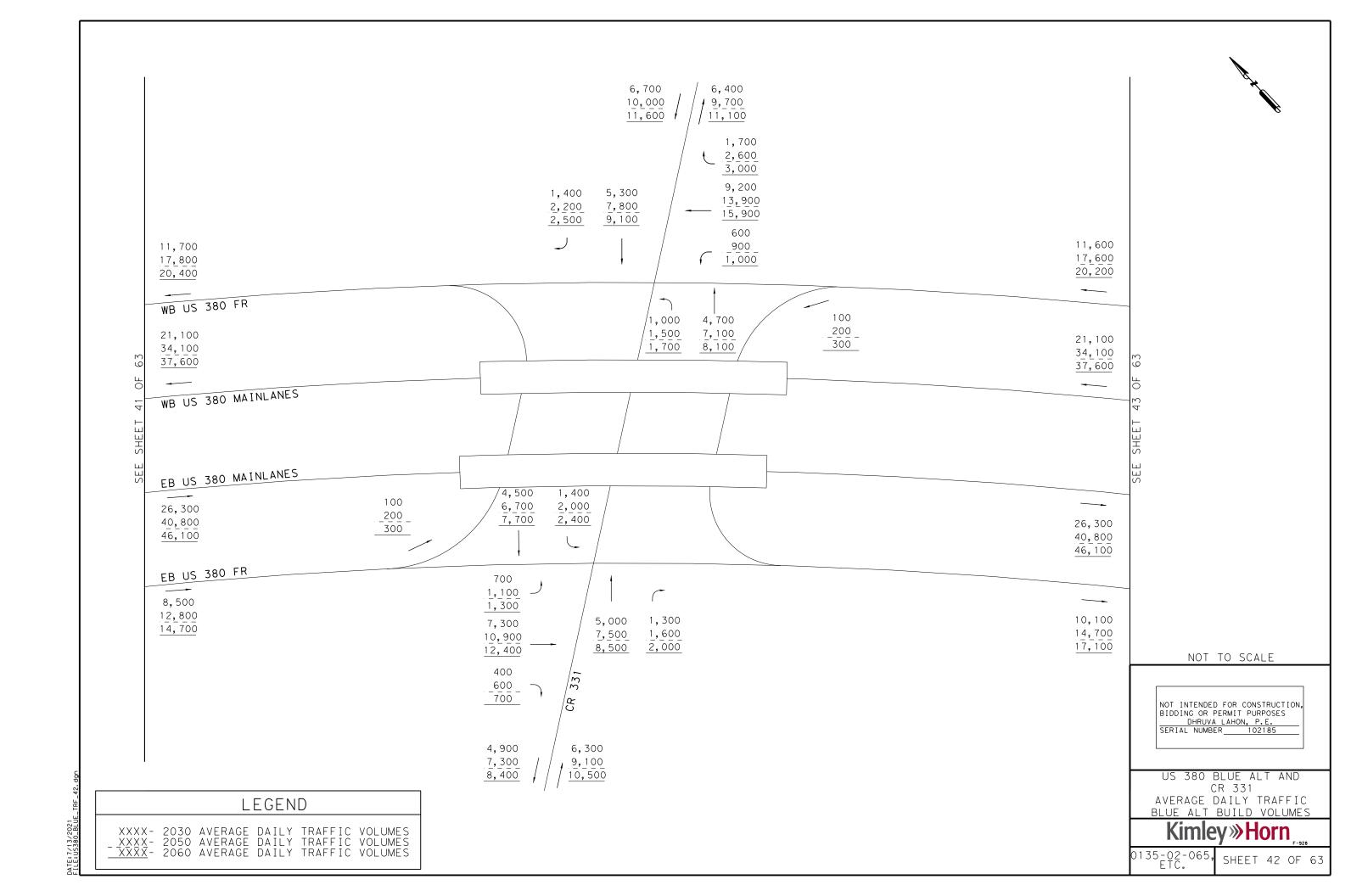


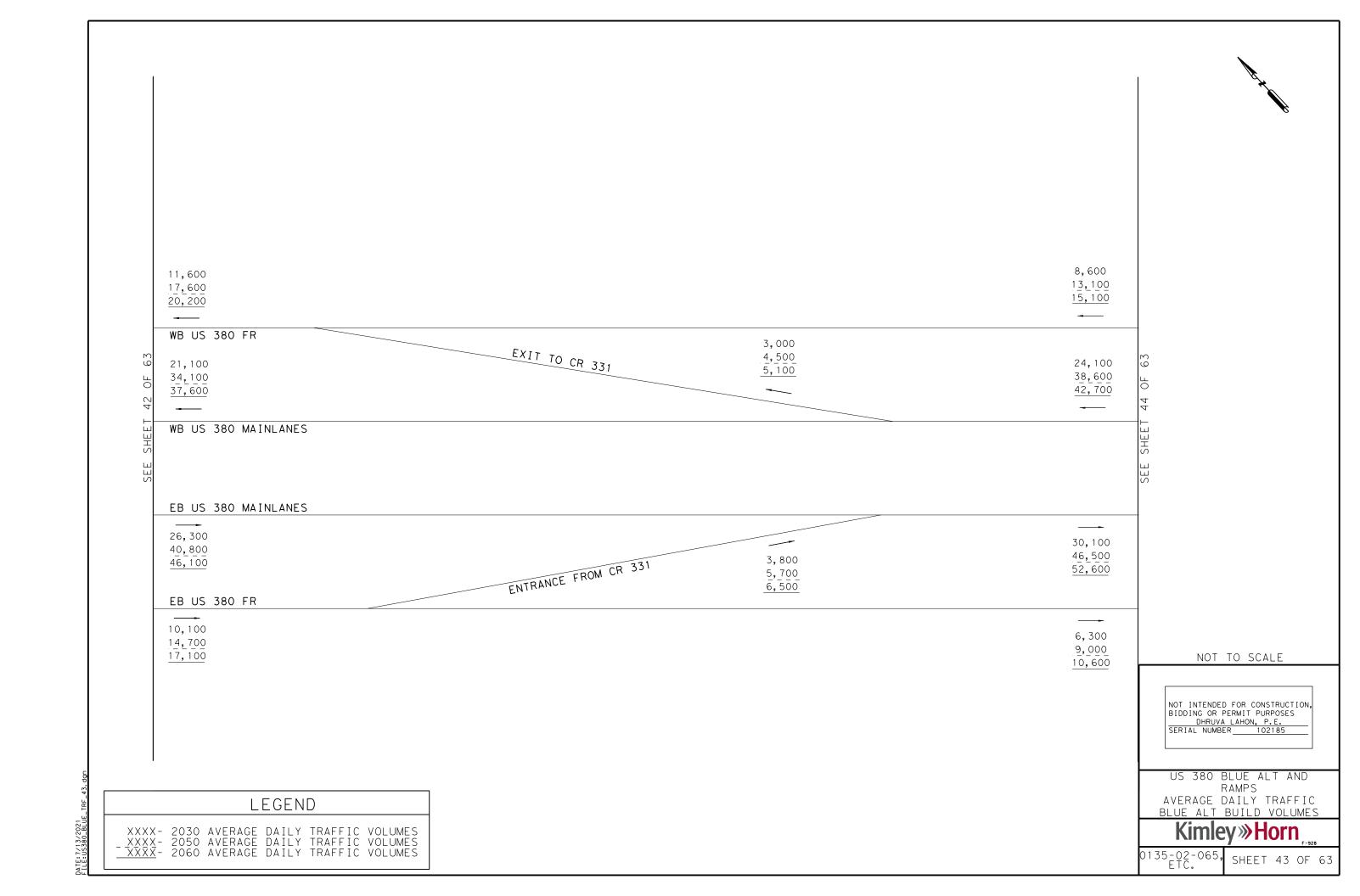


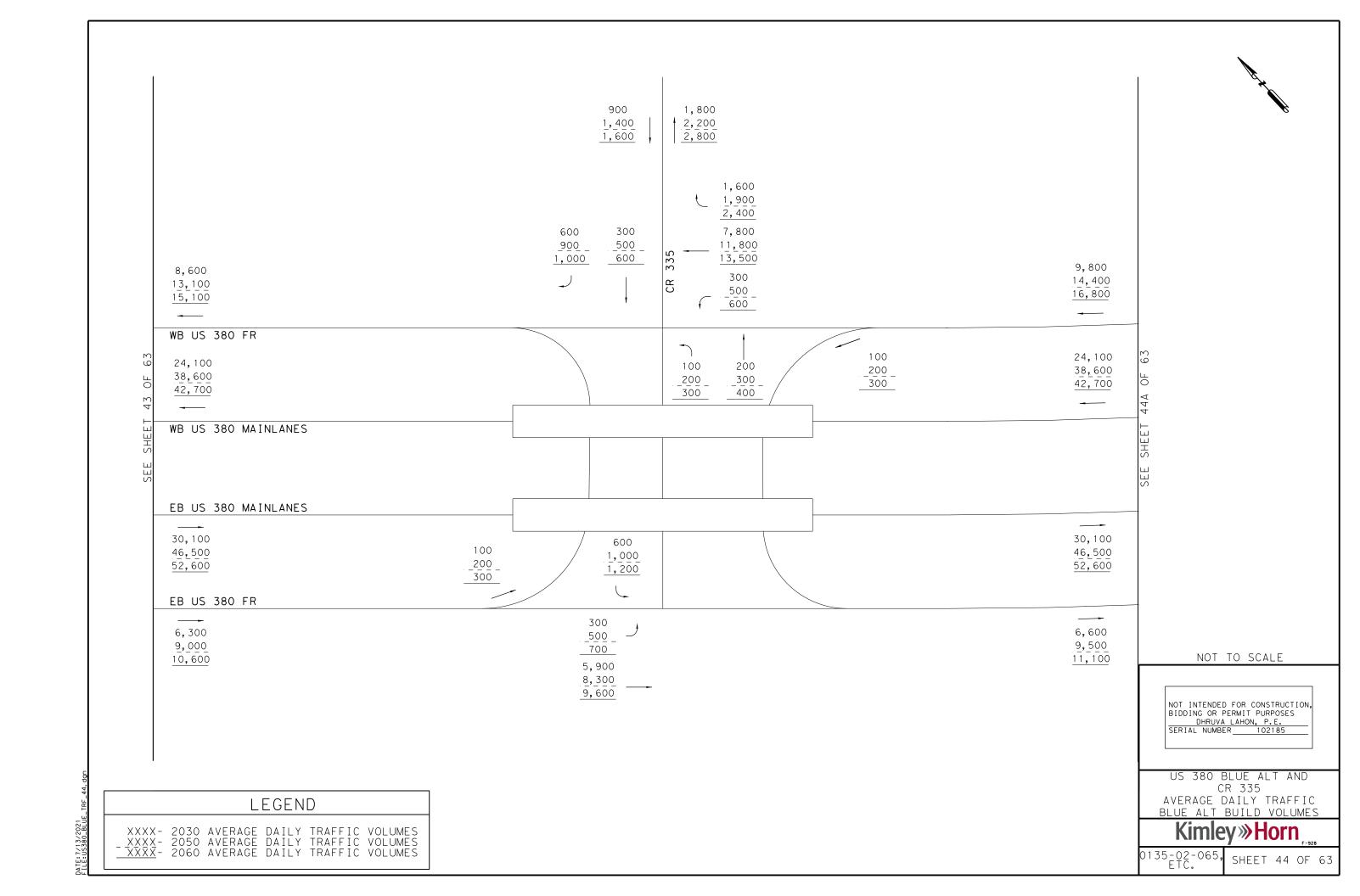


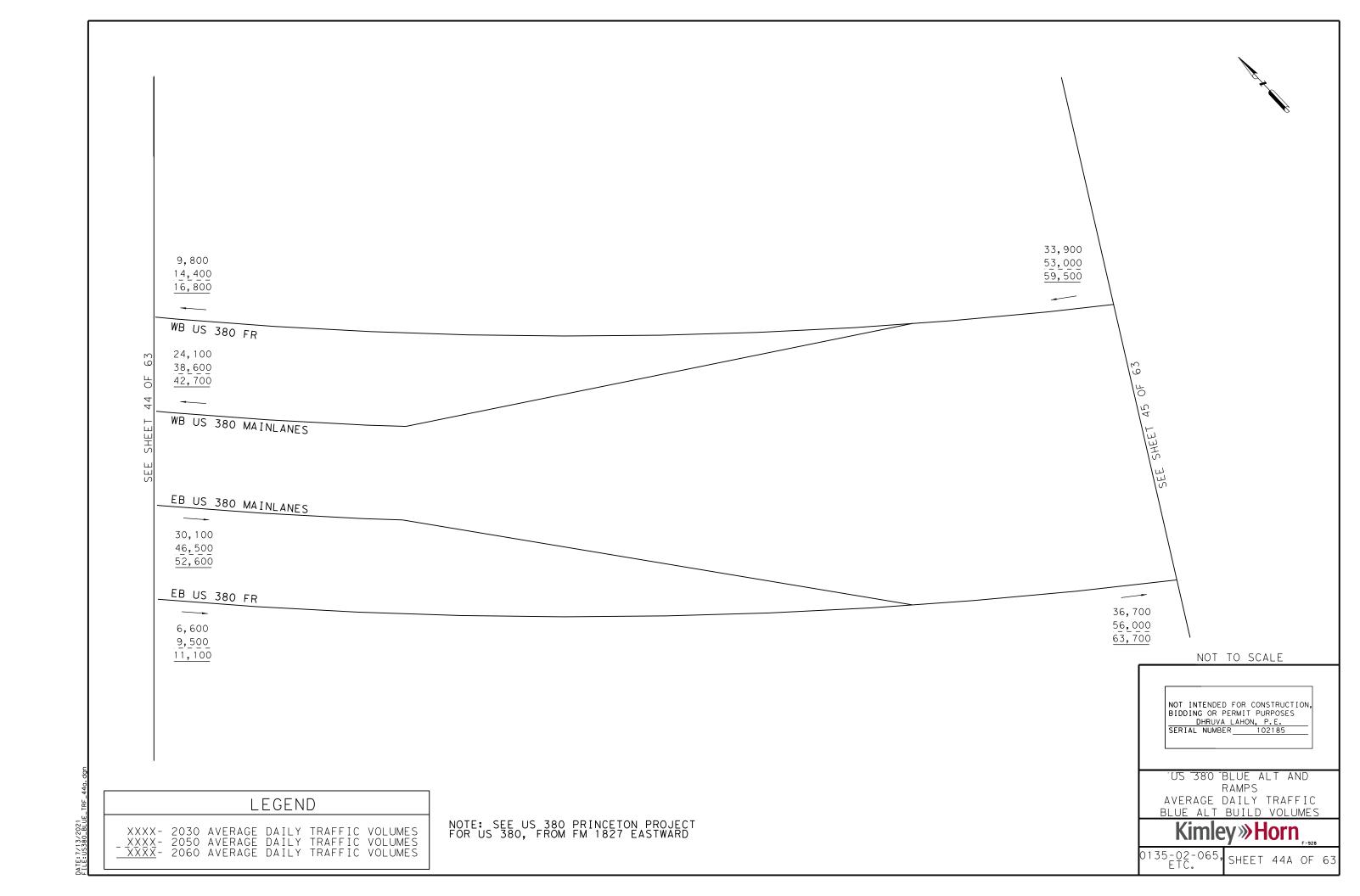


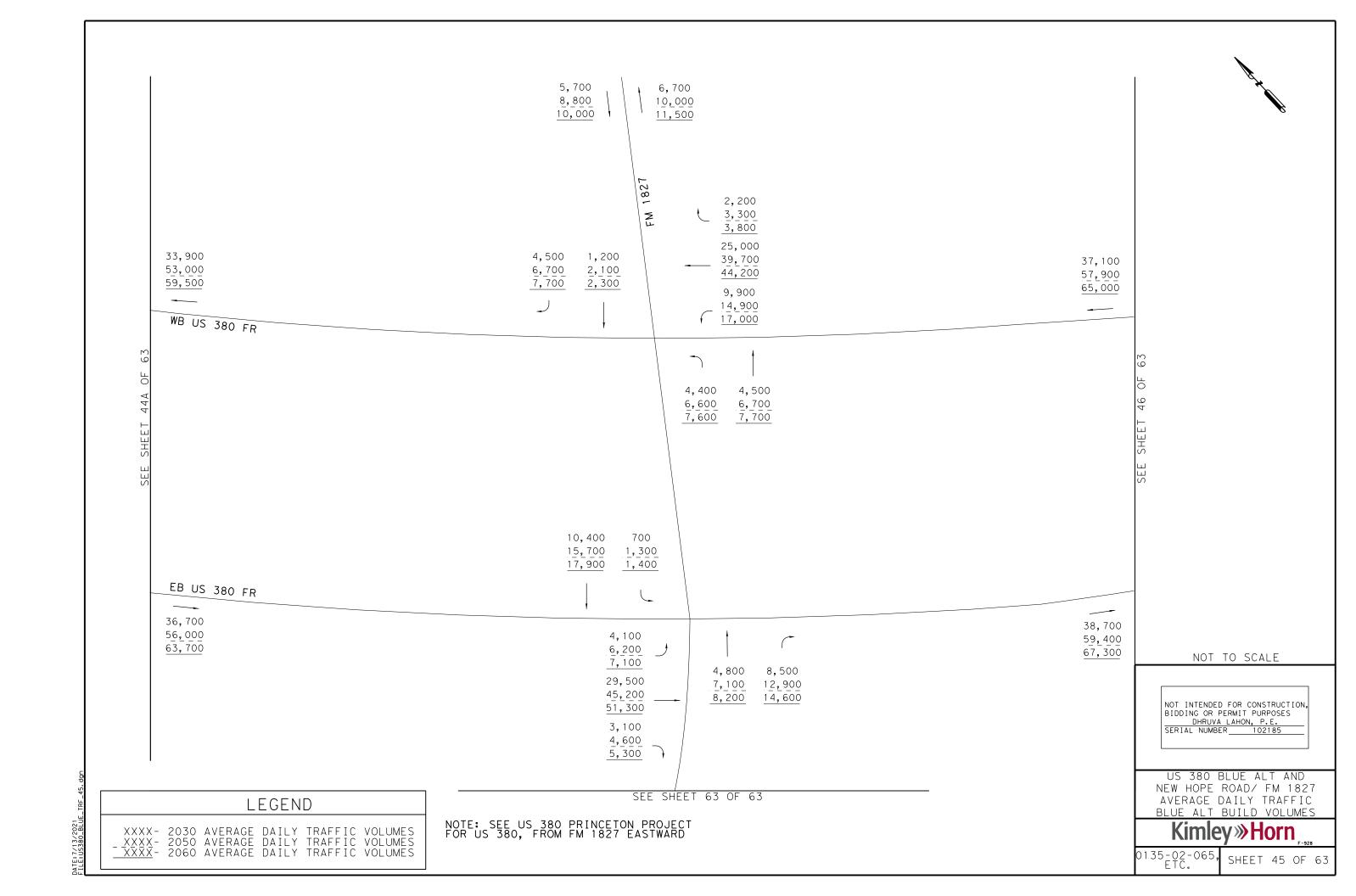


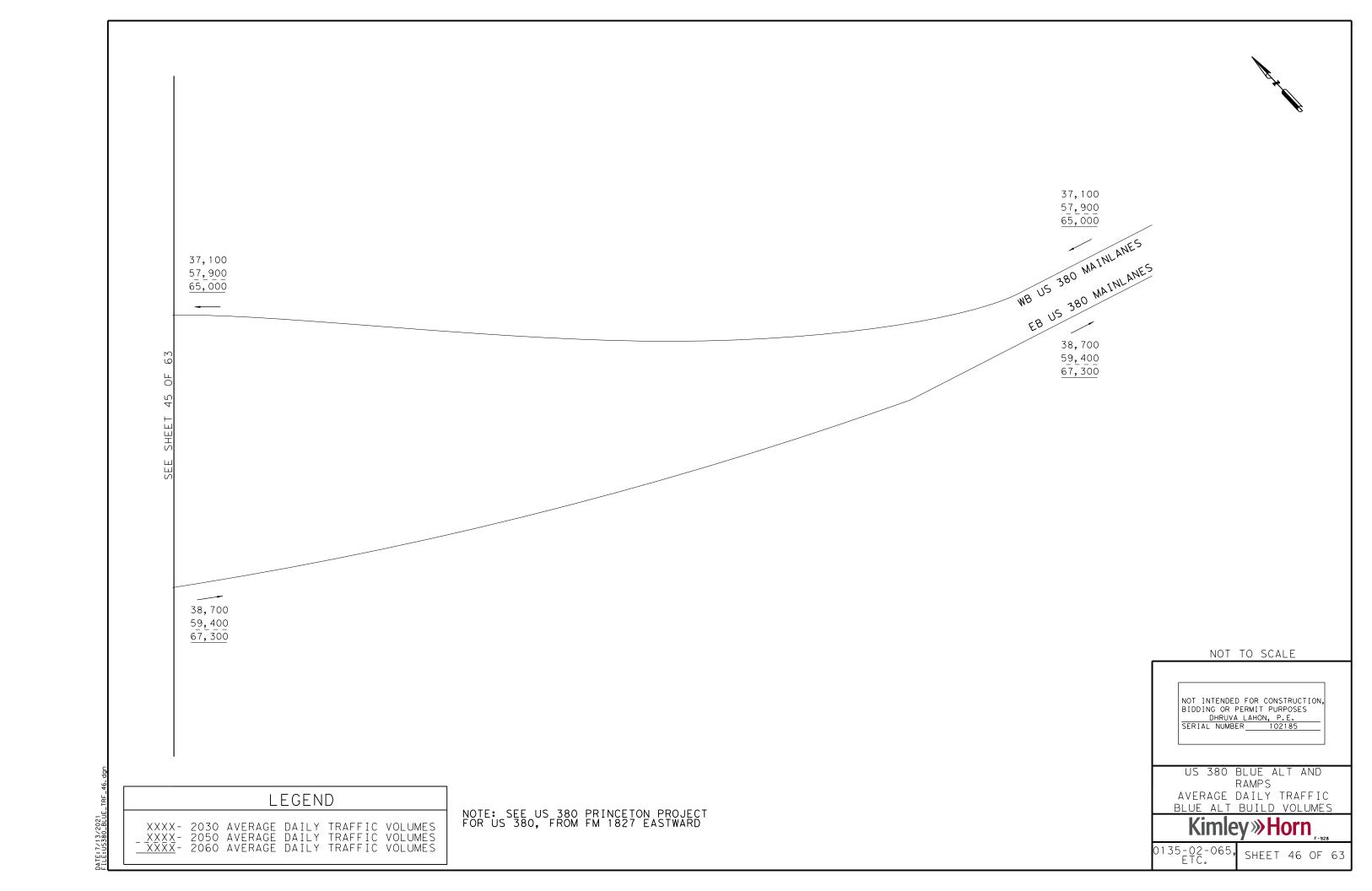


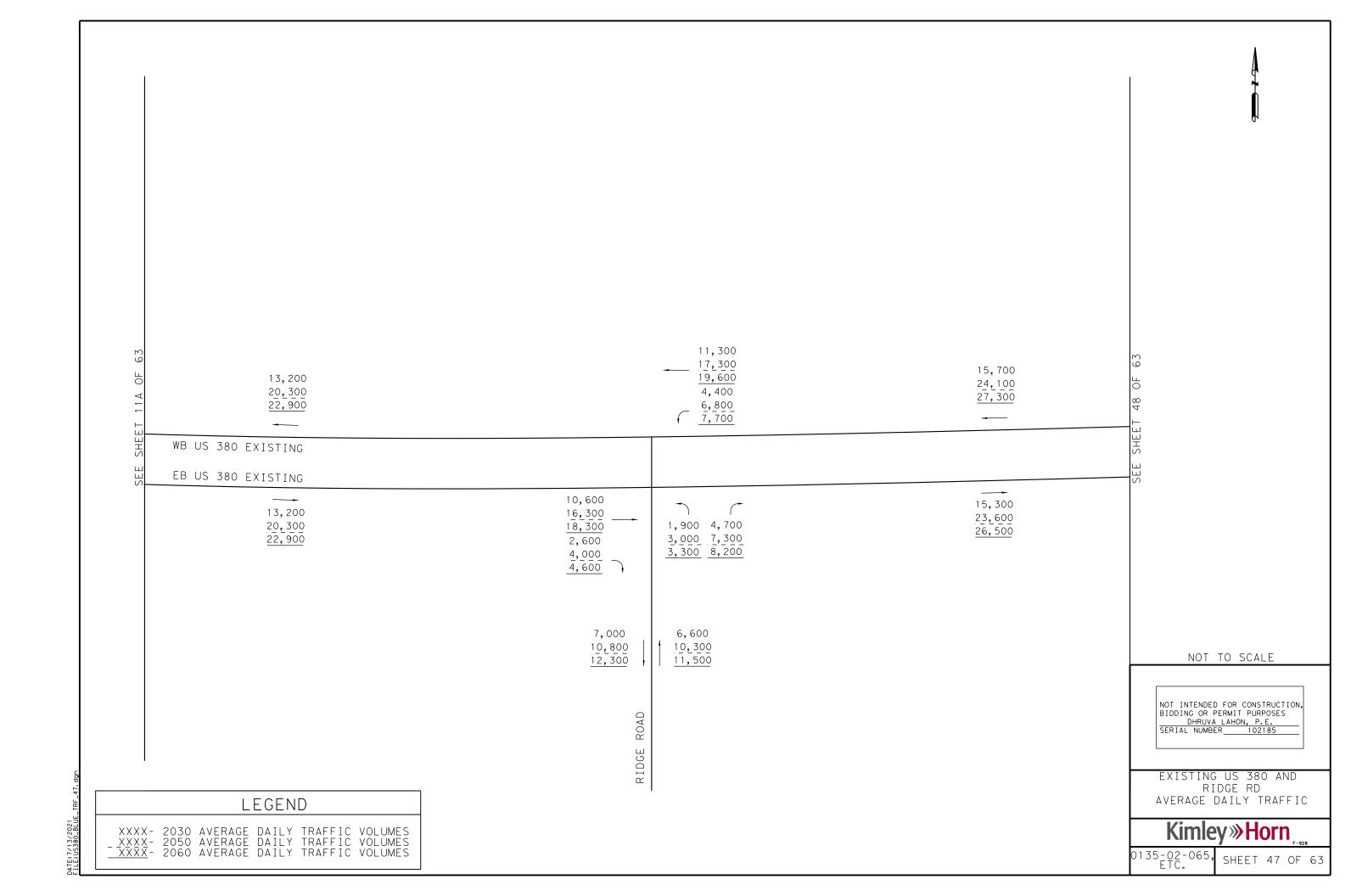


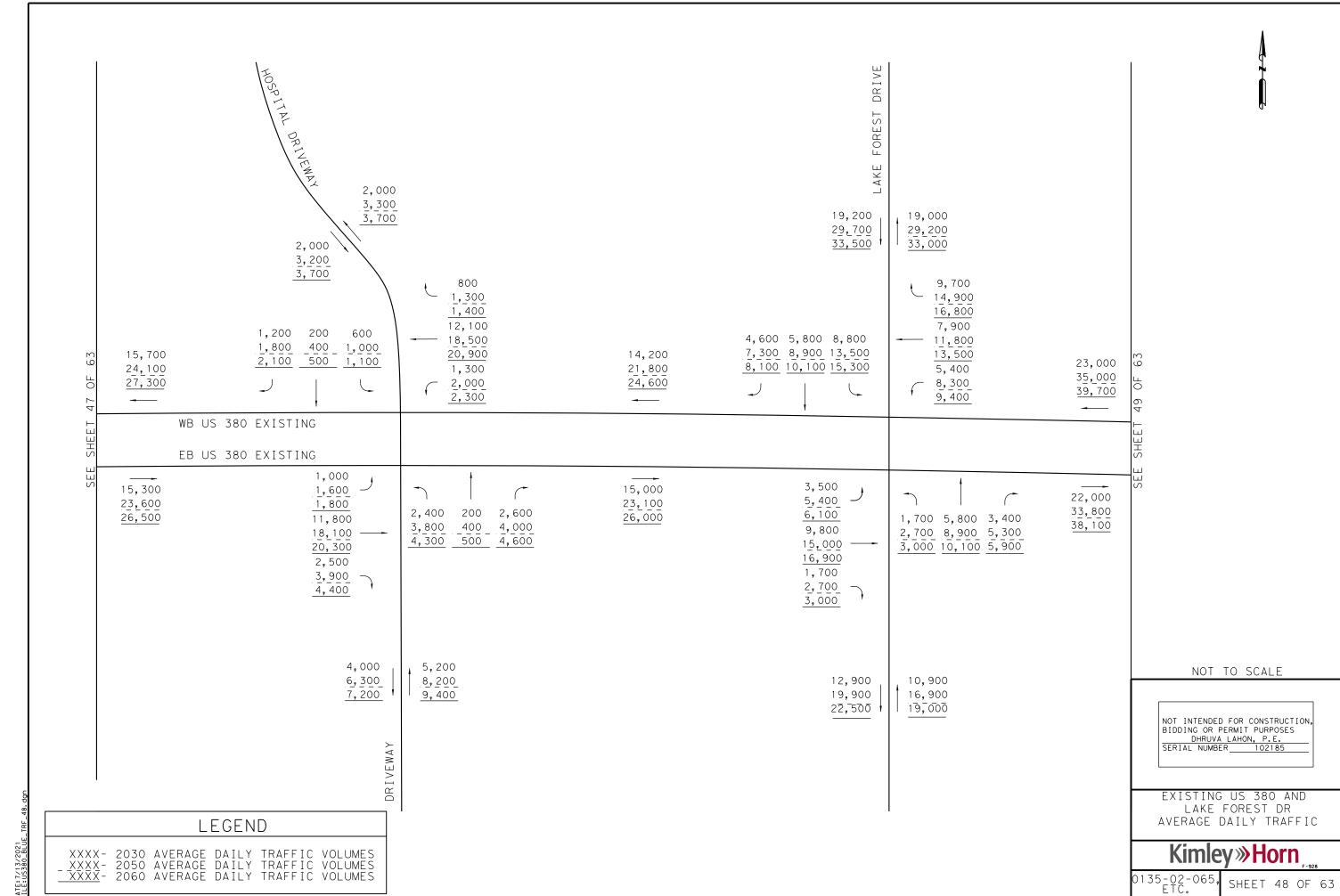


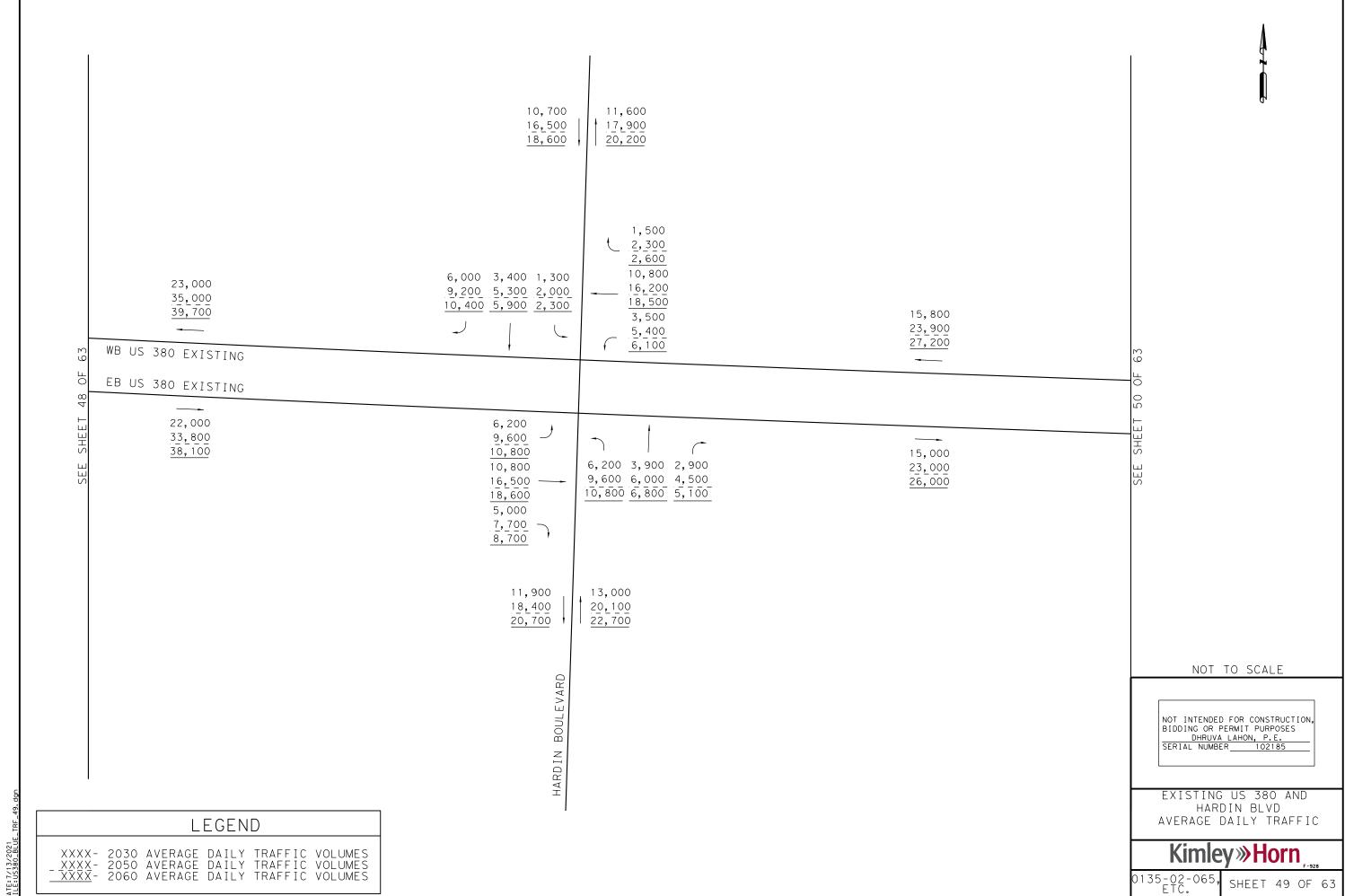


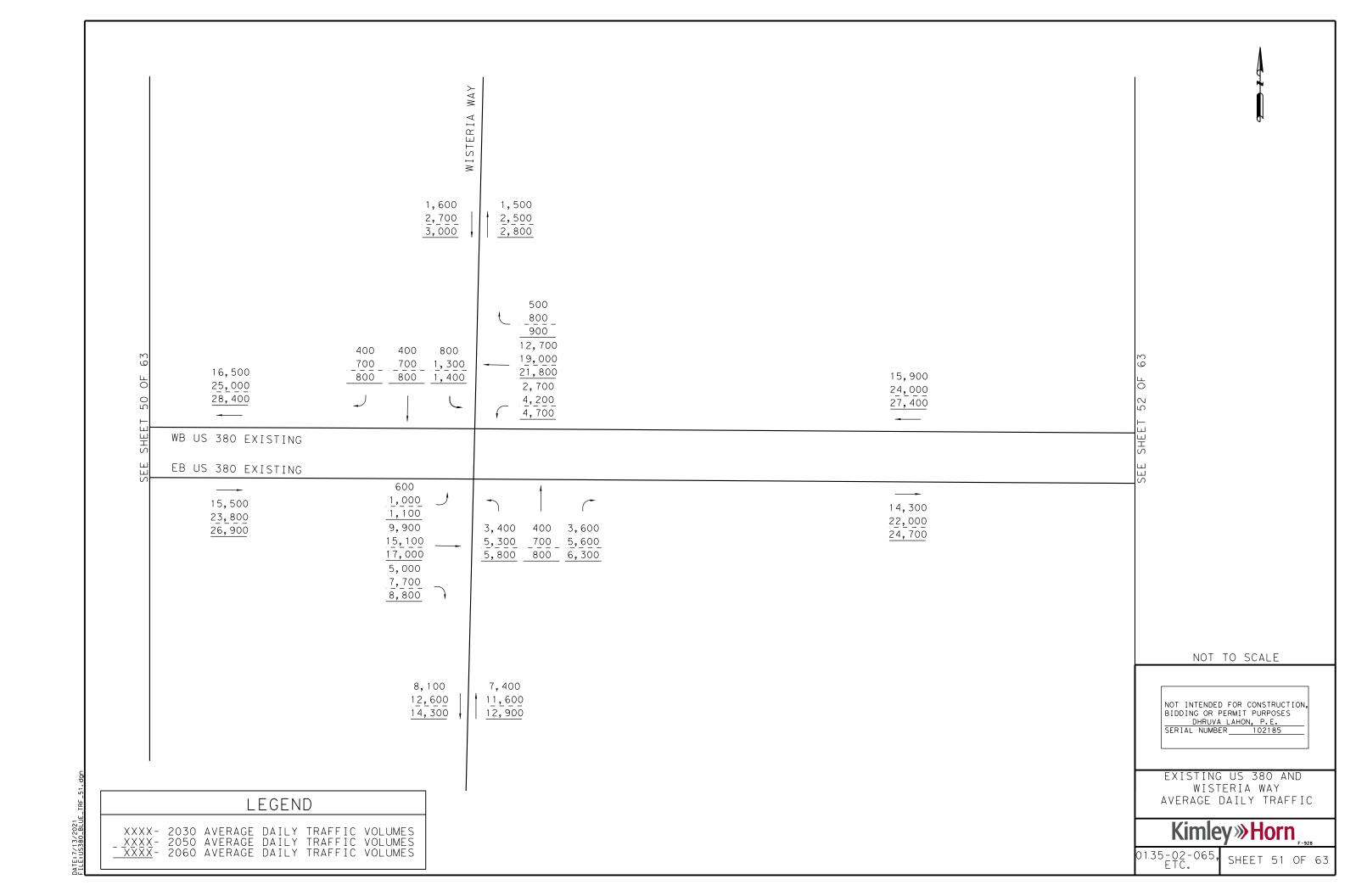


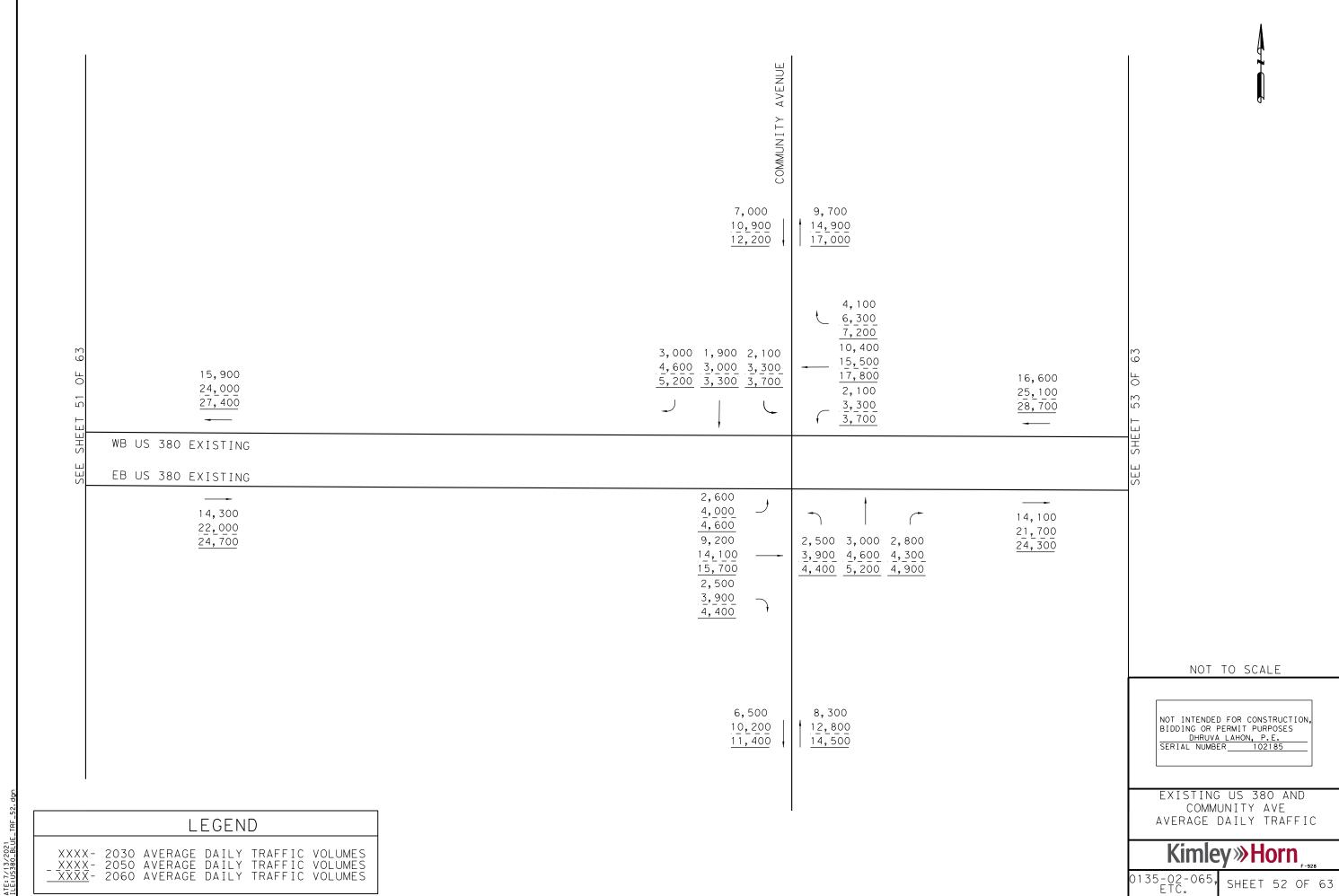


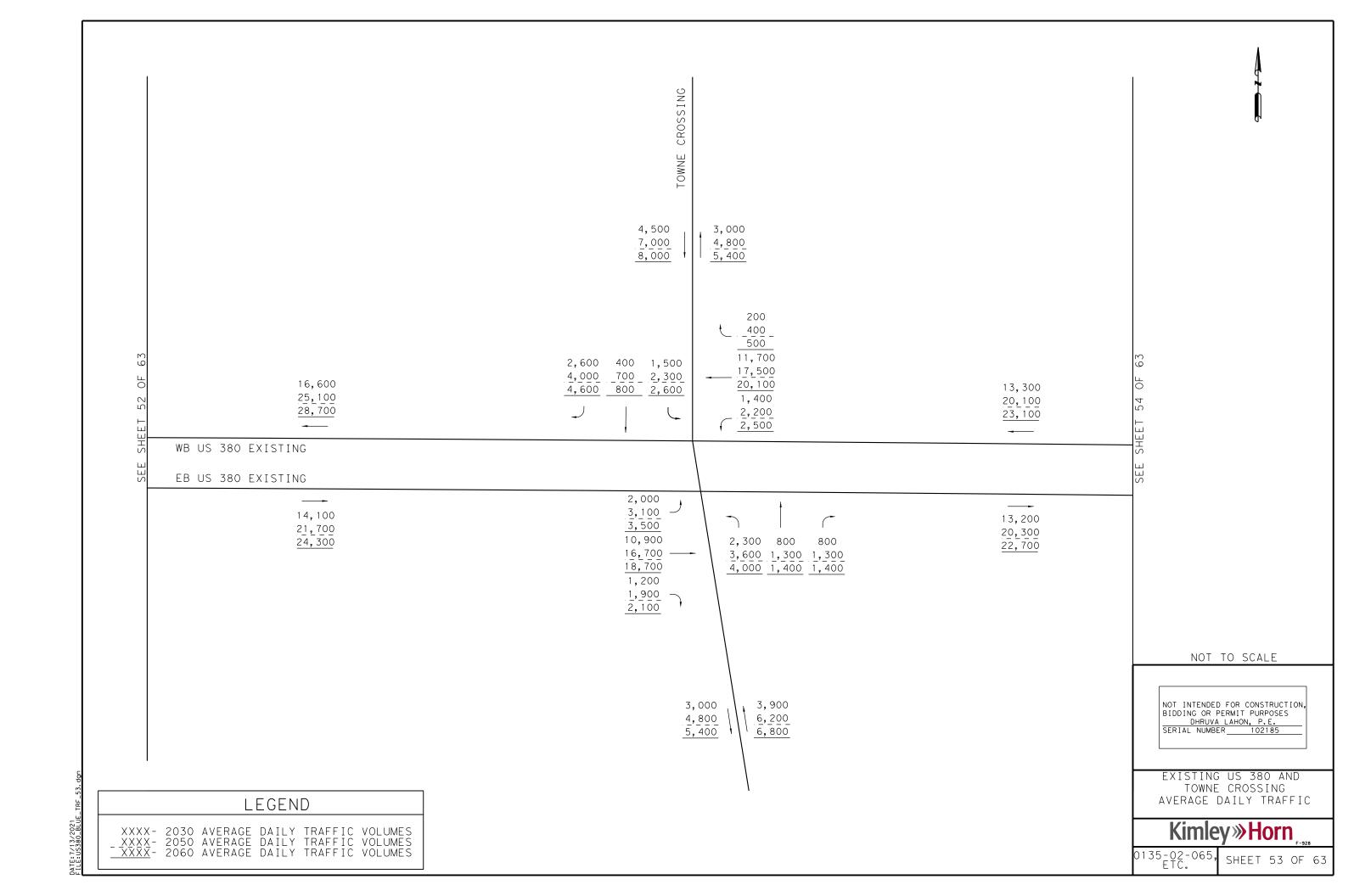


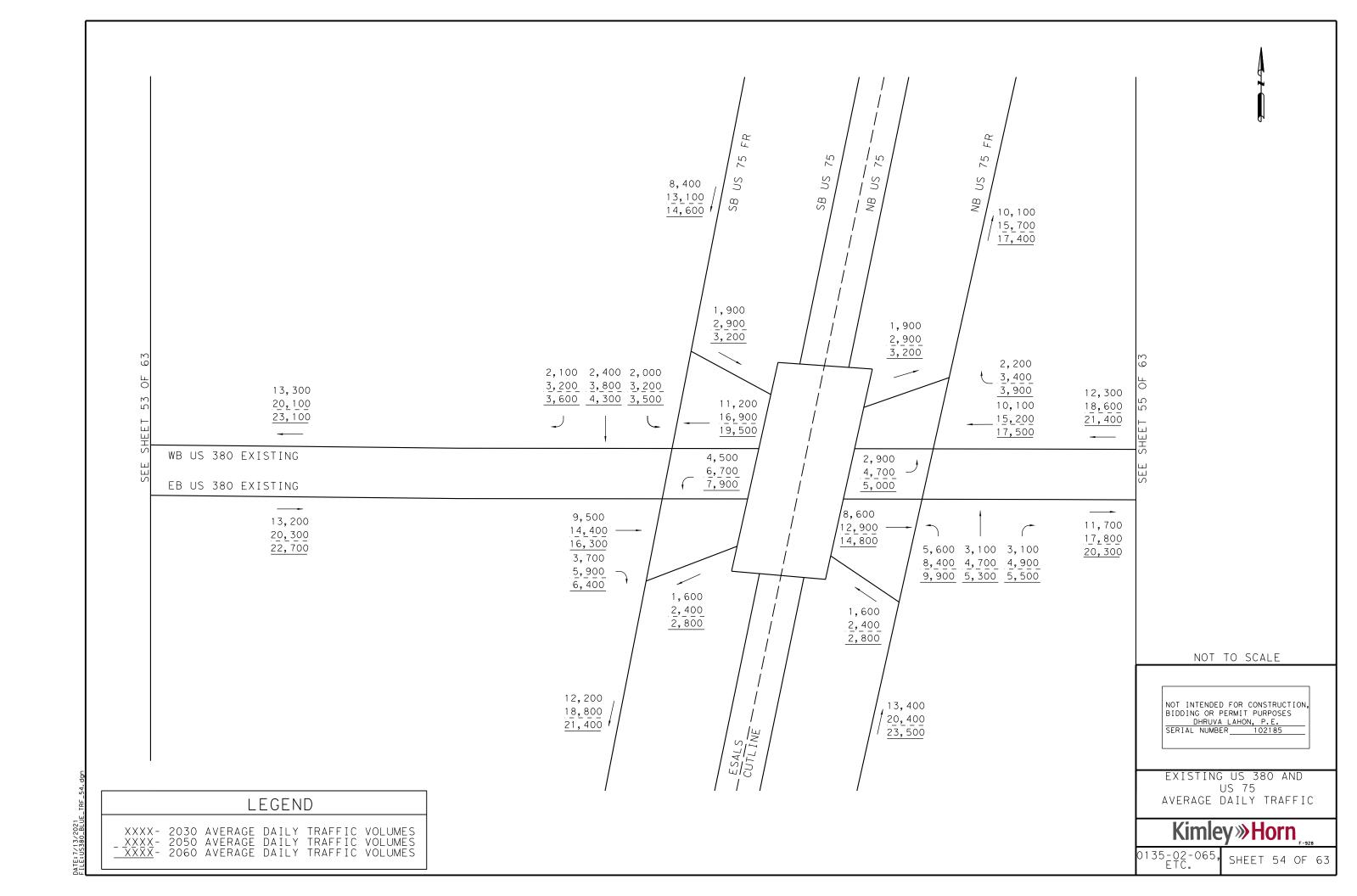


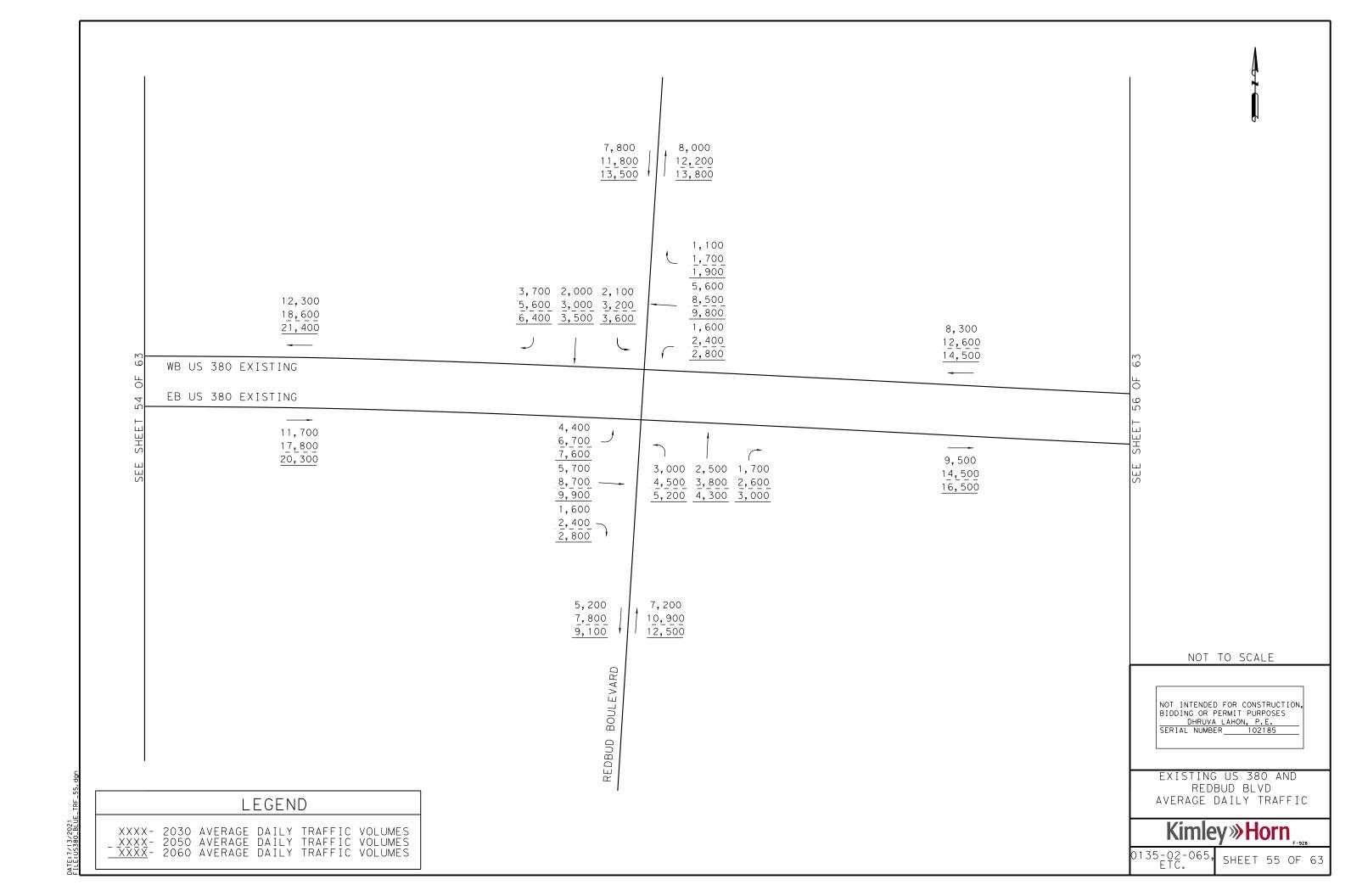








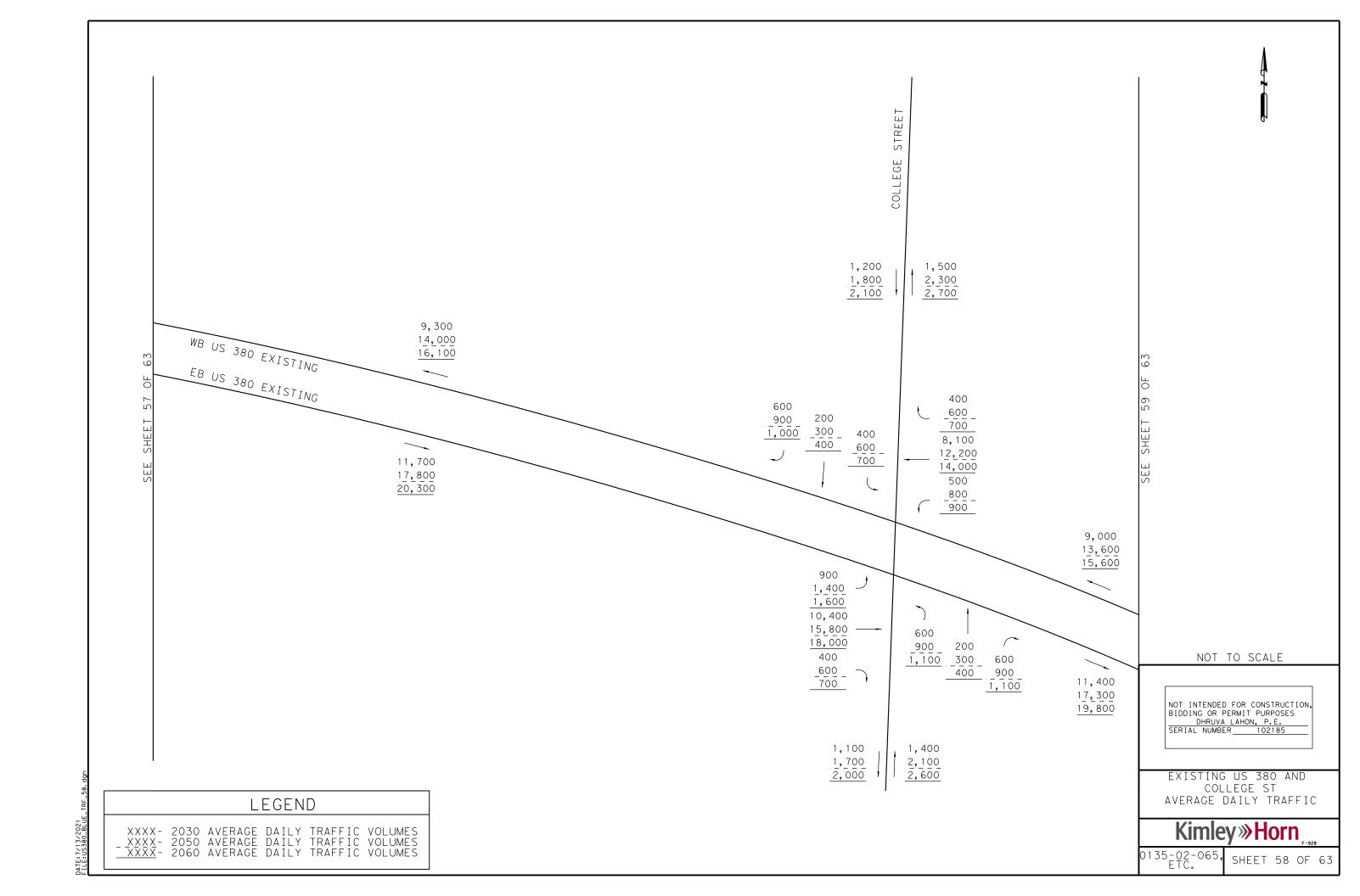


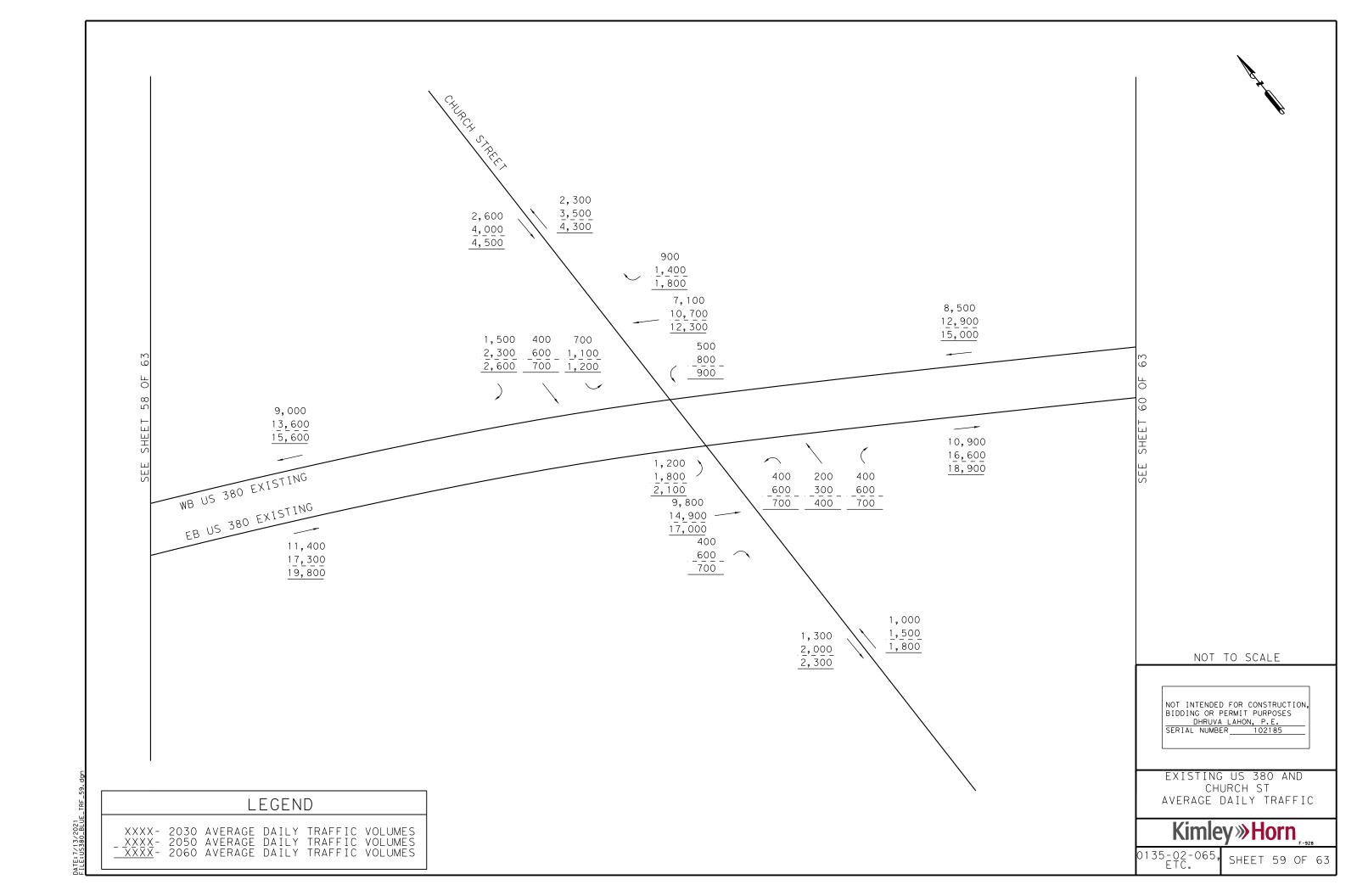


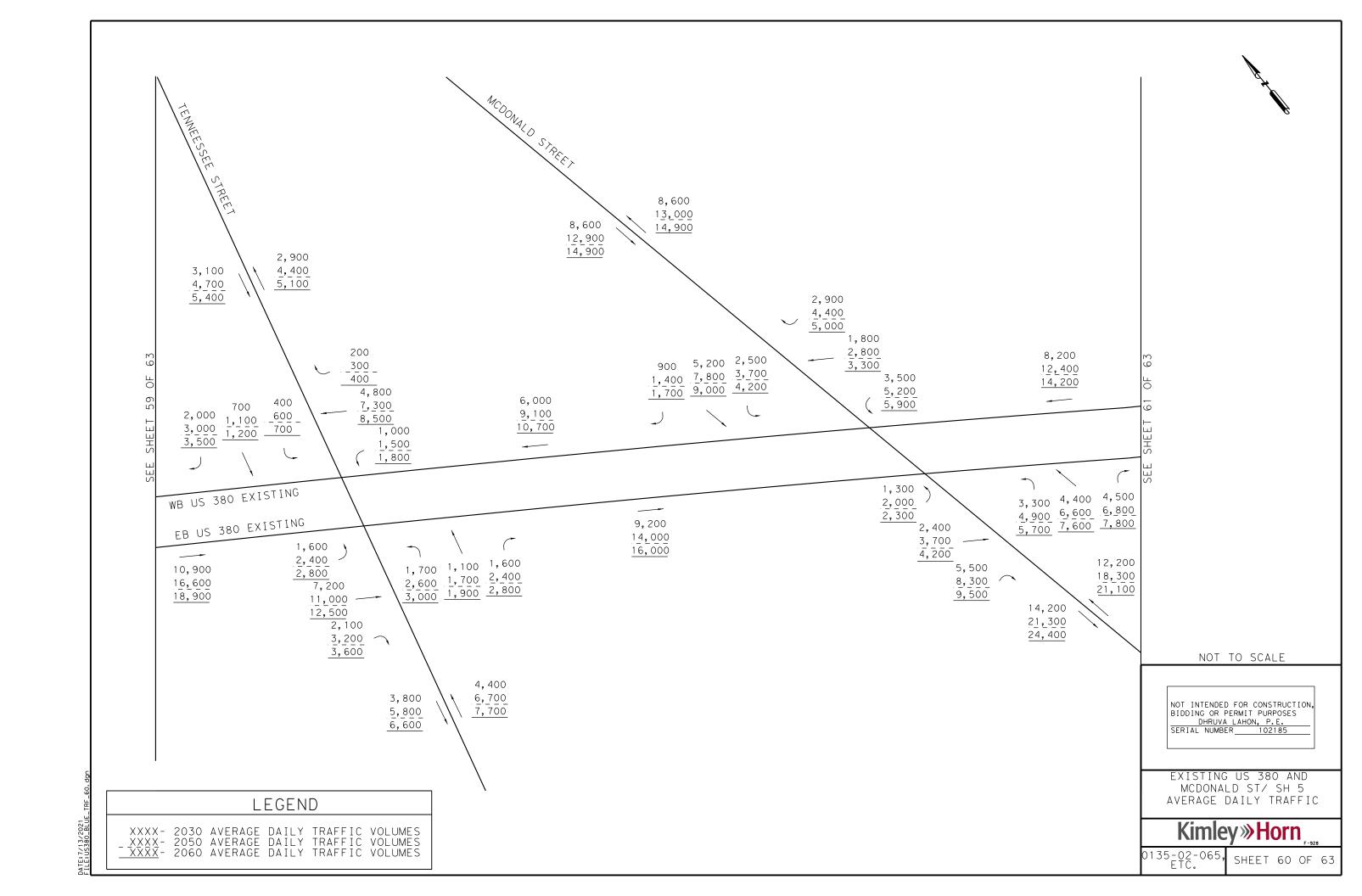
STREET GRAVES 5,500 4,800 8,400 7,200 9,500 8,300 2,900 4,300 4,900 5,600 900 1,100 3,500 8,300 8,500 1,400 1,700 5,300 12,600 9,800 1,600 1,900 6,000 14,500 600 9,100 900 13,700 15,800 1,100 WB US 380 EXISTING EB US 380 EXISTING SHEET 1,000 9,500 1,500 14,500 1,800 16,500 11,100 7,300 900 300 1,800 16,900 11,100 2,700 1,400 500 19,200 12,600 3,100 1,600 600 1,200 1,900 2,100 2,900 3,000 4,600 4,500 5,300 5**,**100 NOT TO SCALE NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185 EXISTING US 380 AND GRAVES ST AVERAGE DAILY TRAFFIC LEGEND XXXX- 2030 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2050 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2060 AVERAGE DAILY TRAFFIC VOLUMES Kimley » Horn 0135-02-065, ETC. SHEET 56 OF 63

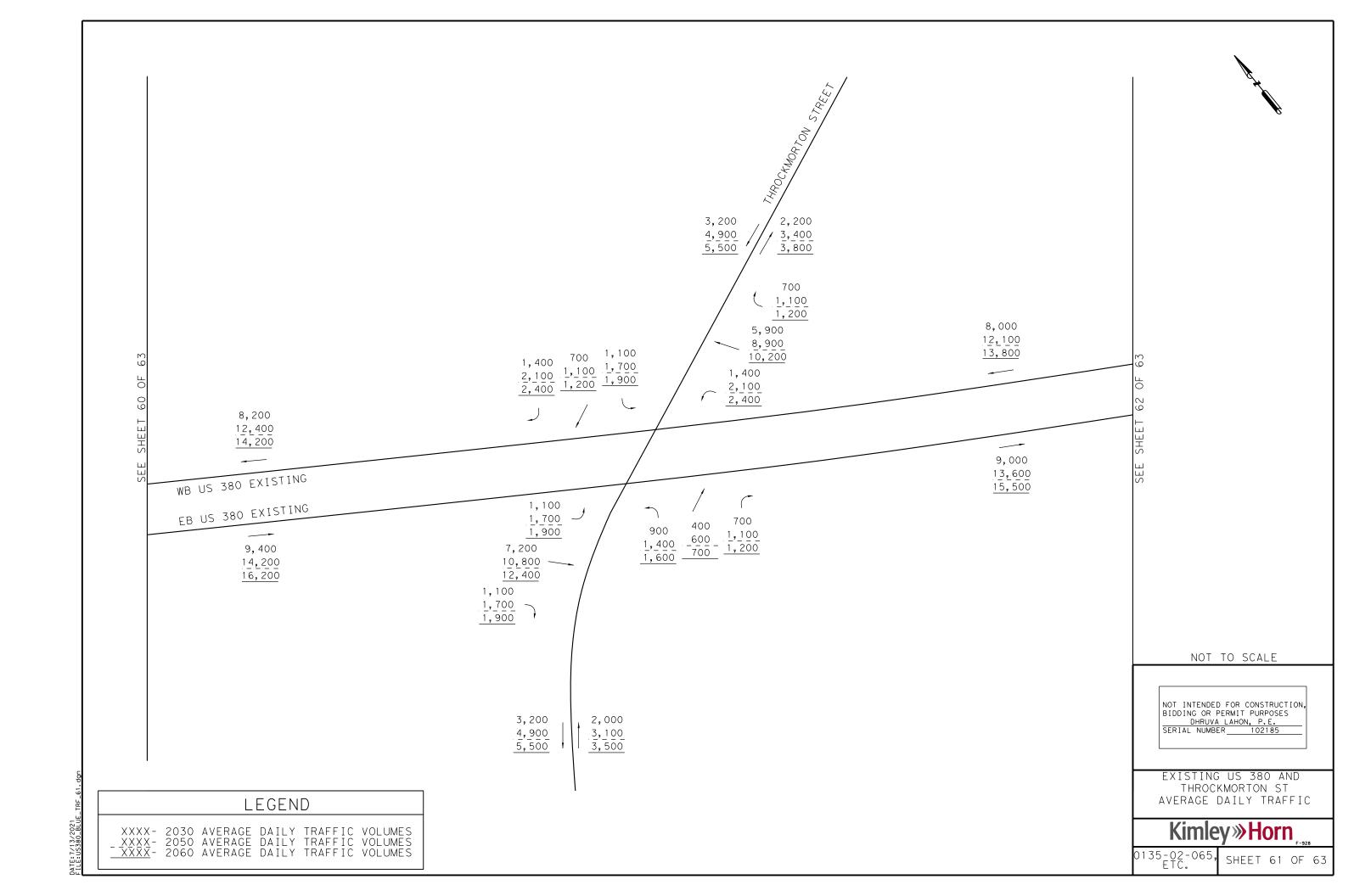
1,000 600 900 1,500 1,900 1,200 200 \_300 400 8,200 200 200 600 9,100 12,300 \_300 400 300 \_900 14,100 13,700 400 <u>1,100</u> 15,800 900 1,400 1,600 9,300 WB US 380 EXISTING 1<u>4</u>,000 16,100 OF. EB US 380 EXISTING SHEET 200 11,100 \_3<u>00</u> -16,900 19,200 9,800 700 200 1,300 14,900 2,000 300 1,100 11,700 16,900 1,300 400 2,300 17,800 1,100 20,300 1,700 1,900 2,200 2,200 3,400 3,400 3,900 4,000 NOT TO SCALE STREET NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185 WADDILL EXISTING US 380 AND WADDILL ST AVERAGE DAILY TRAFFIC LEGEND XXXX- 2030 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2050 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2060 AVERAGE DAILY TRAFFIC VOLUMES Kimley » Horn 0135-02-065, ETC.

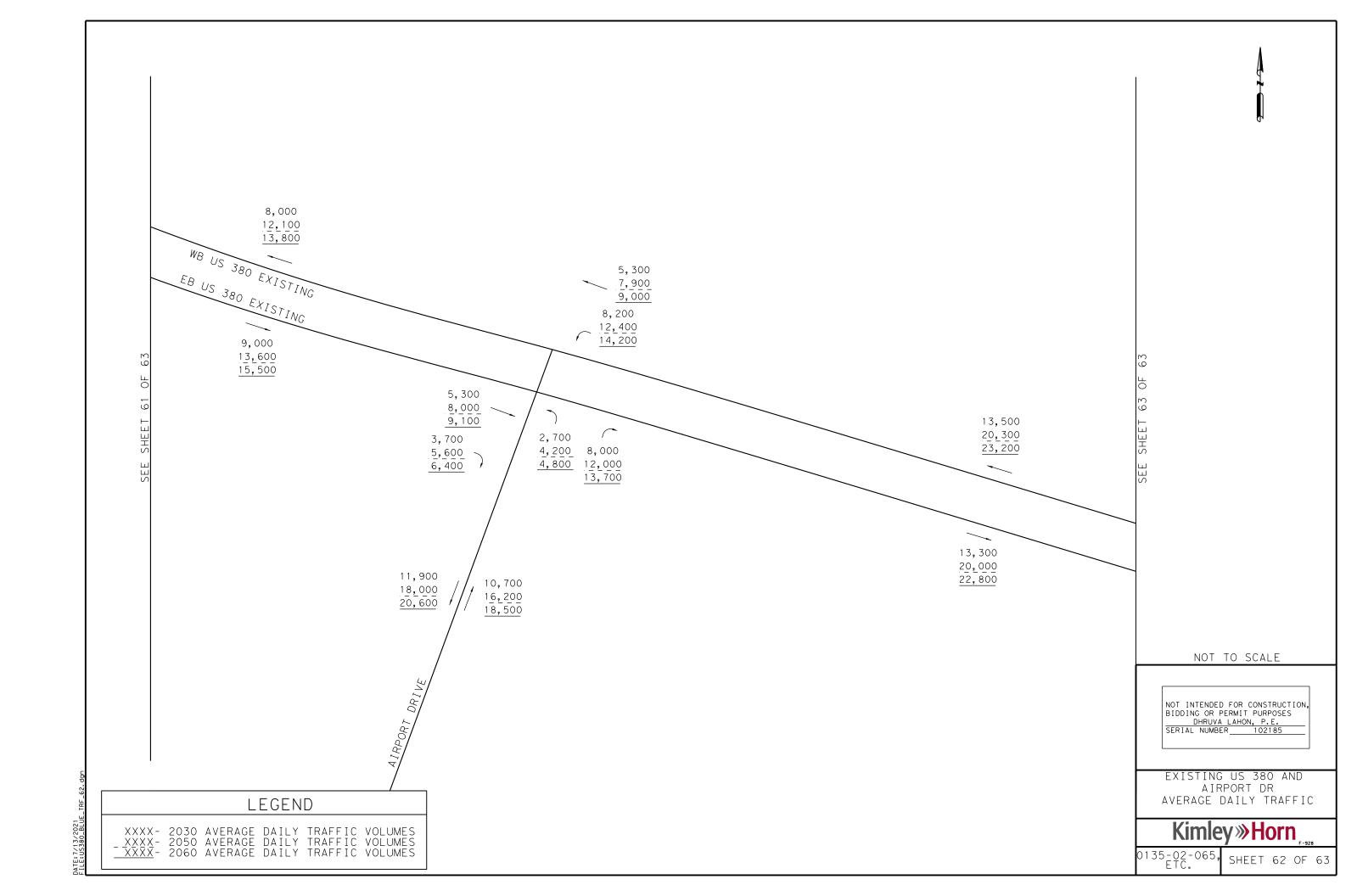
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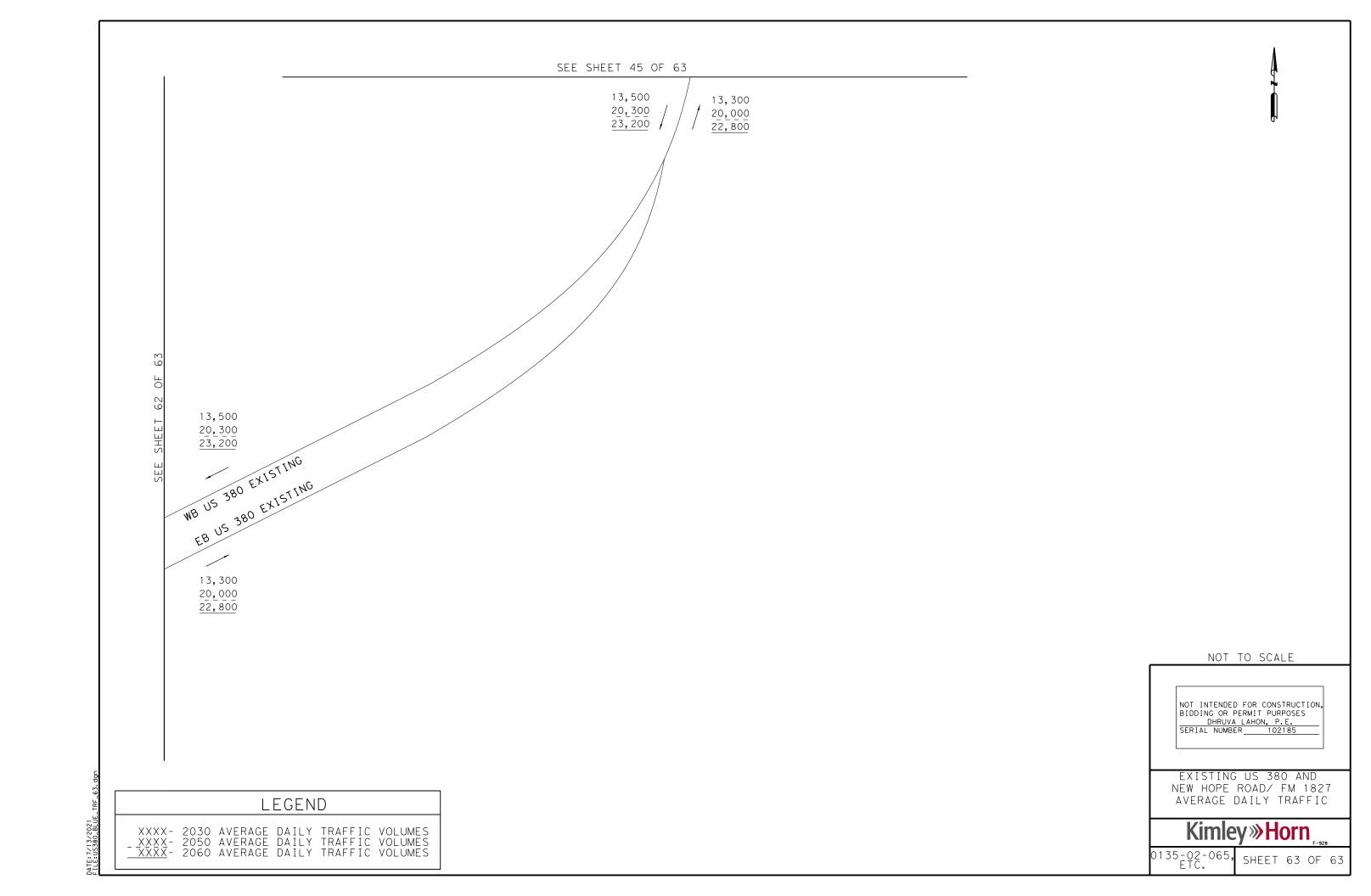














NOT TO SCALE

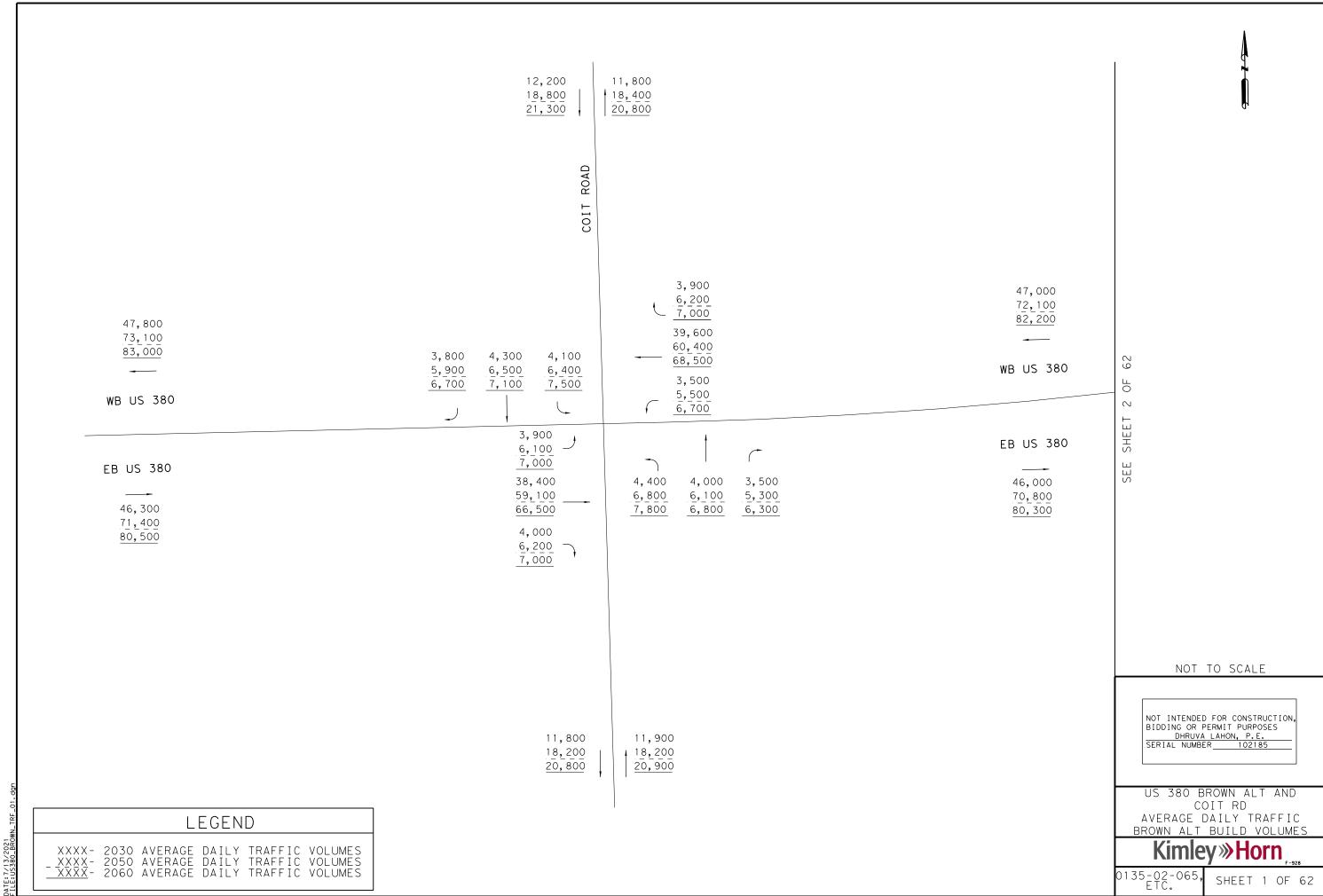
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BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185

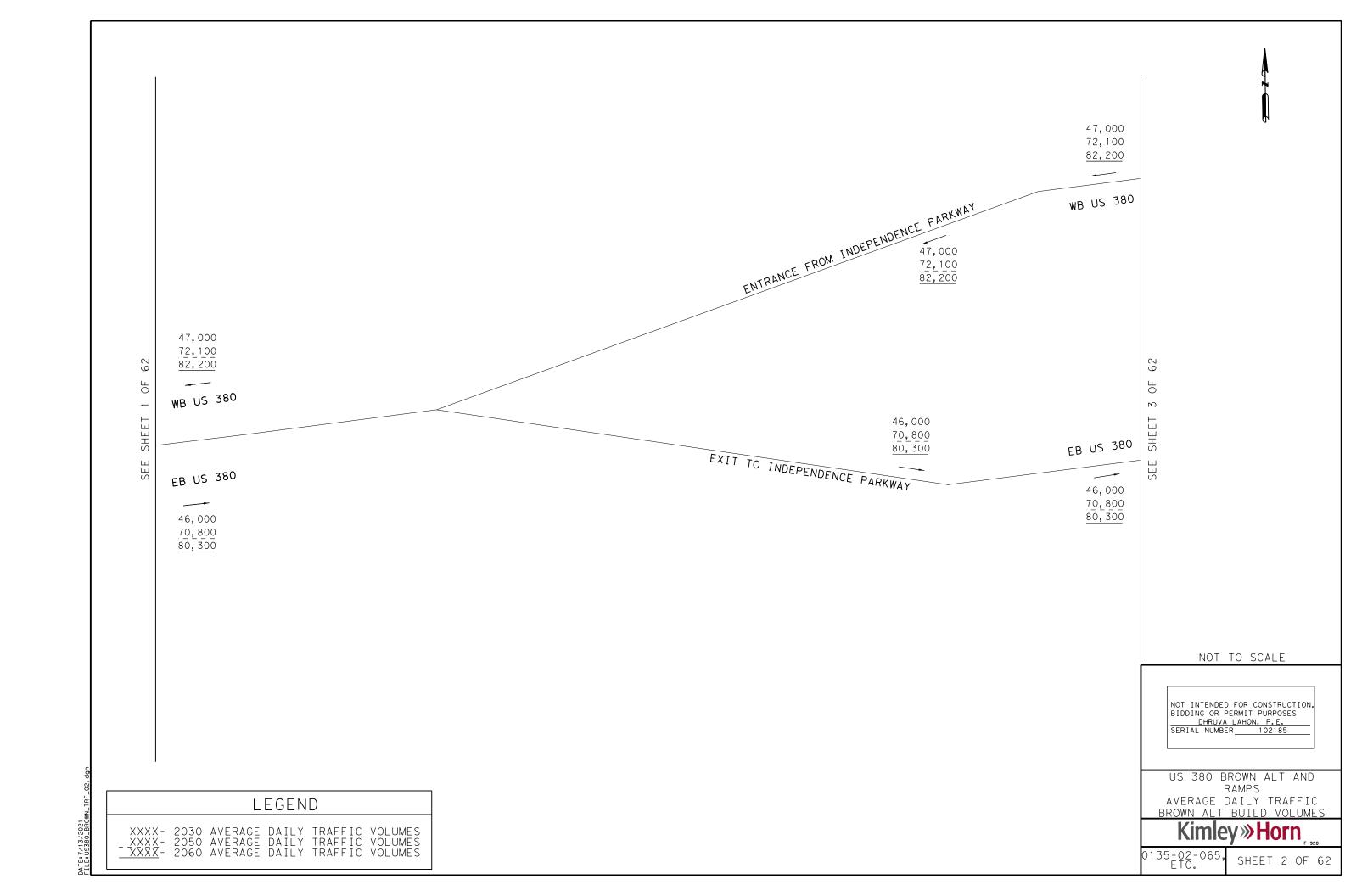
US 380 BROWN ALT KEYMAP

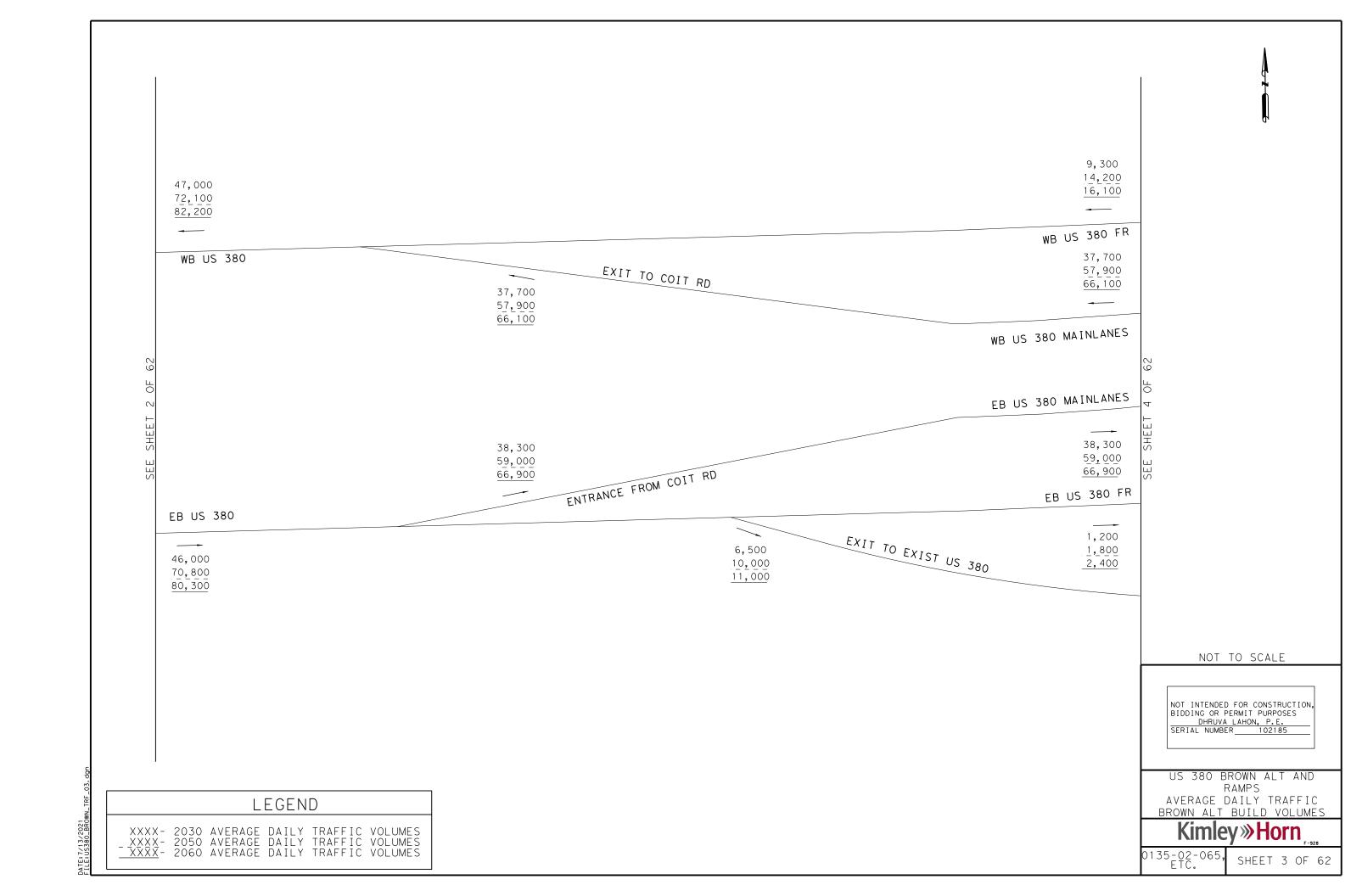
Kimley»Horn

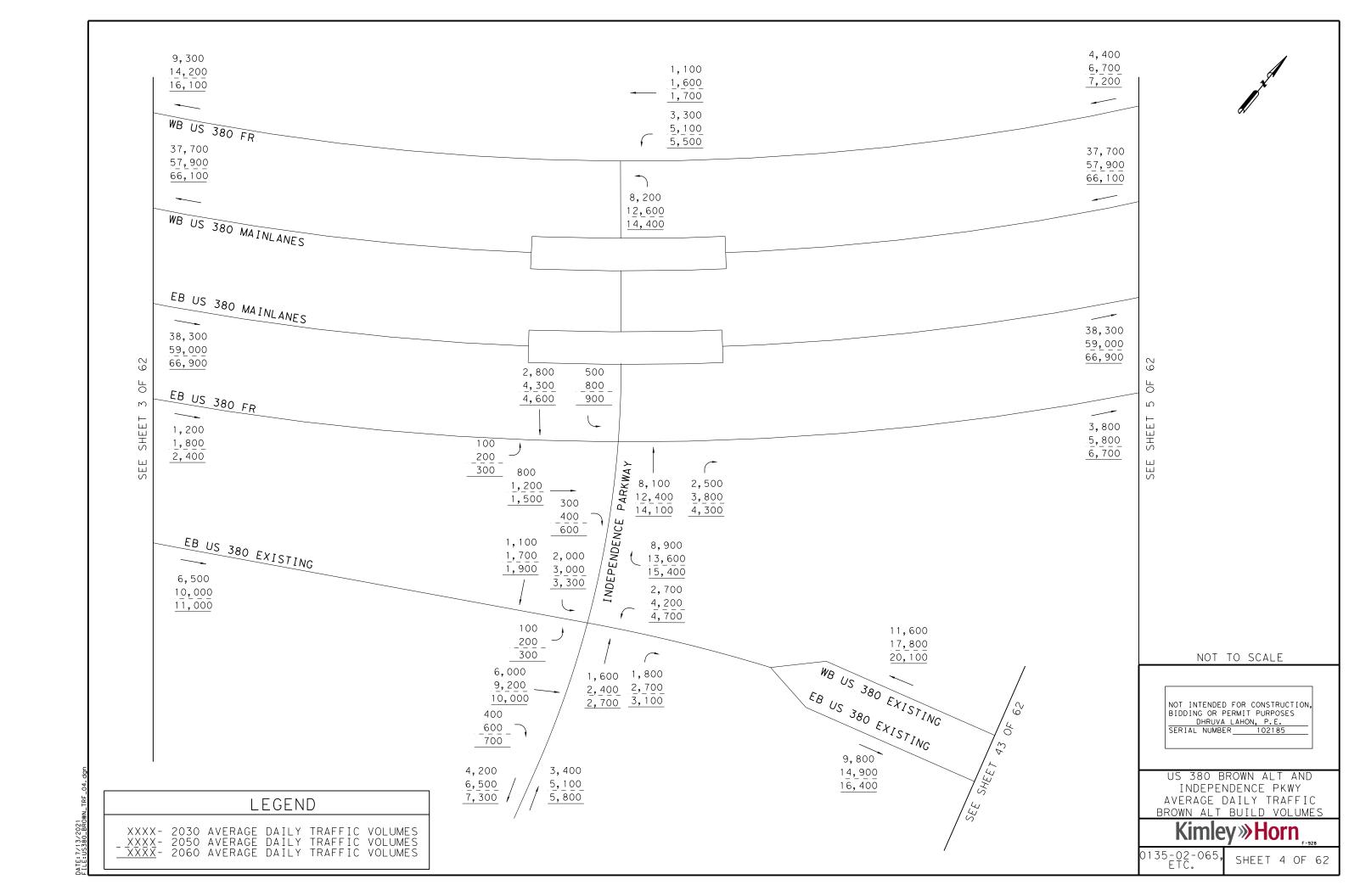
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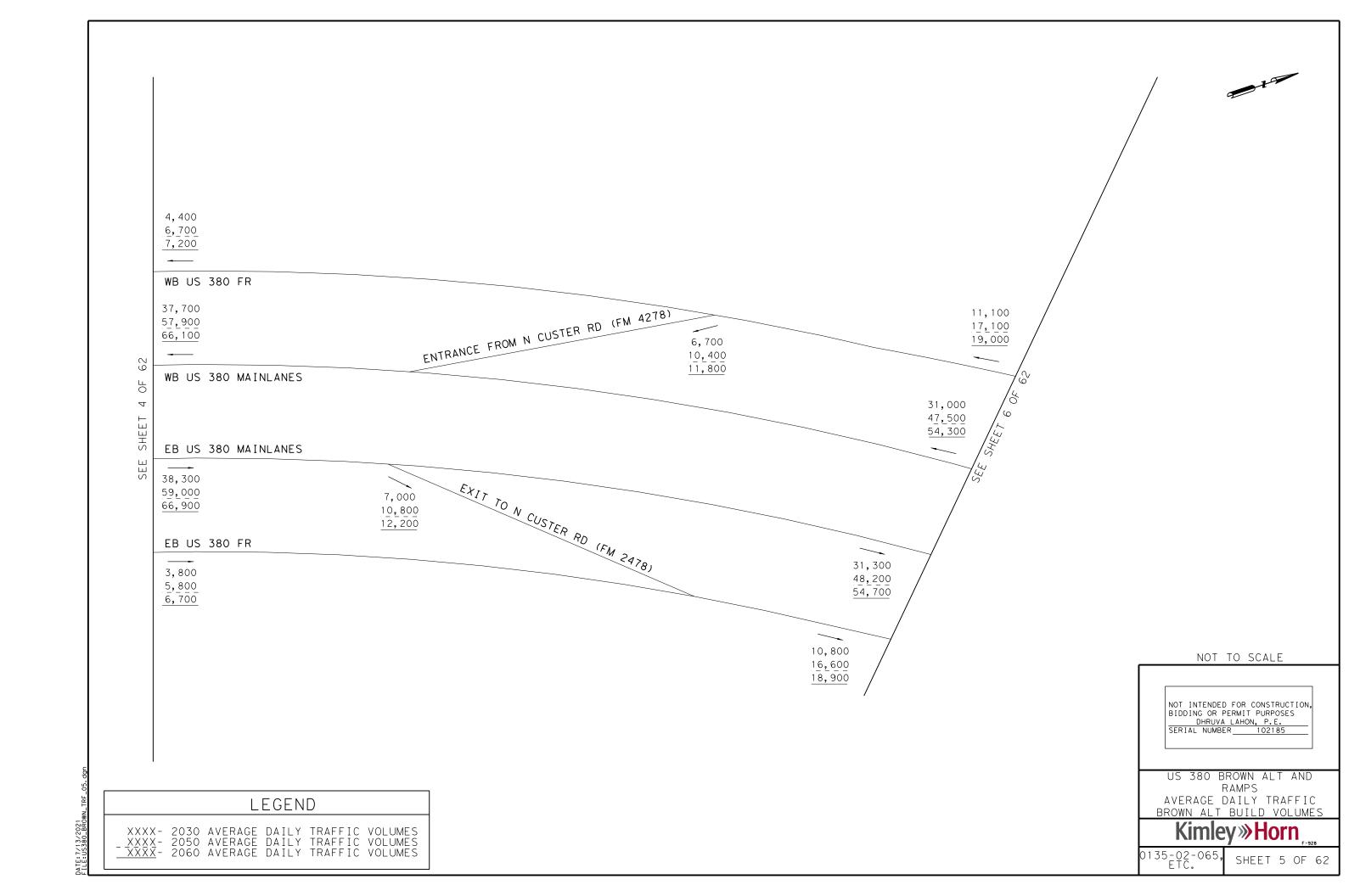
SHEET 1 OF 1

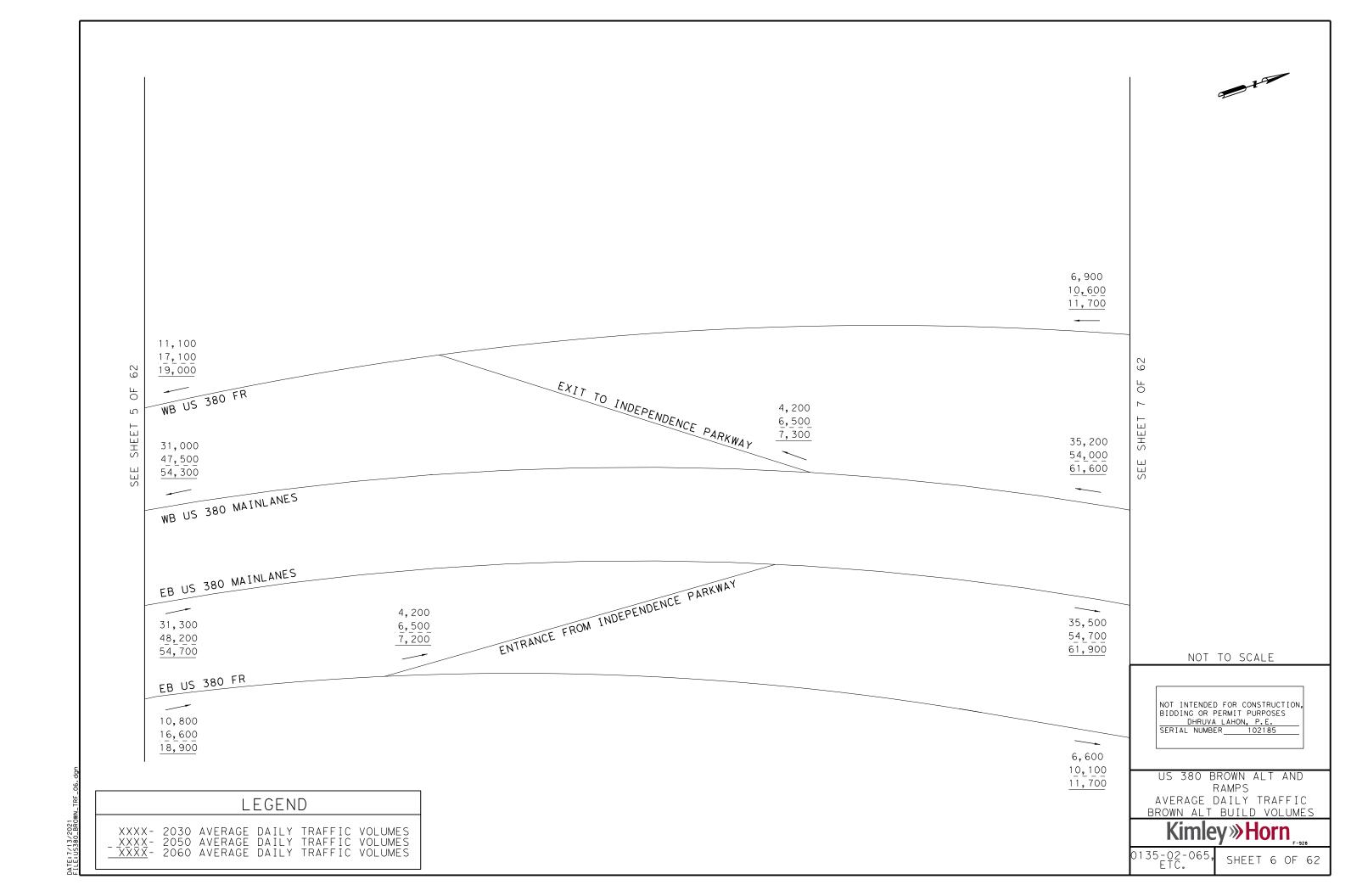


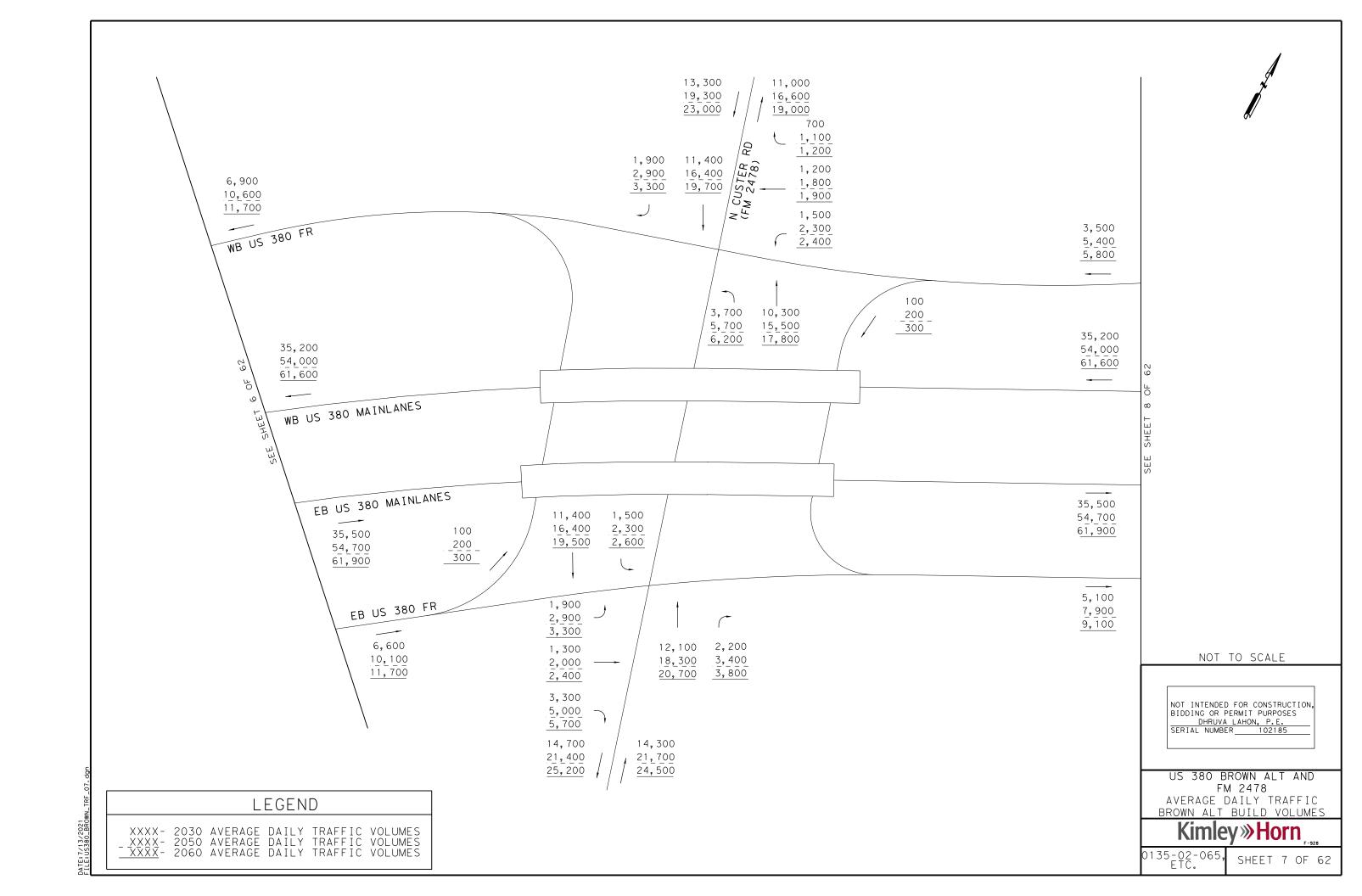


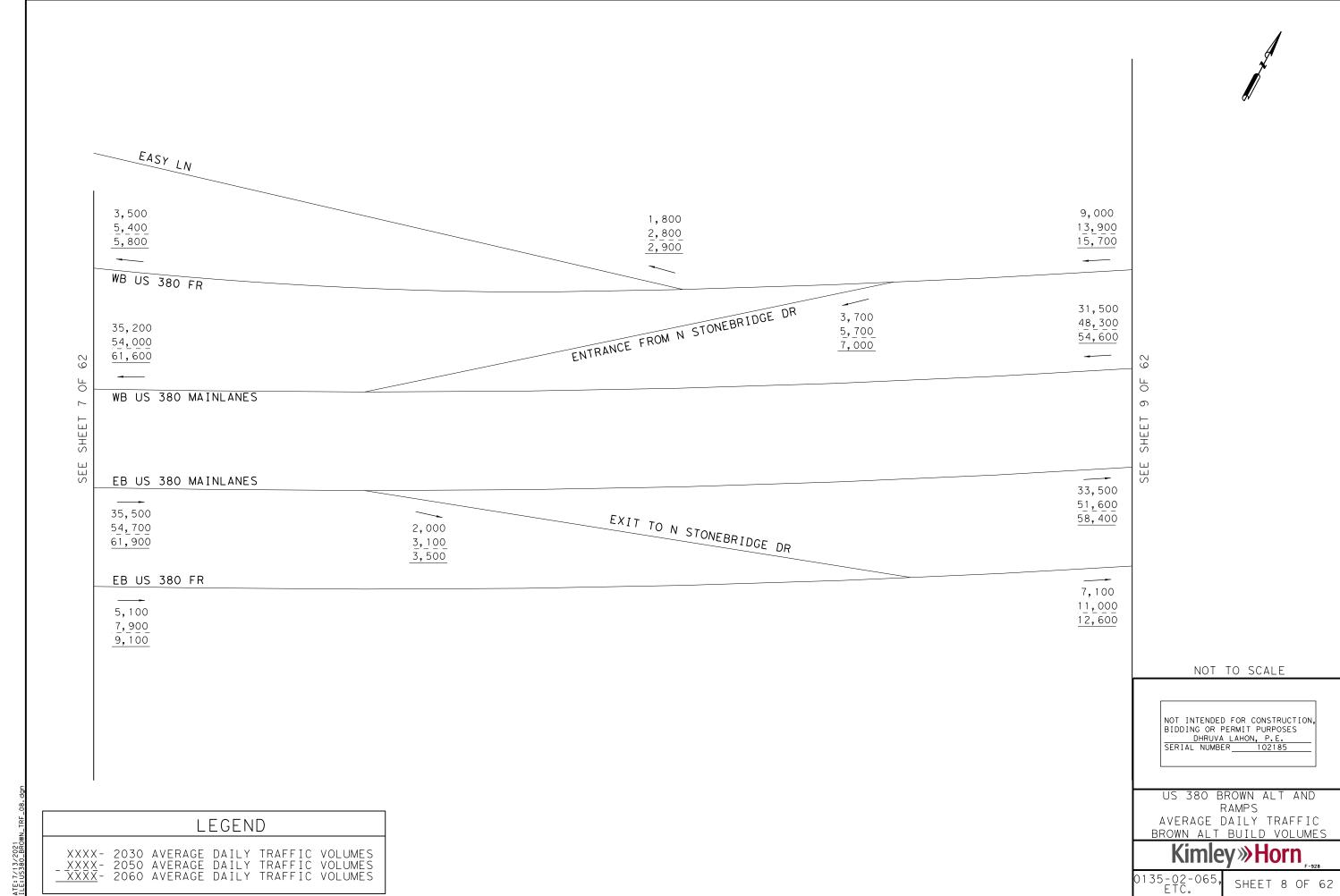


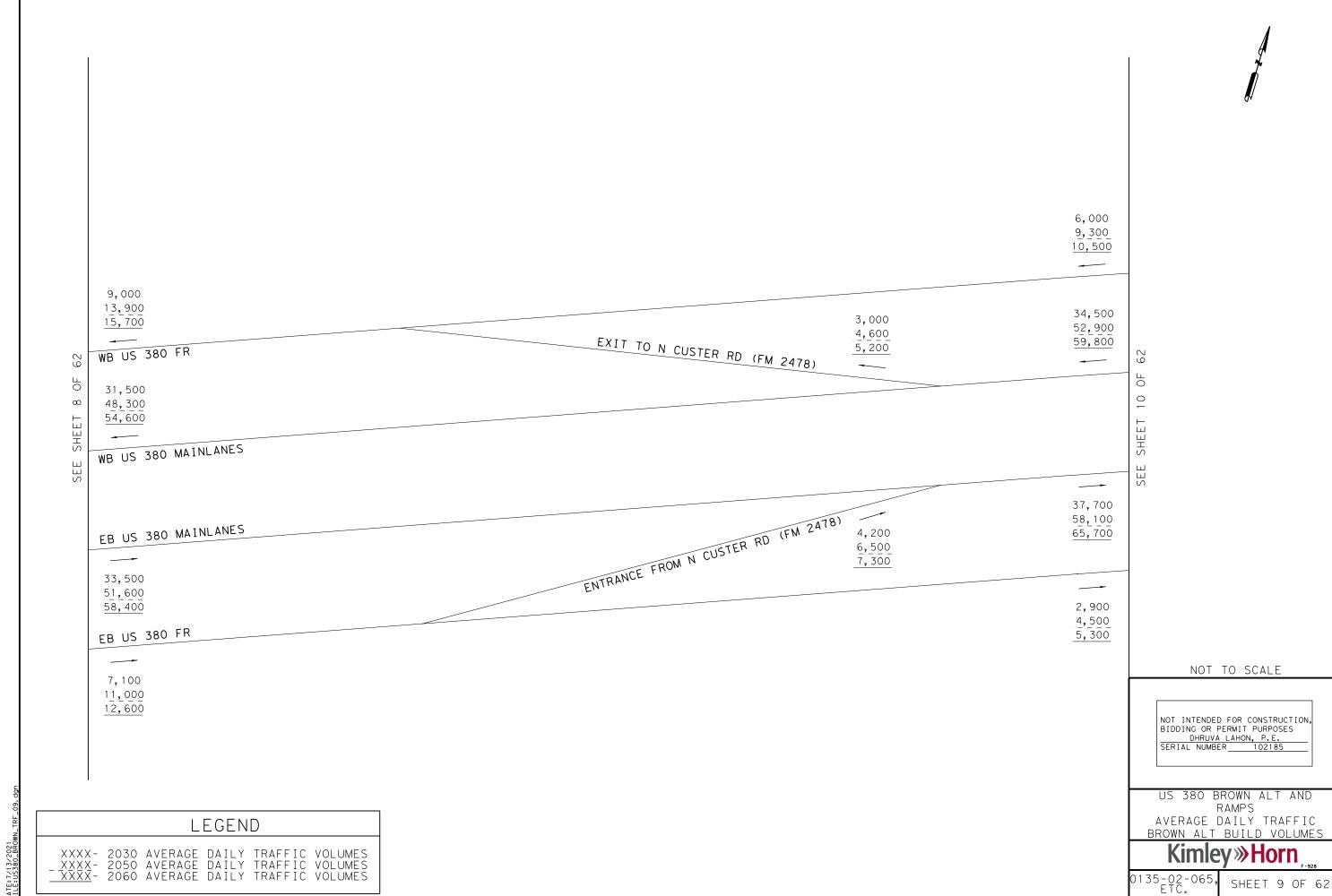


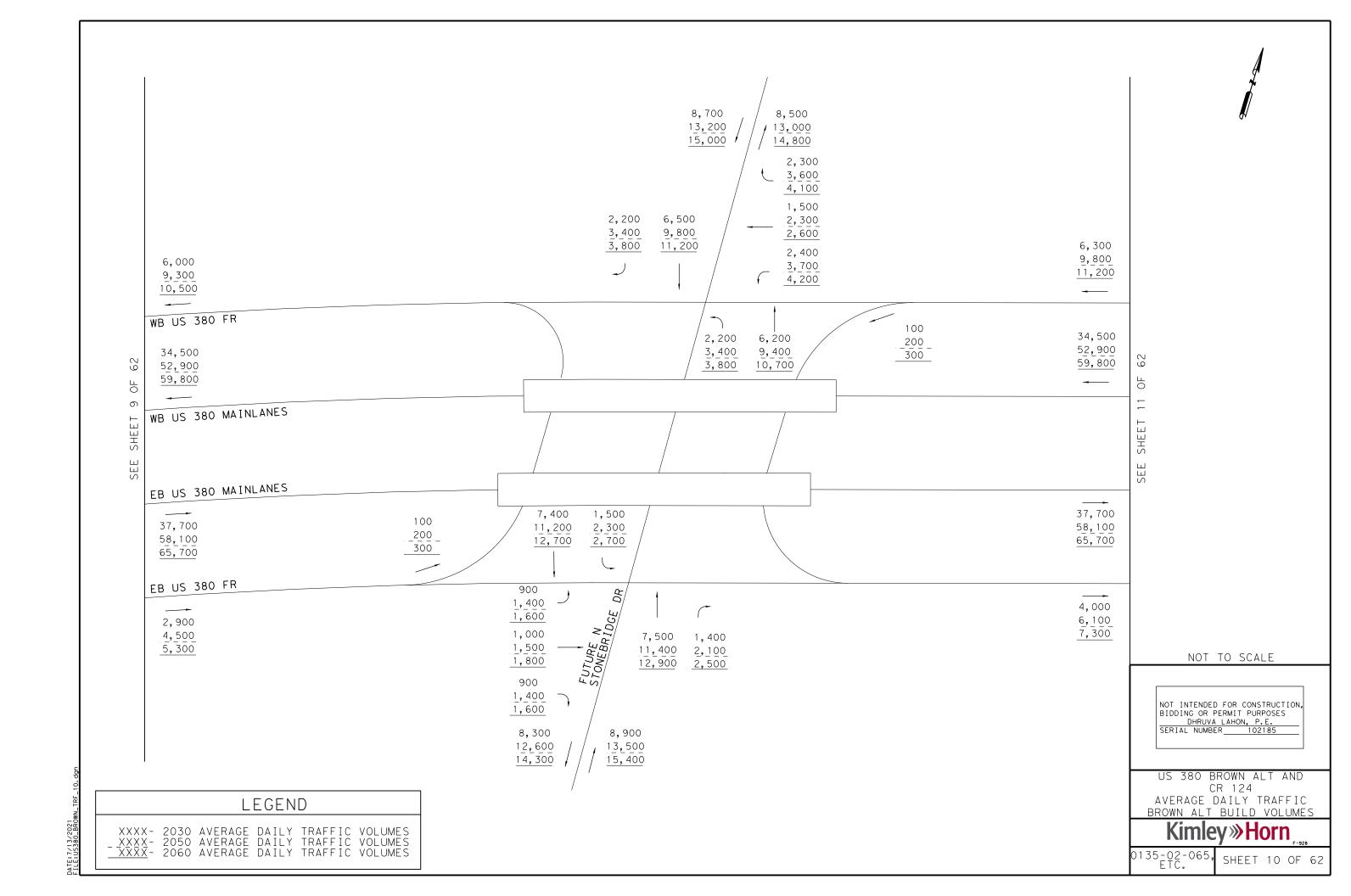


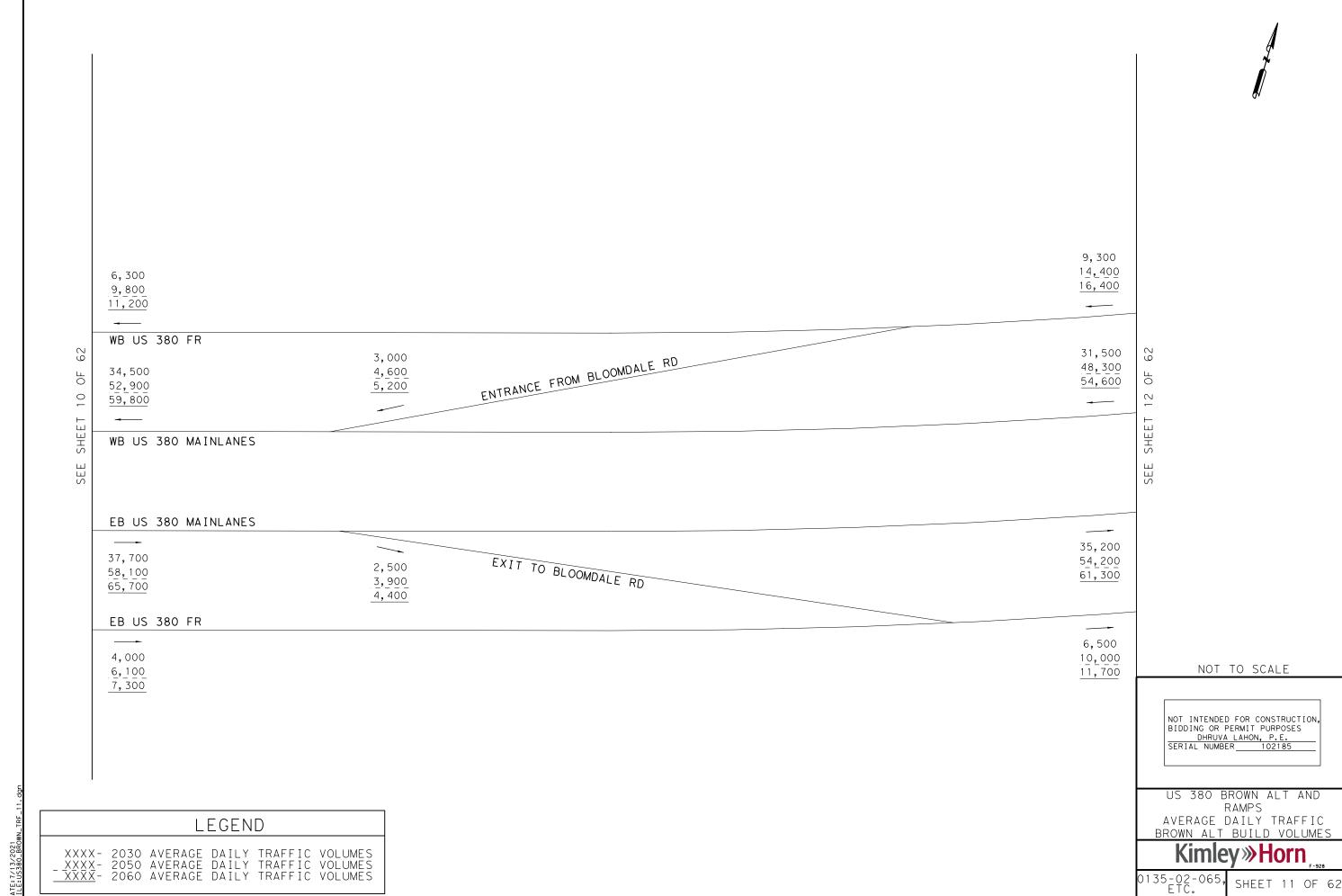


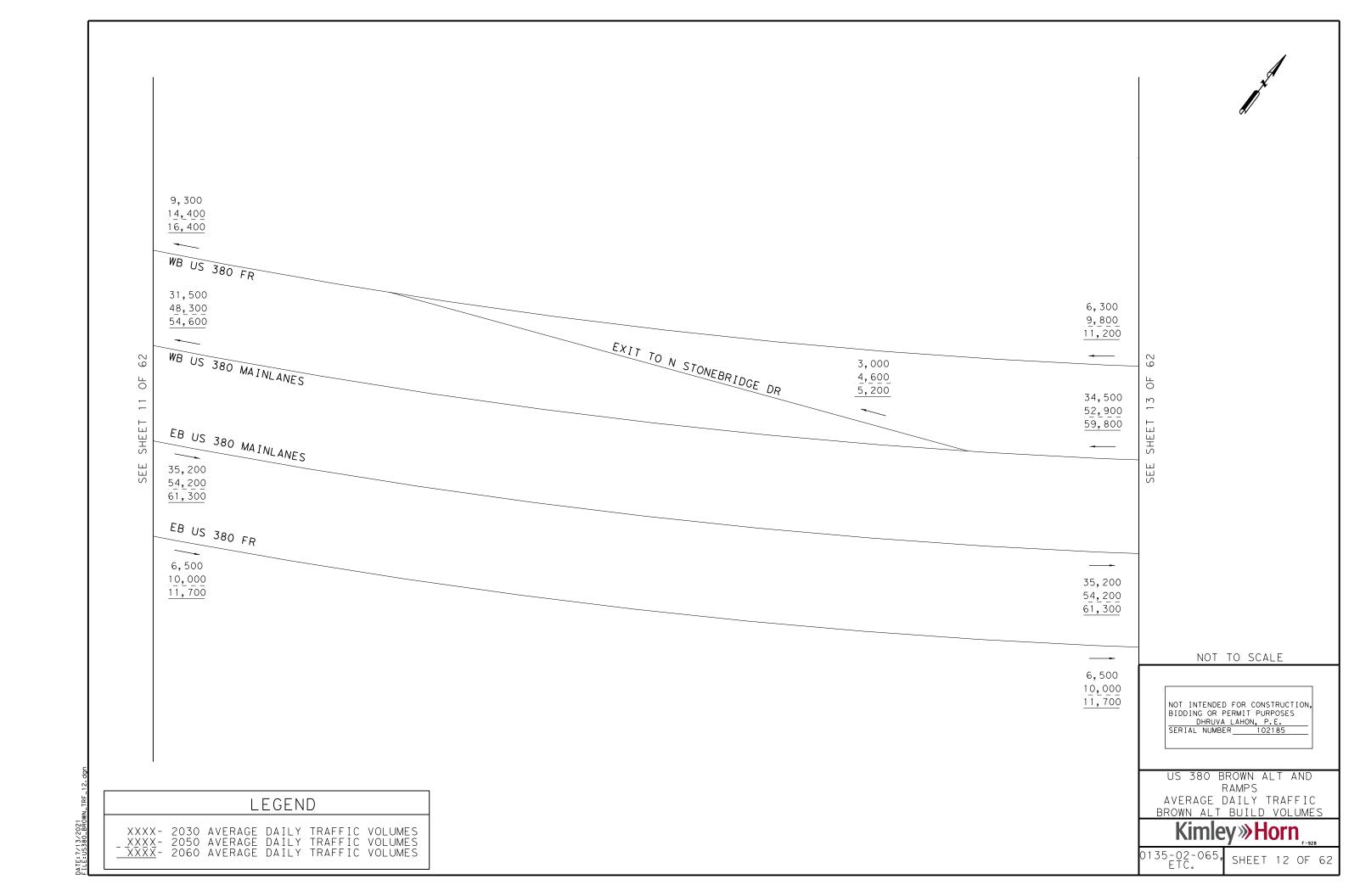


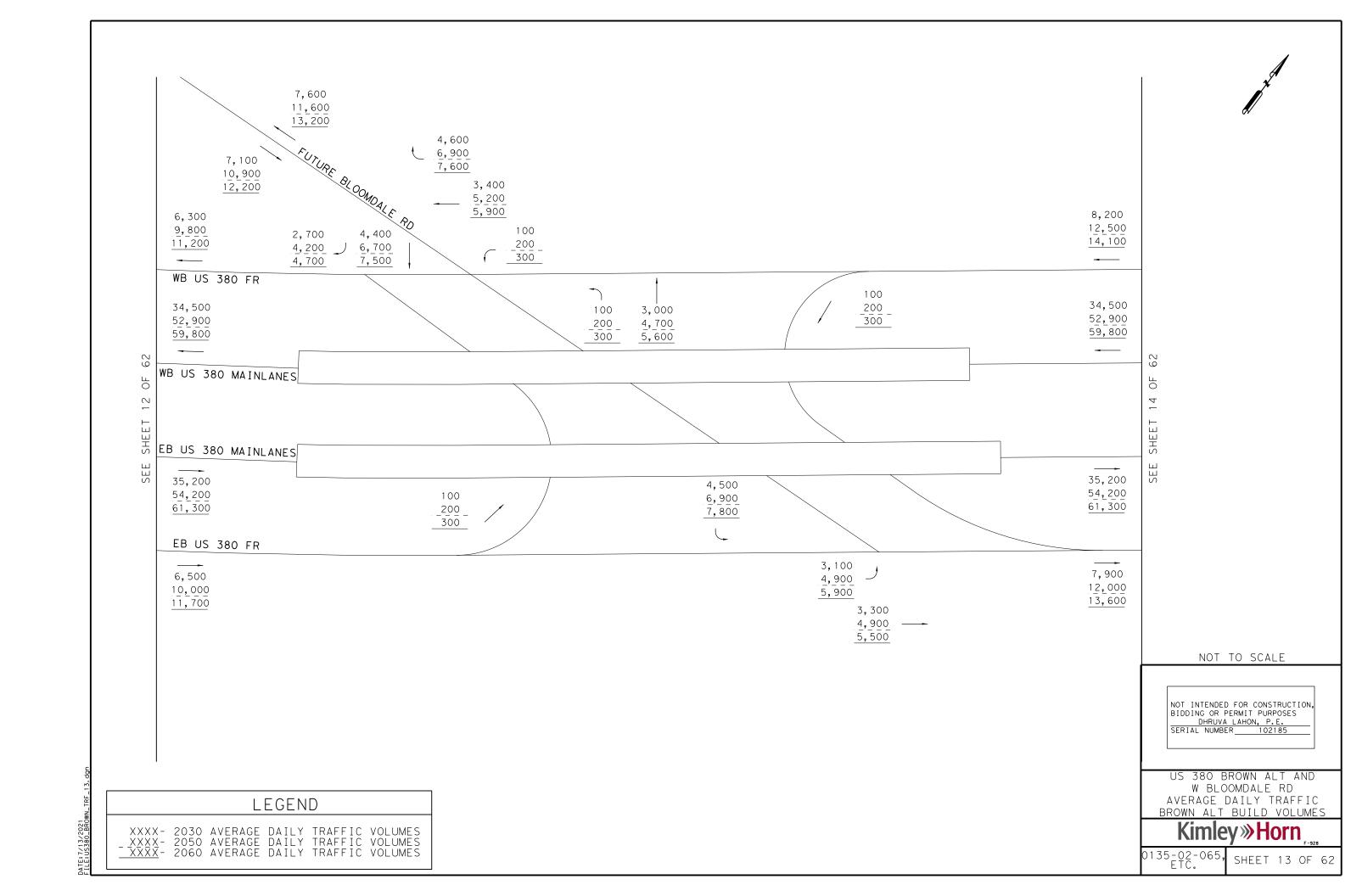


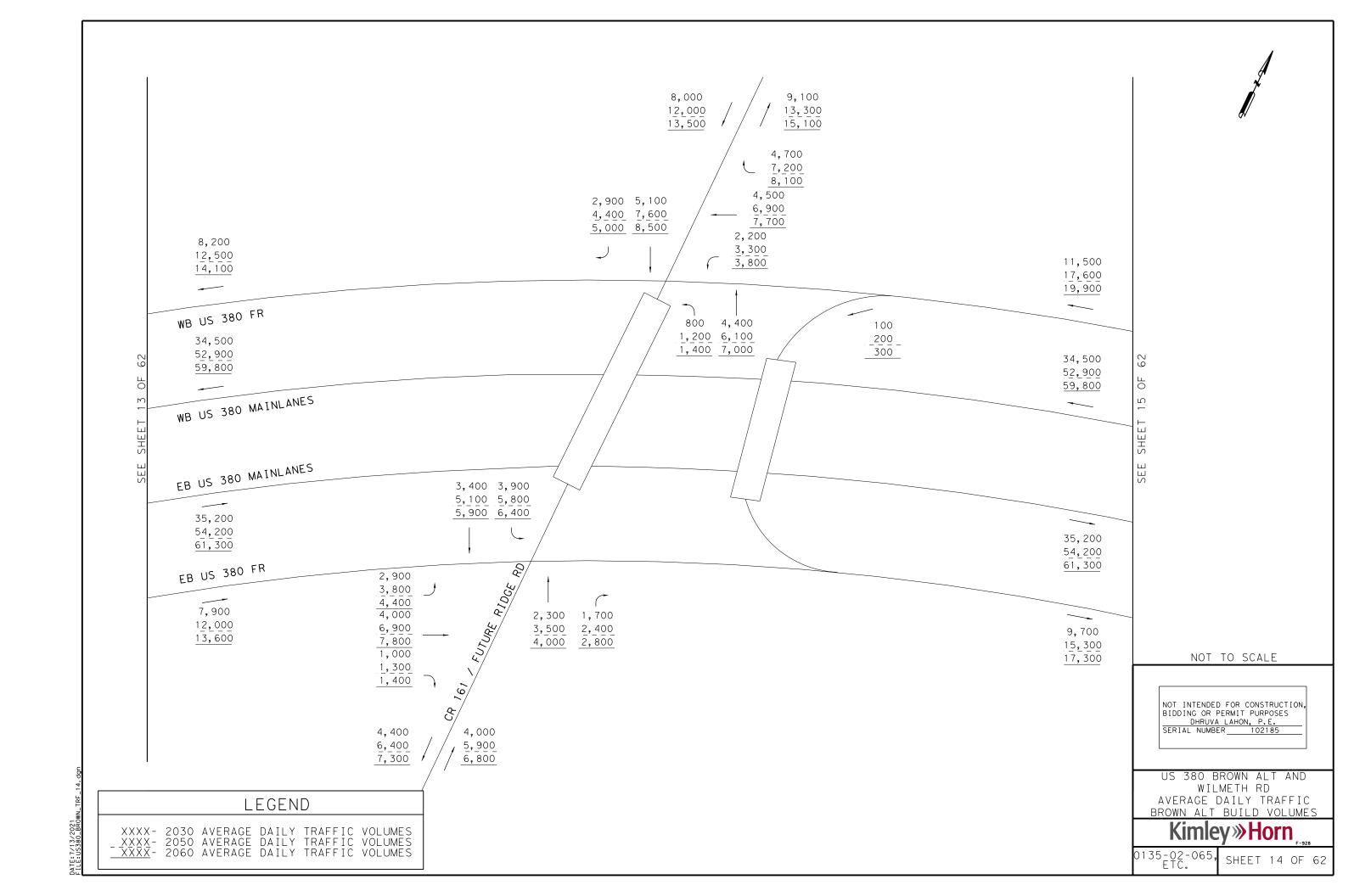


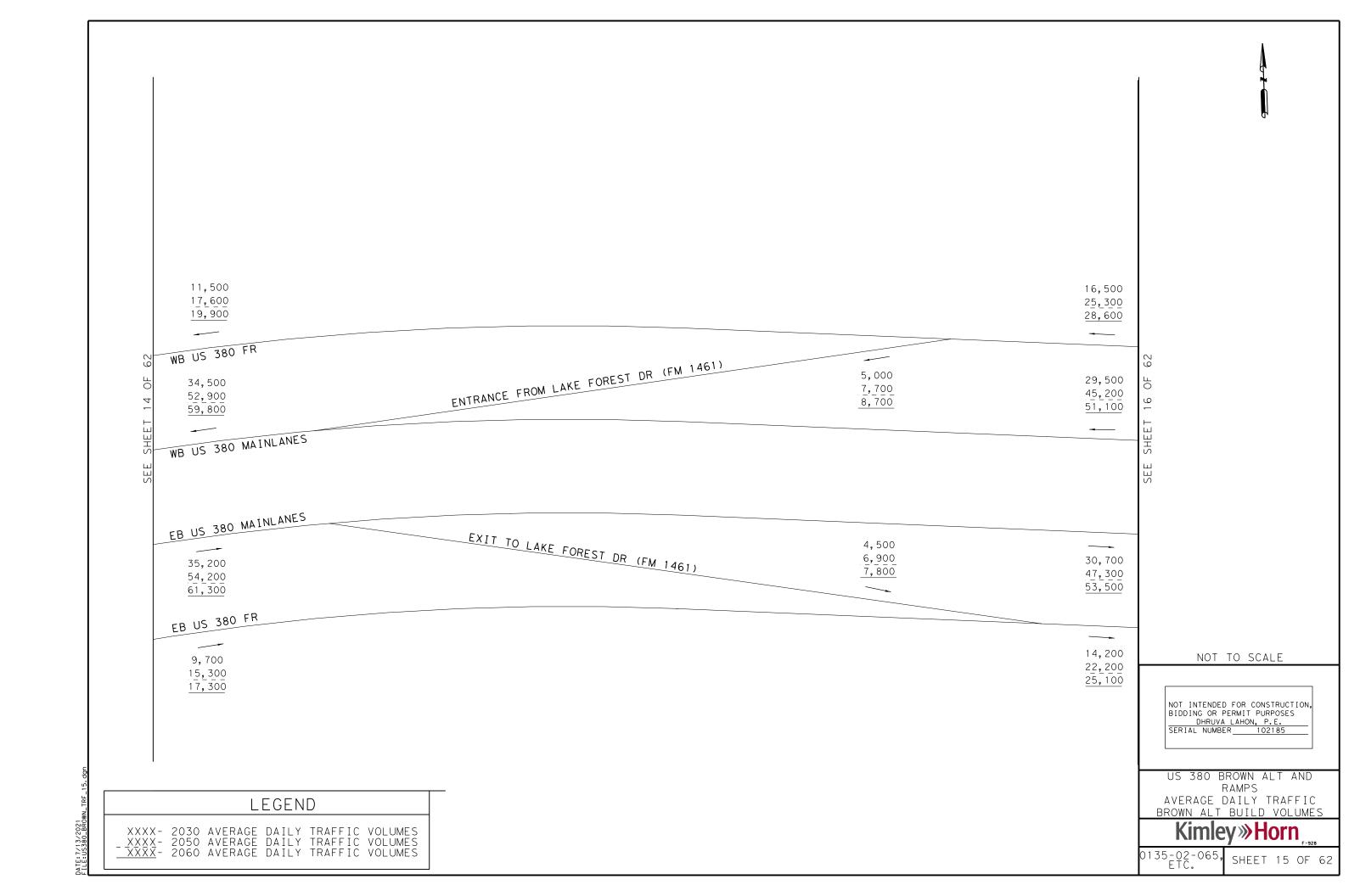


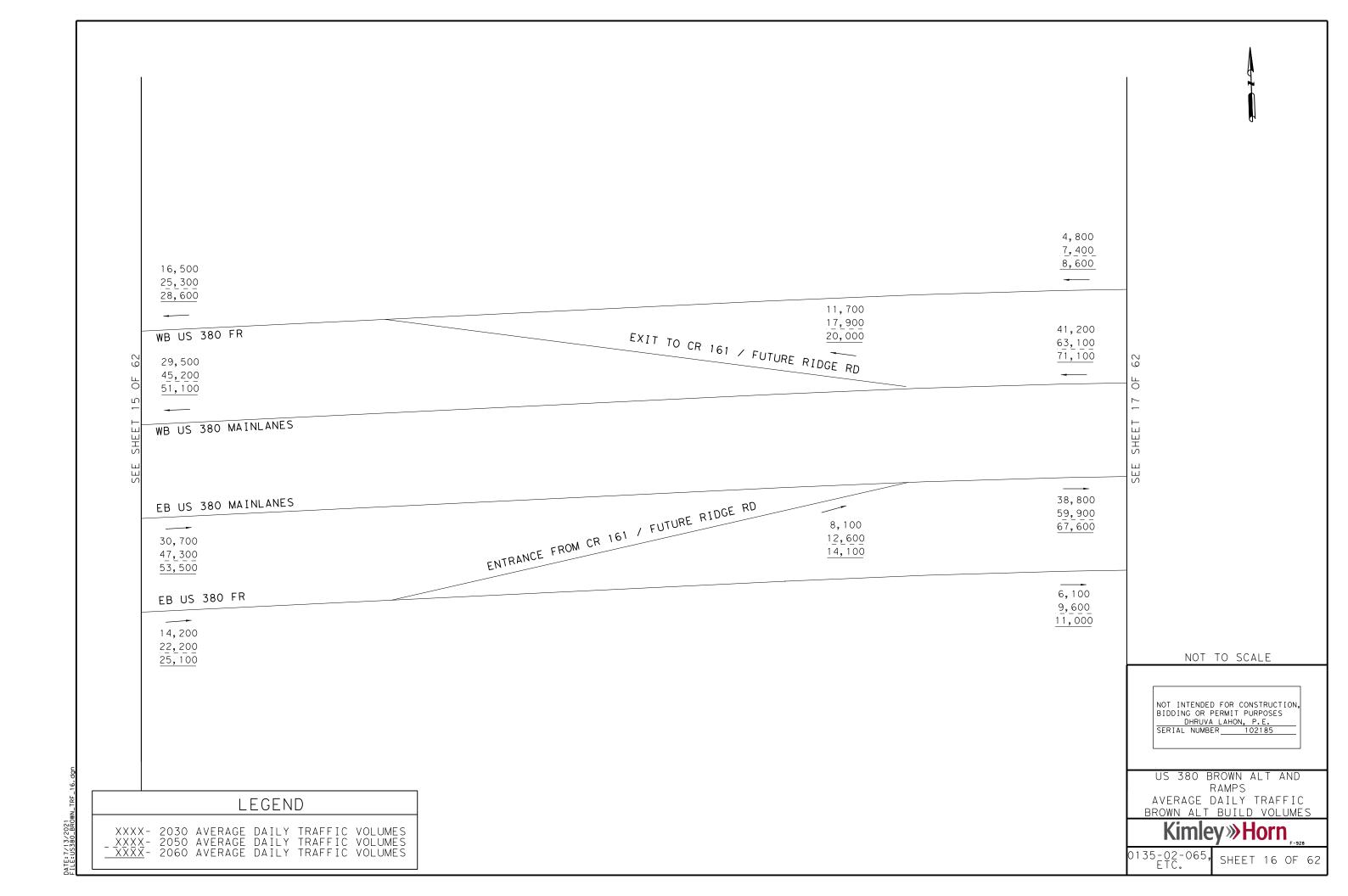


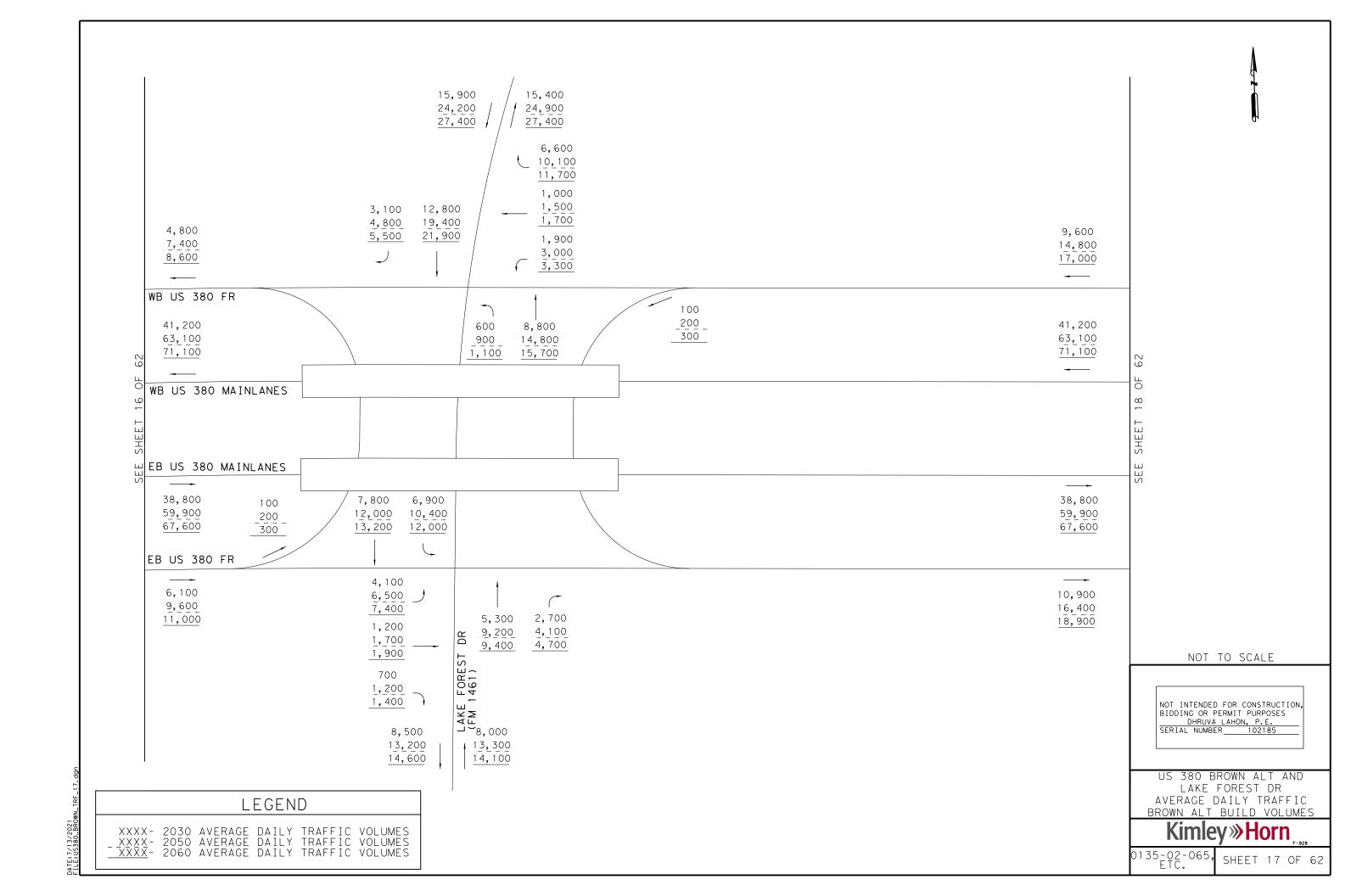


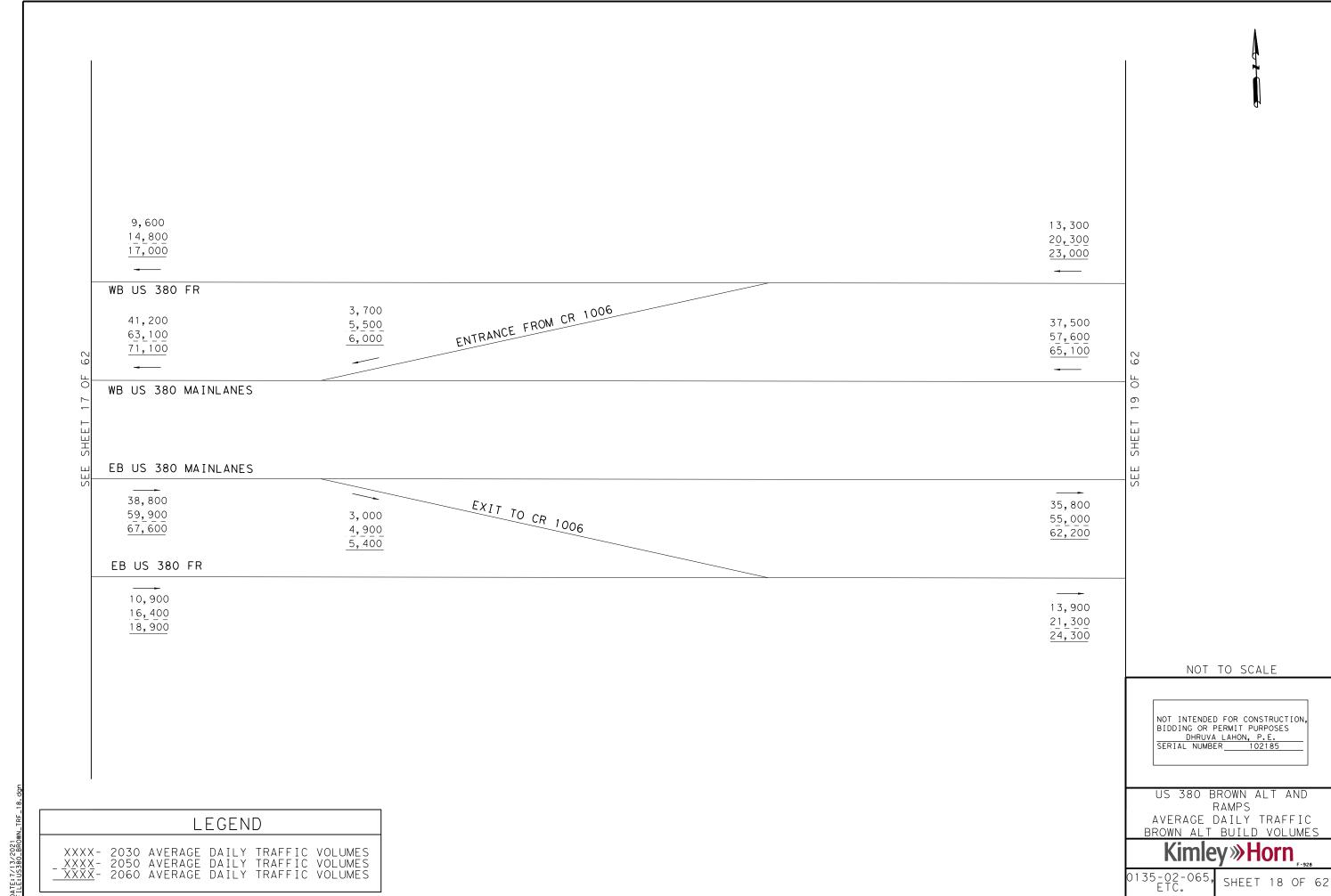


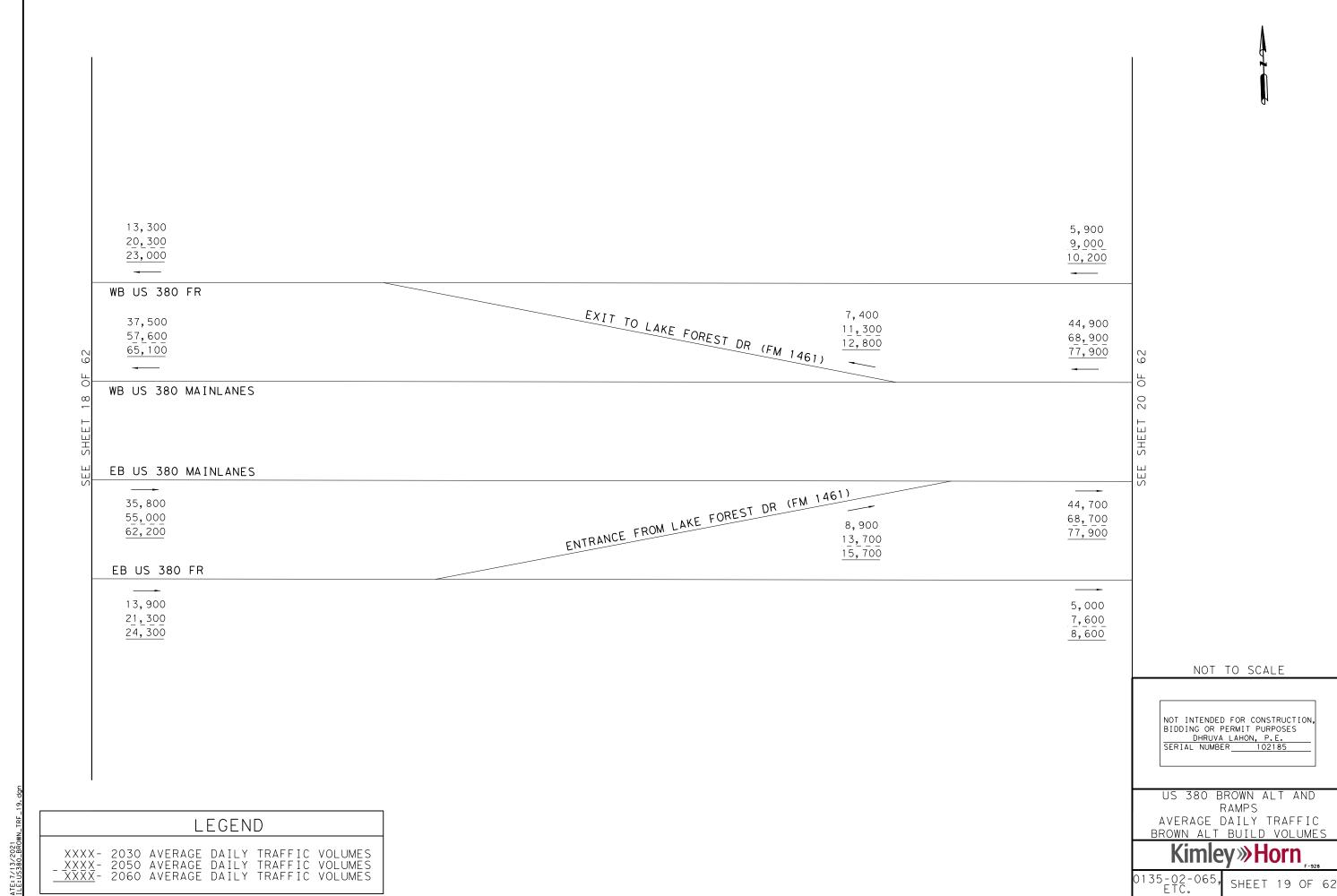


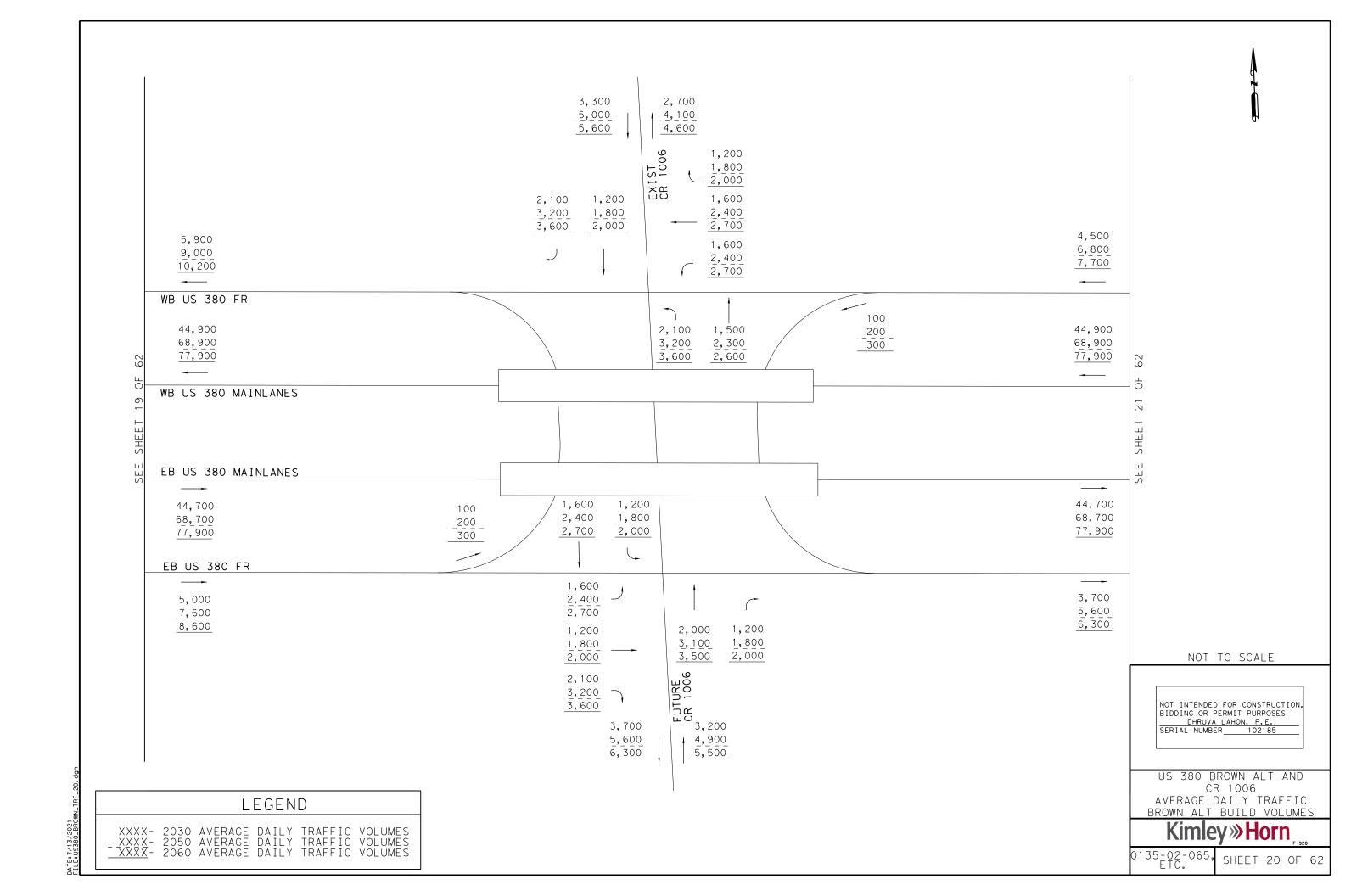


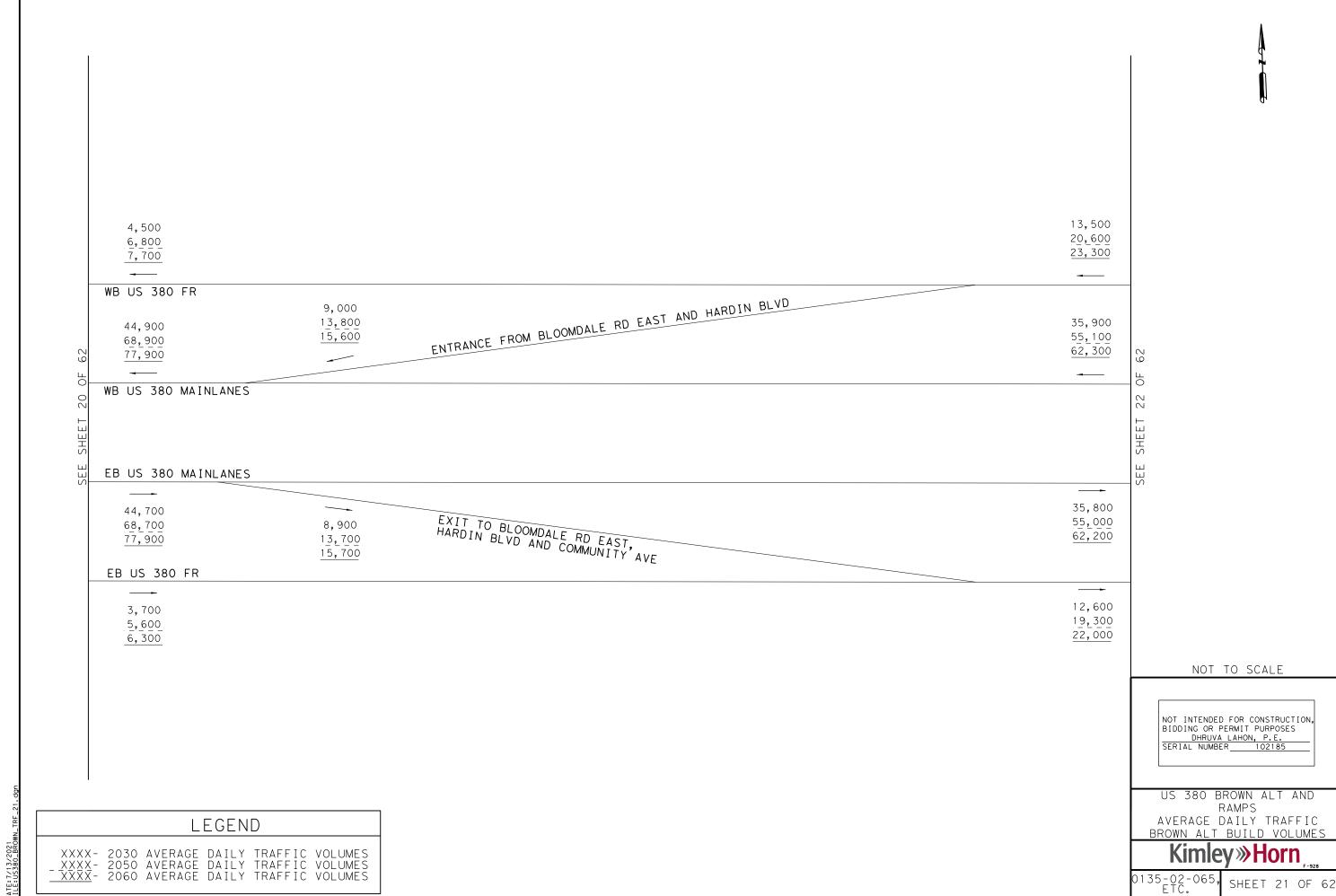


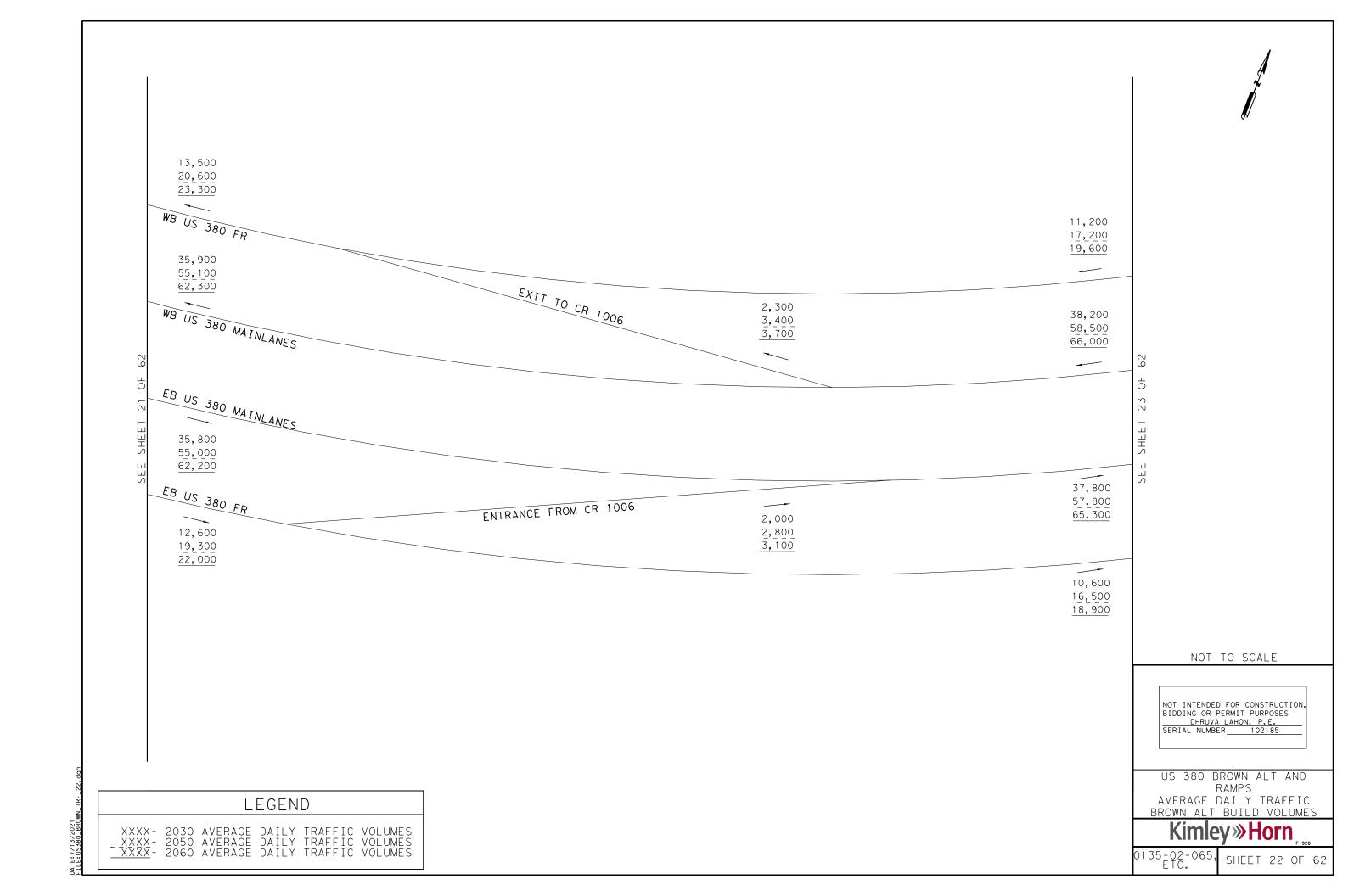


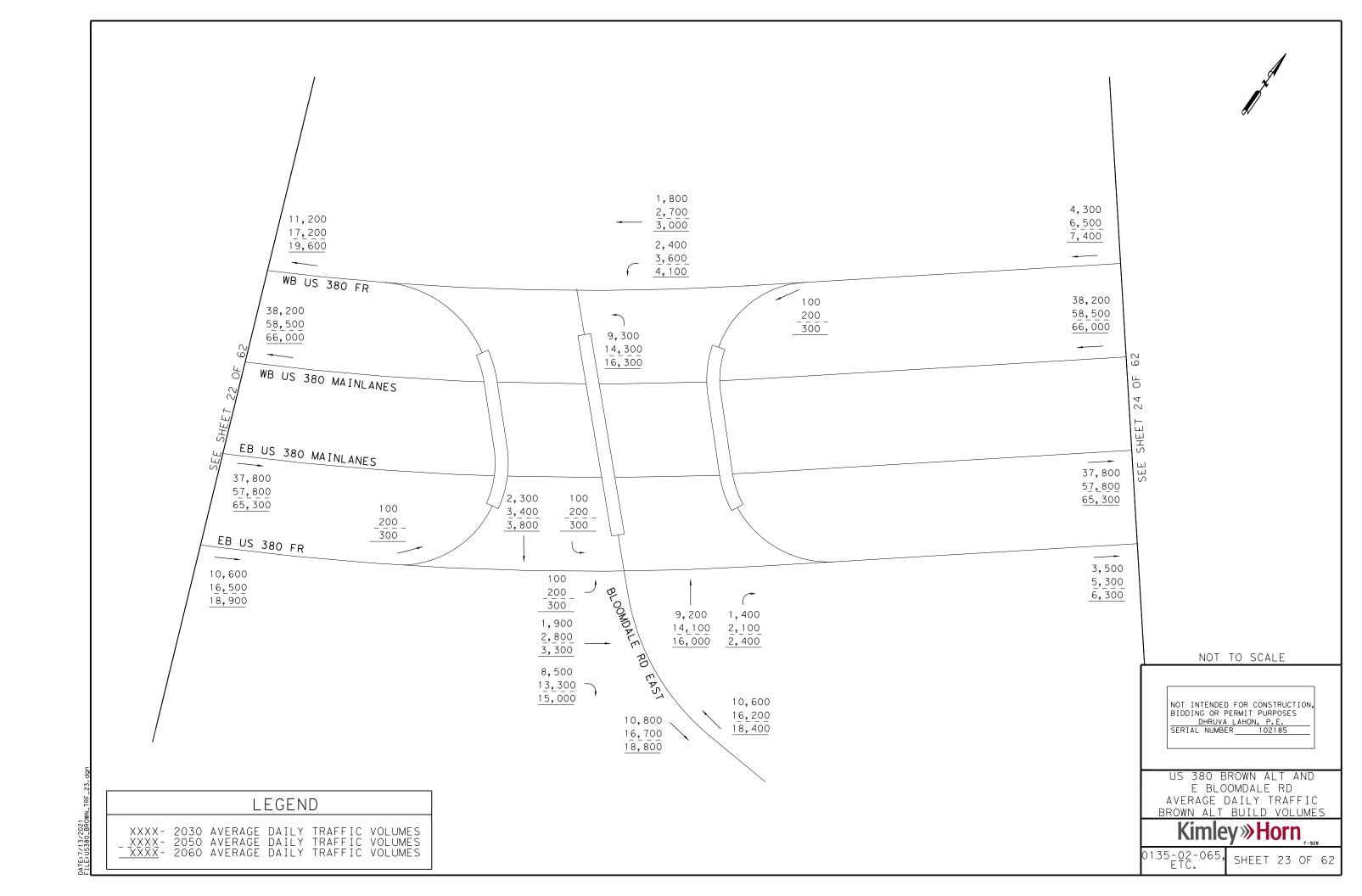


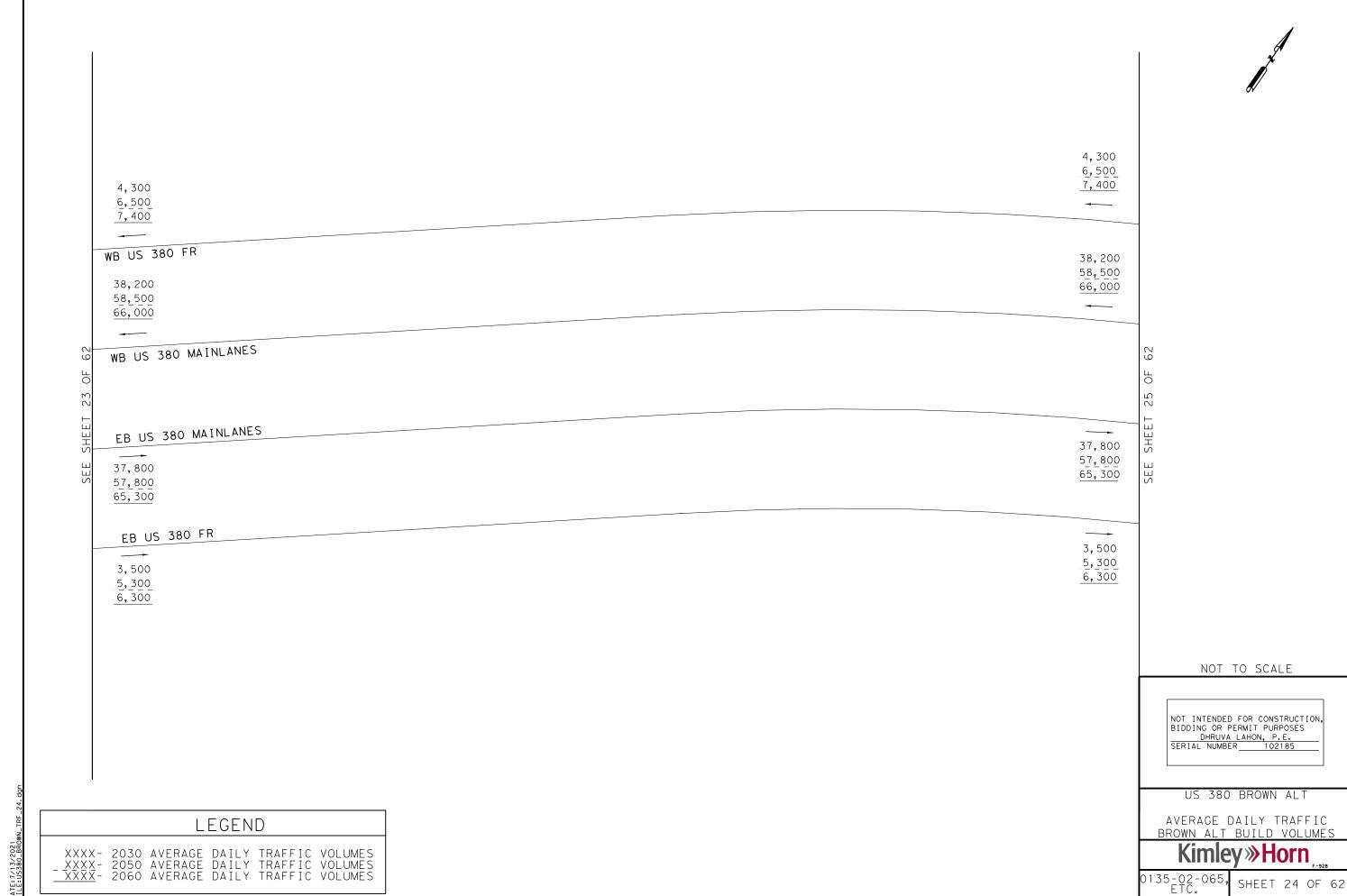


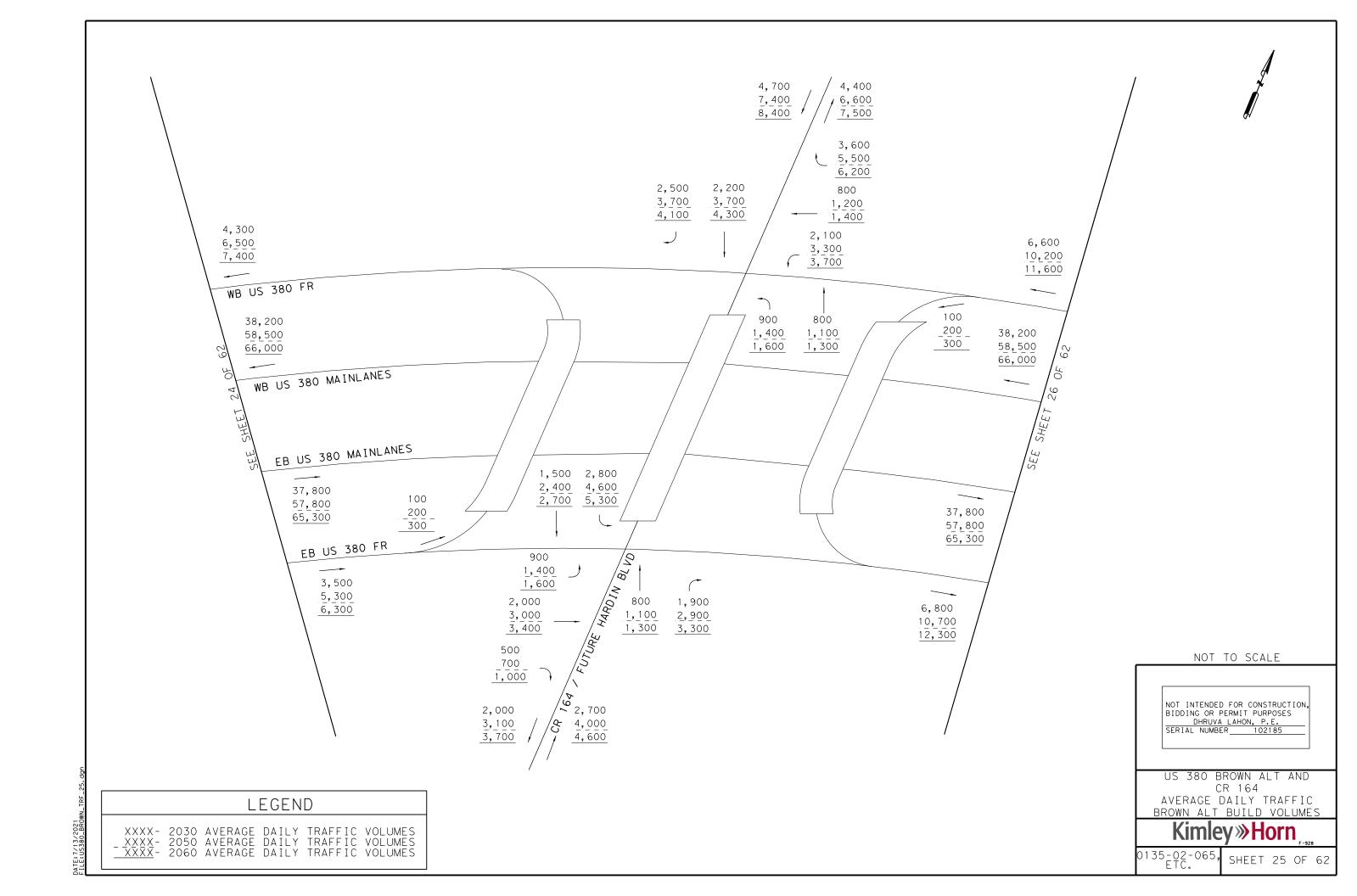


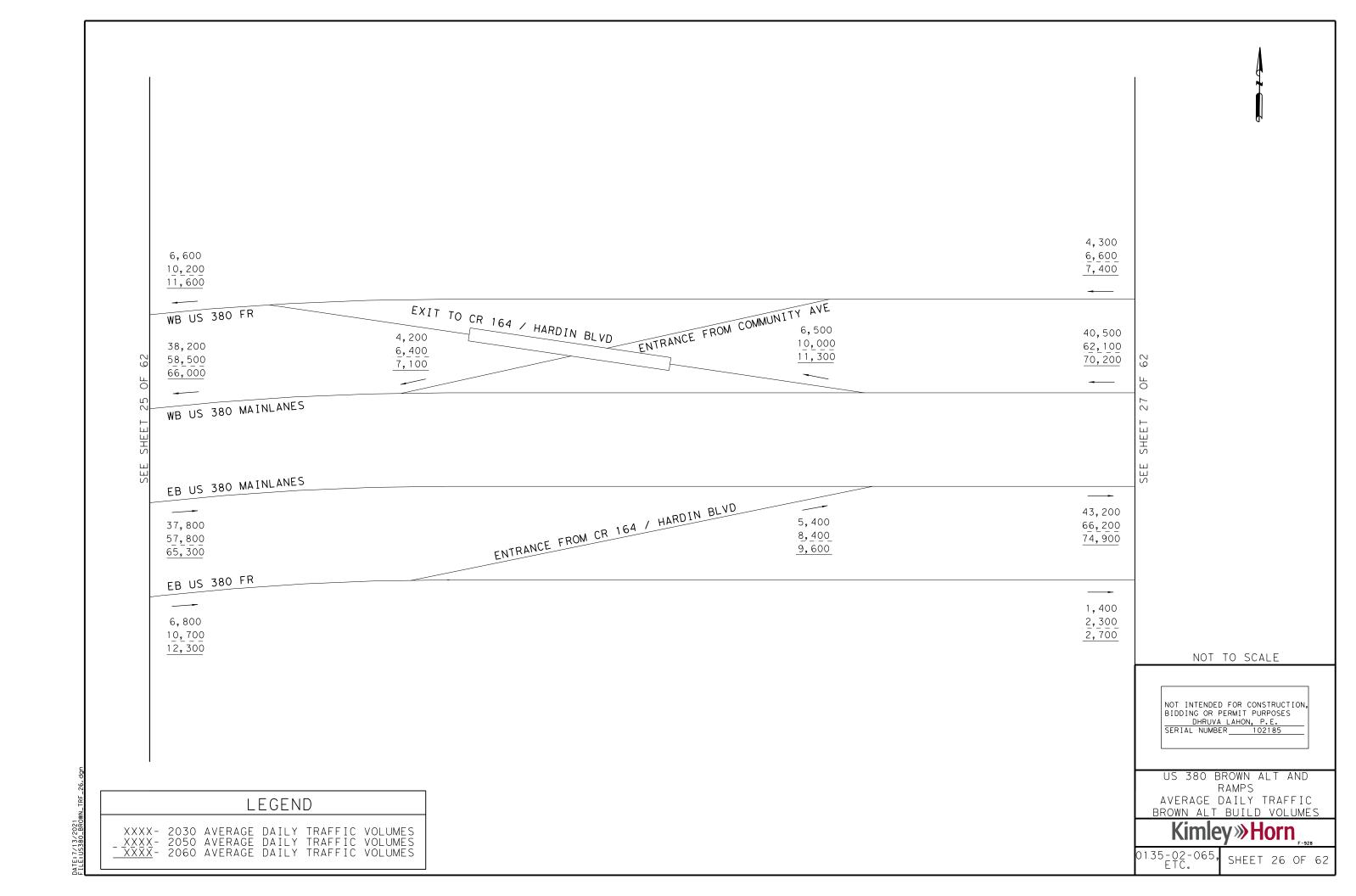


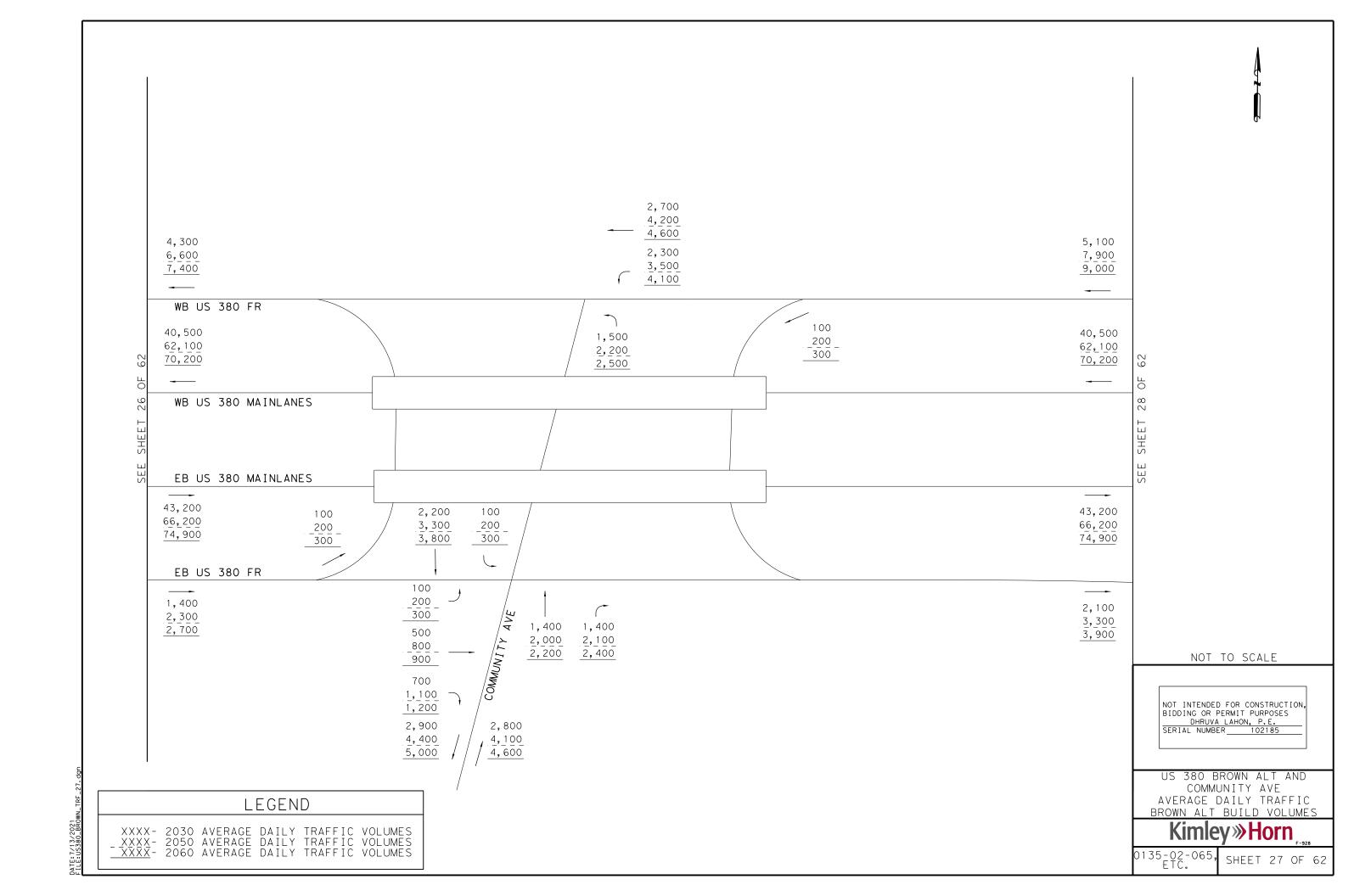


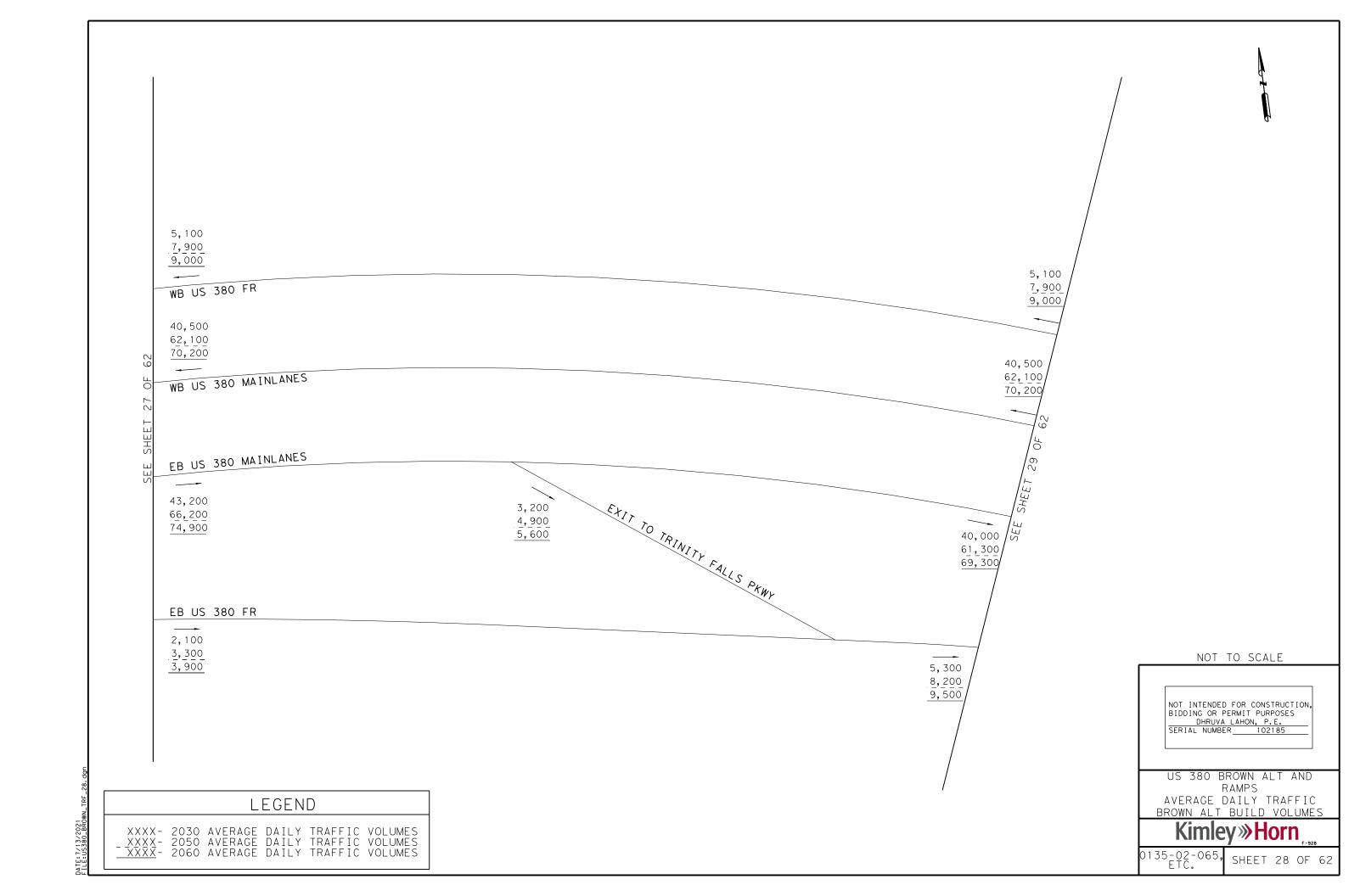


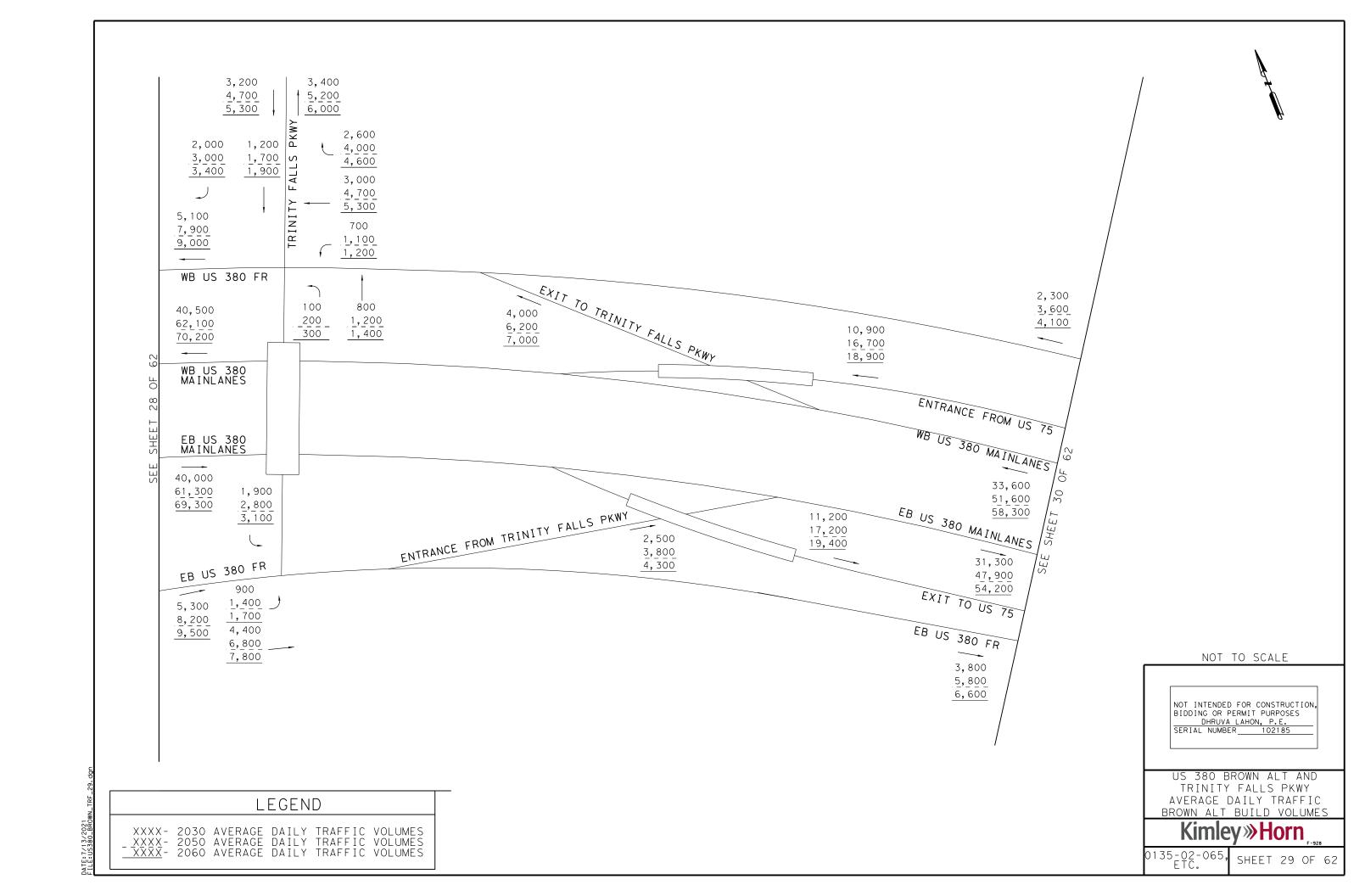


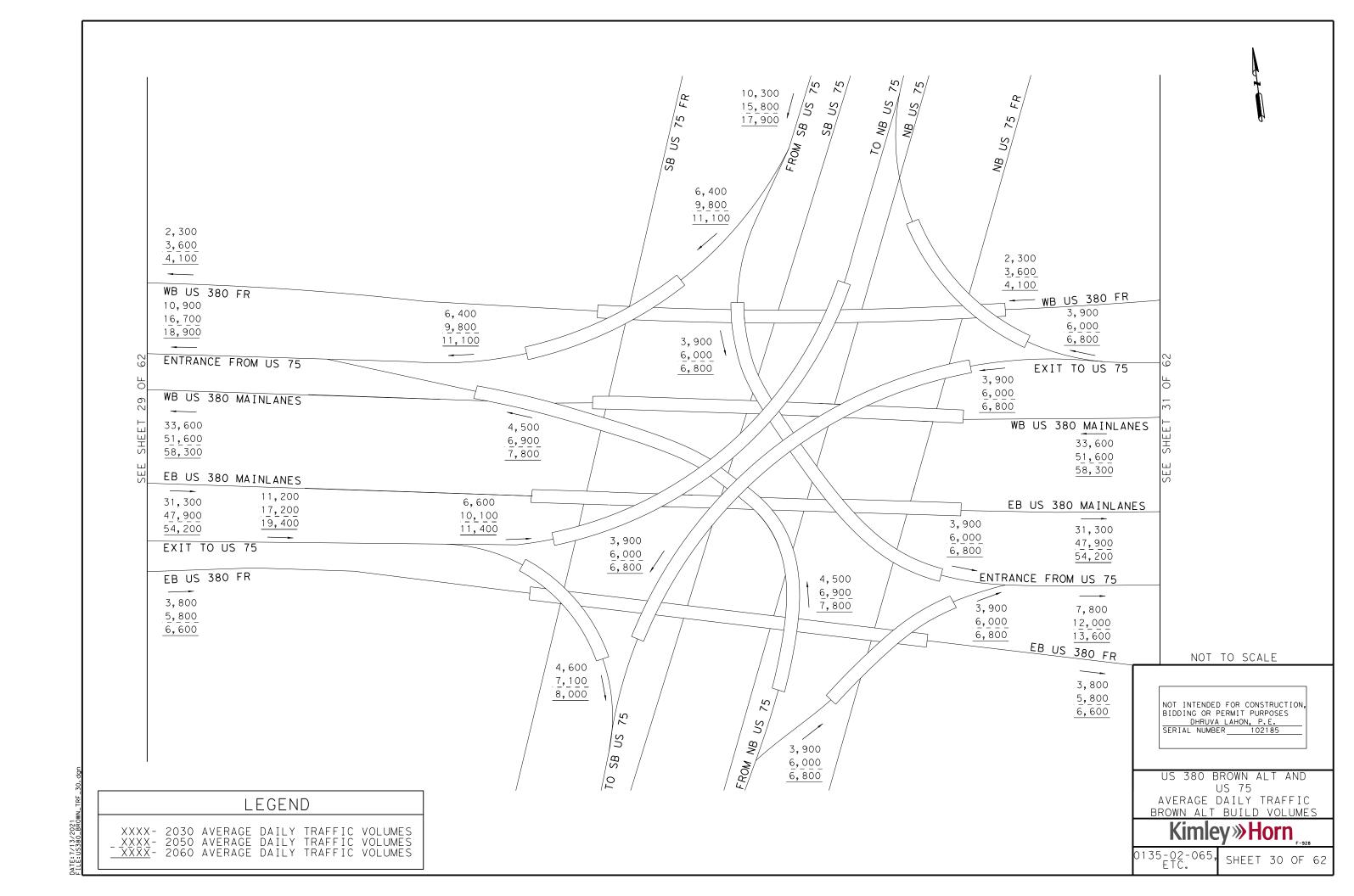


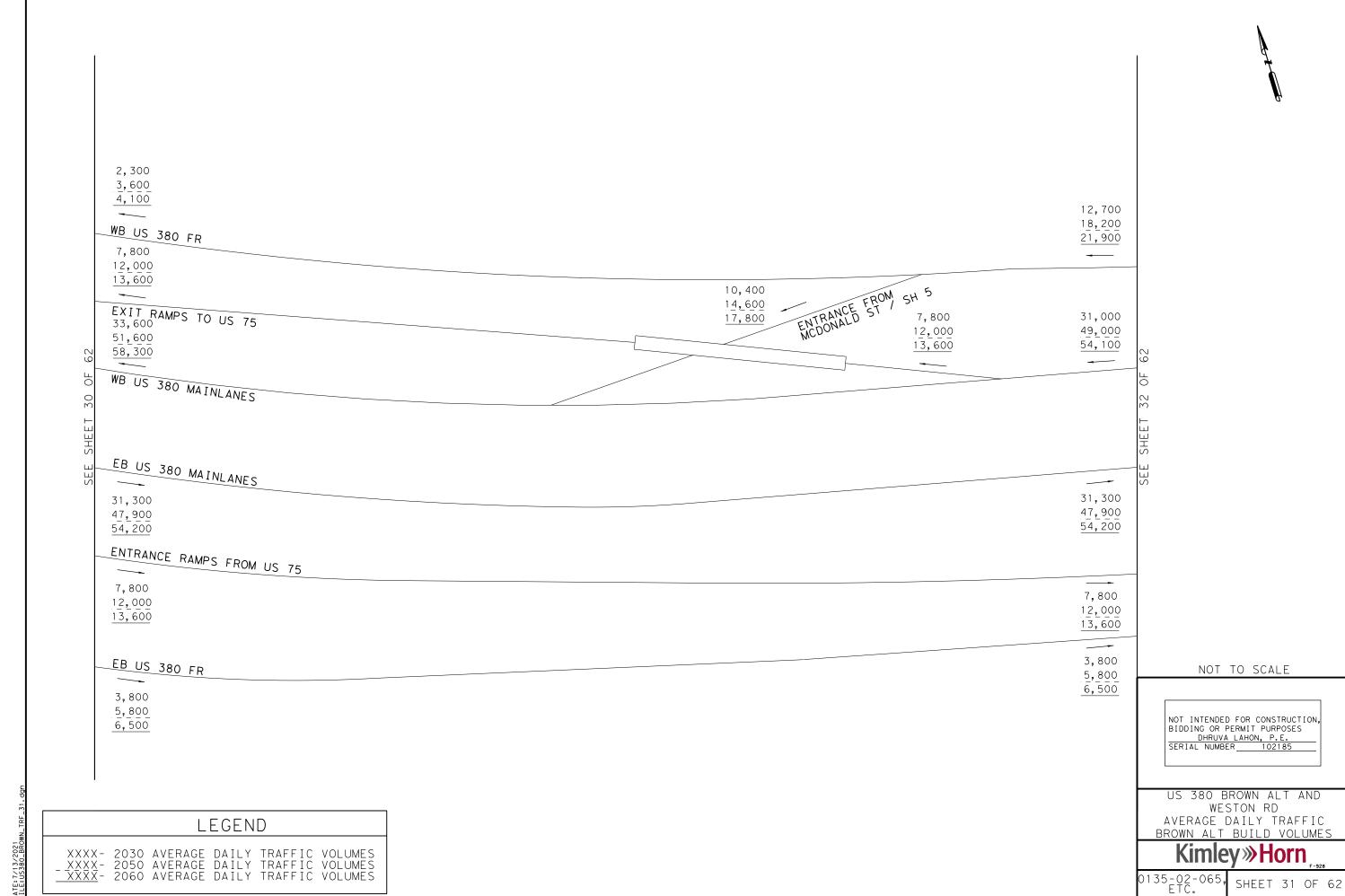


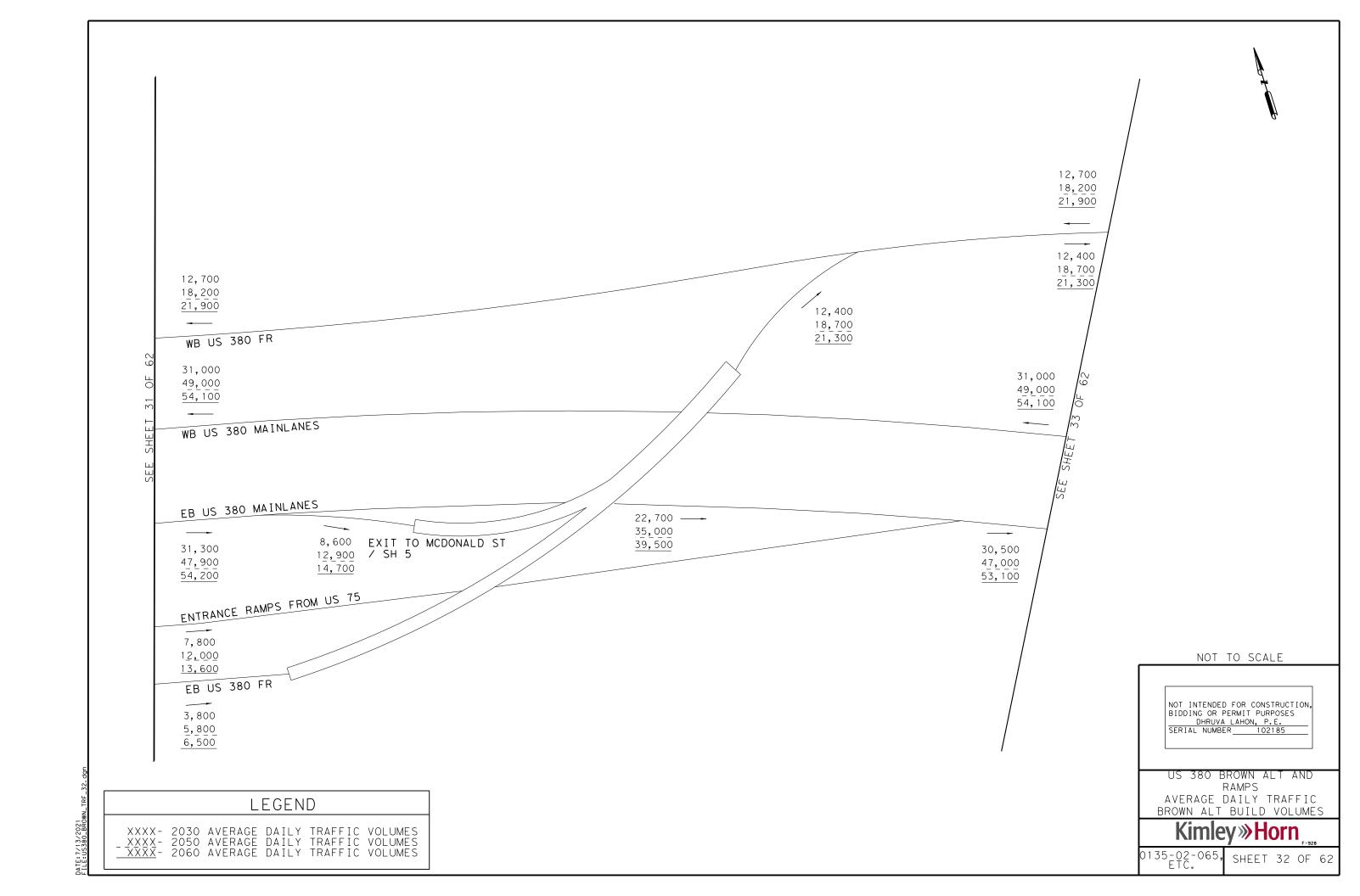


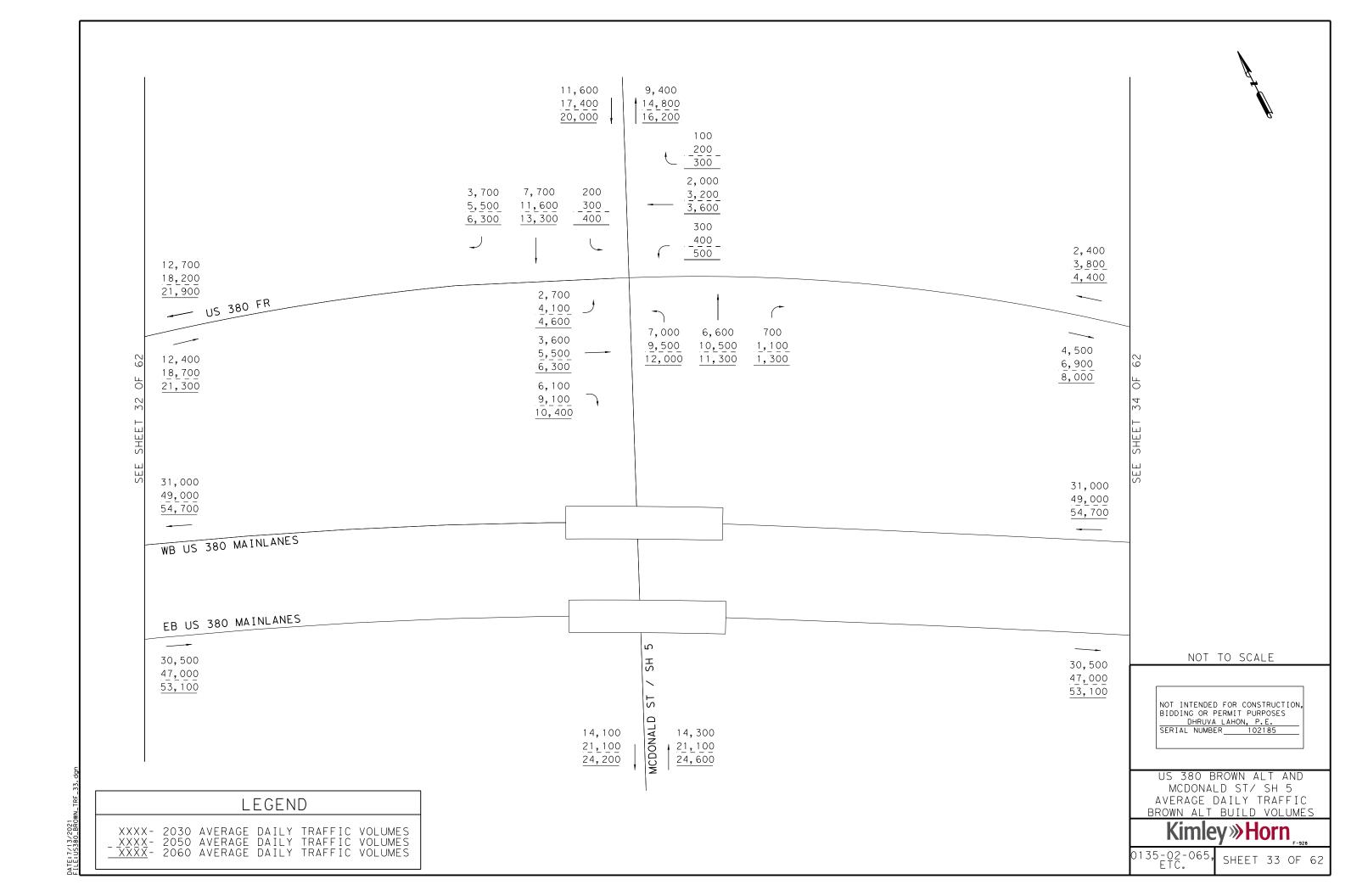


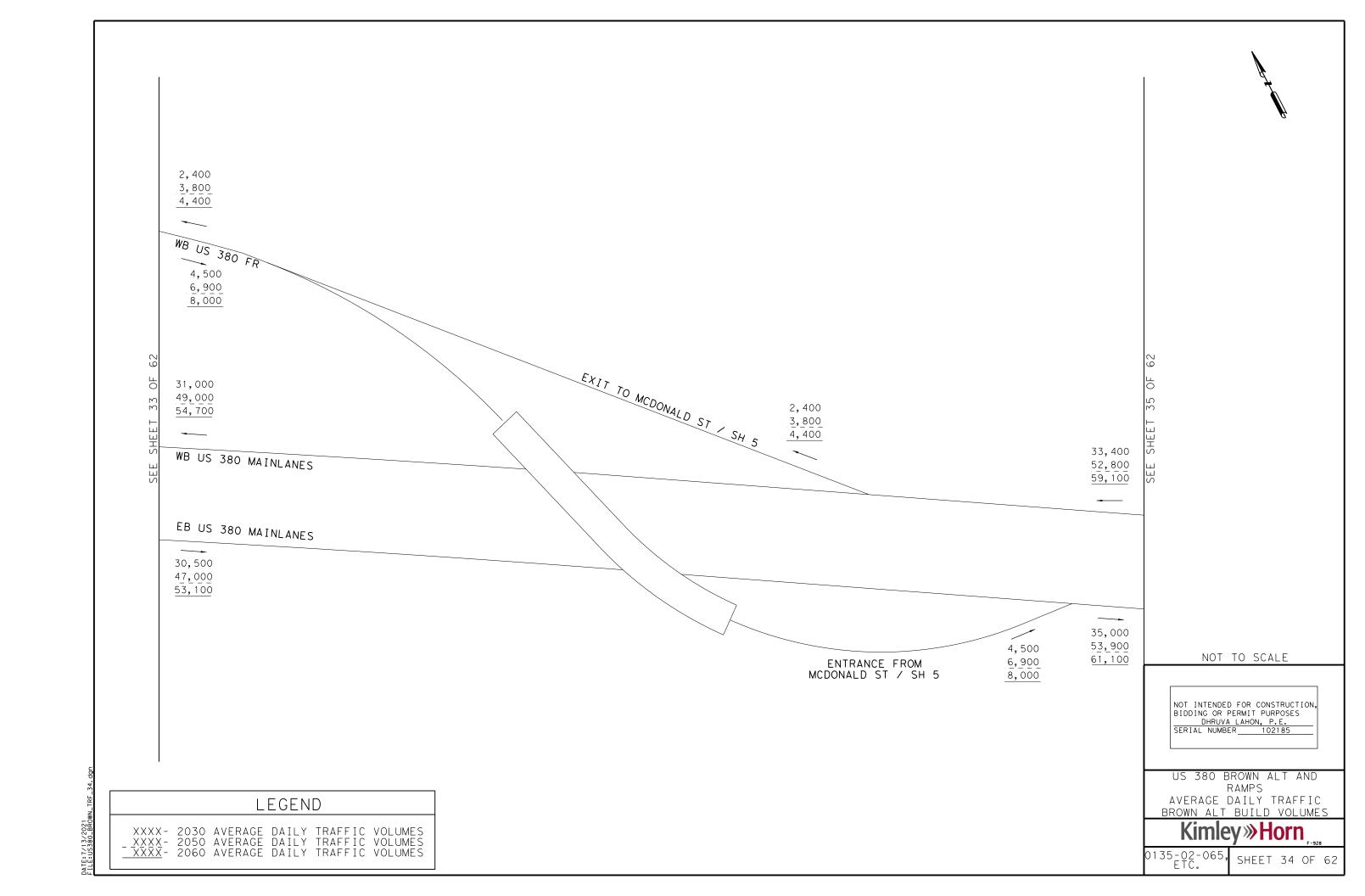


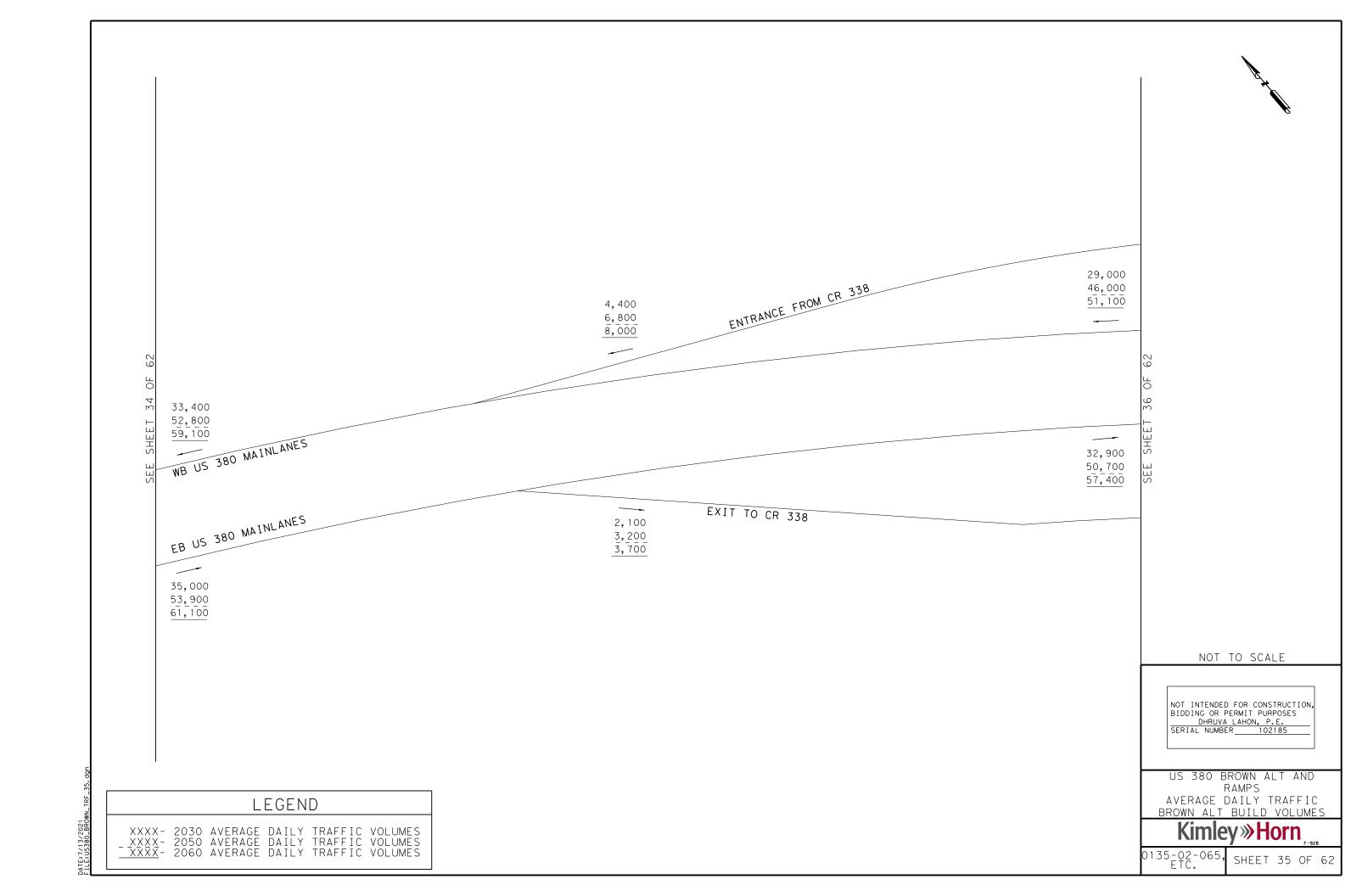


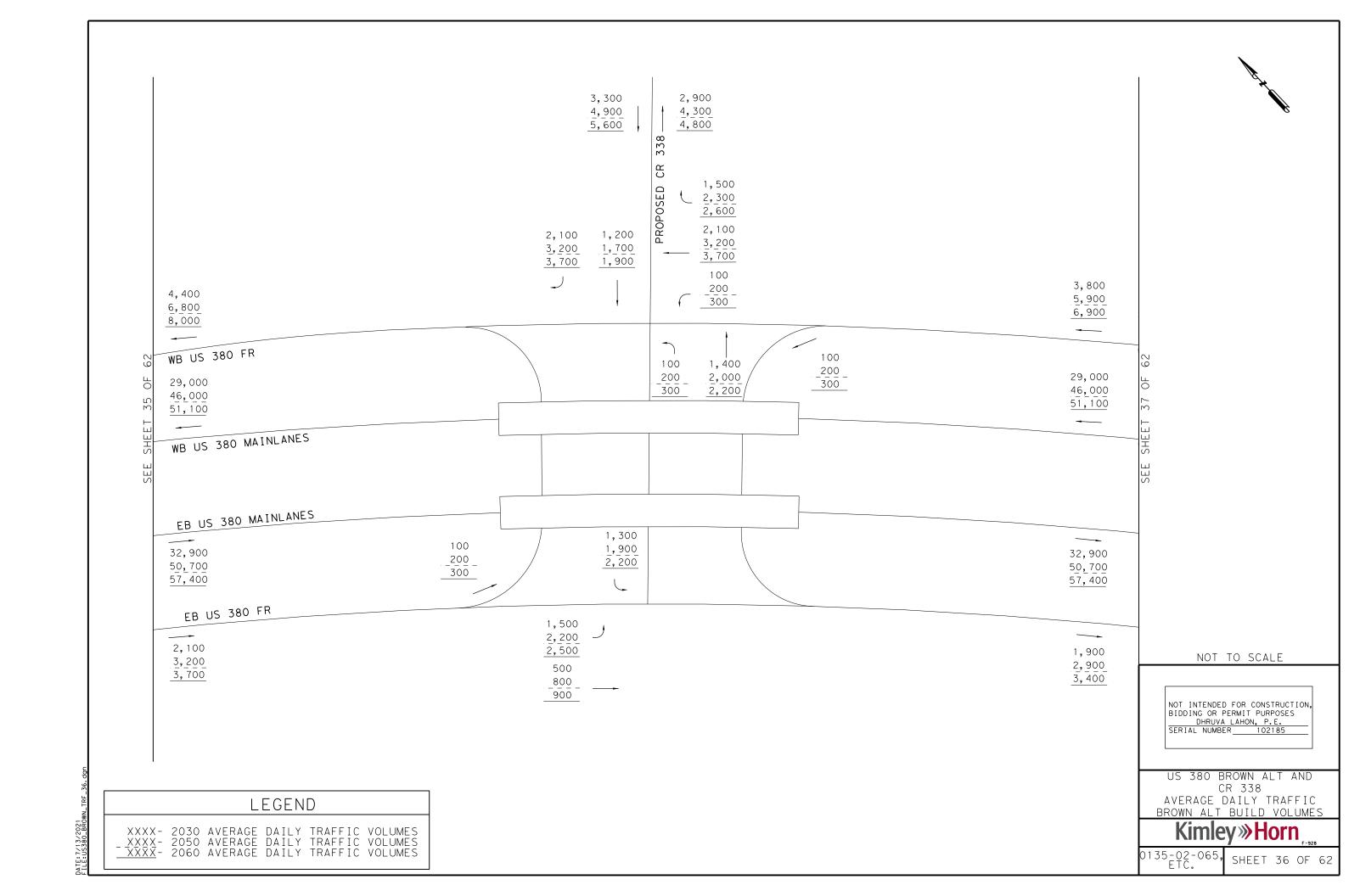


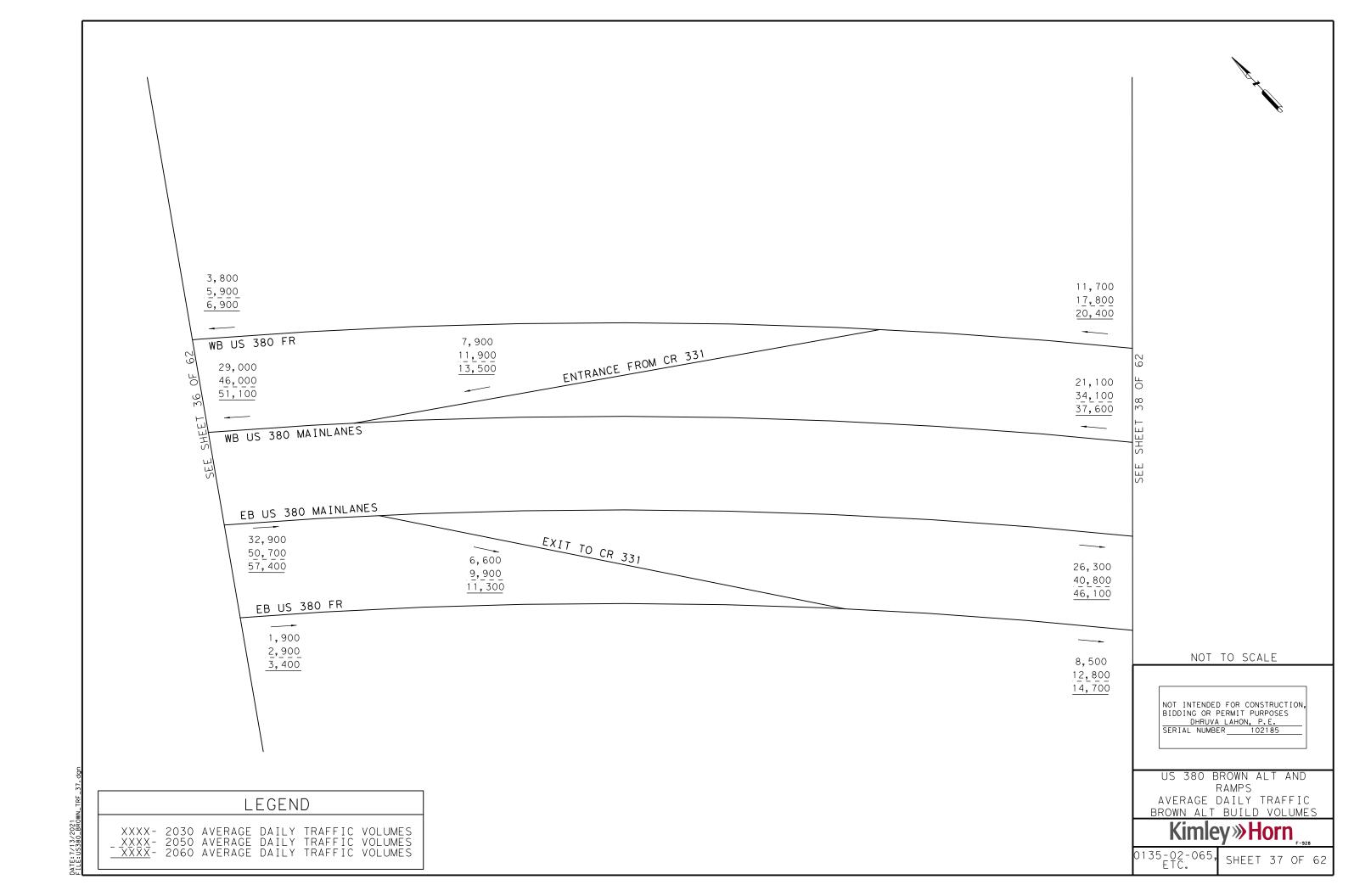


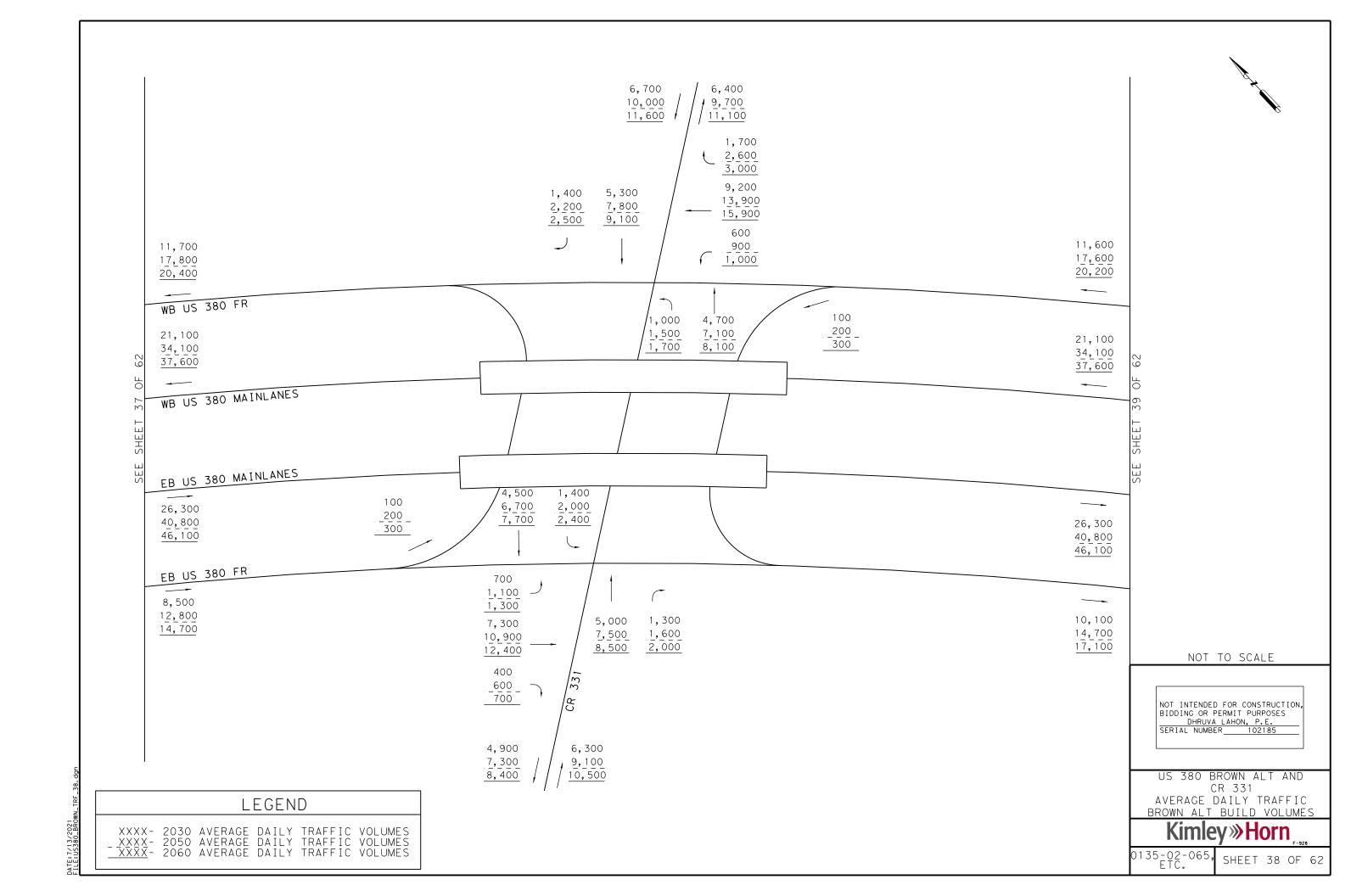


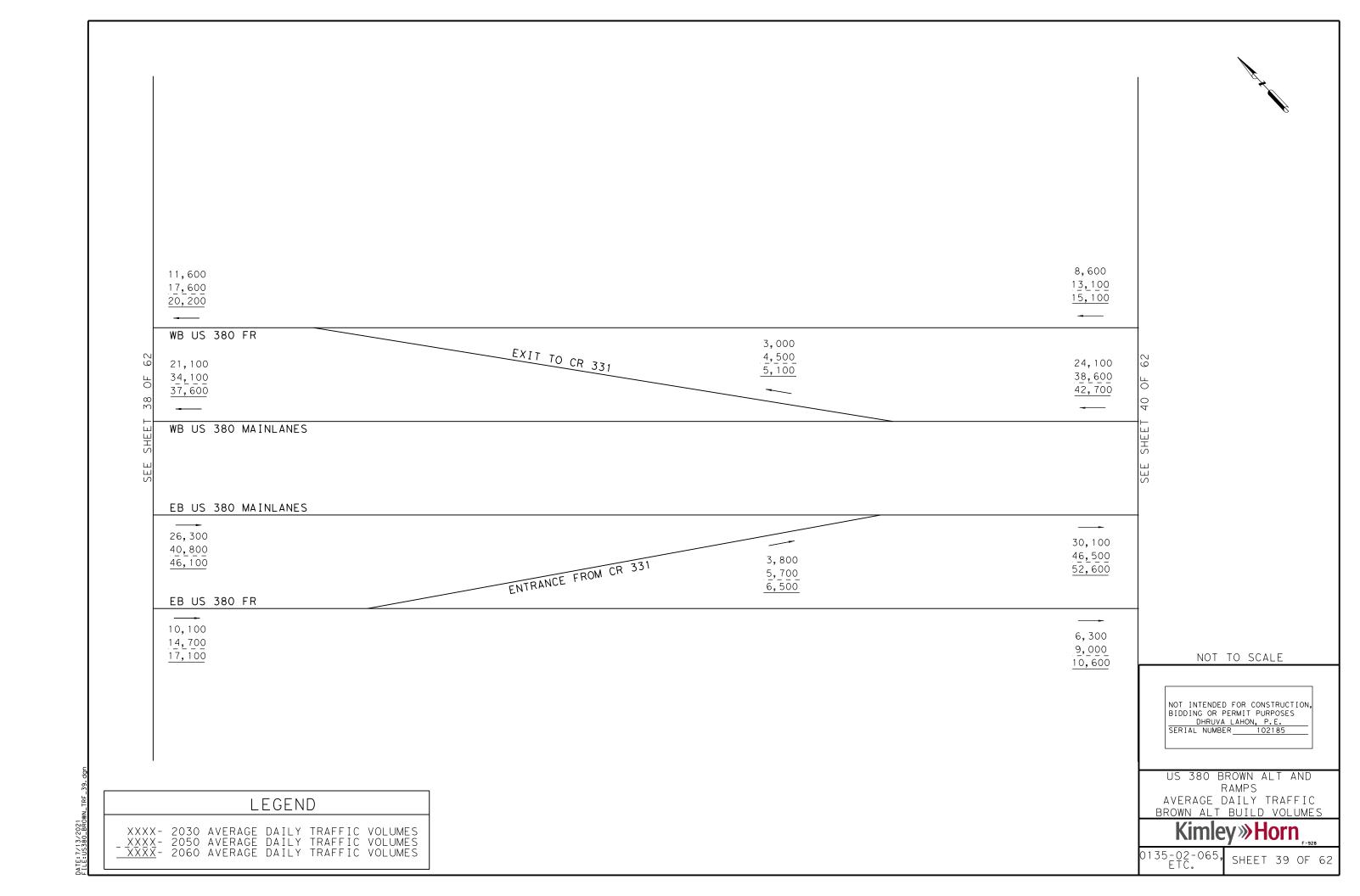


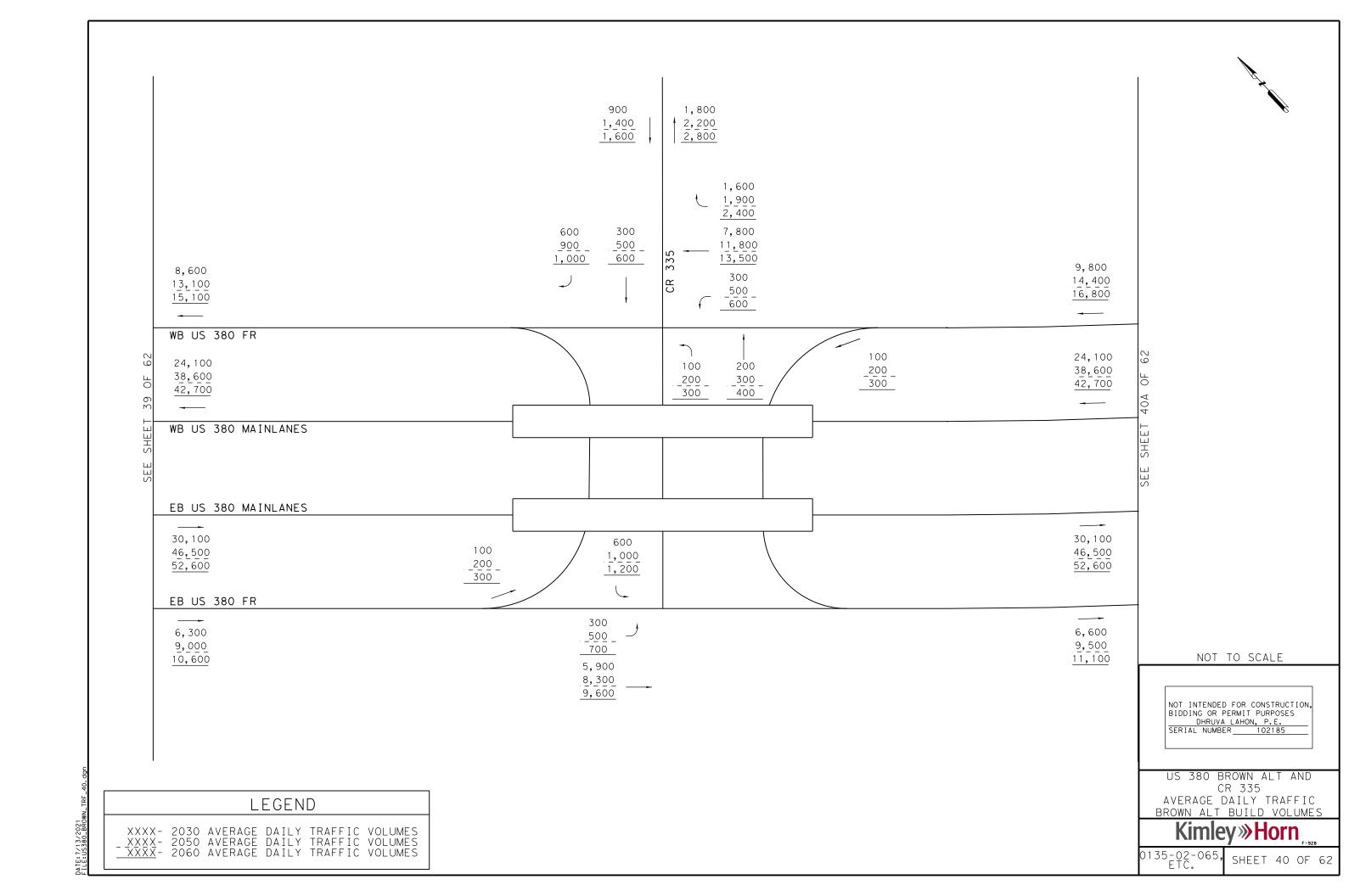


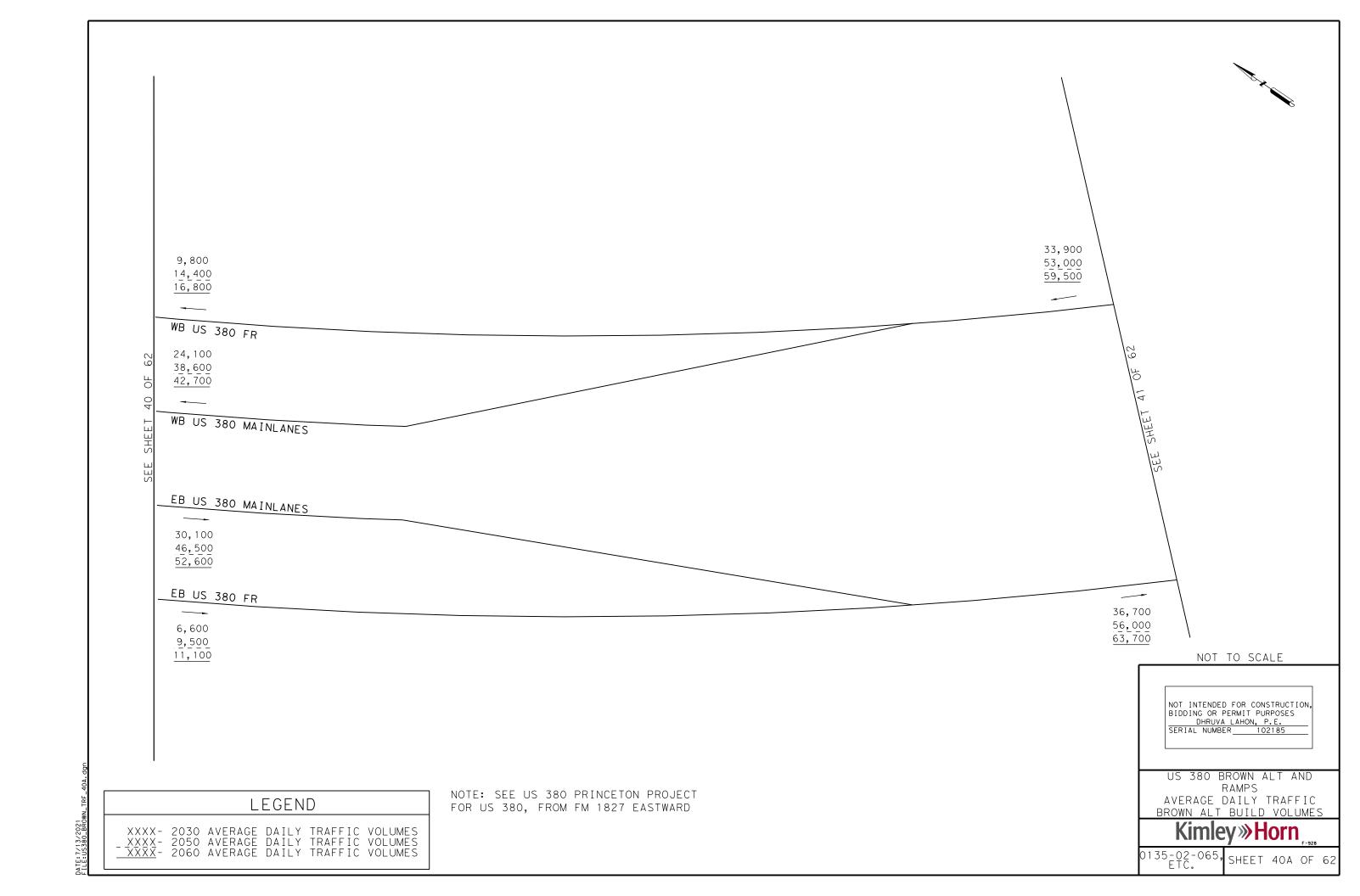


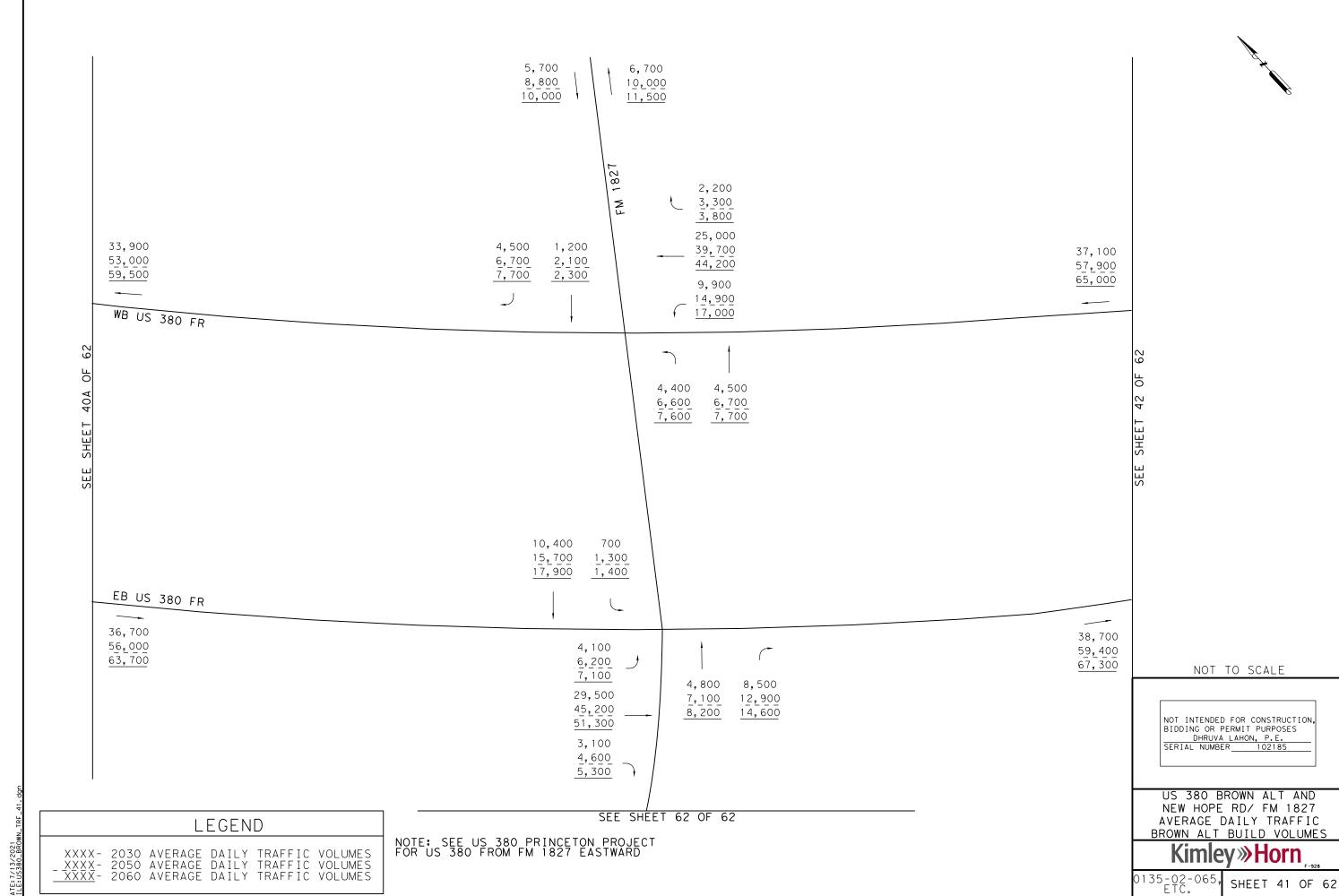


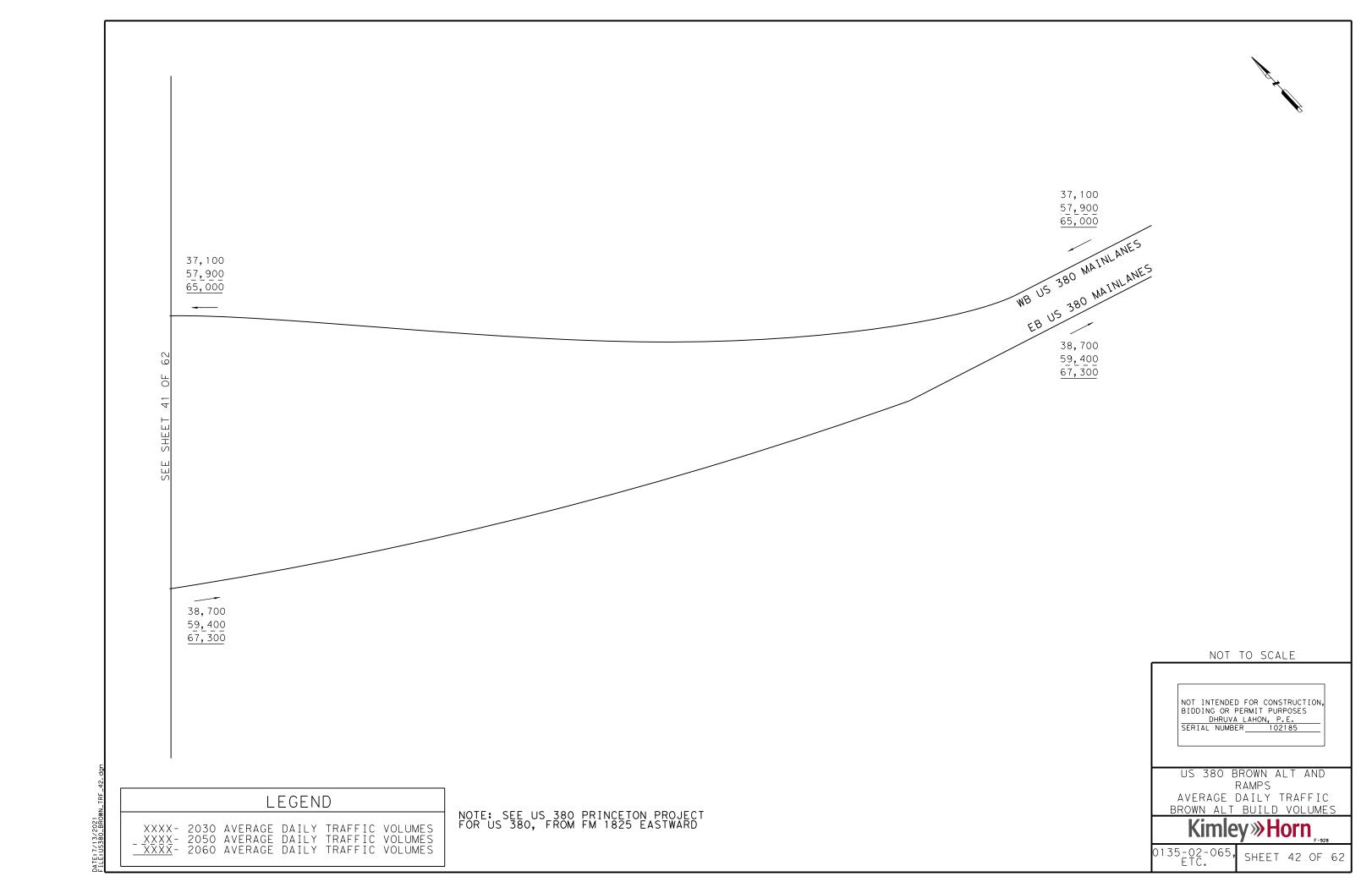


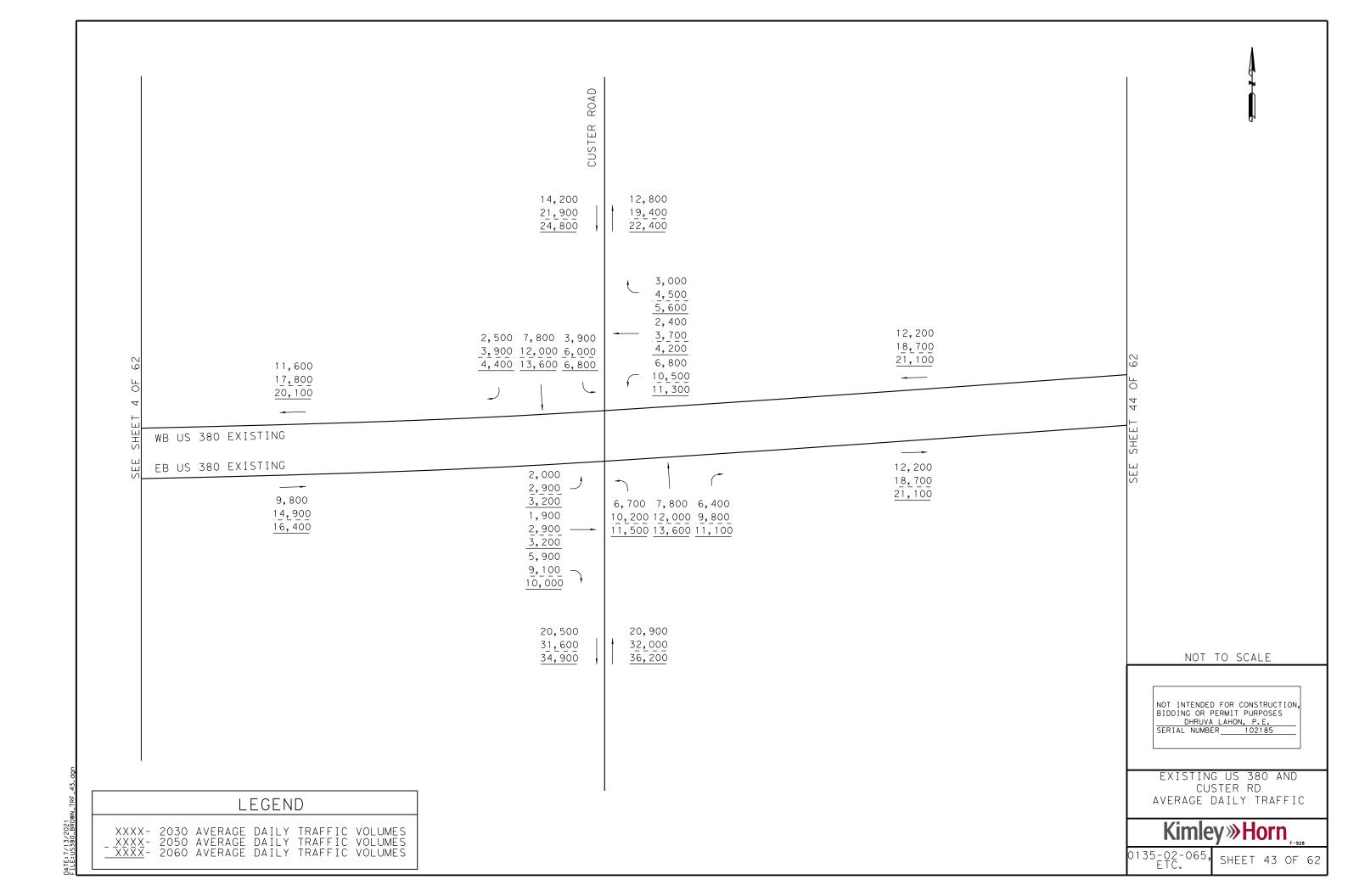








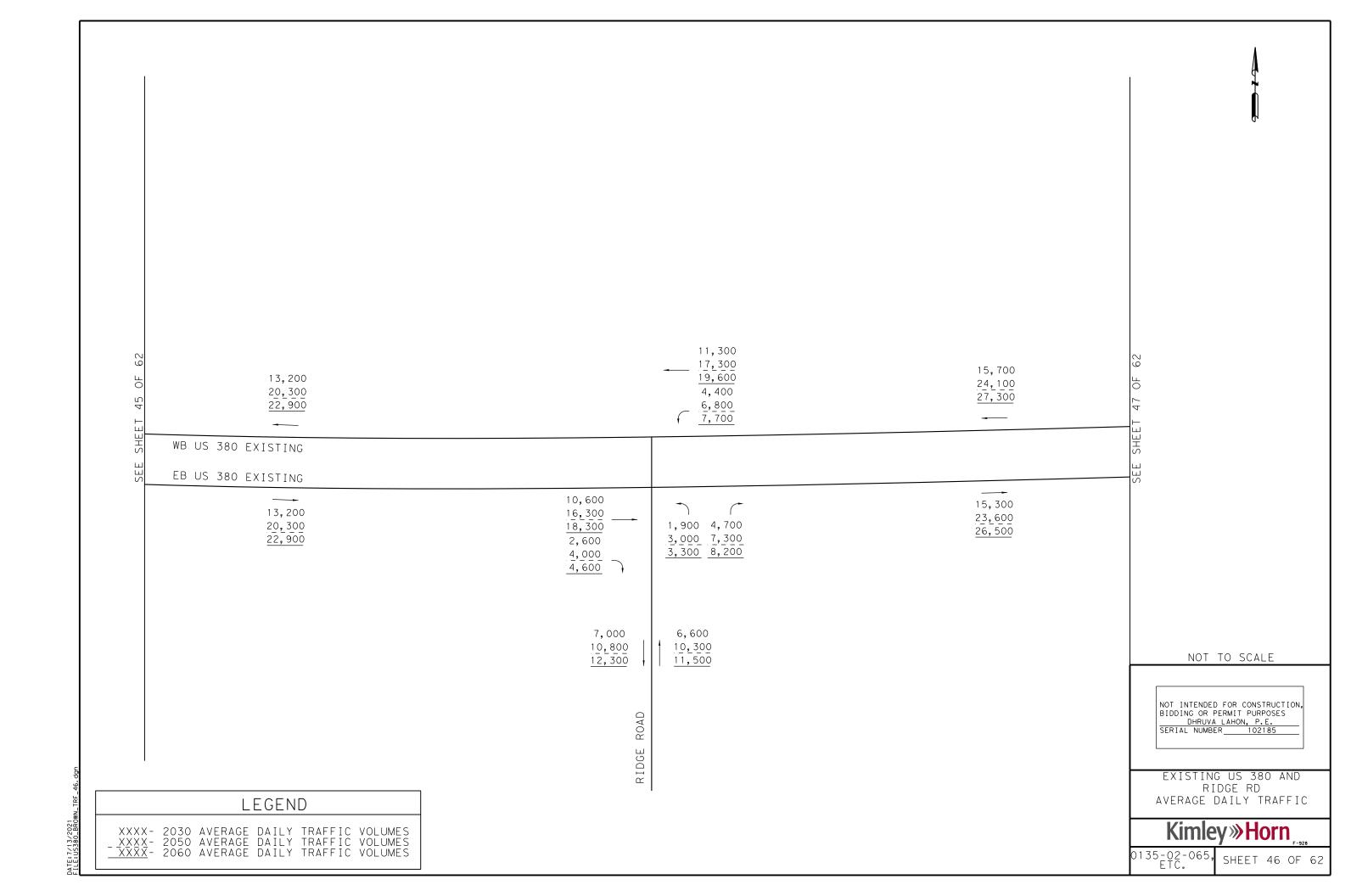


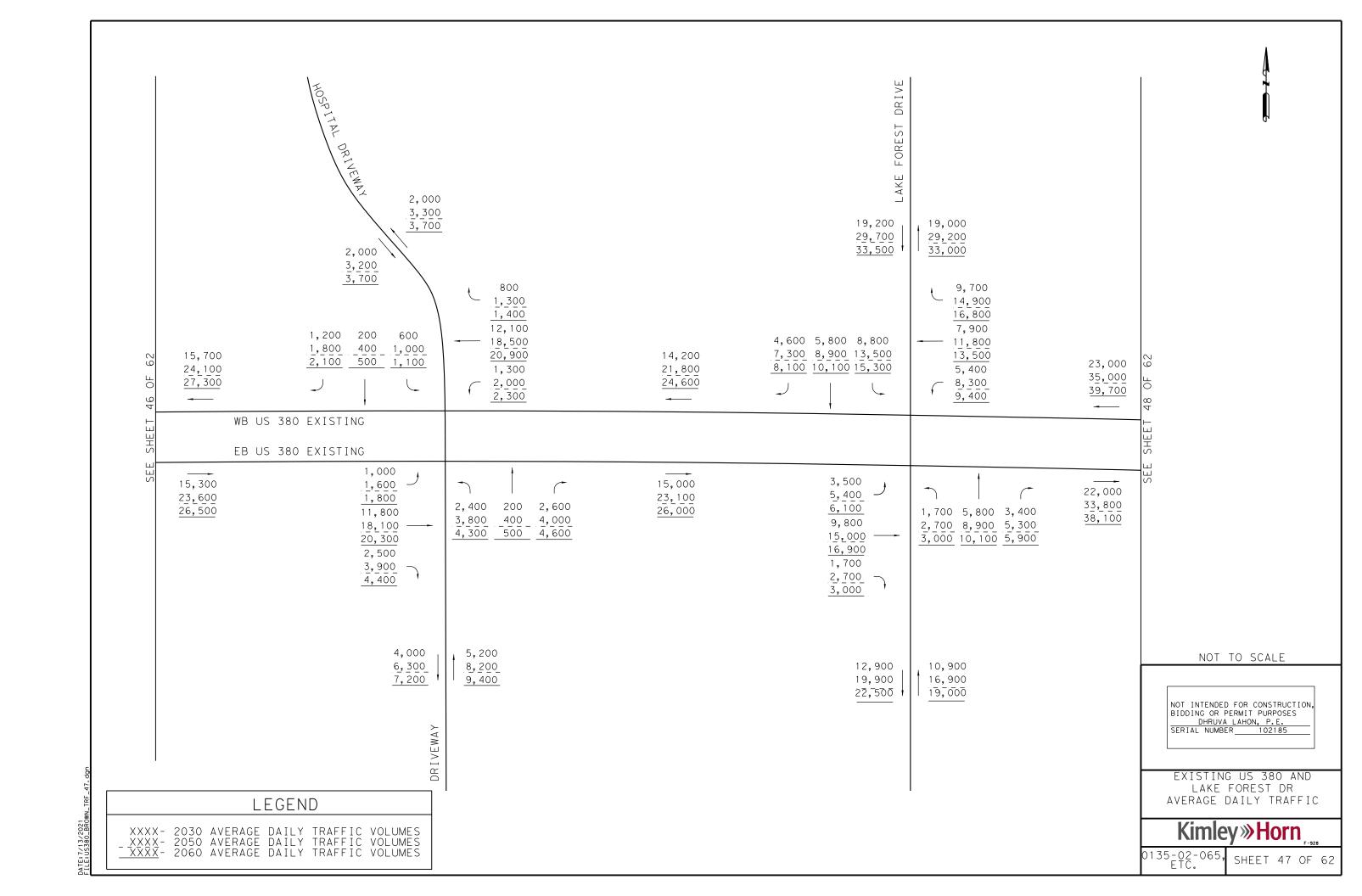


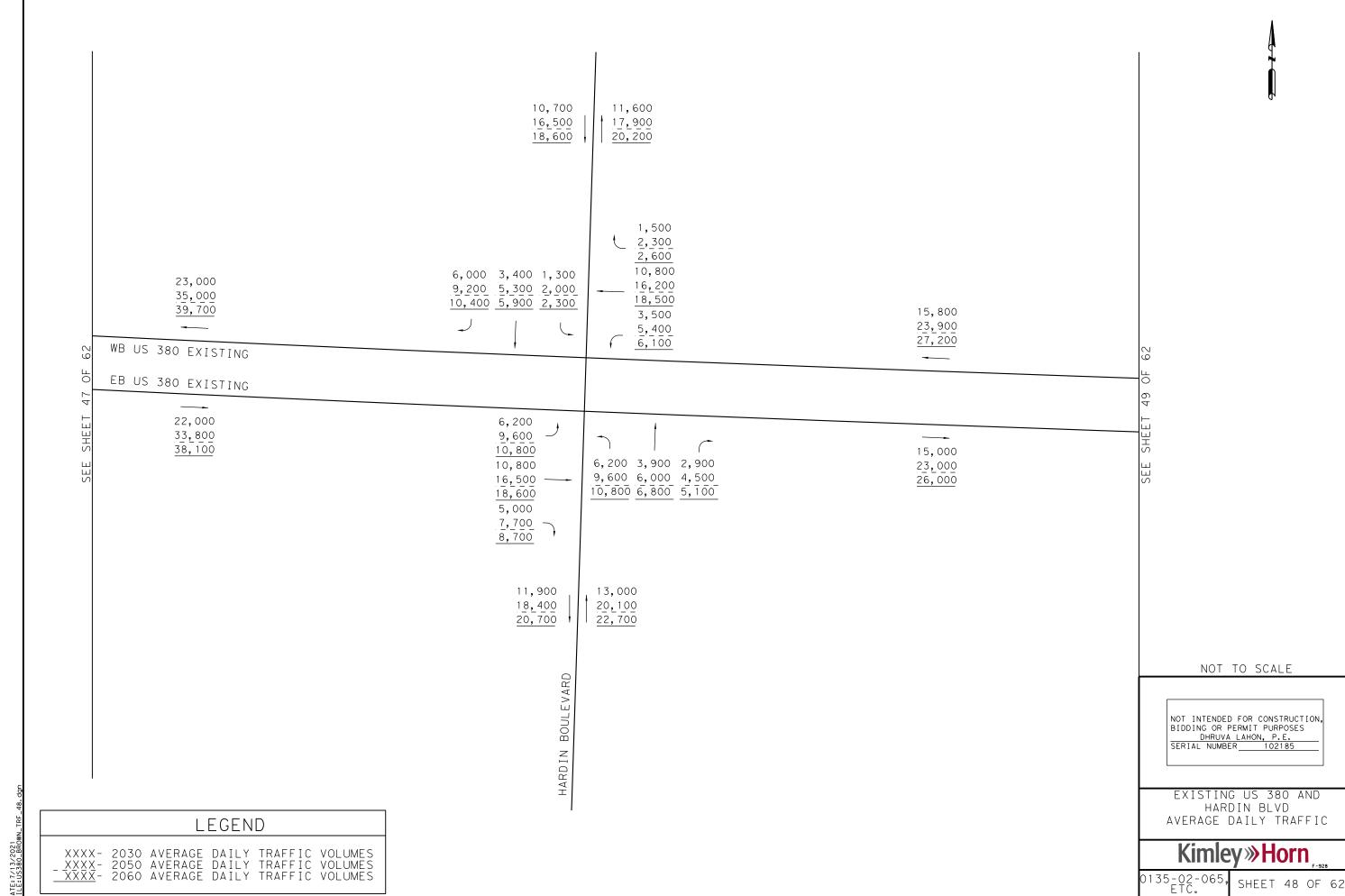
12,200 18,700 21,100	9,600  14,700  16,600  3,800  5,900  6,700	13, 400 20, 600 23, 300	
WB US 380 EXISTING			
EB US 380 EXISTING  12,200  18,700 21,100	9,600 14,700 16,600 2,600 4,000 4,000 4,500 6,700	13,400 20,600 23,300	SEE SHEET 45 OF 67
	6,400 9,900 11,200 6,400 9,900 11,200		
	DRIVE		NOT TO SCALE  NOT INTENDED FOR CONSTRUCTION,
	STONEBRIDGE		BIDDING OR PERMIT PURPOSES  DHRUVA LAHON, P.E.  SERIAL NUMBER 102185
LEGEND LEGEND	Ţ.		EXISTING US 380 AND STONEBRIDGE DR AVERAGE DAILY TRAFFIC
XXXX- 2030 AVERAGE DAILY TRAFFIC VOLUMES  XXXX- 2050 AVERAGE DAILY TRAFFIC VOLUMES  XXXX- 2060 AVERAGE DAILY TRAFFIC VOLUMES  XXXX- 2060 AVERAGE DAILY TRAFFIC VOLUMES			Kimley» Horn F-928 0135-02-065, SHEET 44 OF 62

TREMONT BOULEVARD 2,000 2,000 3,100 3,500 3,100 3,500 900 1,100 900 1,400 1,700 1,400 1,900 1,600 13,400 1,600 13,200 20,600 12,300 20,300 23,000 23,300 18,900 21,400 WB US 380 EXISTING EB US 380 EXISTING 1,100 1,700 13,400 13,200 1,900 20,600 20,30<u>0</u> 23,000 12,300 18,900 ---21,400 NOT TO SCALE NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185 EXISTING US 380 AND TREMONT BLVD AVERAGE DAILY TRAFFIC LEGEND Kimley » Horn XXXX- 2030 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2050 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2060 AVERAGE DAILY TRAFFIC VOLUMES SHEET 45 OF 62

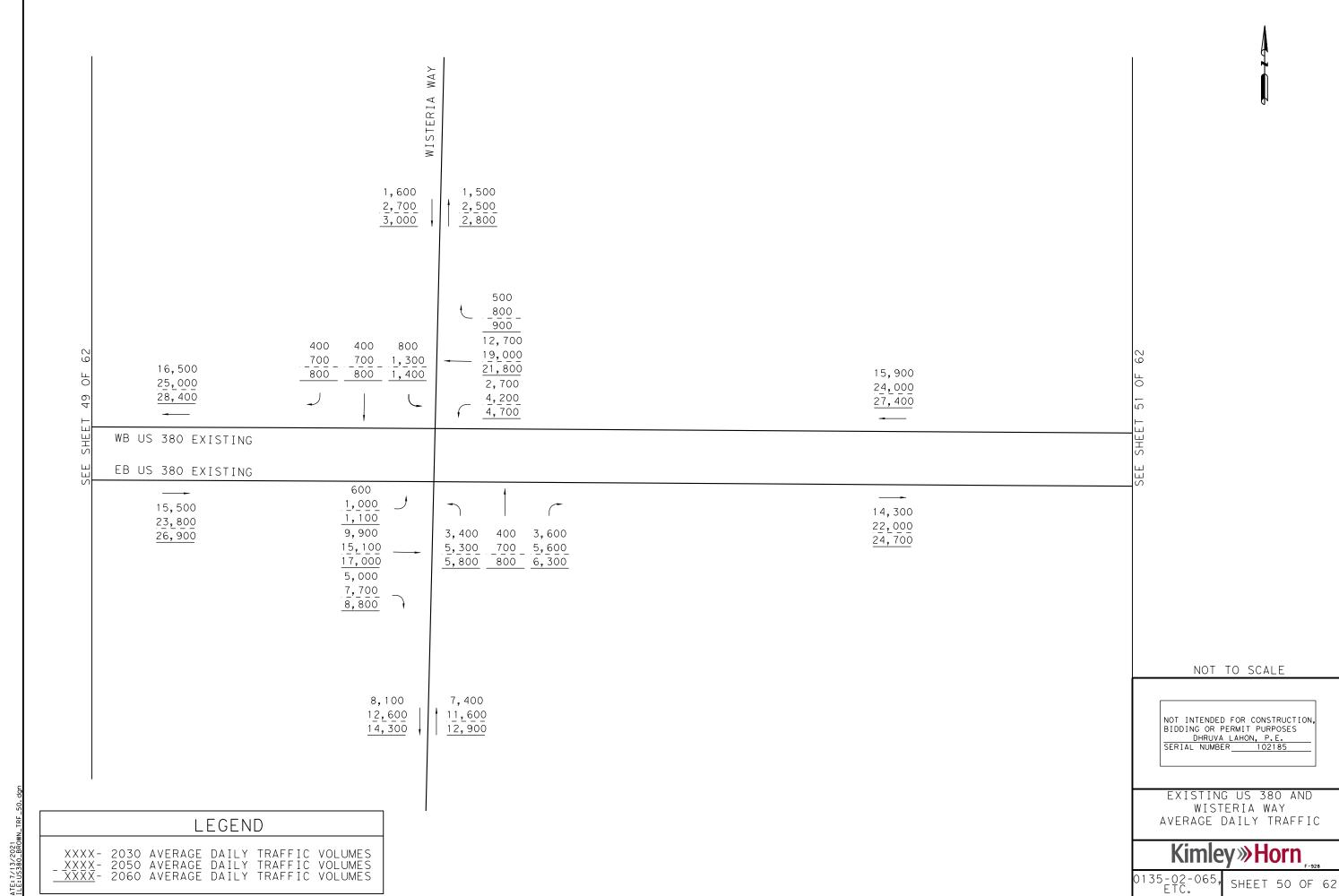
0135-02-065, ETC.



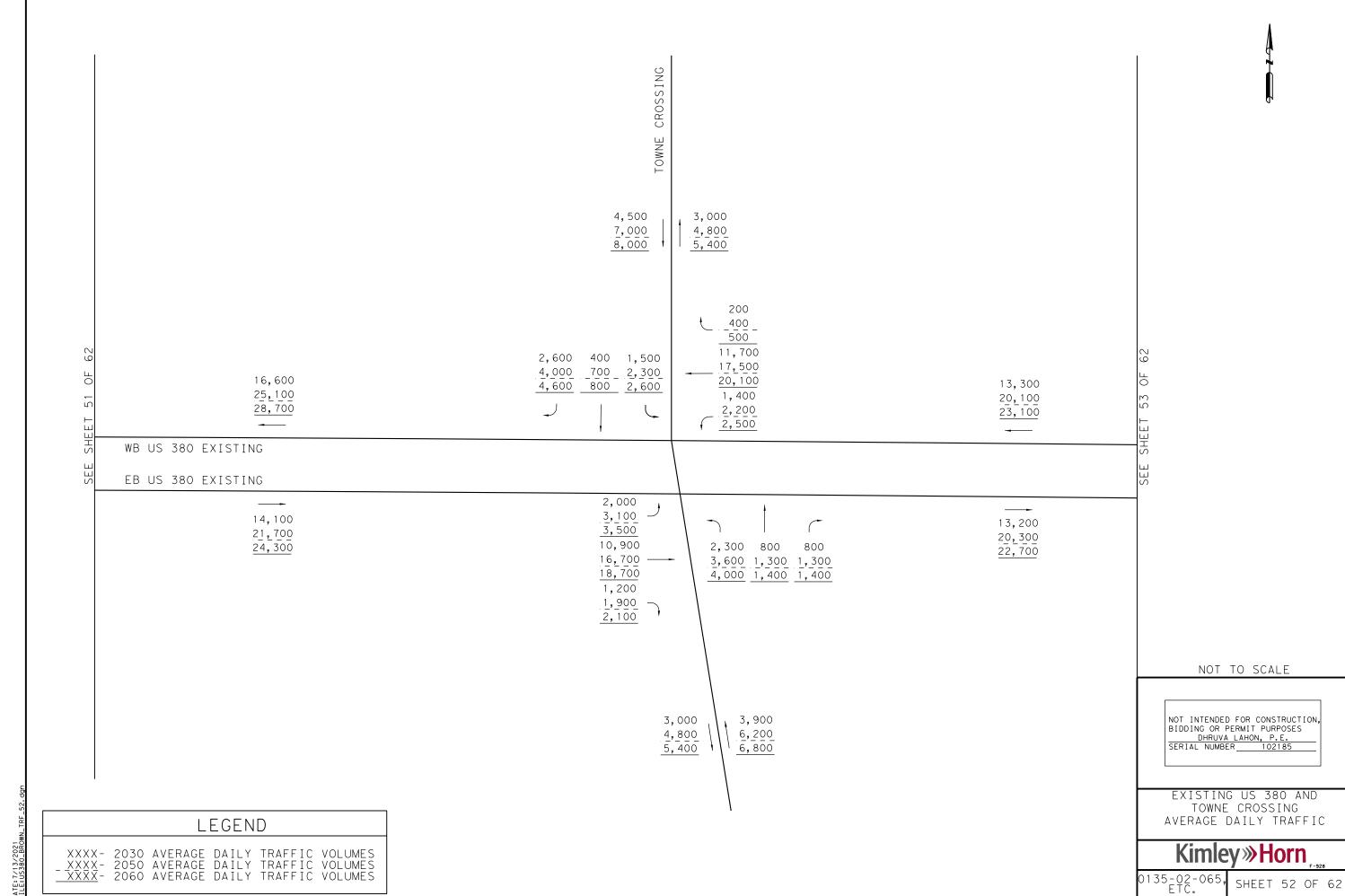


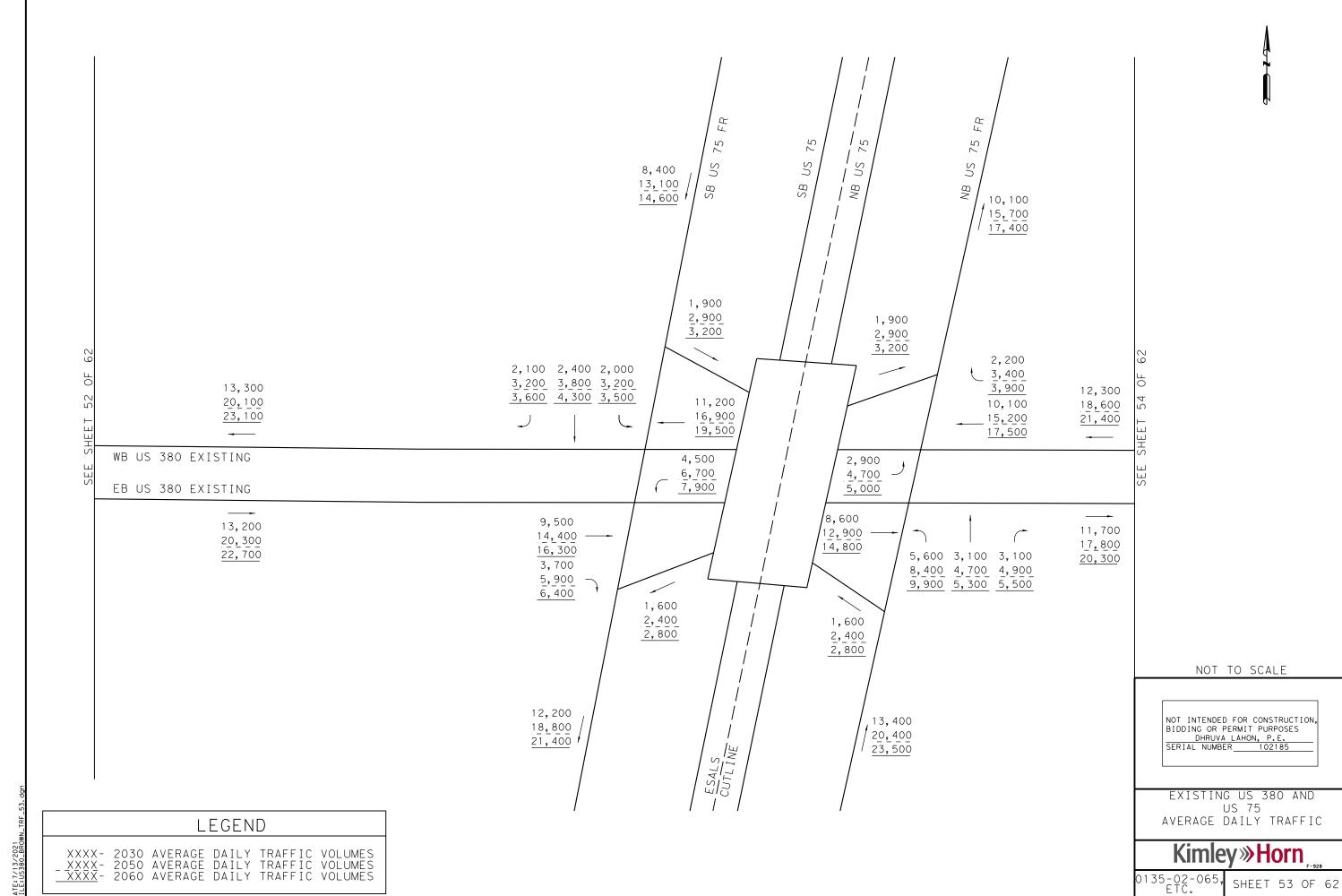


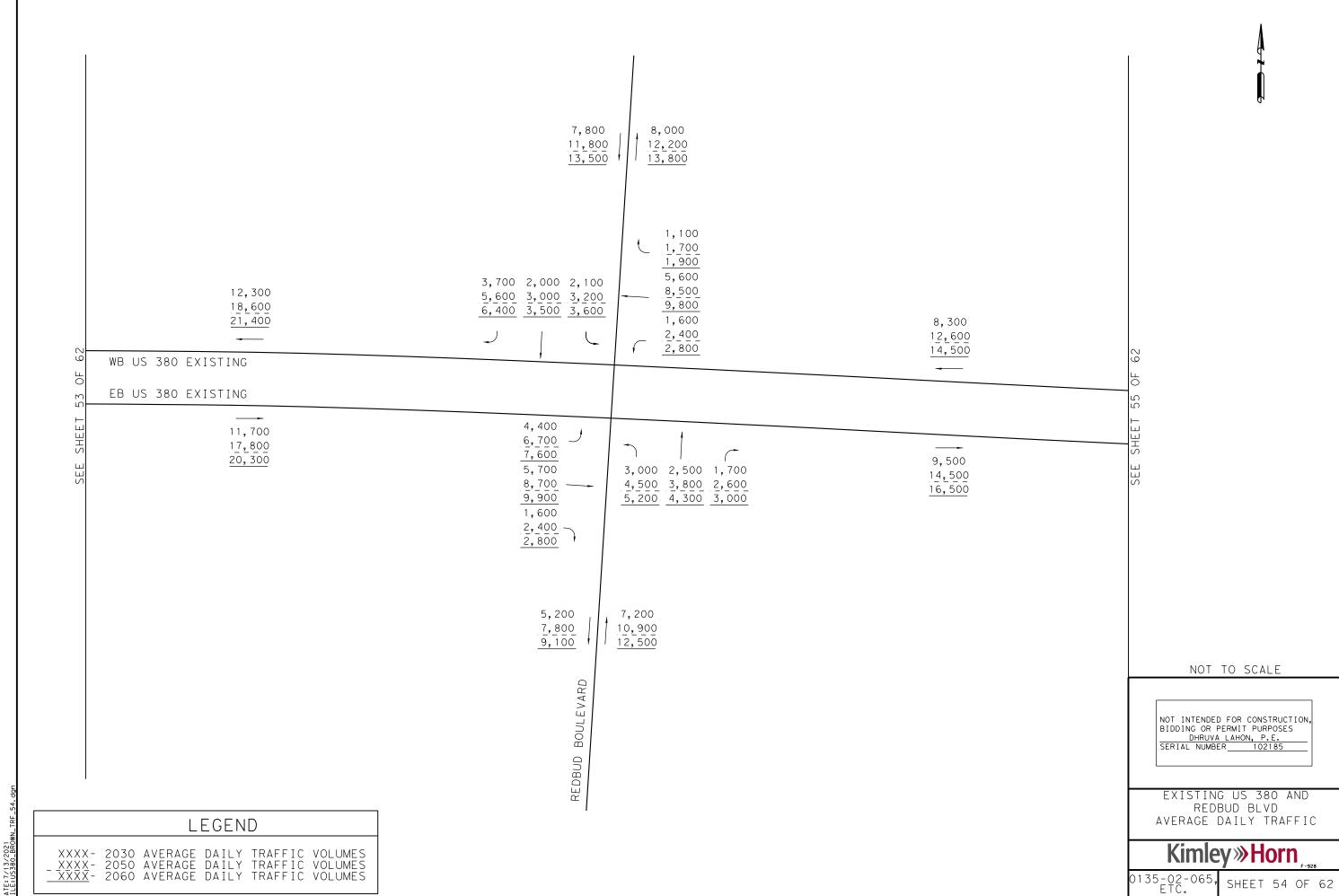
SKYLINE DRIVE 3,400 3,500 5,400 5,600 6,100 6,300 1,700 2,700 3,000 14,600 1,000 100 2,300 21,900 200 3,600 1,600 15,800 24,900 300 4,000 16,500 1,800 23,900 200 25,000 27,200 400 28,400 48 500 WB US 380 EXISTING EB US 380 EXISTING 1,700 15,000 2,700 15,500 3,000 23,000 23,800 26,000 13,000 200 100 200 26,900 19,800 400 200 400 22,400 500 300 500 300 \_500 \_ 600 NOT TO SCALE 500 600 1,100 1,000 1,400 1,300 NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185 EXISTING US 380 AND SKYLINE DR AVERAGE DAILY TRAFFIC LEGEND XXXX- 2030 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2050 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2060 AVERAGE DAILY TRAFFIC VOLUMES Kimley » Horn 0135-02-065, ETC. SHEET 49 OF 62



AVENUE COMMUNITY 7,000 9,700 10,900 14,900 12,200 17,000 4,100 6,300 7,200 10,400 3,000 1,900 2,100 15,500 4,600 3,000 3,300 15,900 17,800 16,600 5,200 3,300 3,700 24,000 2,100 25,100 27,400 3,300 3,700 28,700 SHEET WB US 380 EXISTING EB US 380 EXISTING 2,600 4,000 14,300 14,100 4,600 22,000 21,700 24,700 9,200 2,500 3,000 2,800 24,300 14,100 3,900 4,600 4,300 15,700 4,400 5,200 4,900 2,500 3,<u>900</u> 4,400 NOT TO SCALE 6,500 8,300 NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185 10,200 12,800 11,400 14,500 EXISTING US 380 AND COMMUNITY AVE AVERAGE DAILY TRAFFIC LEGEND XXXX- 2030 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2050 AVERAGE DAILY TRAFFIC VOLUMES XXXX- 2060 AVERAGE DAILY TRAFFIC VOLUMES Kimley » Horn 0135-02-065, ETC. SHEET 51 OF 62

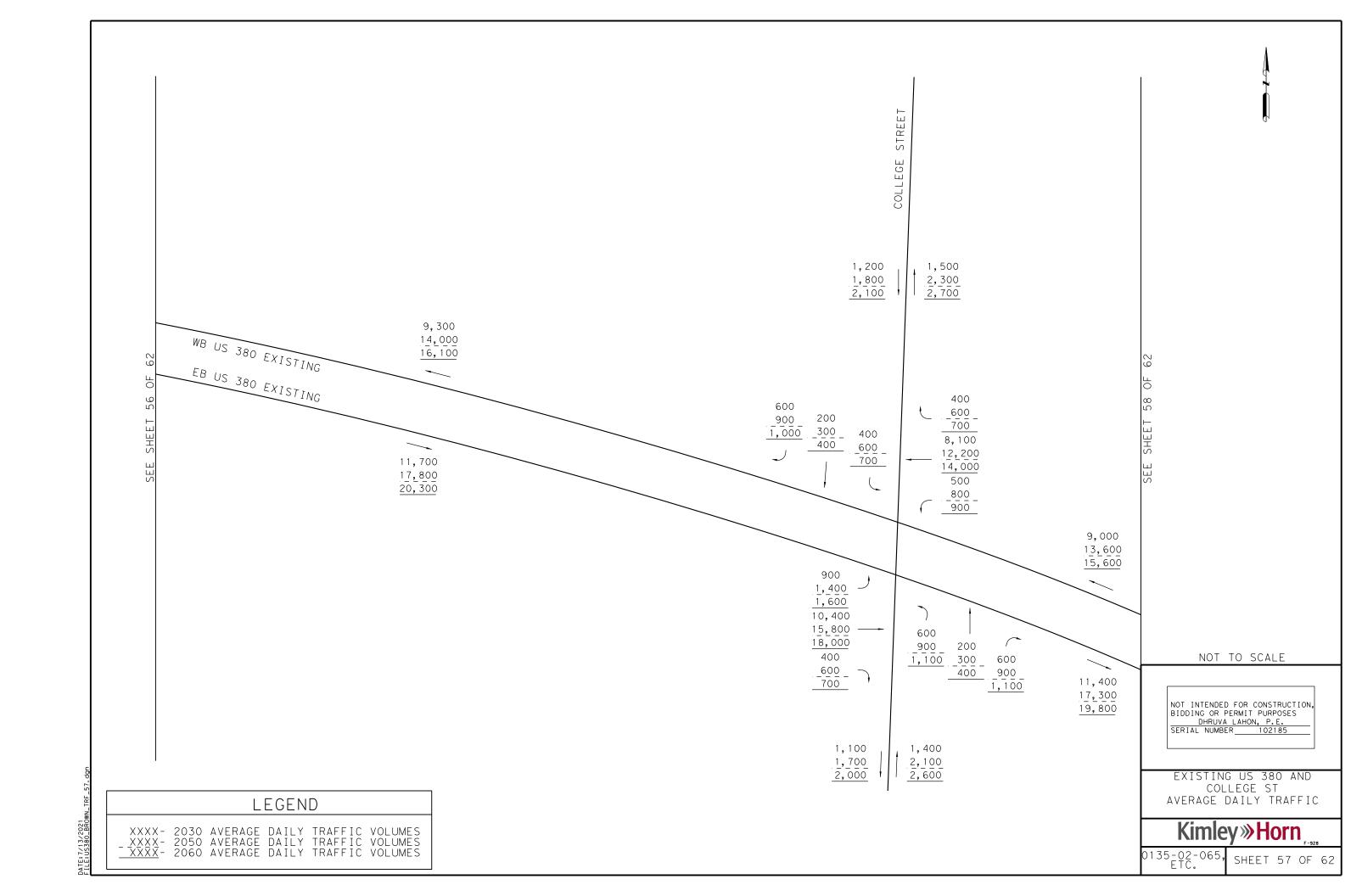


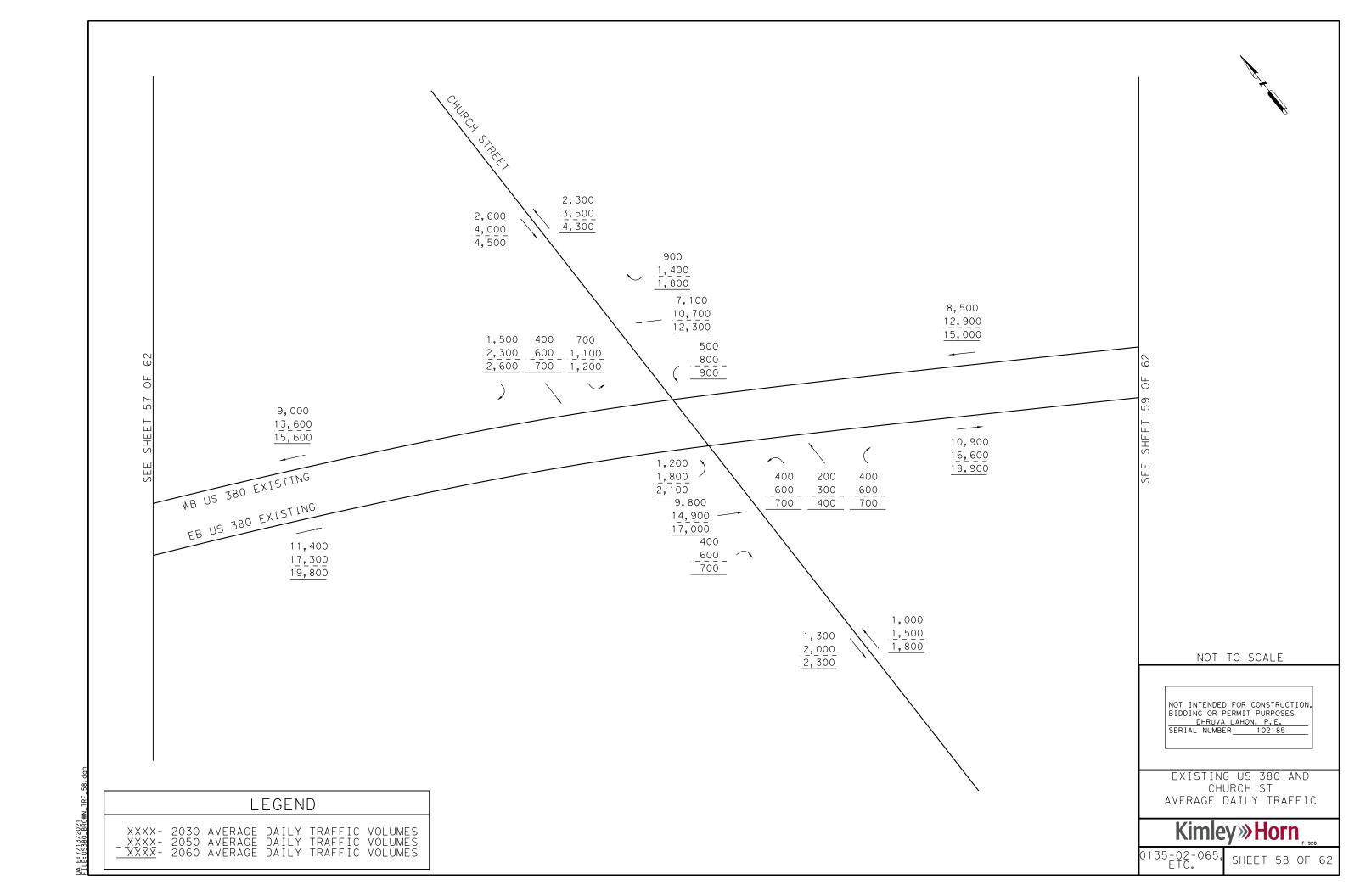


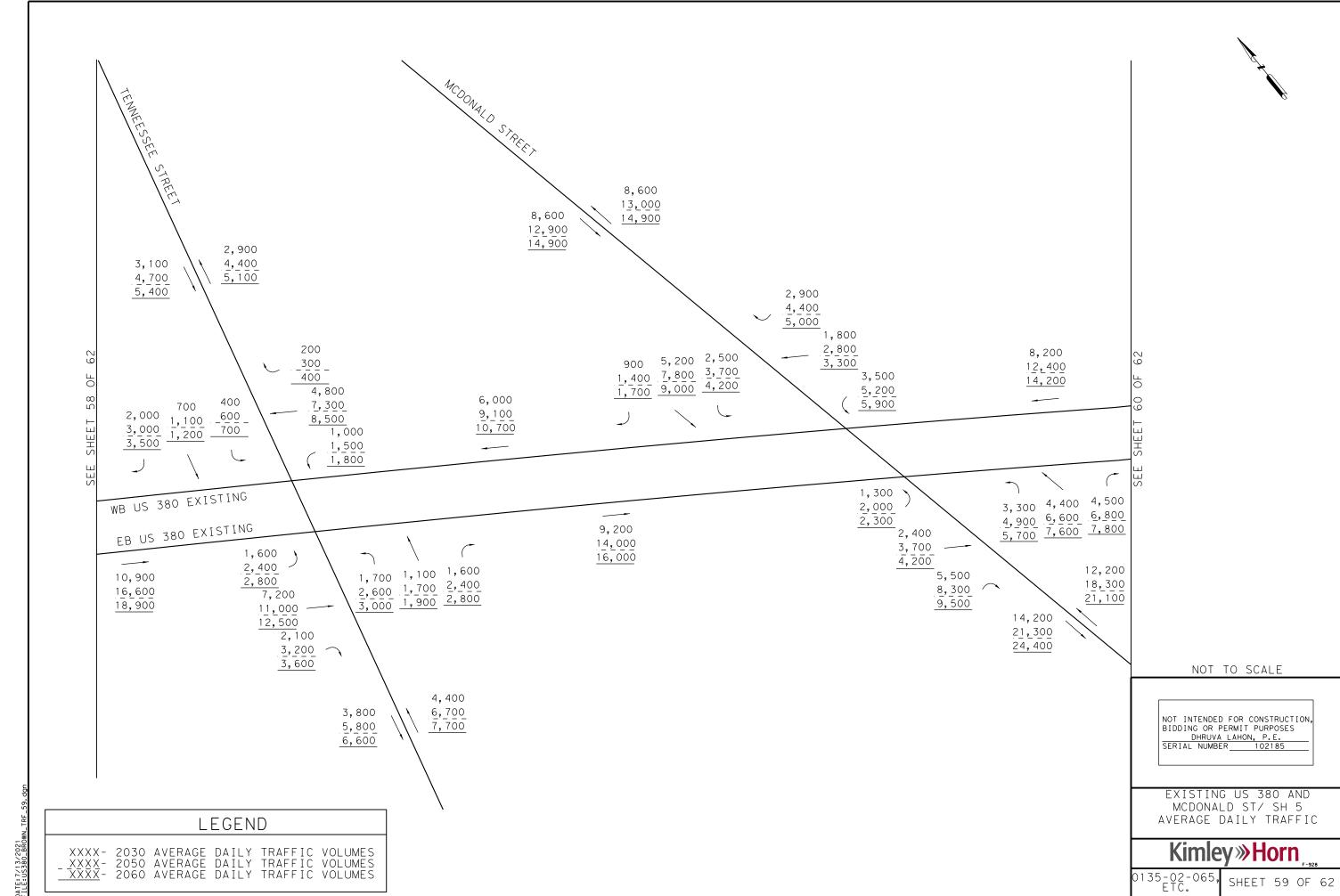


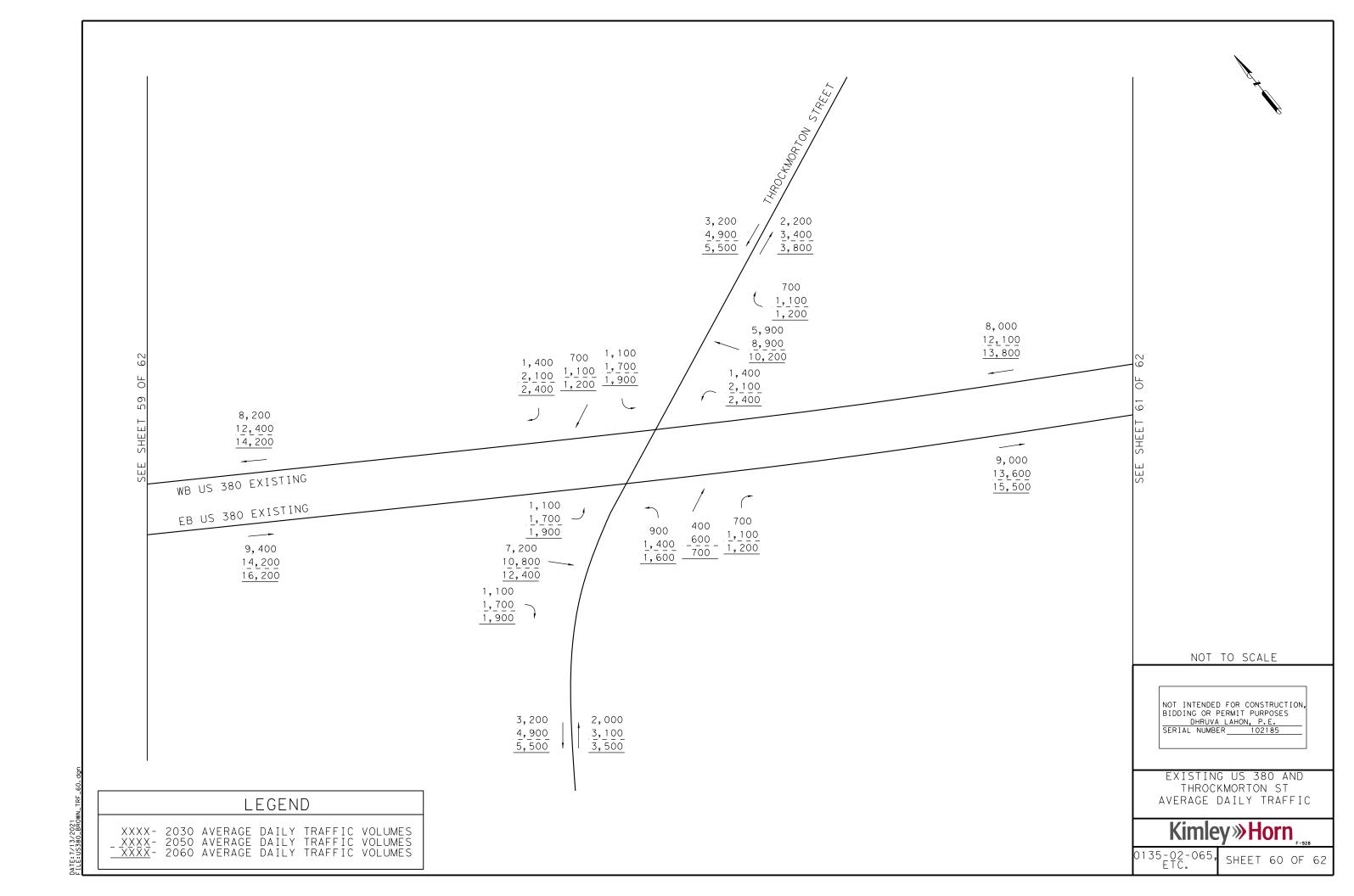
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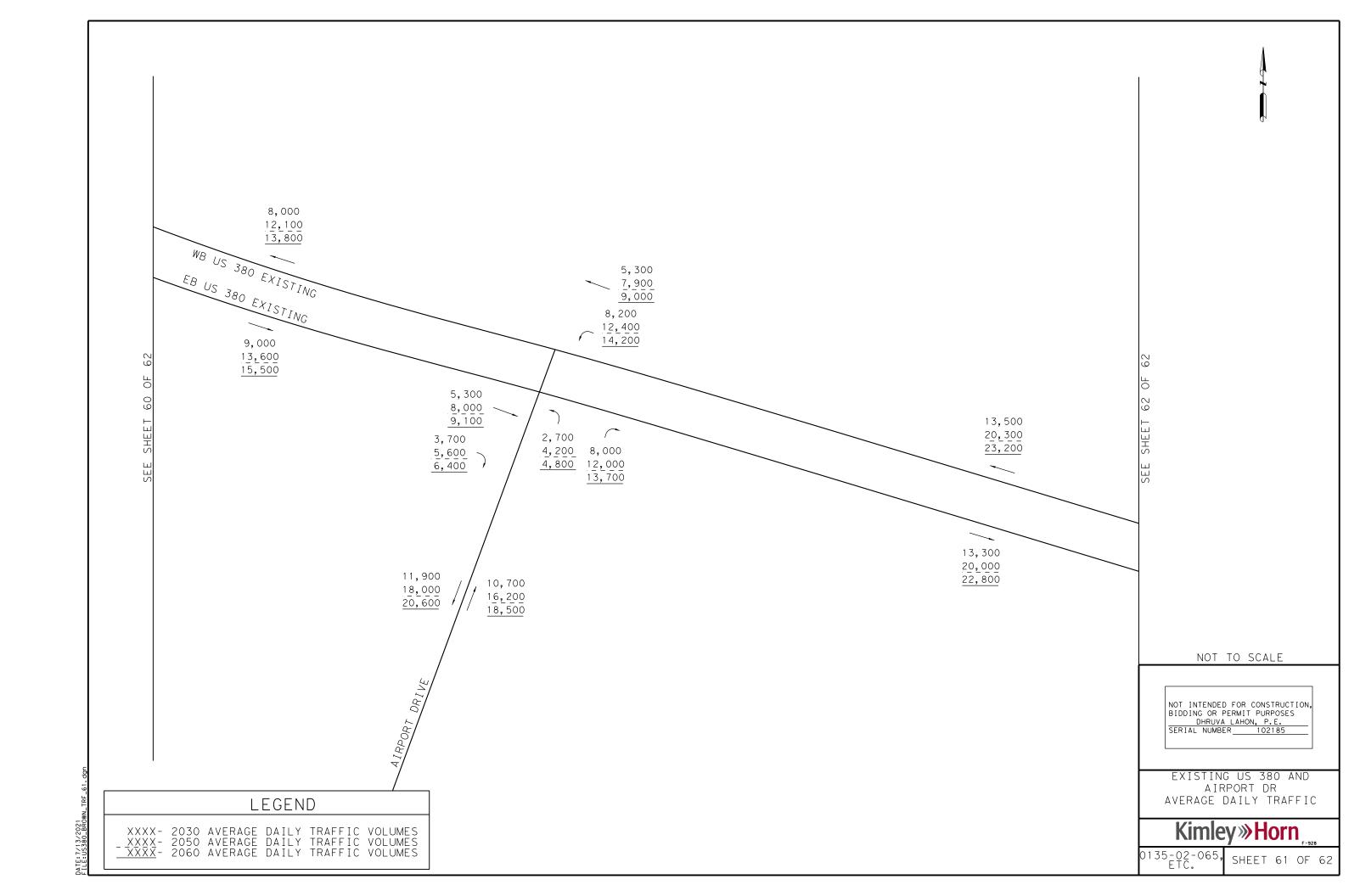
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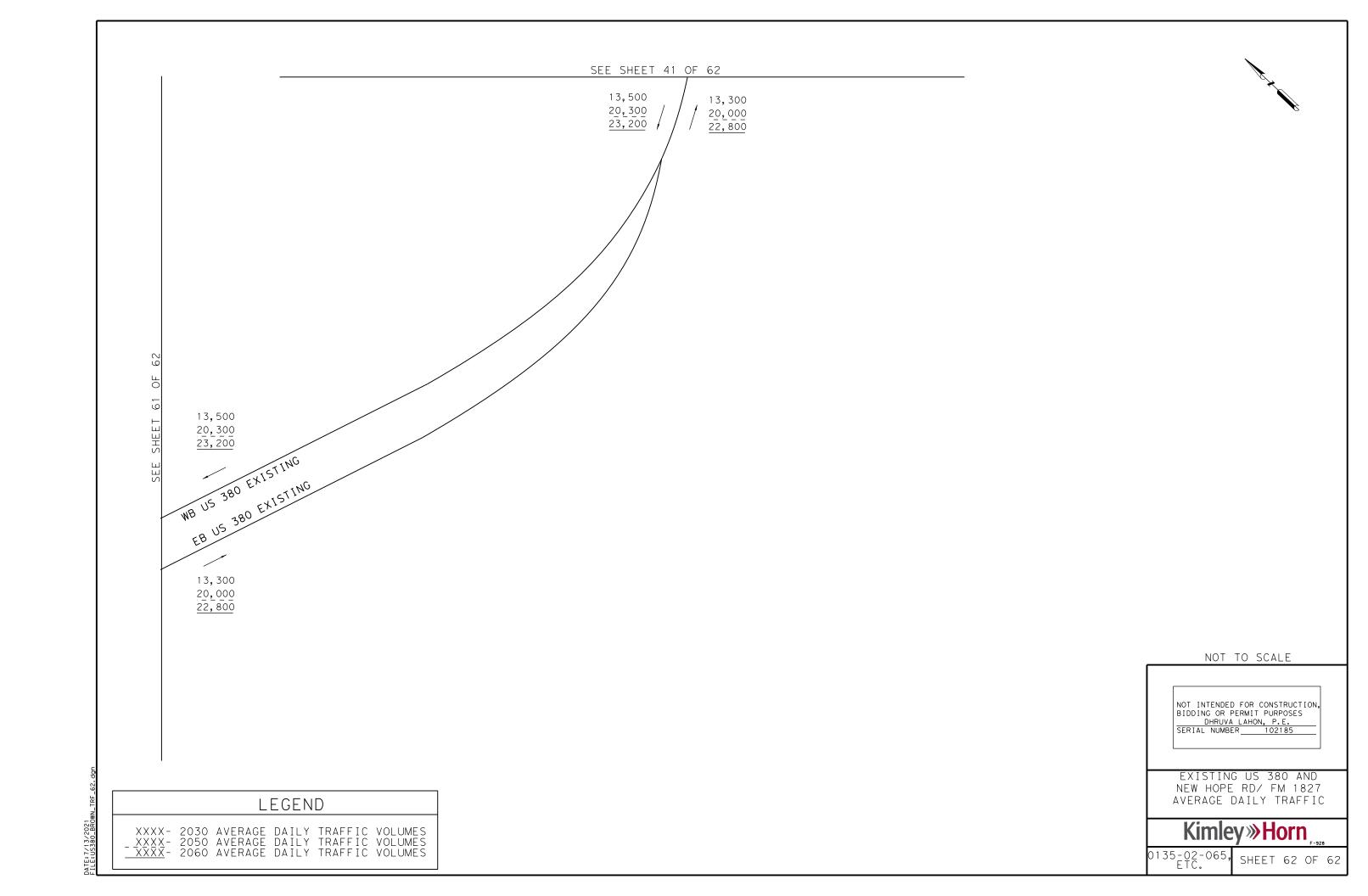














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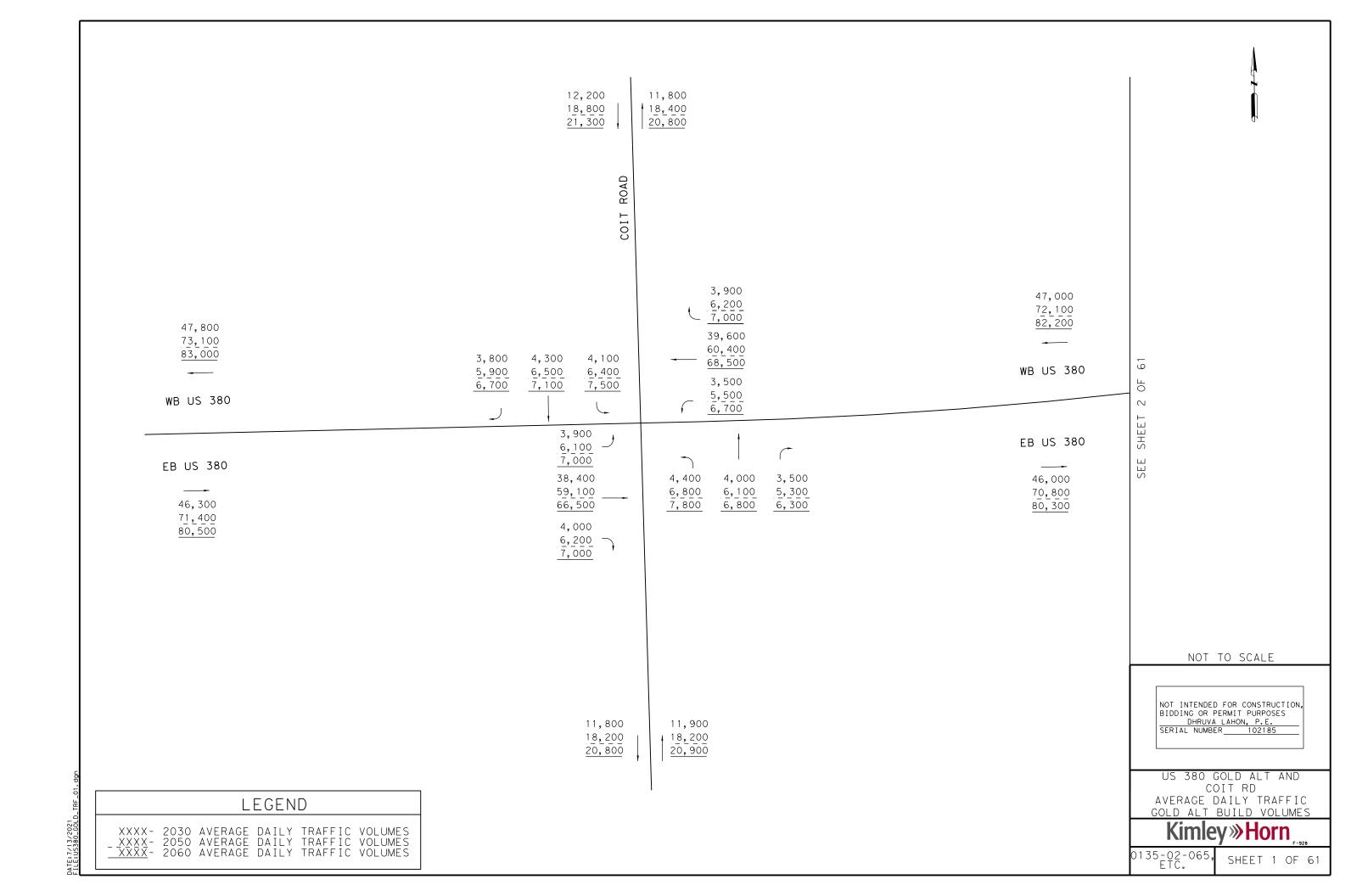
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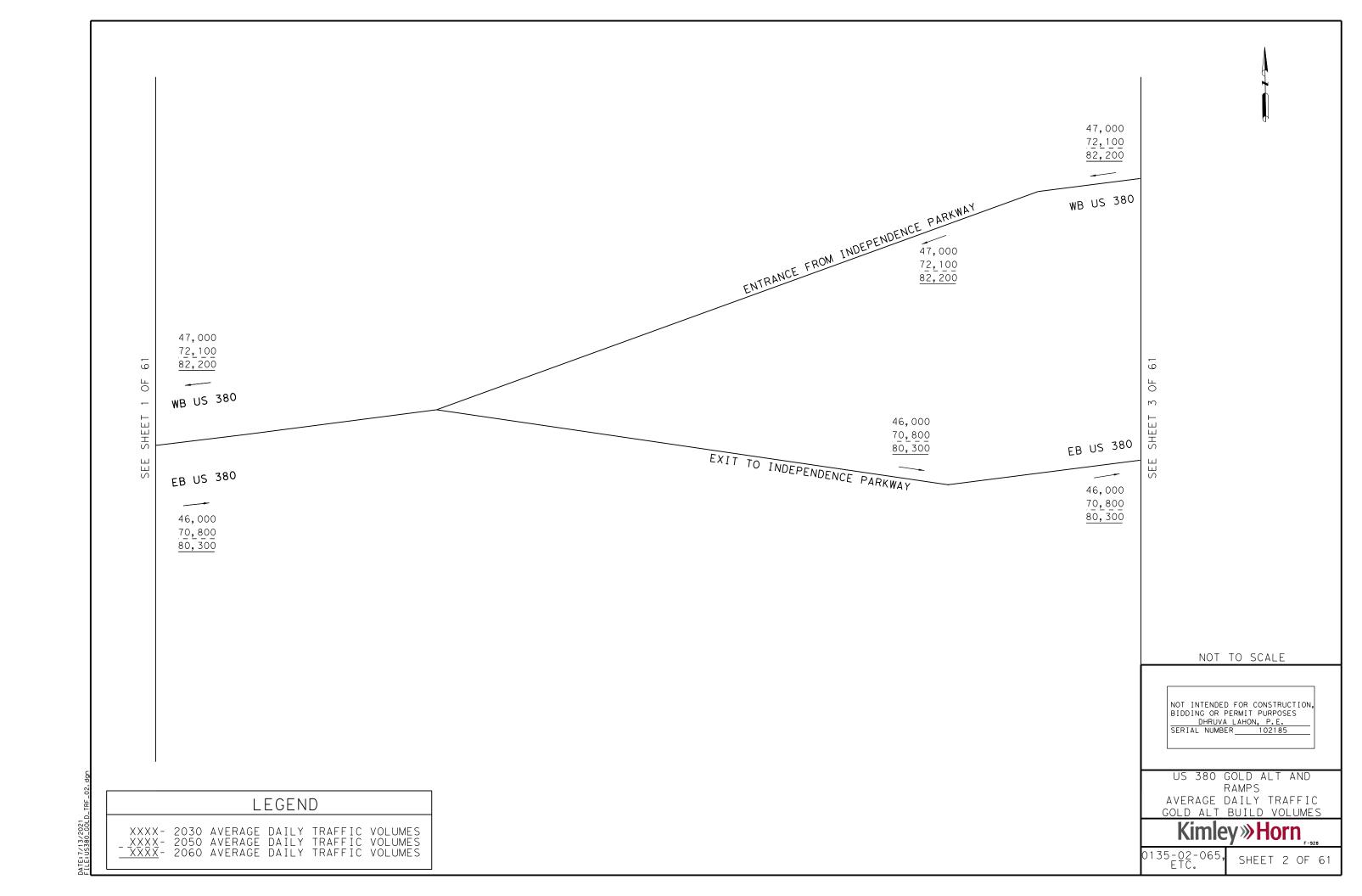
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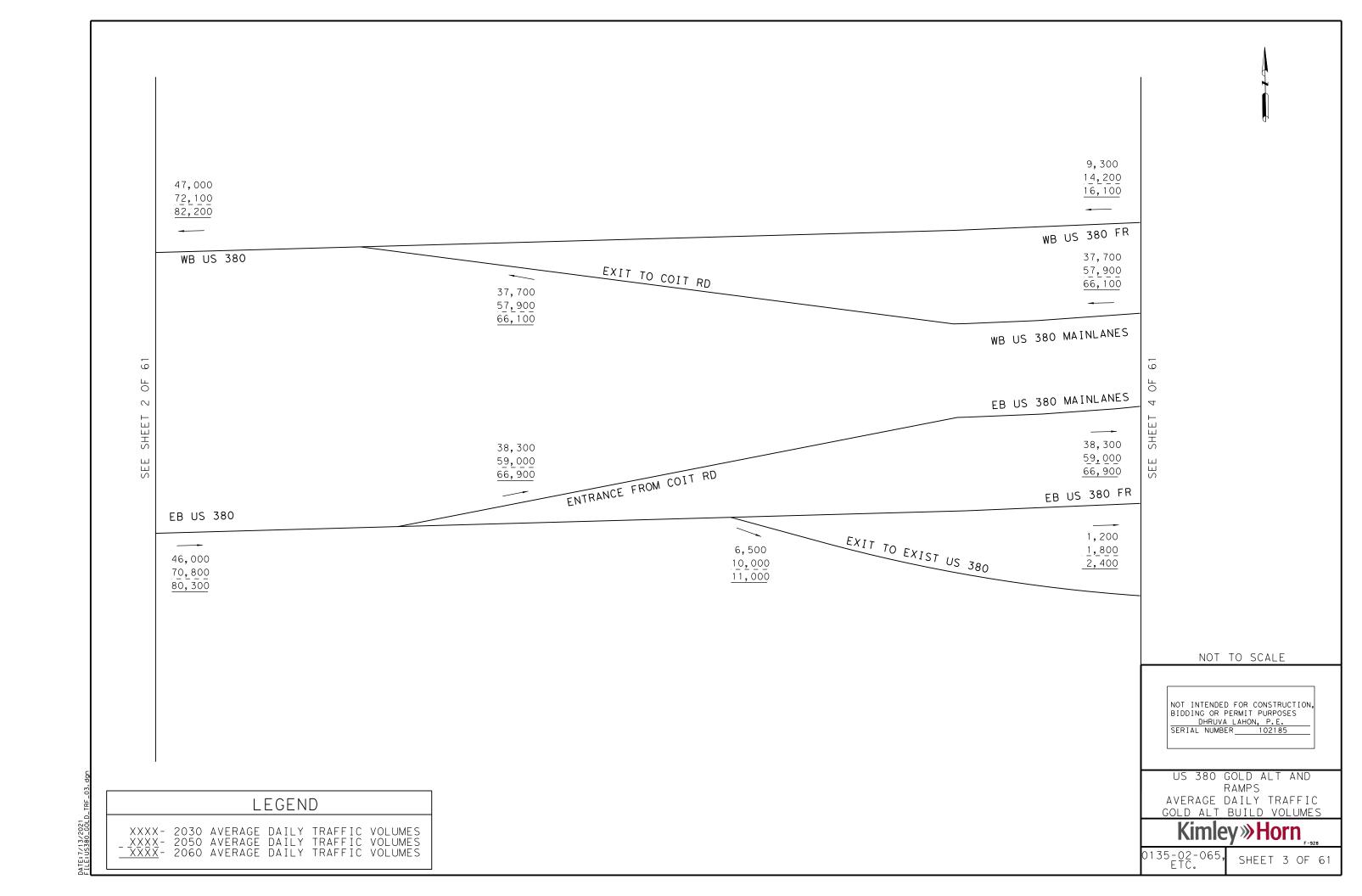
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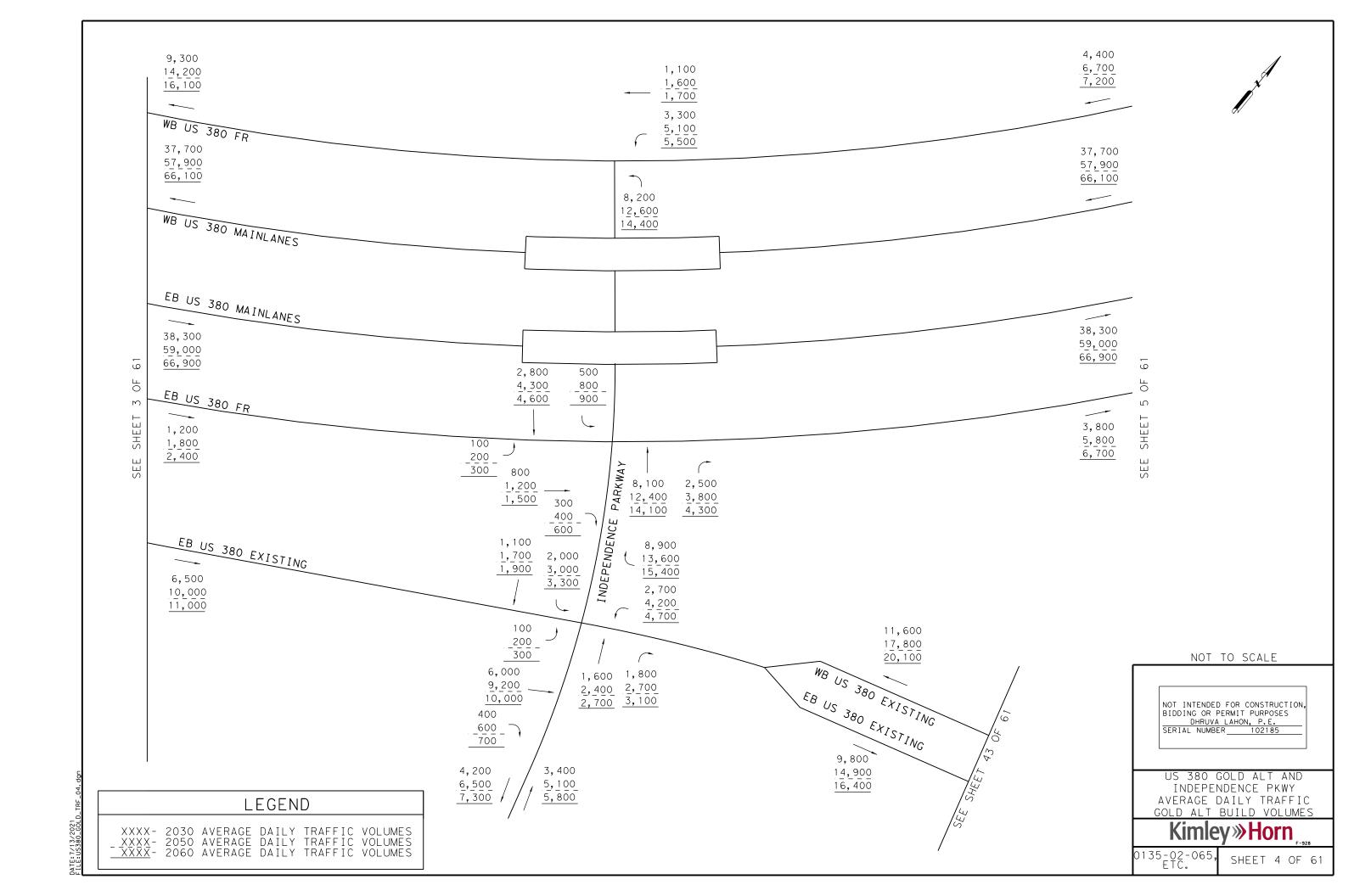
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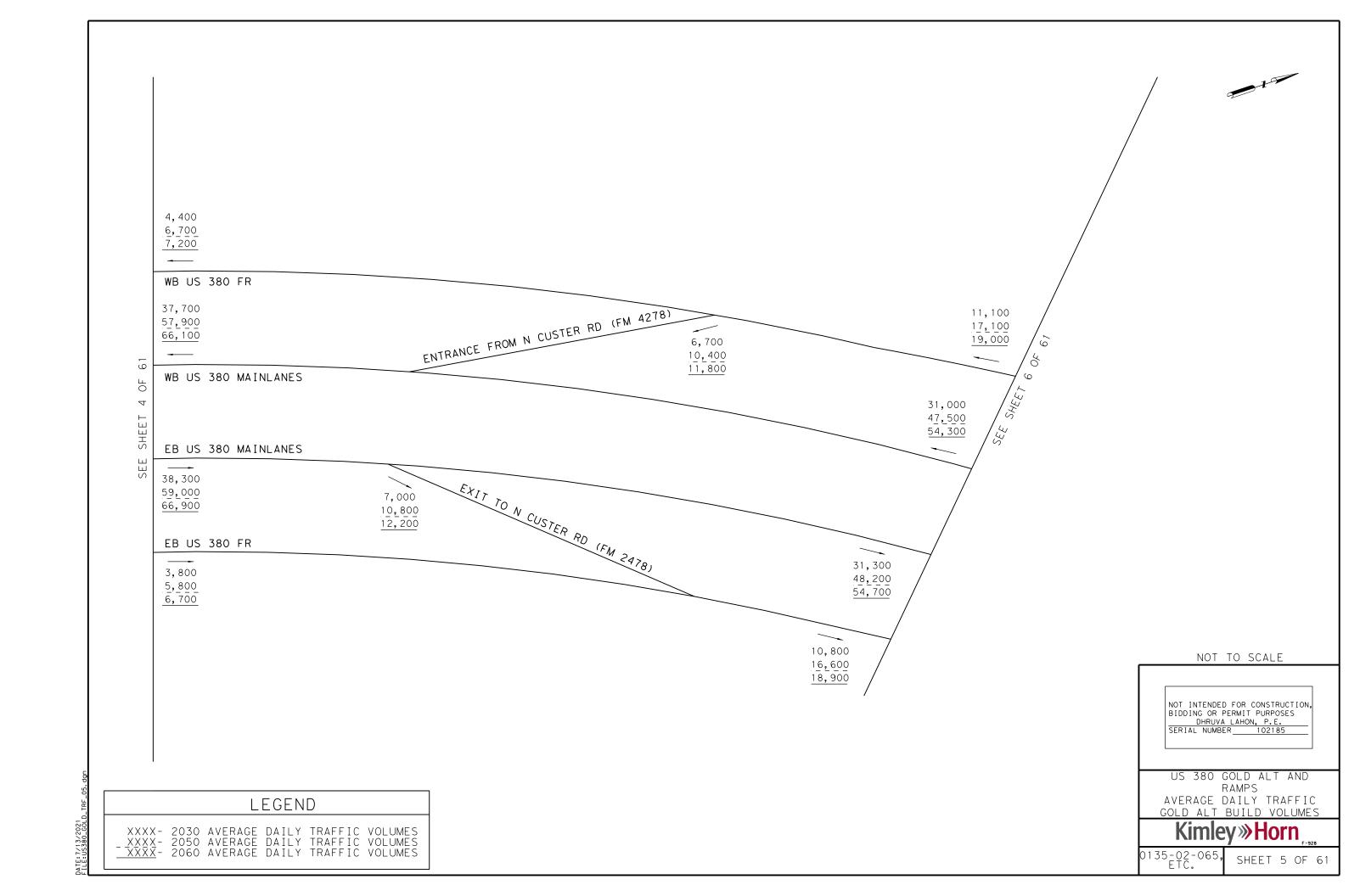
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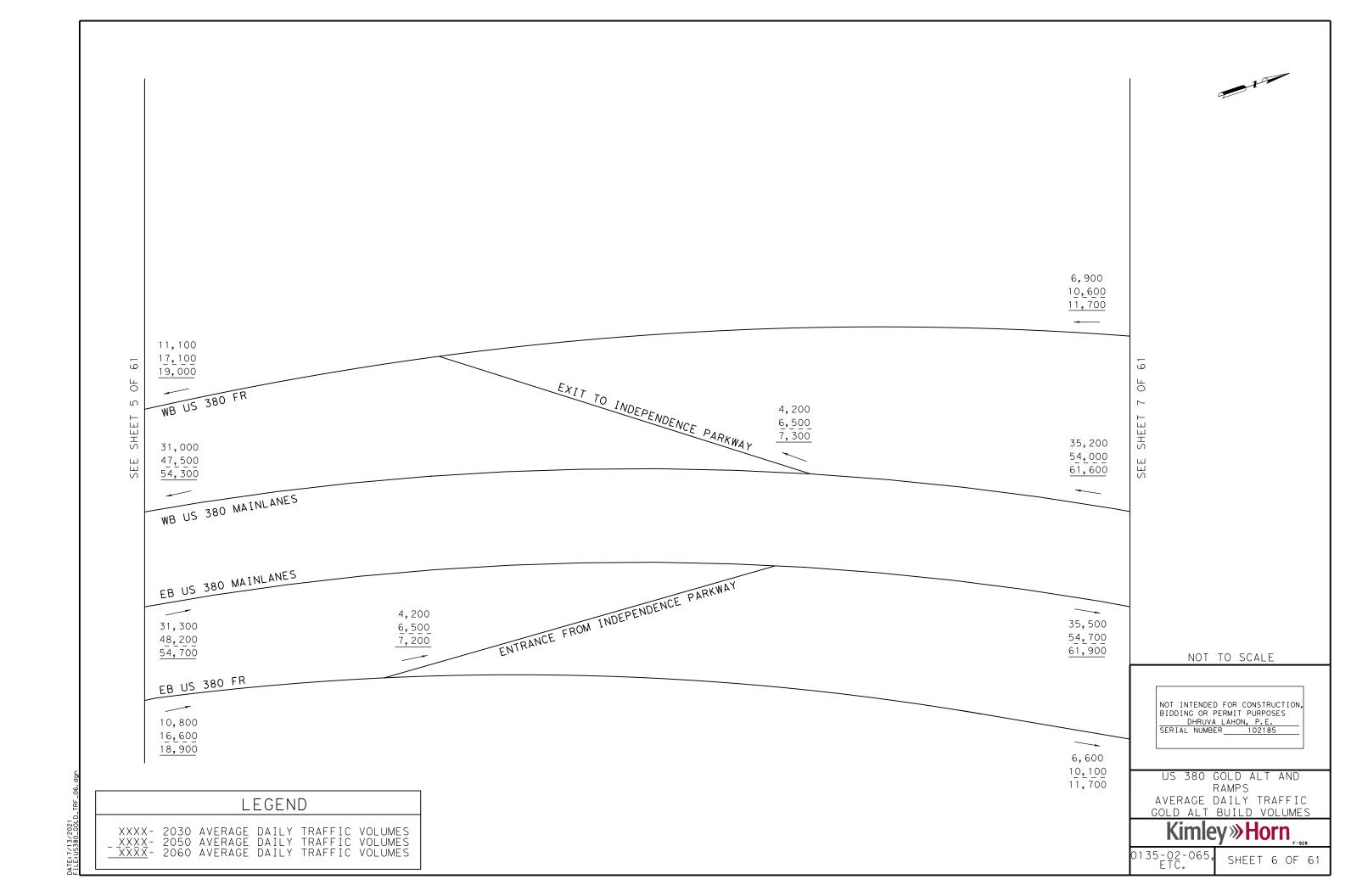


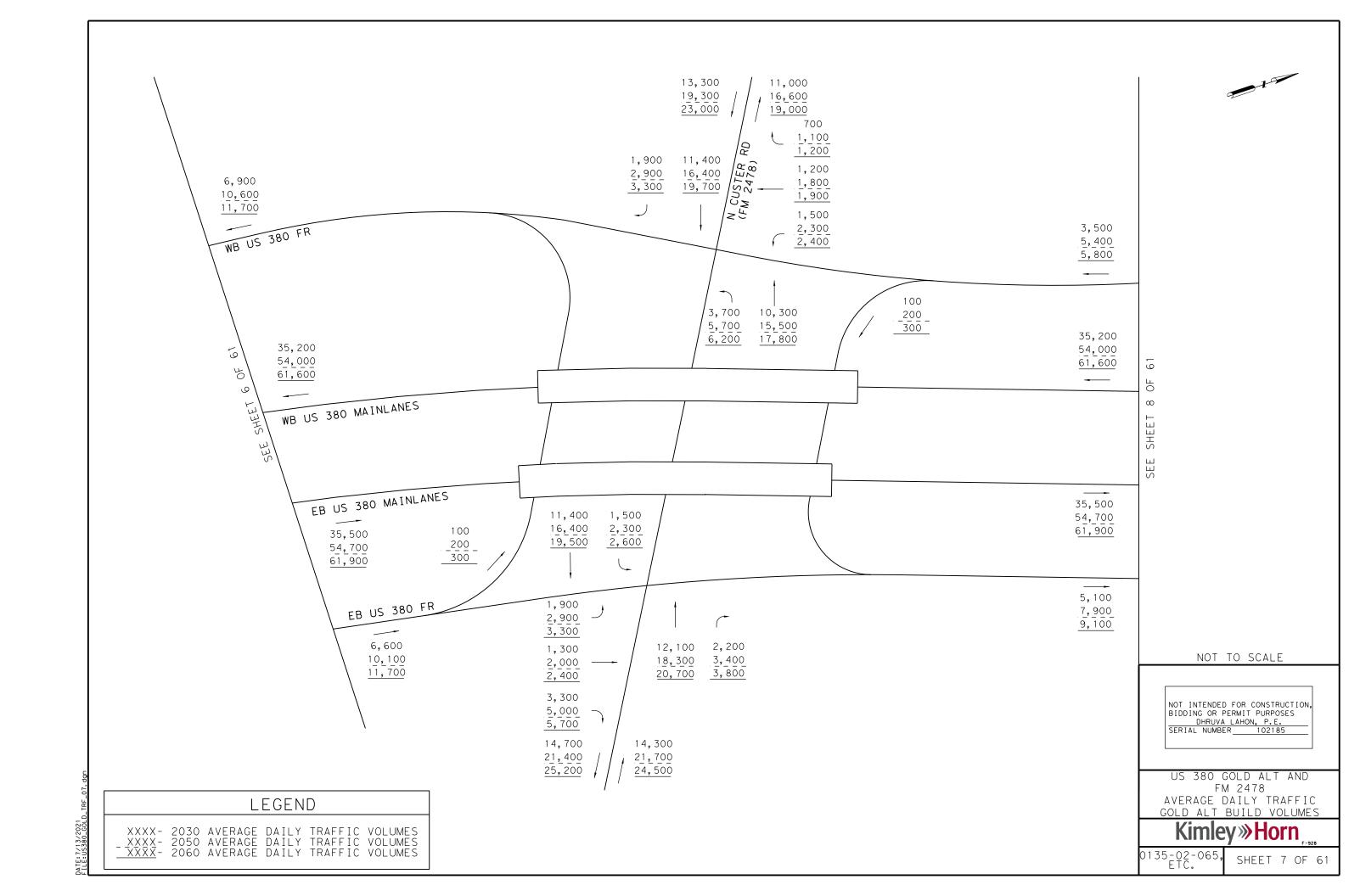


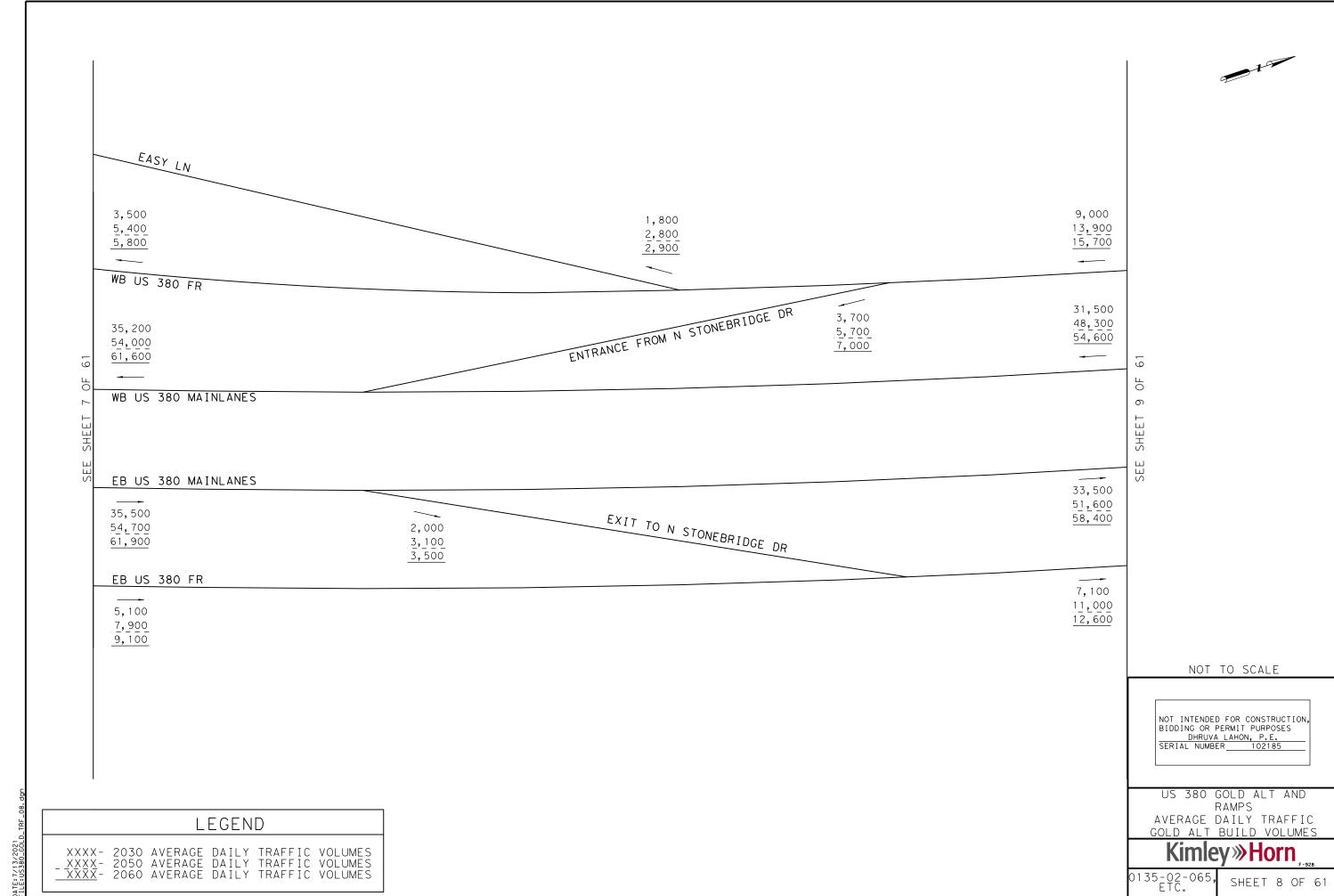


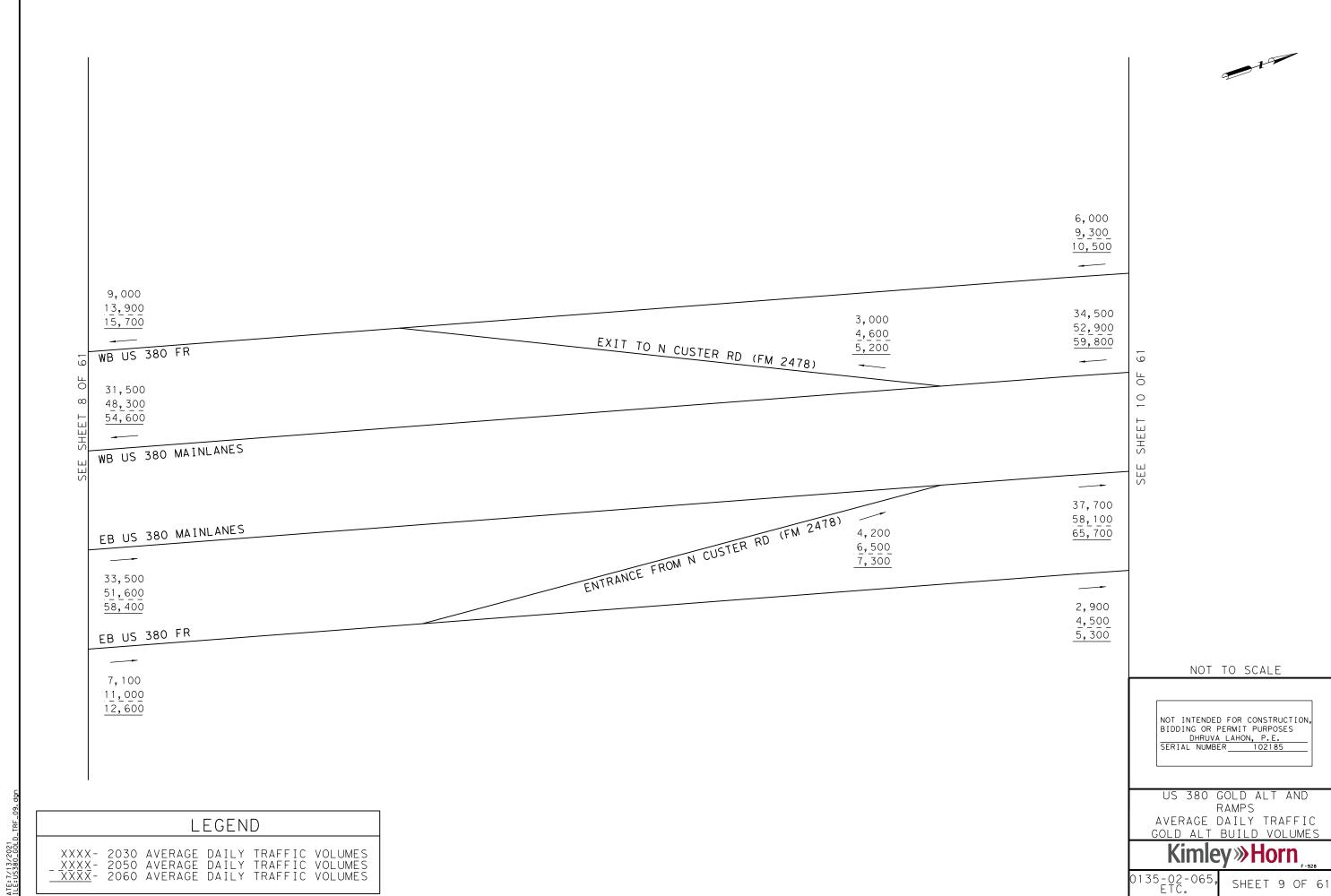


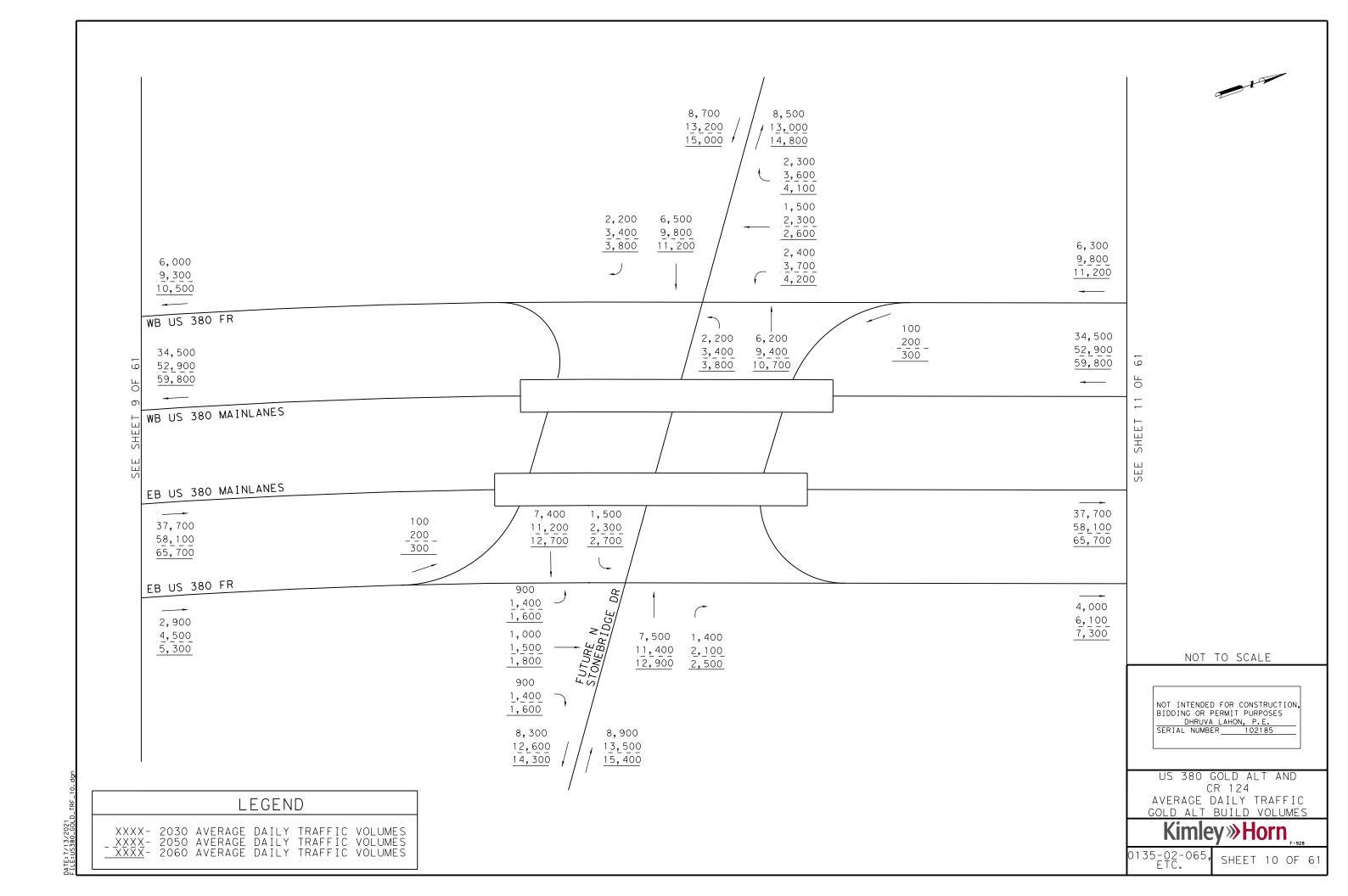


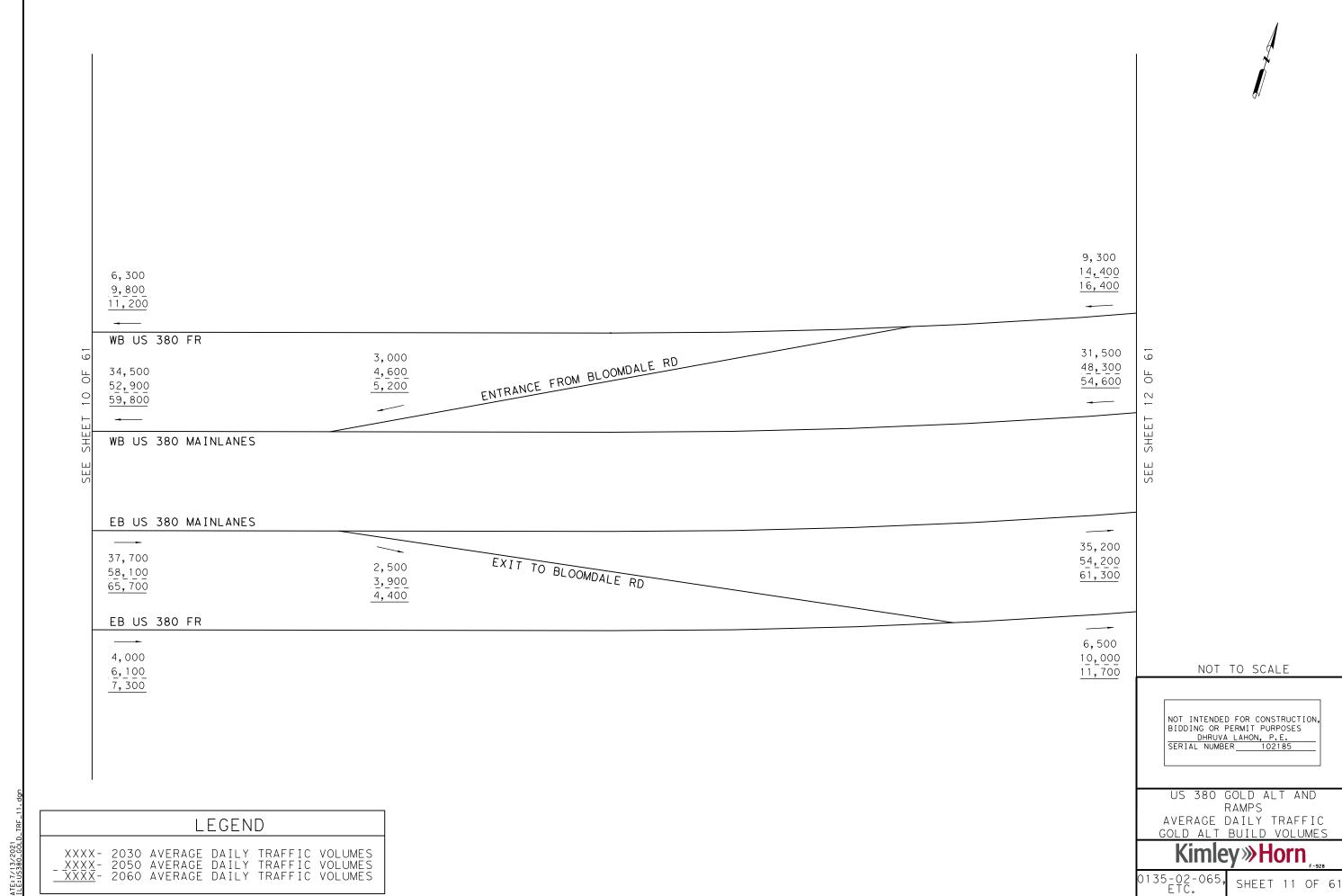


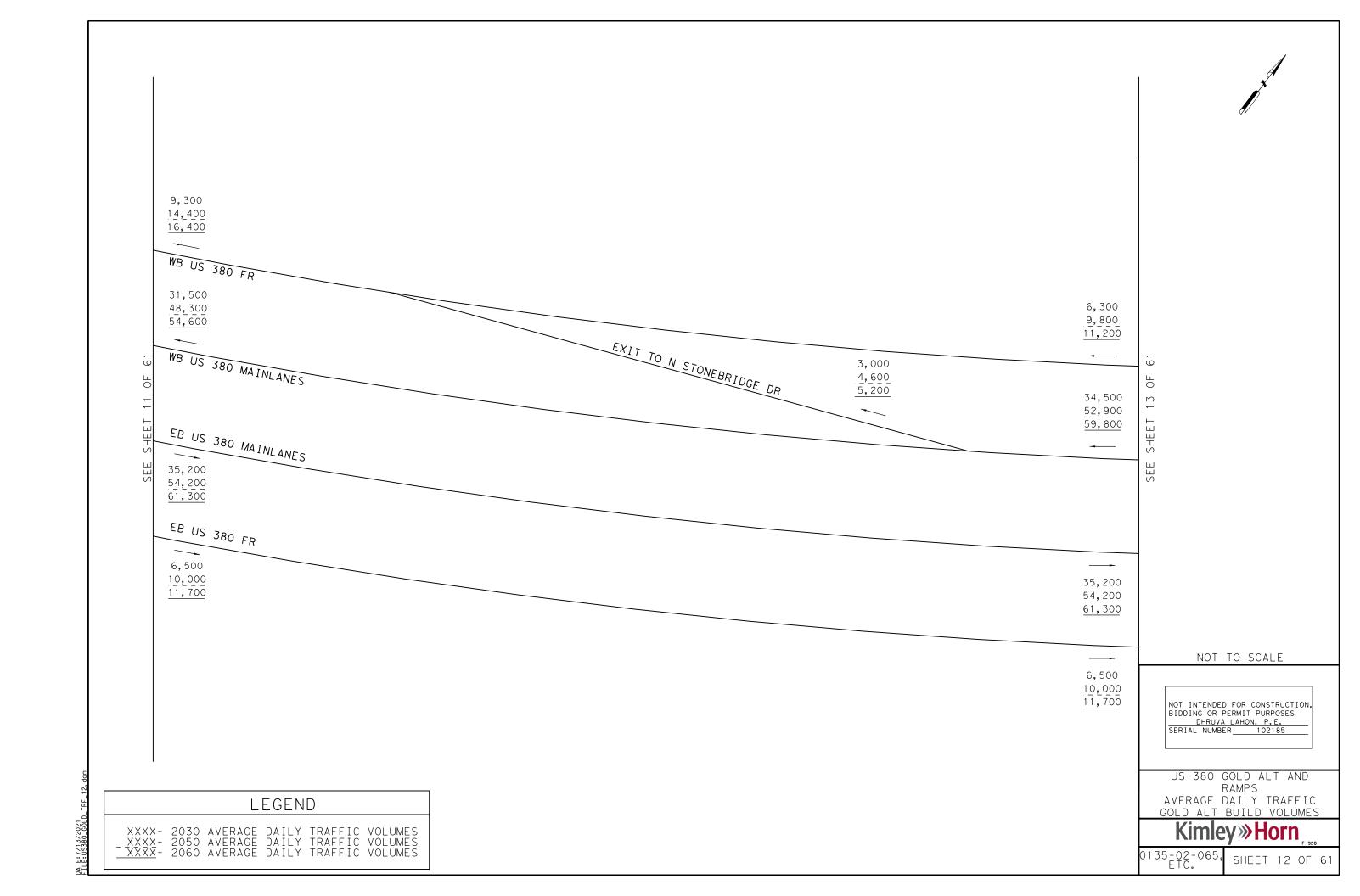


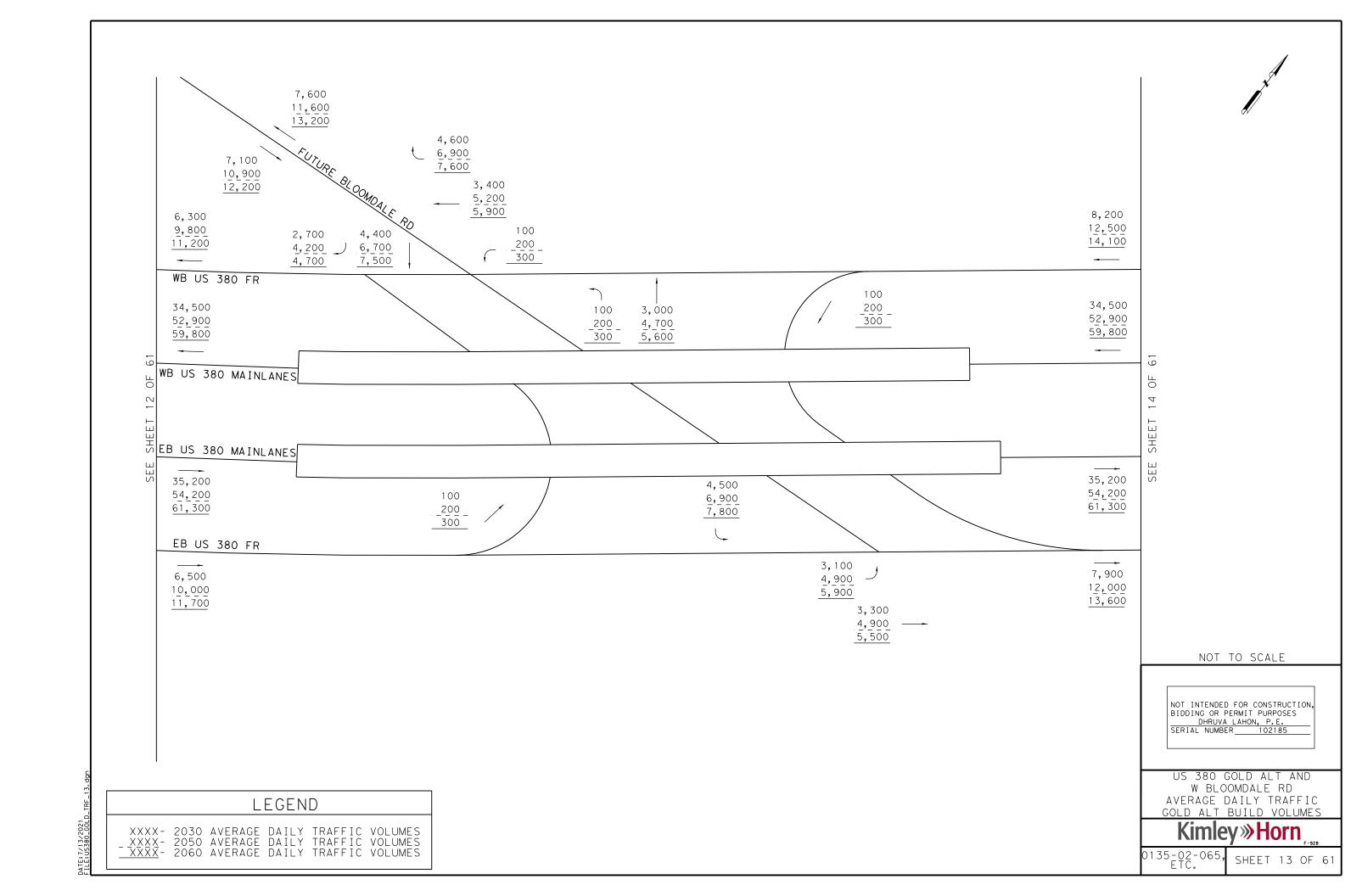


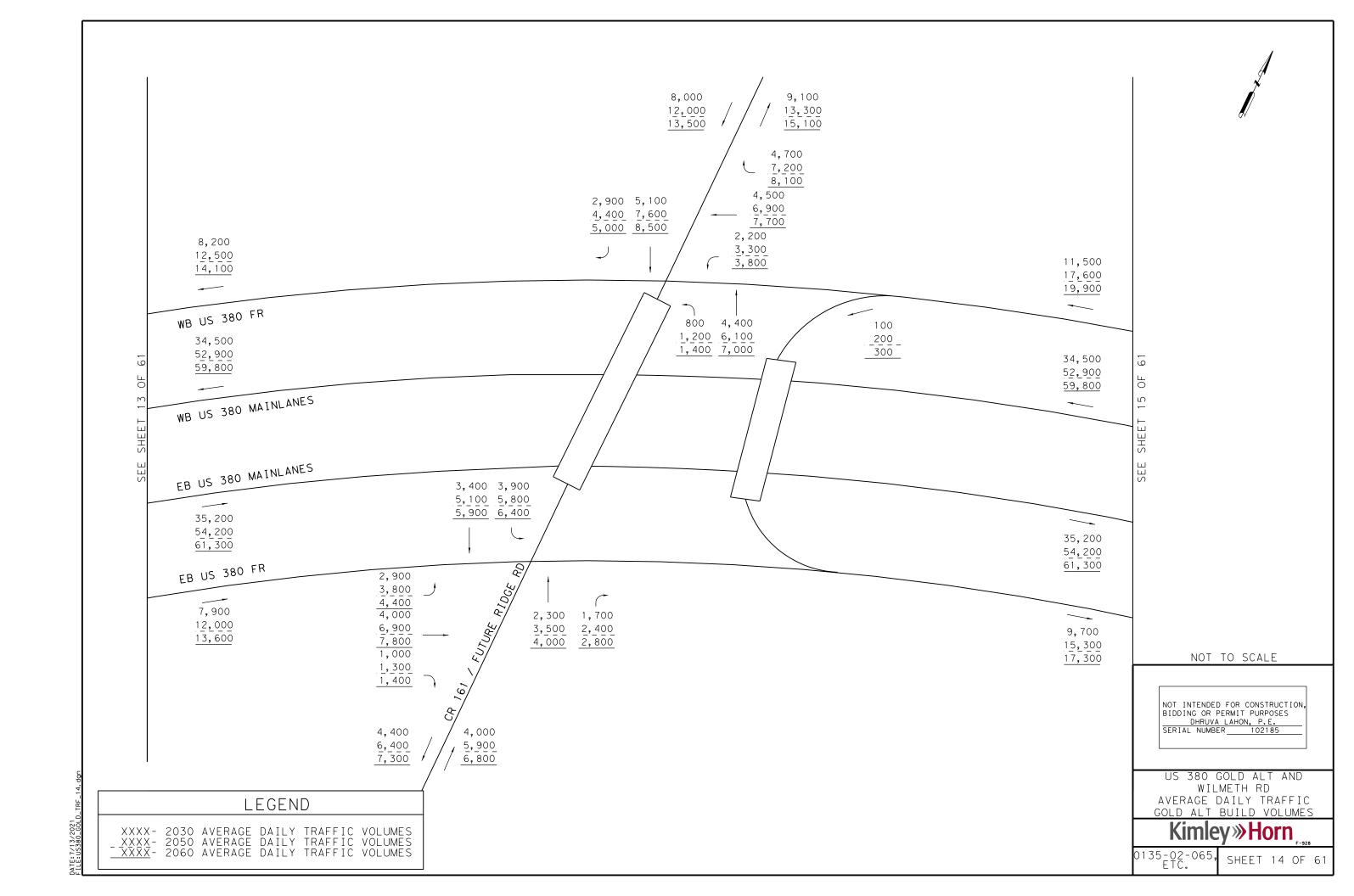


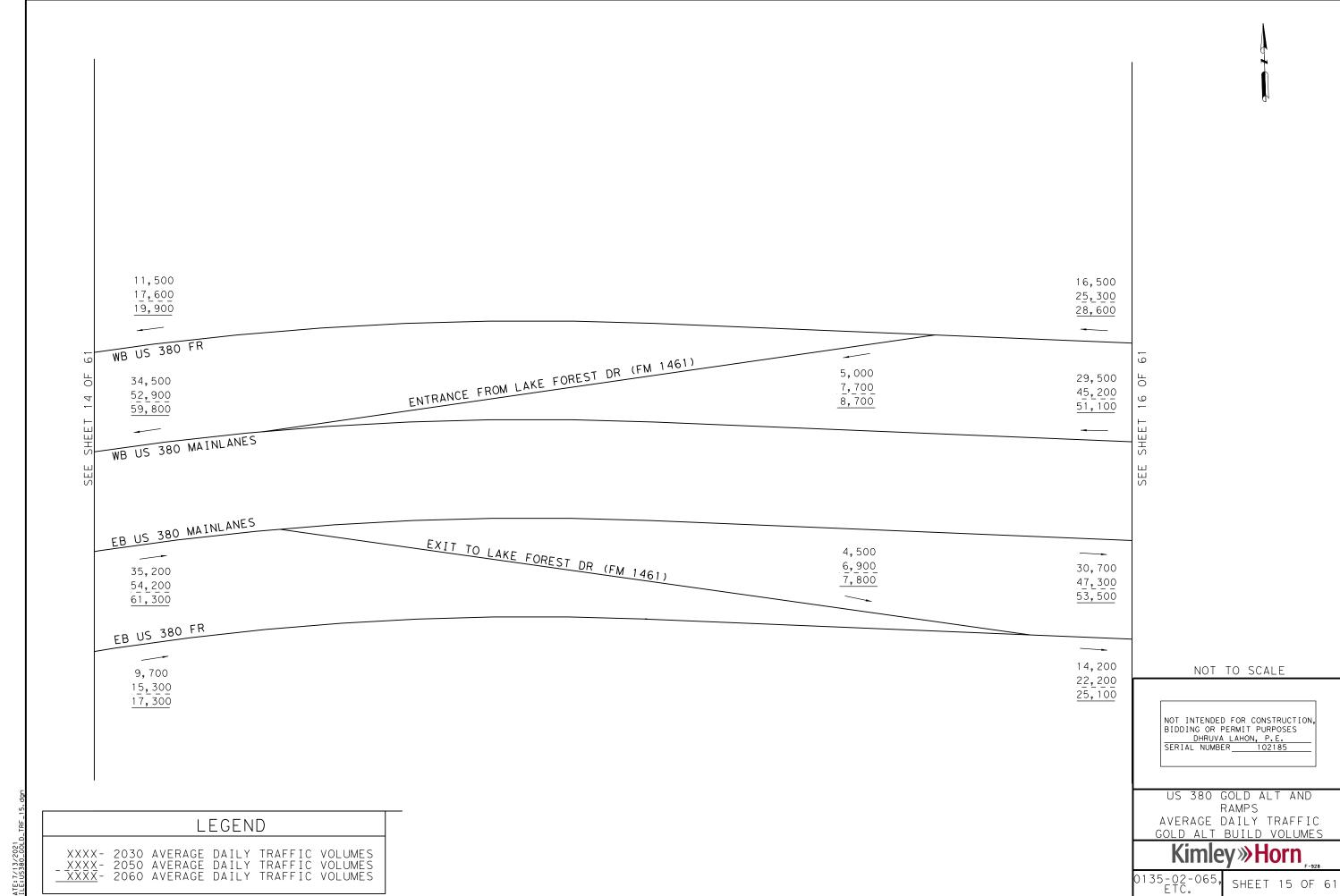


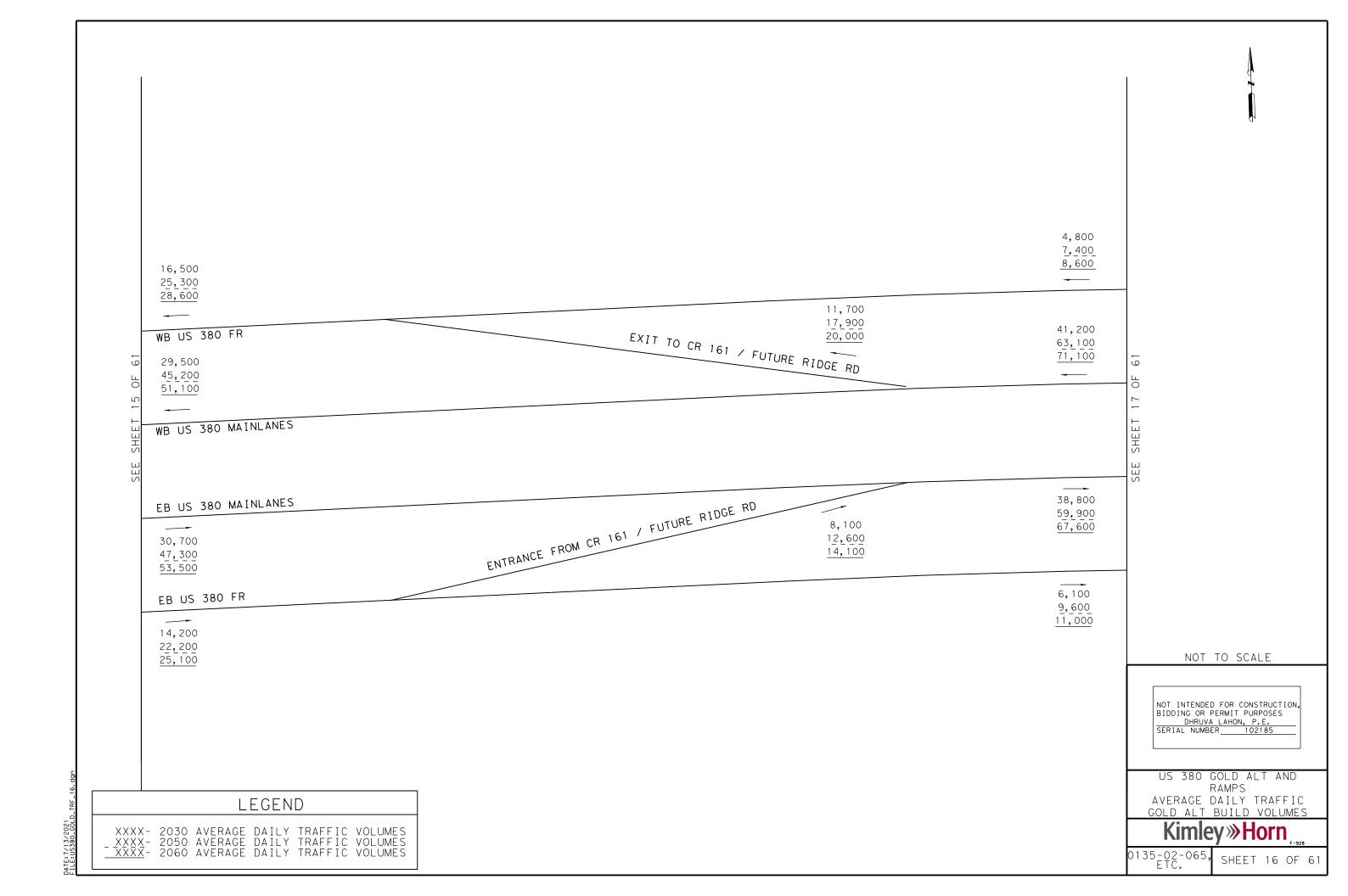


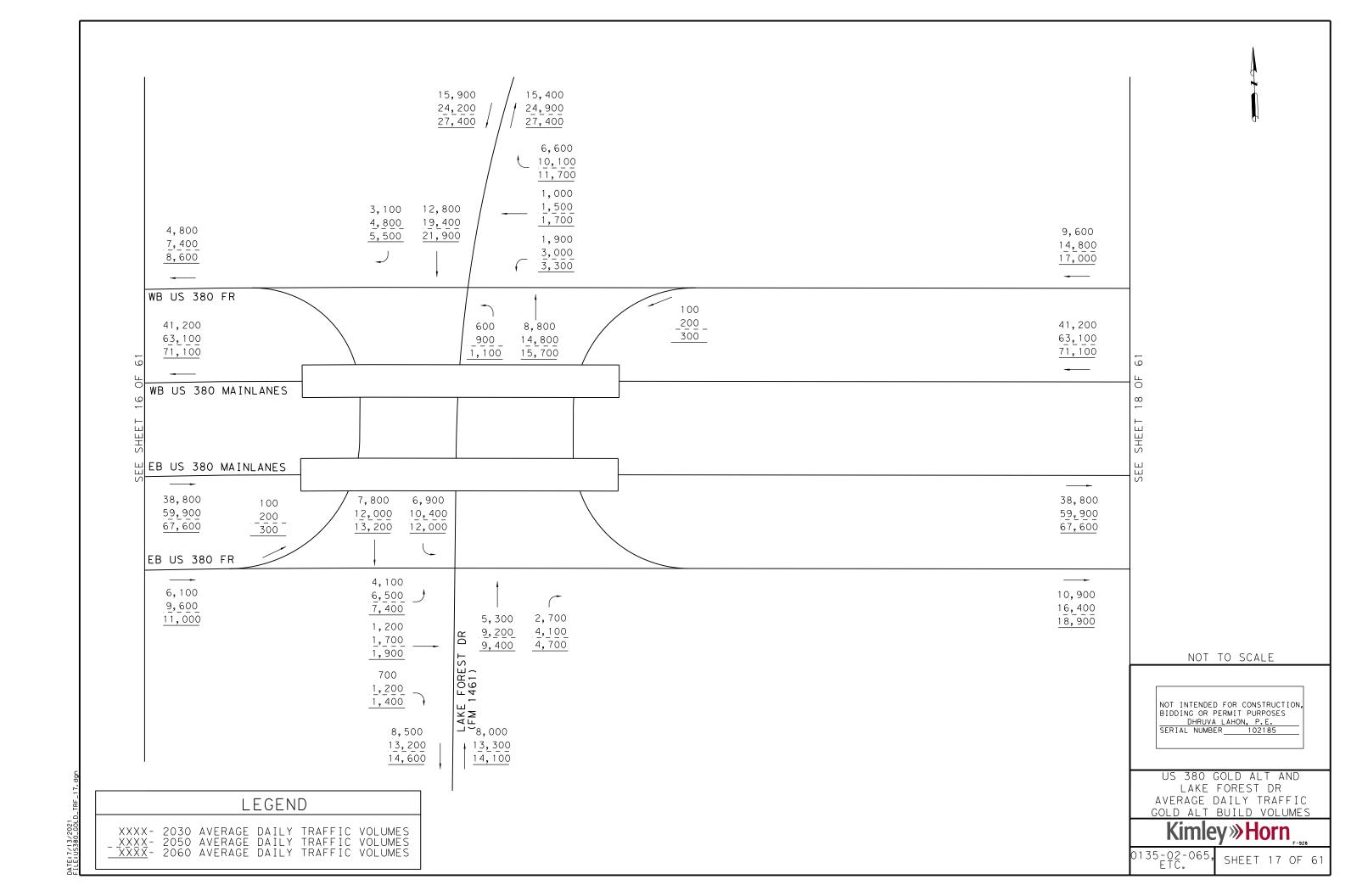


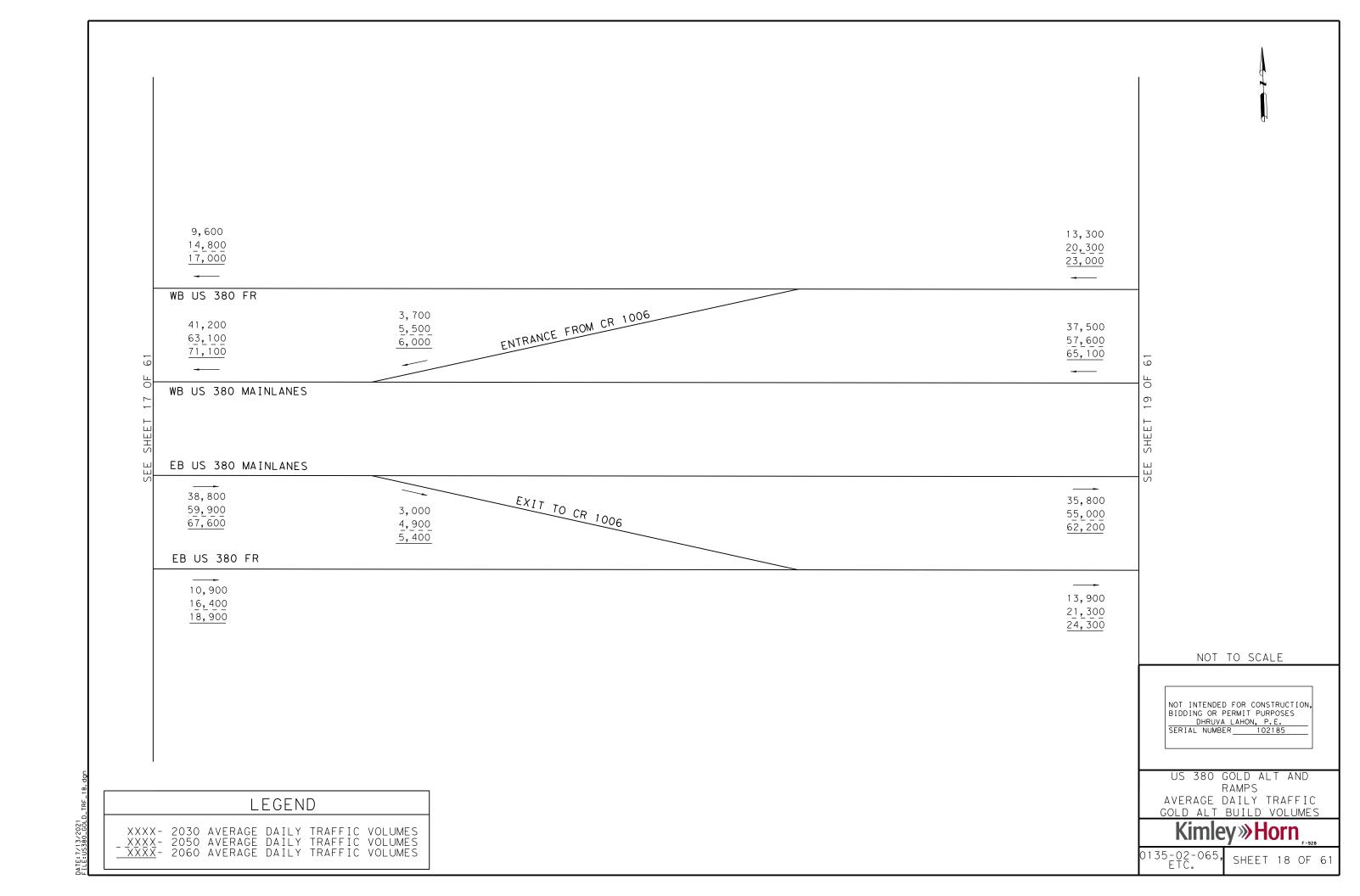


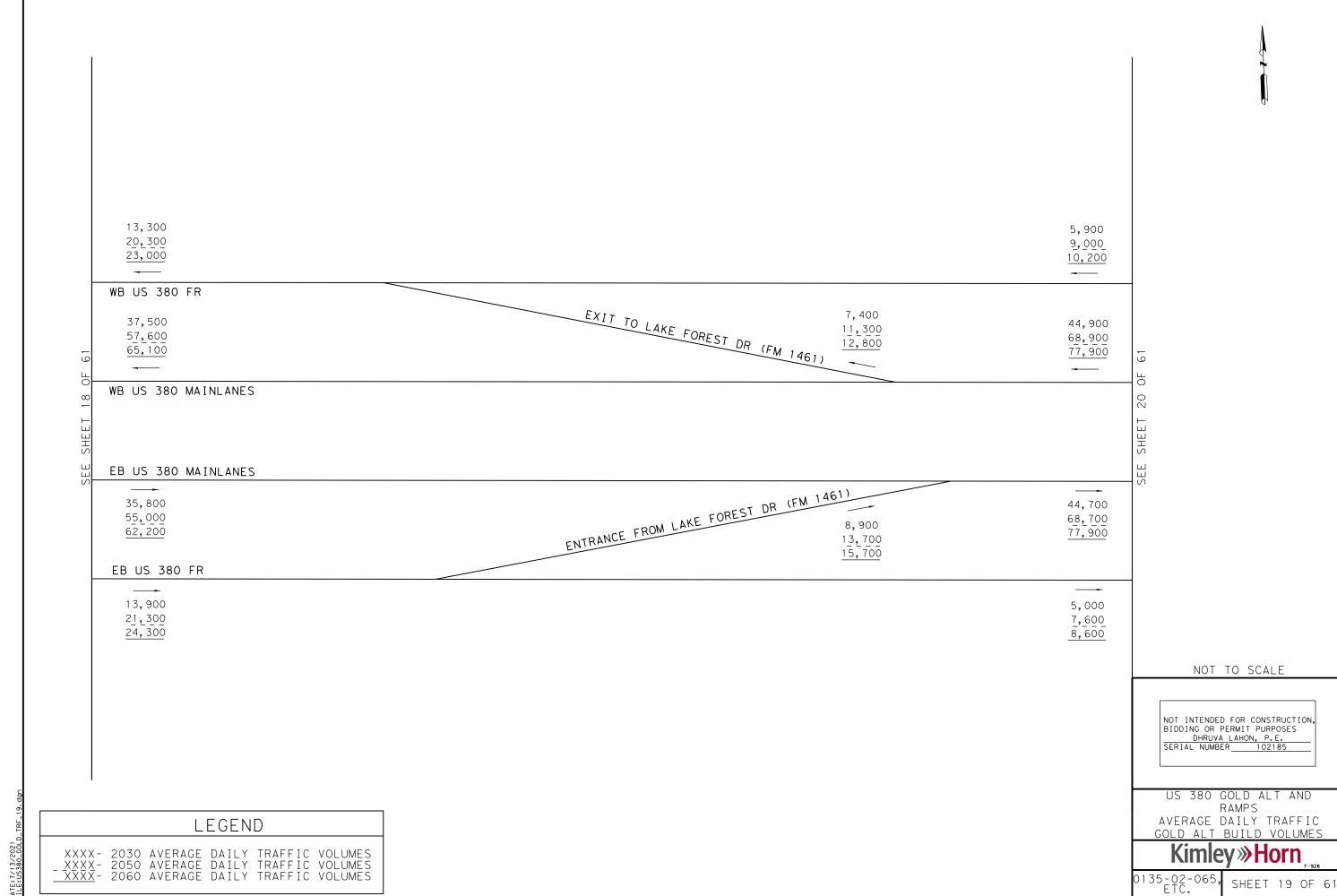


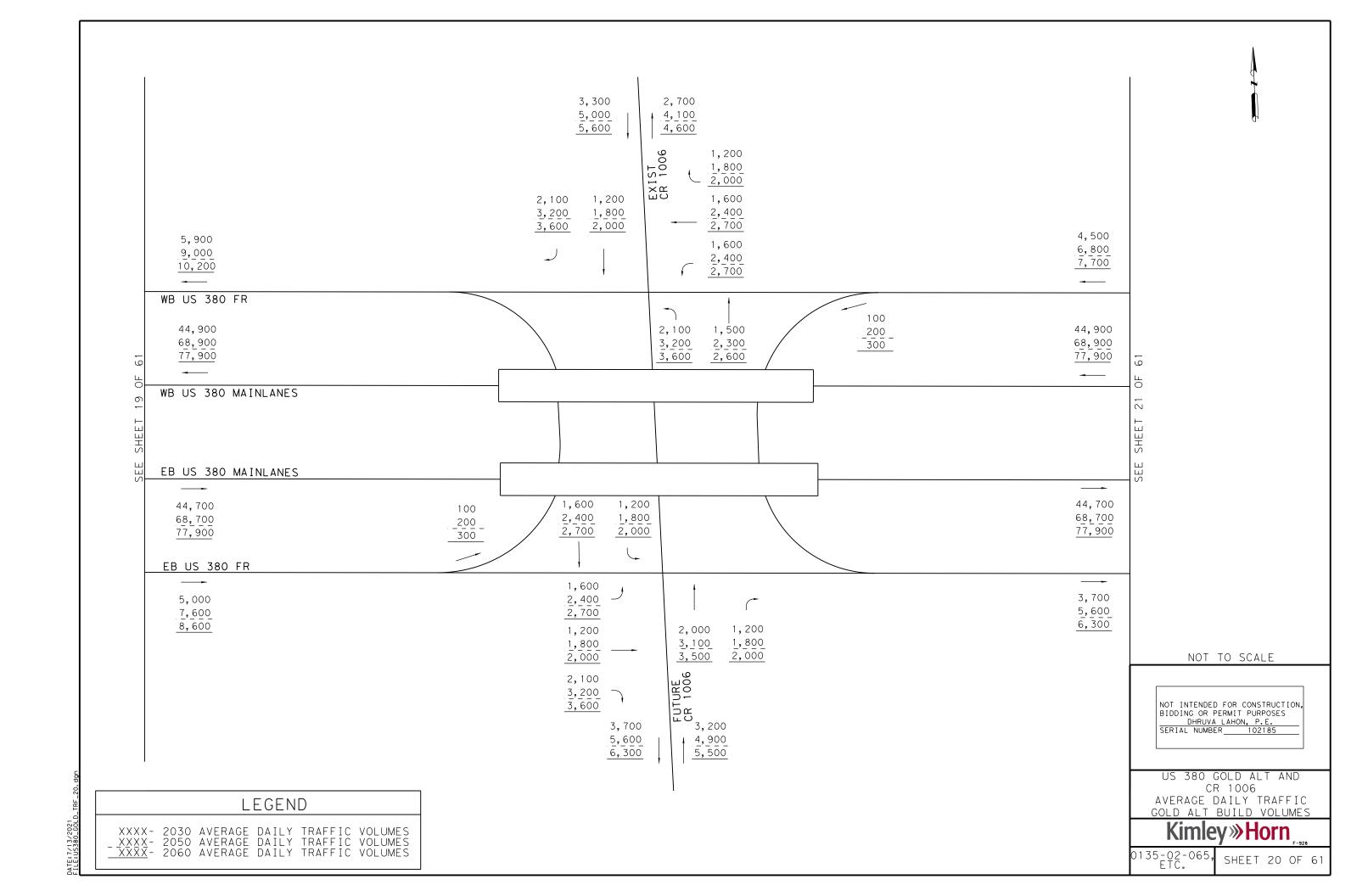


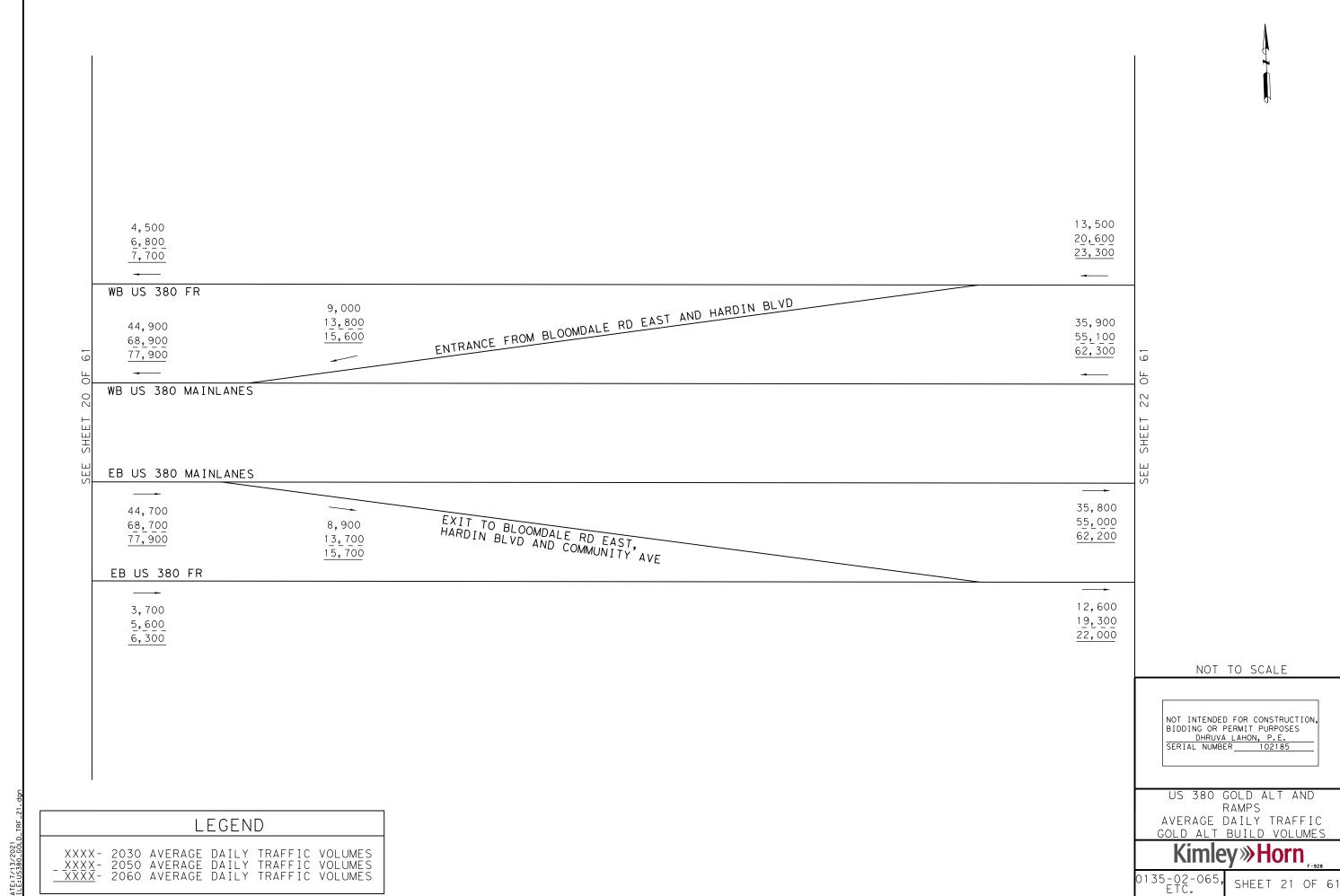


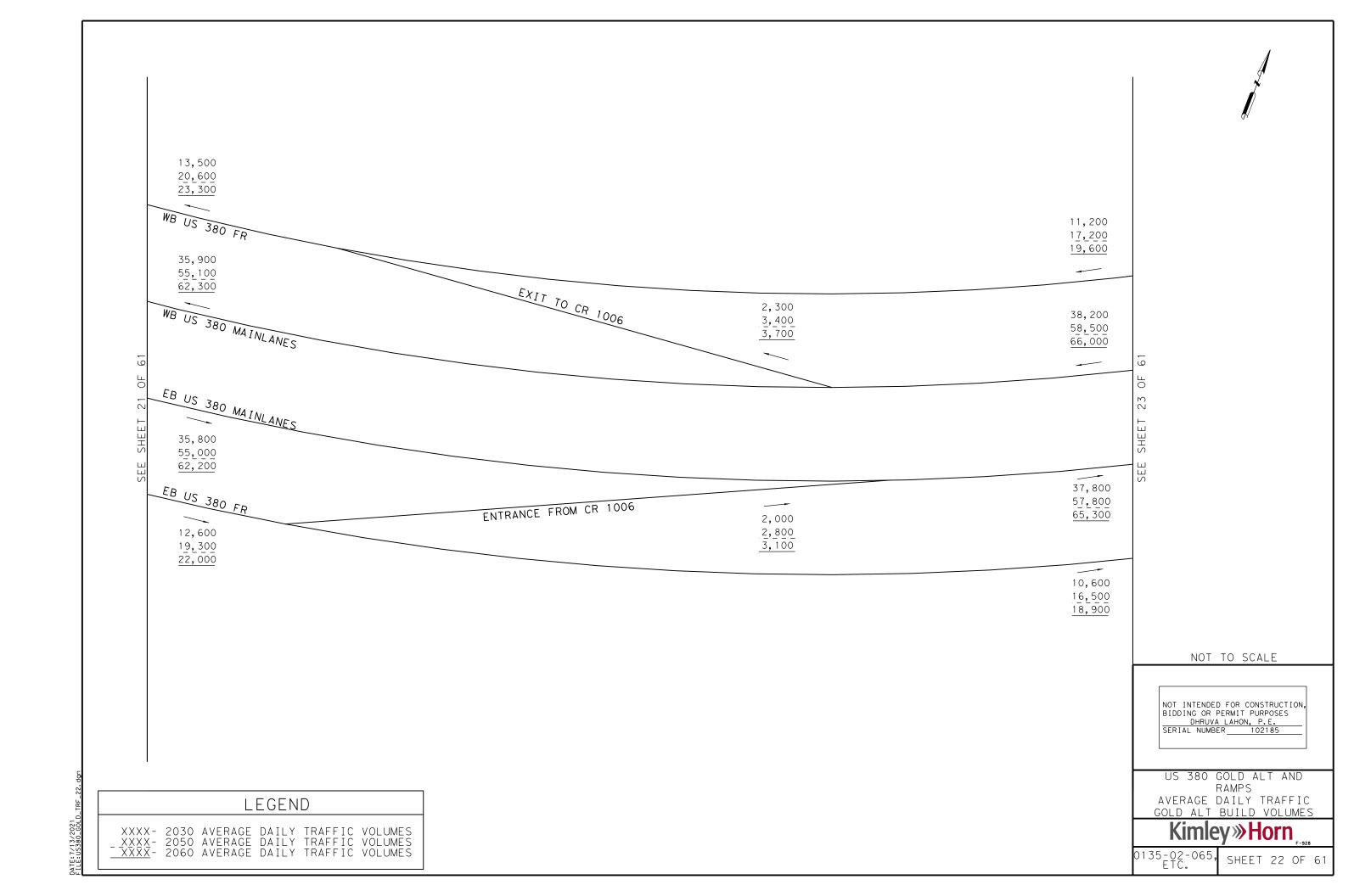


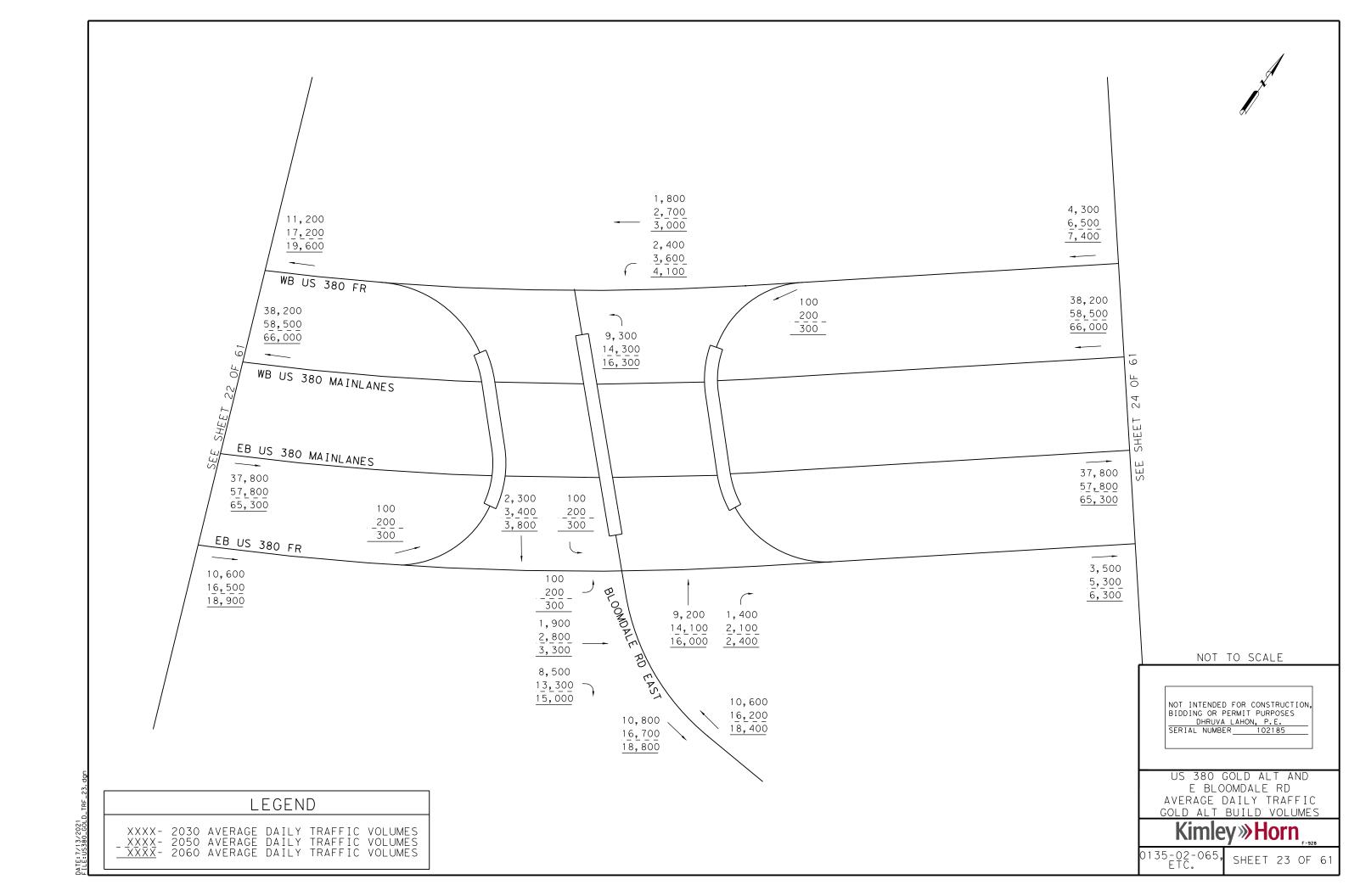


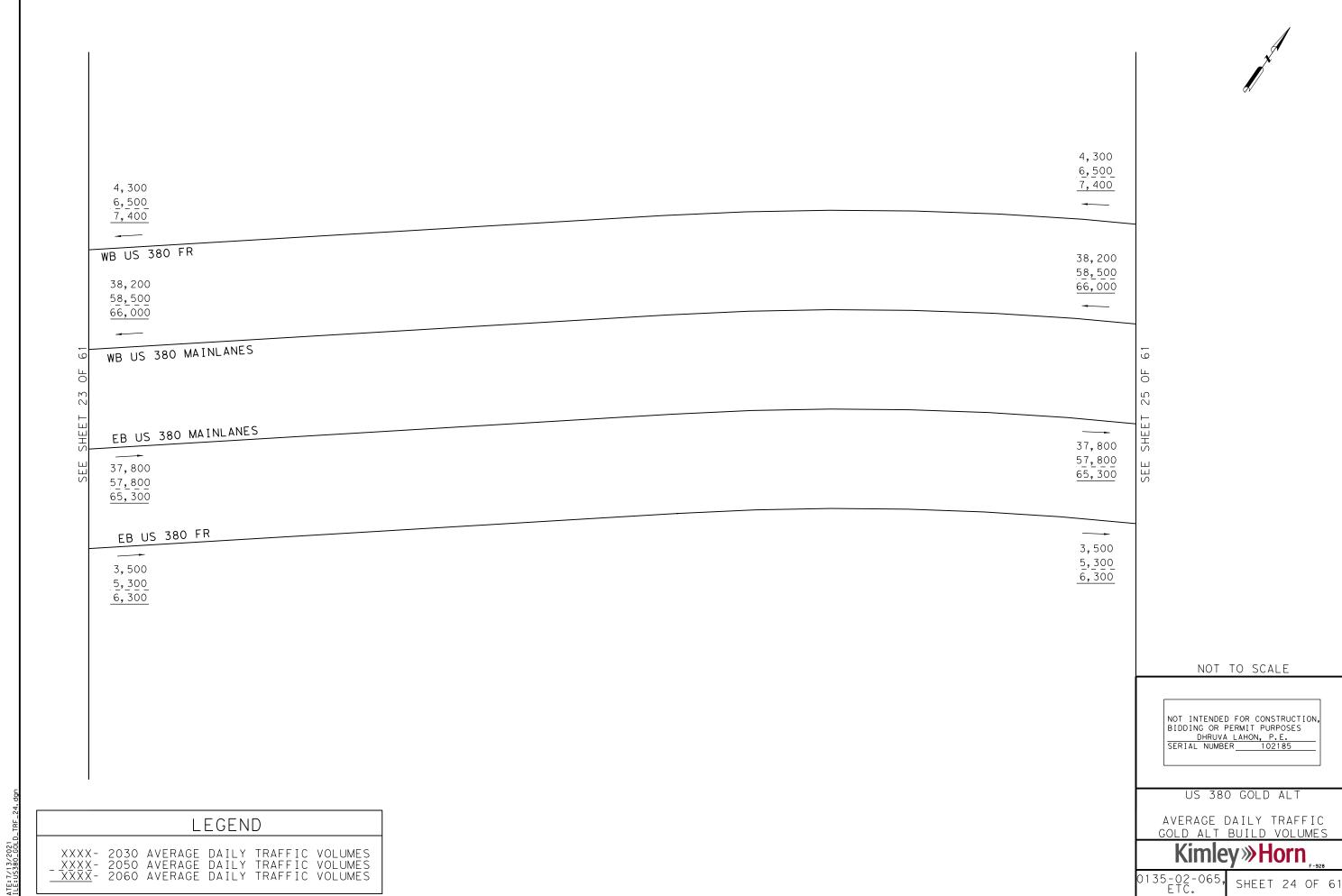


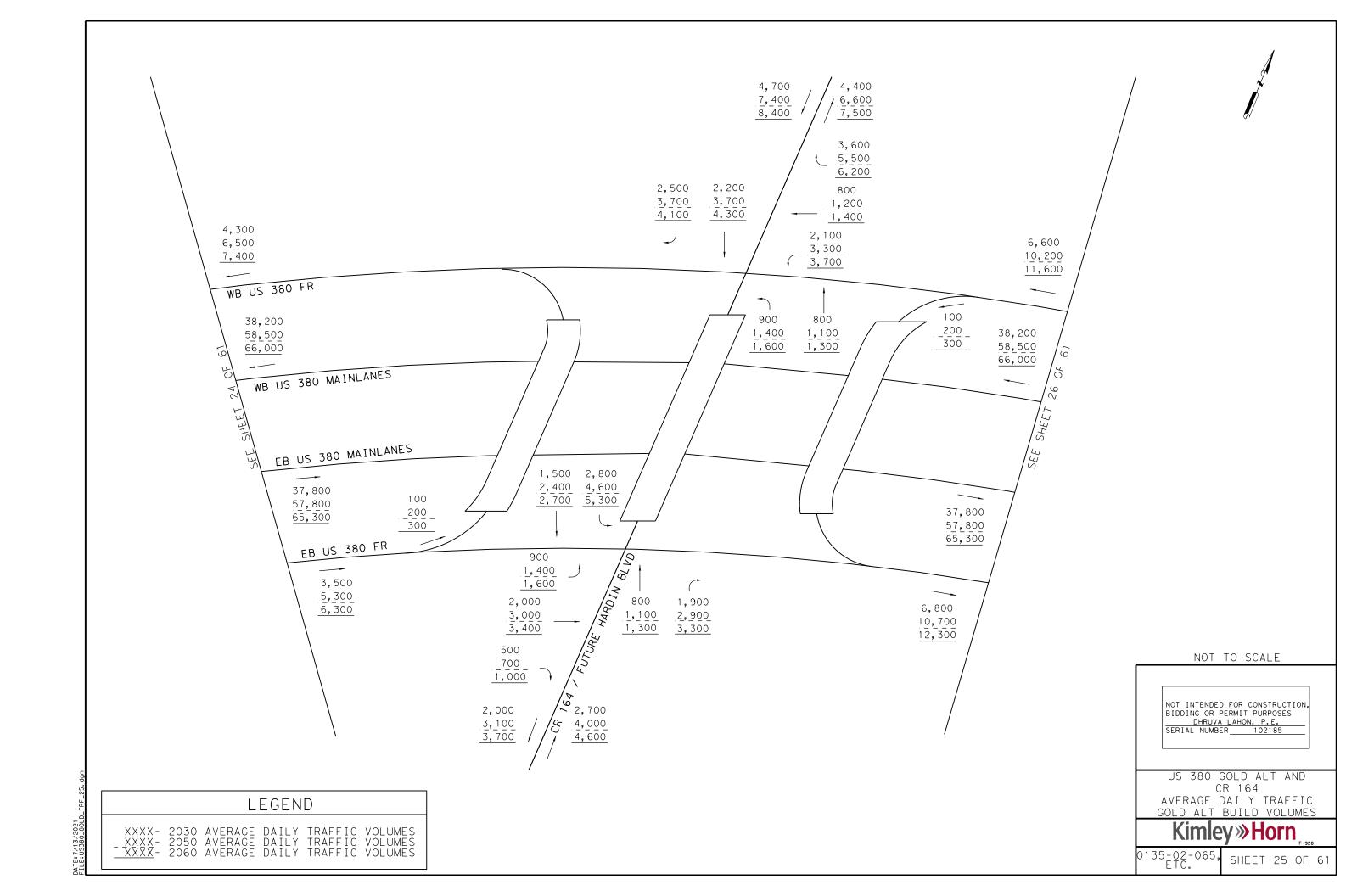


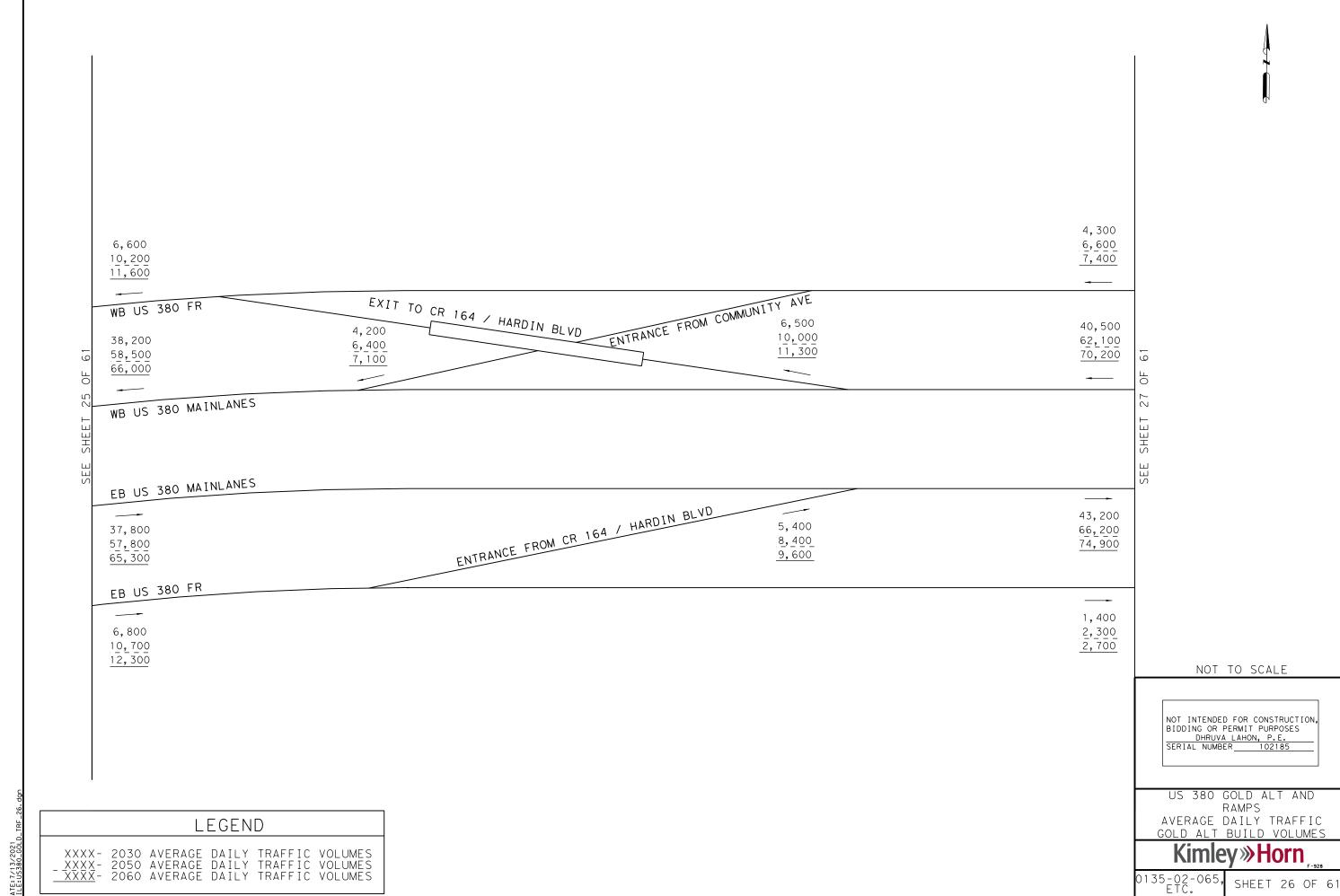


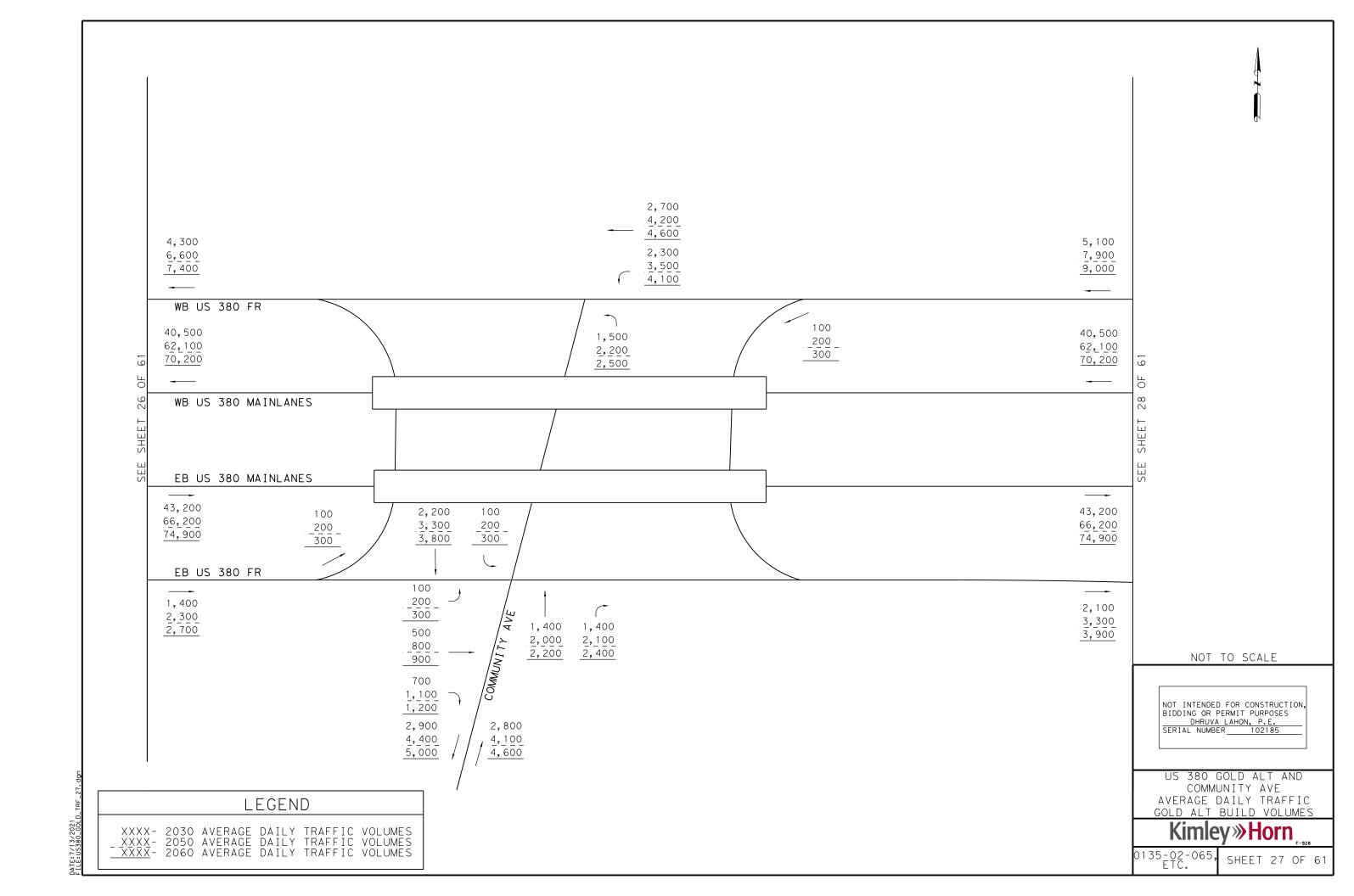


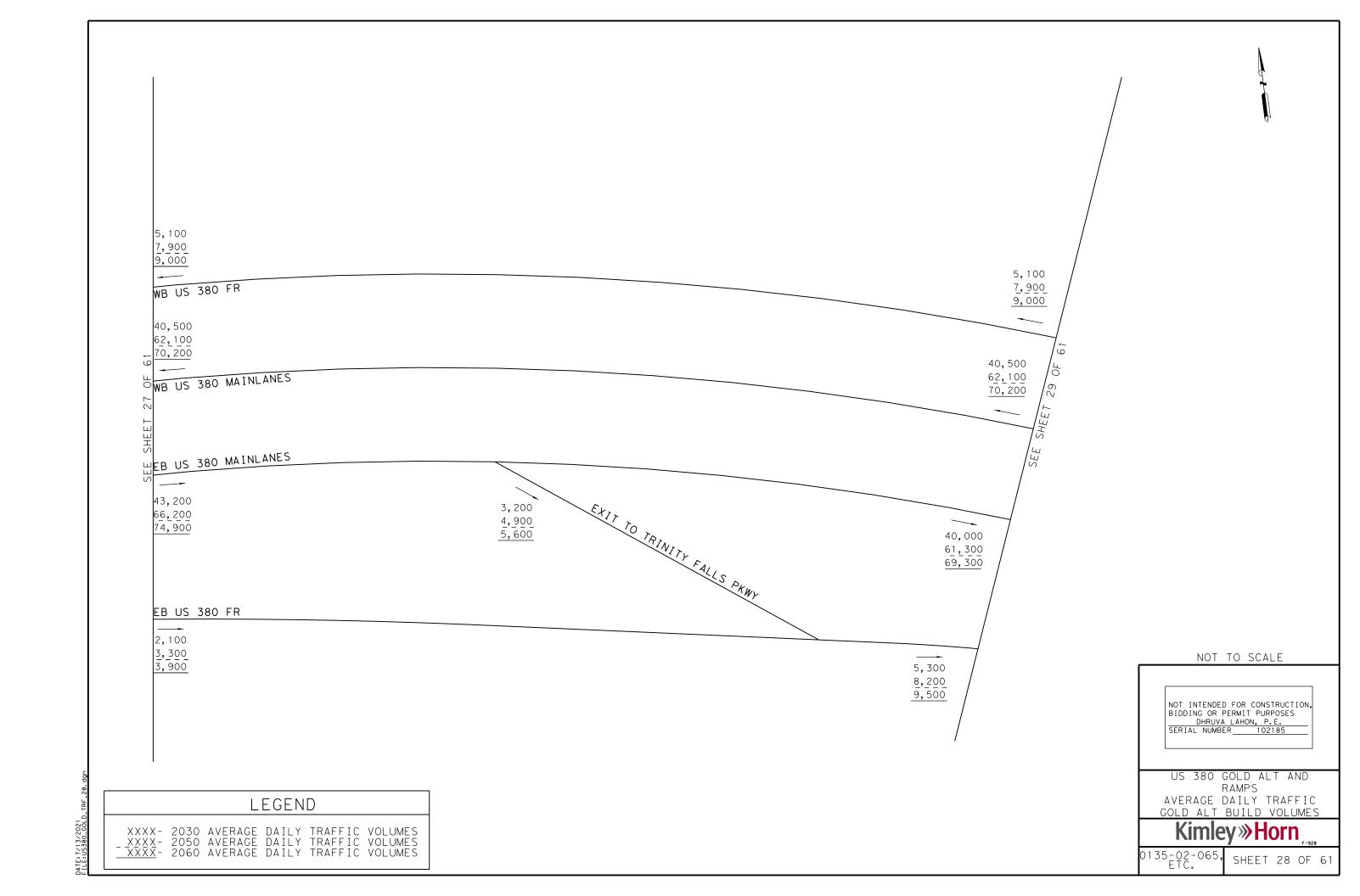


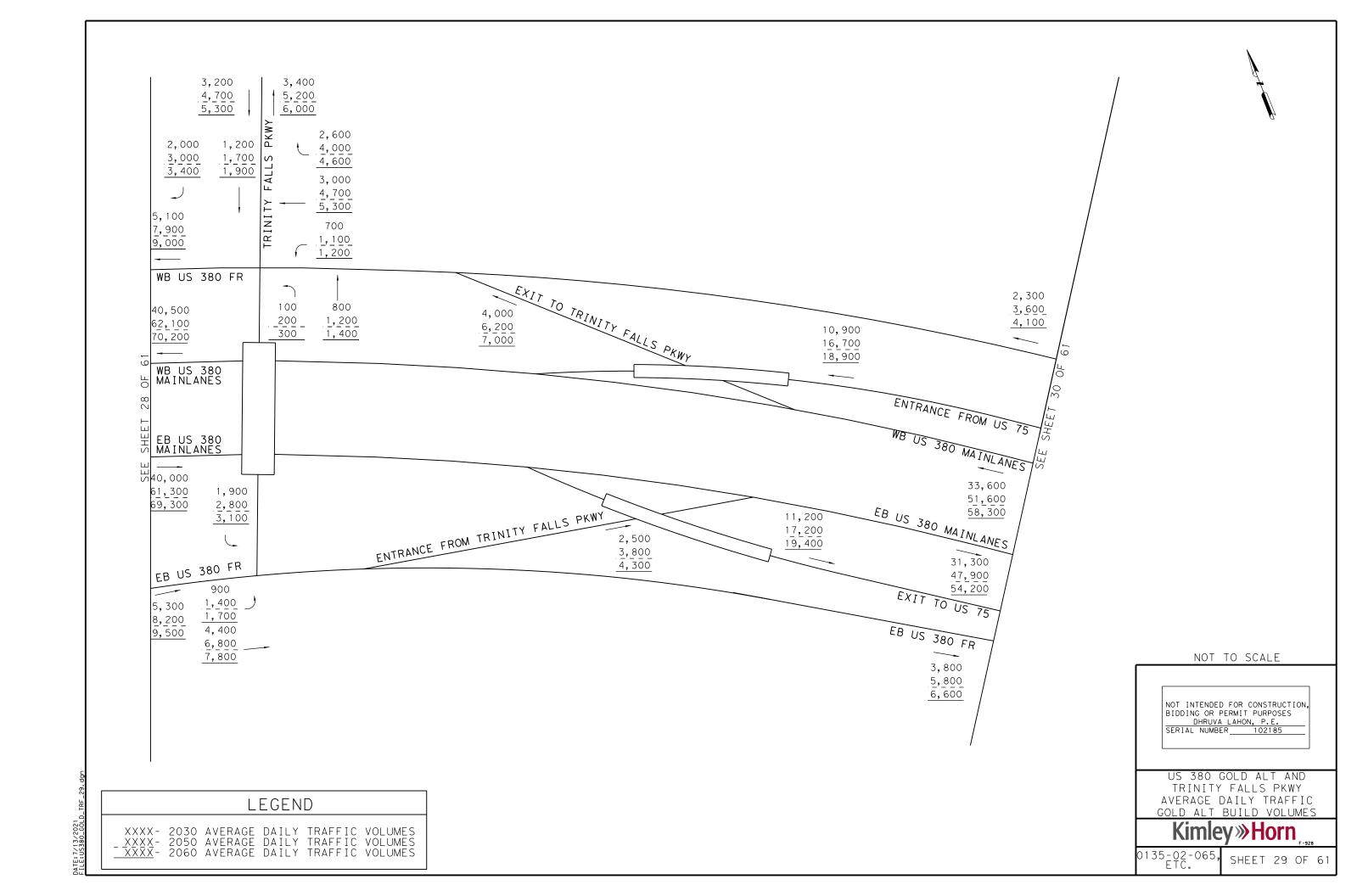


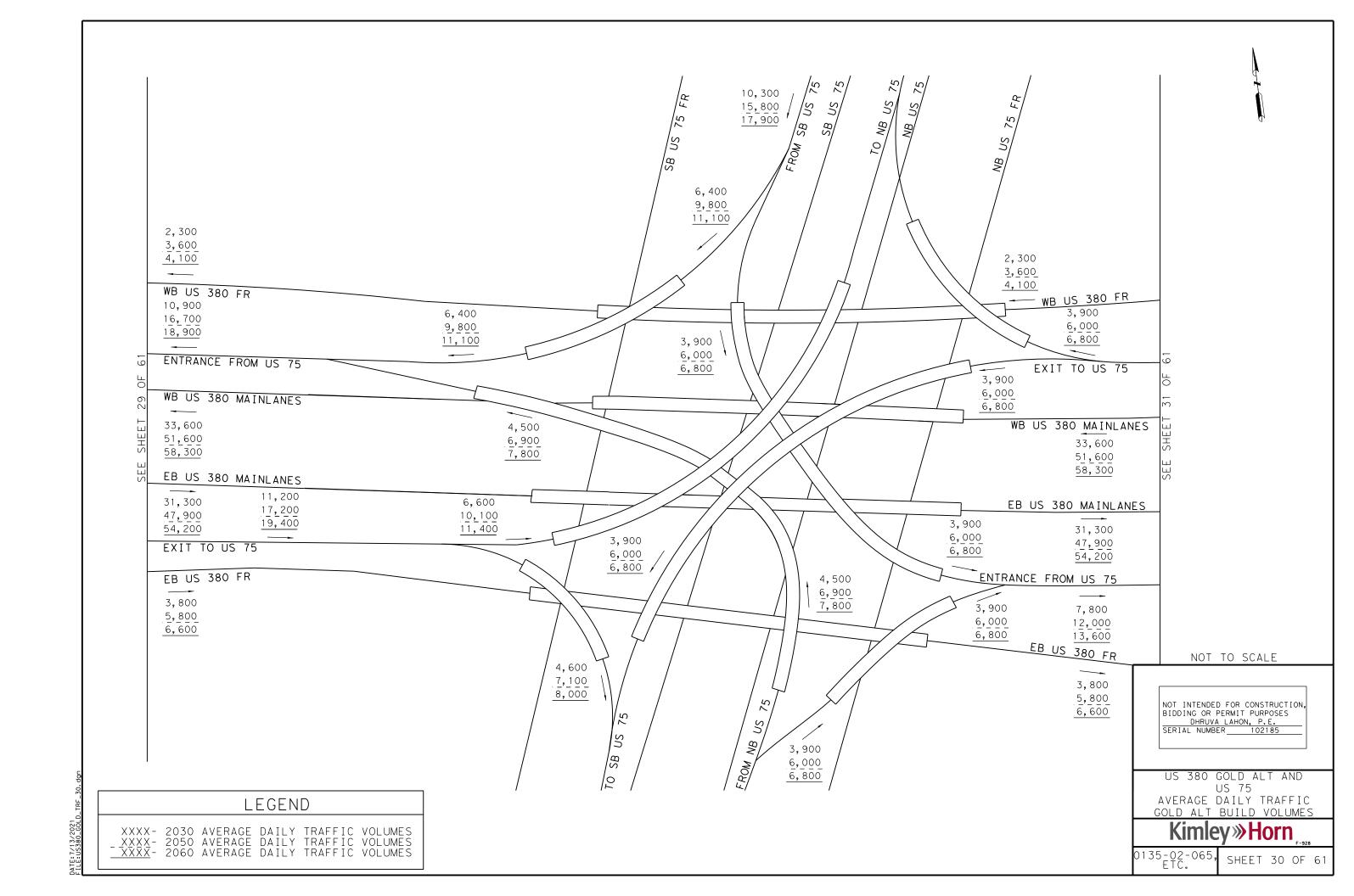


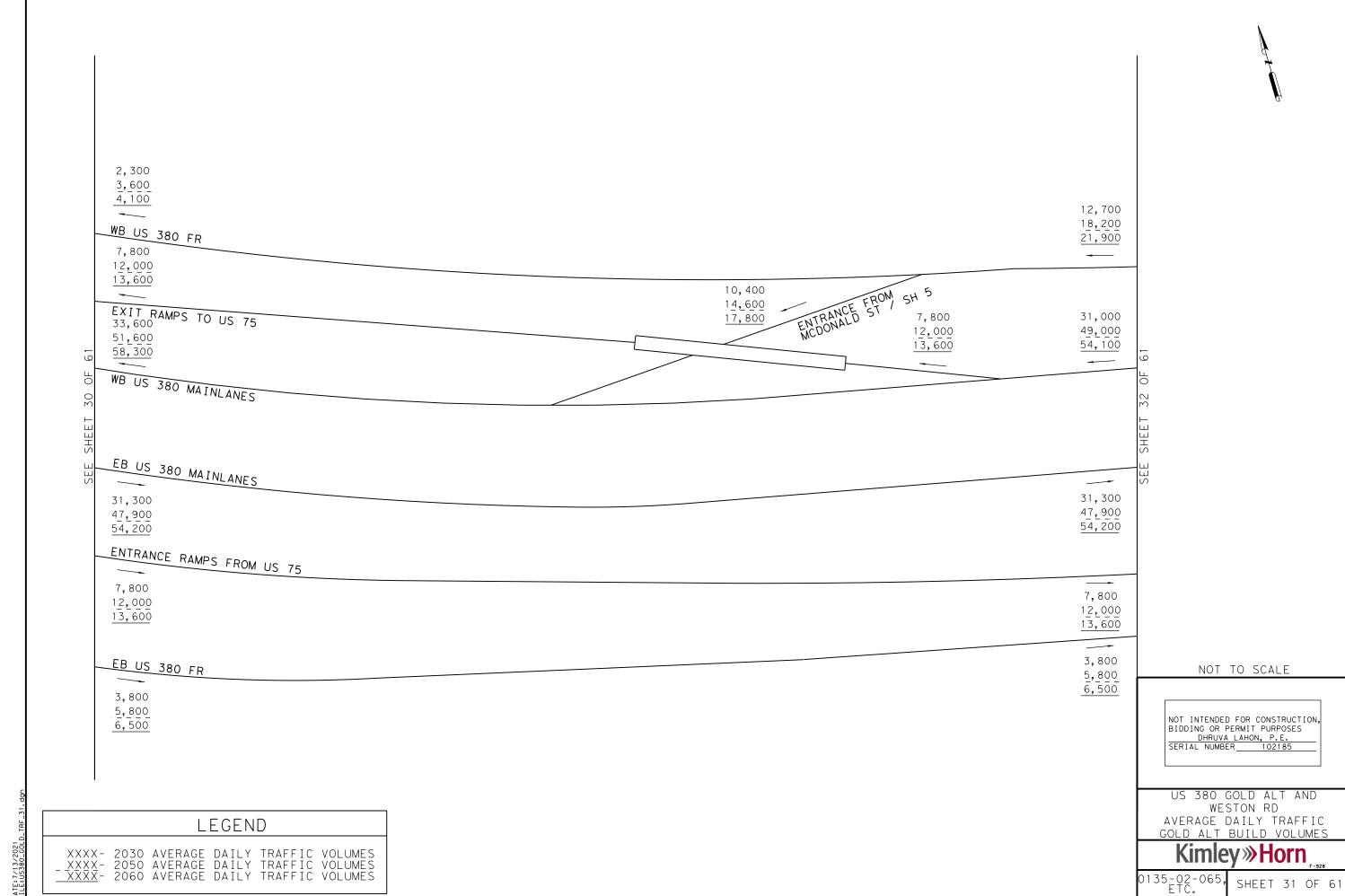


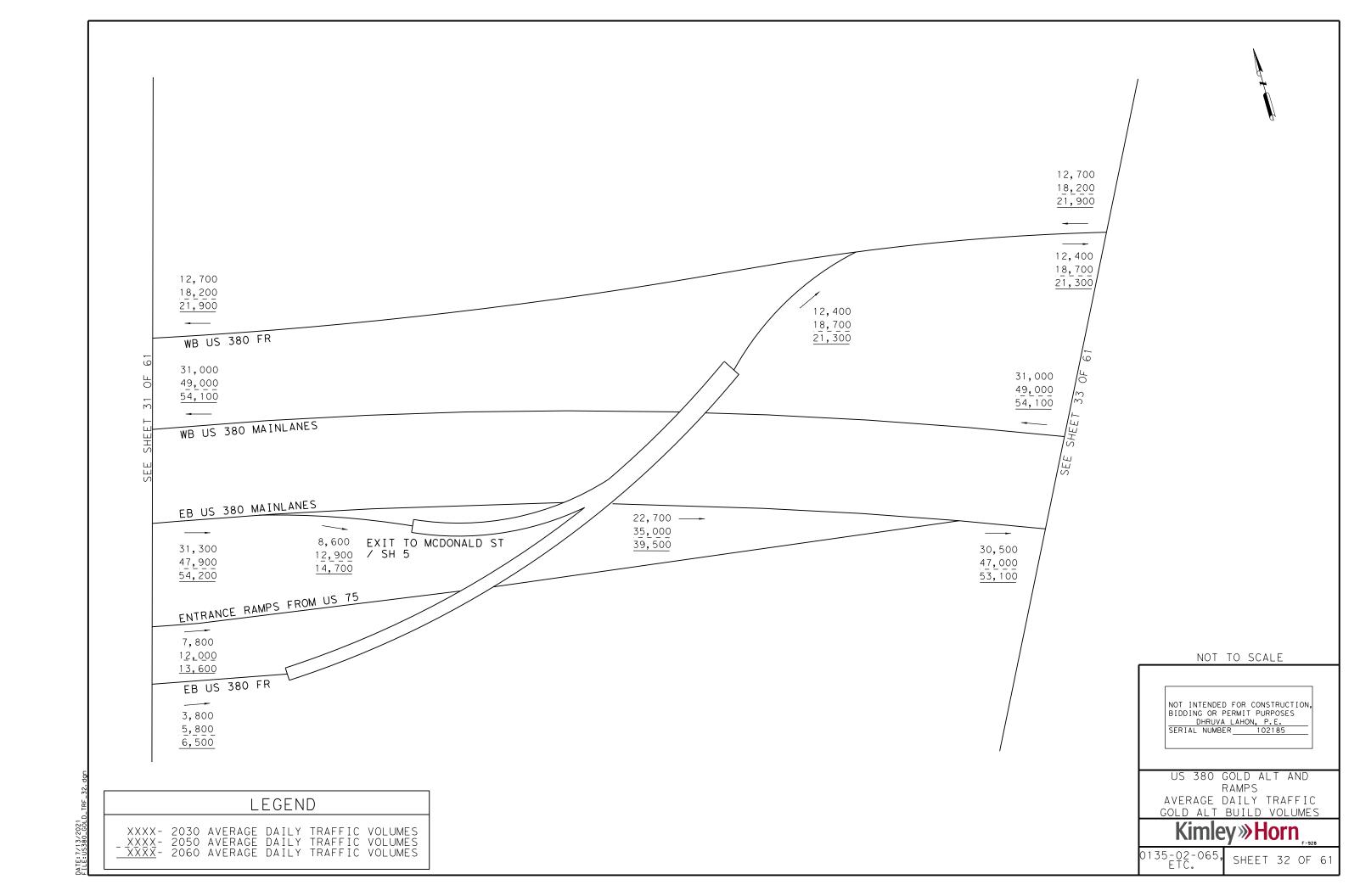


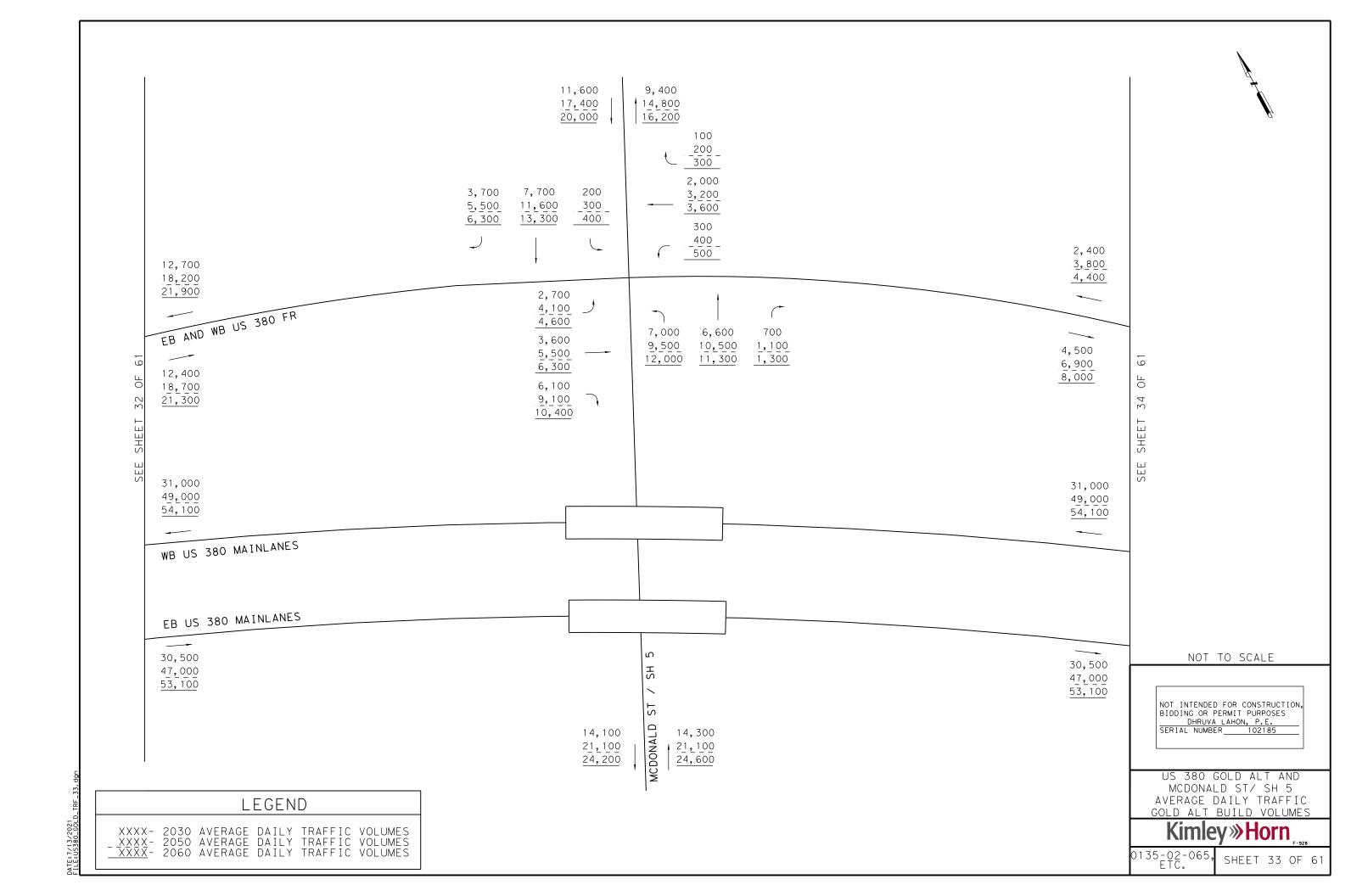


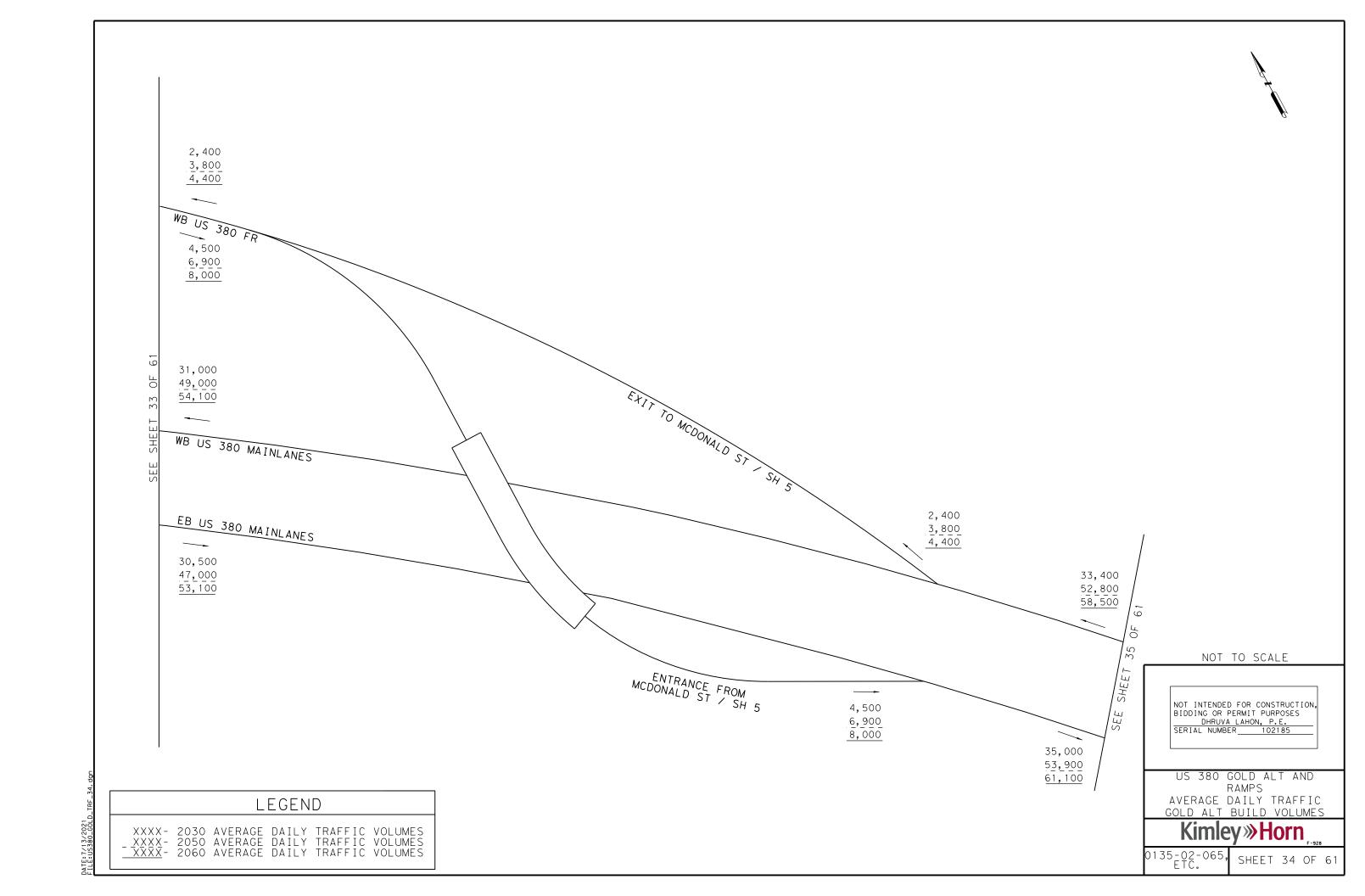


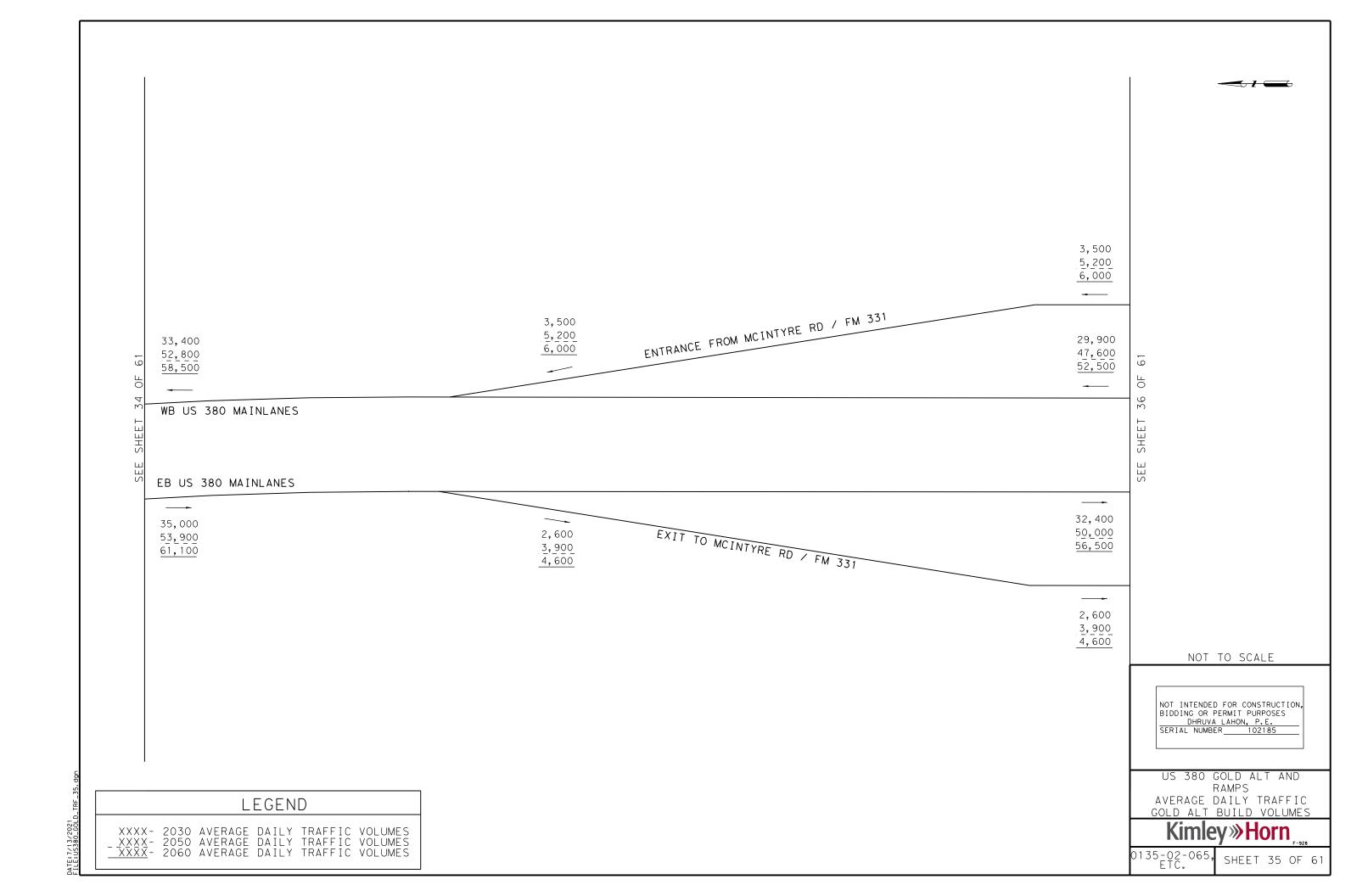


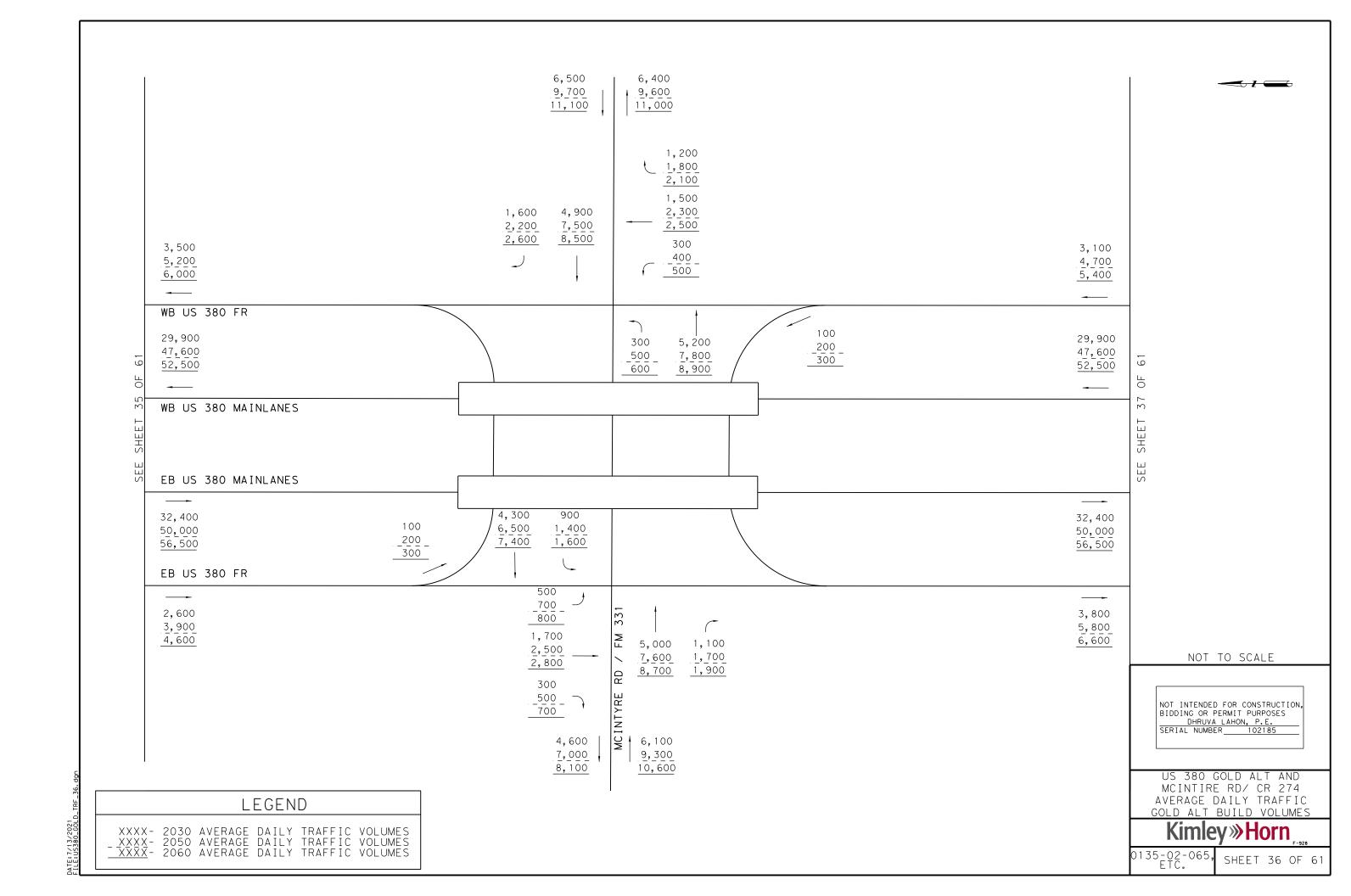


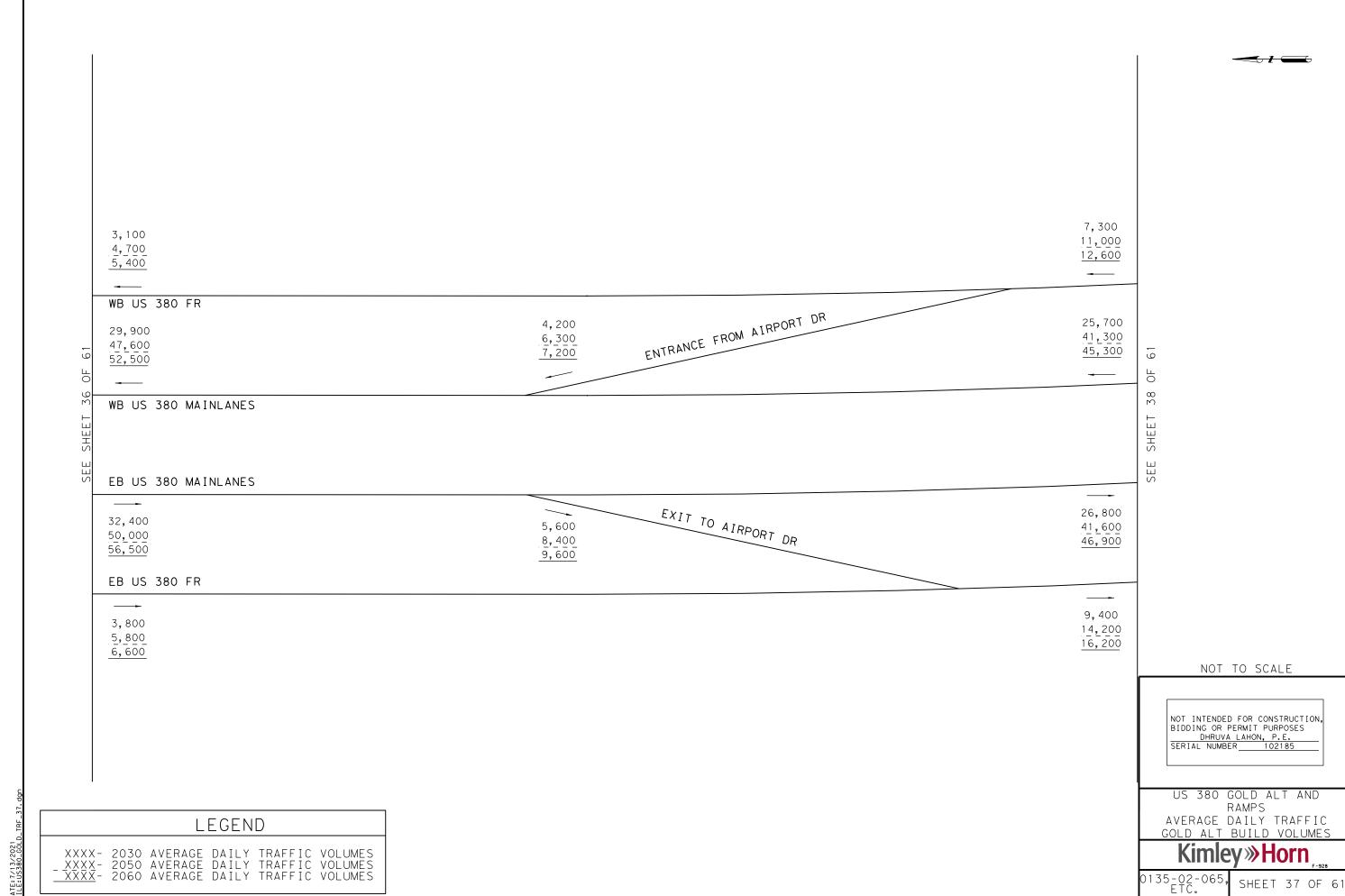


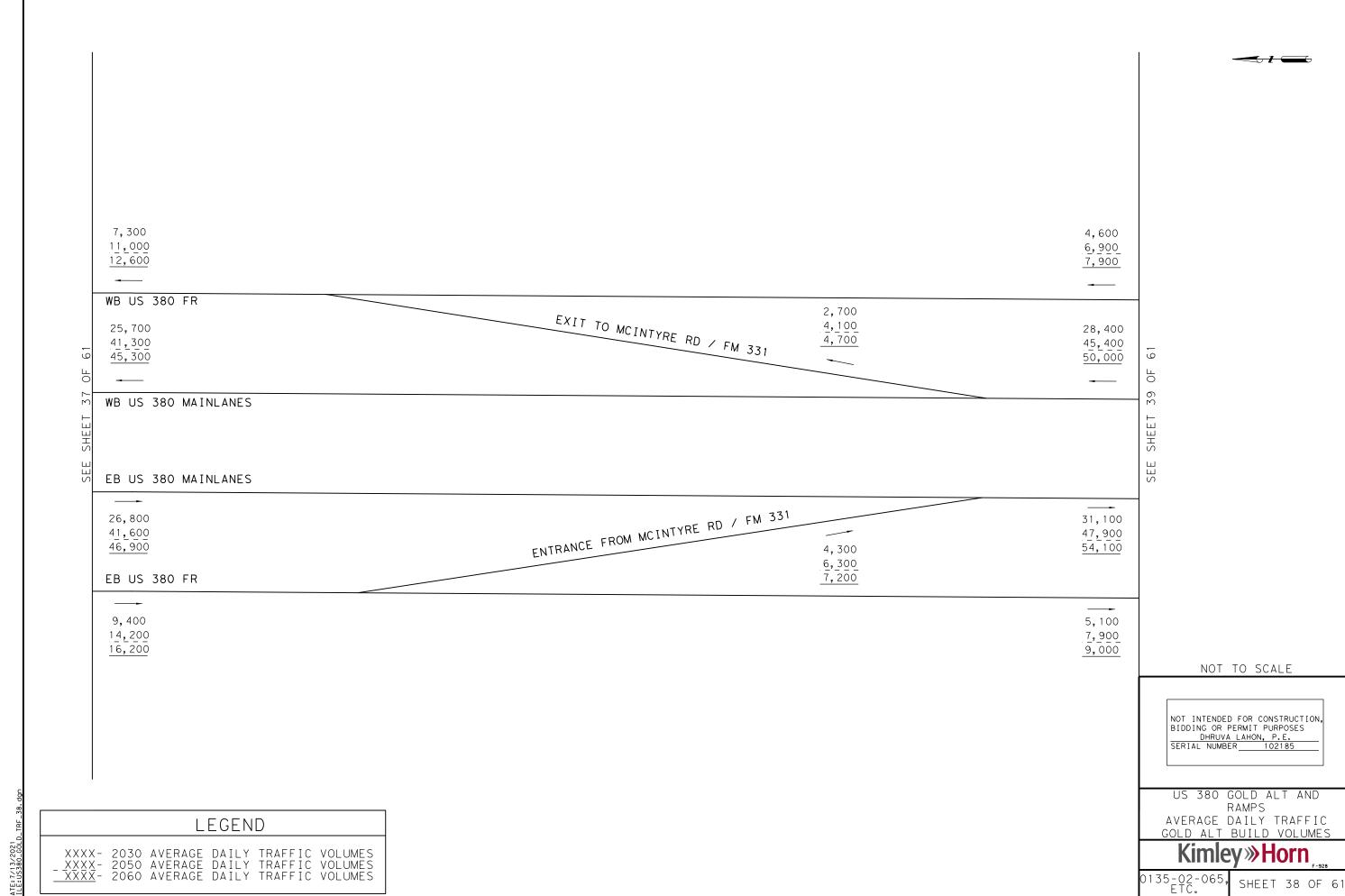


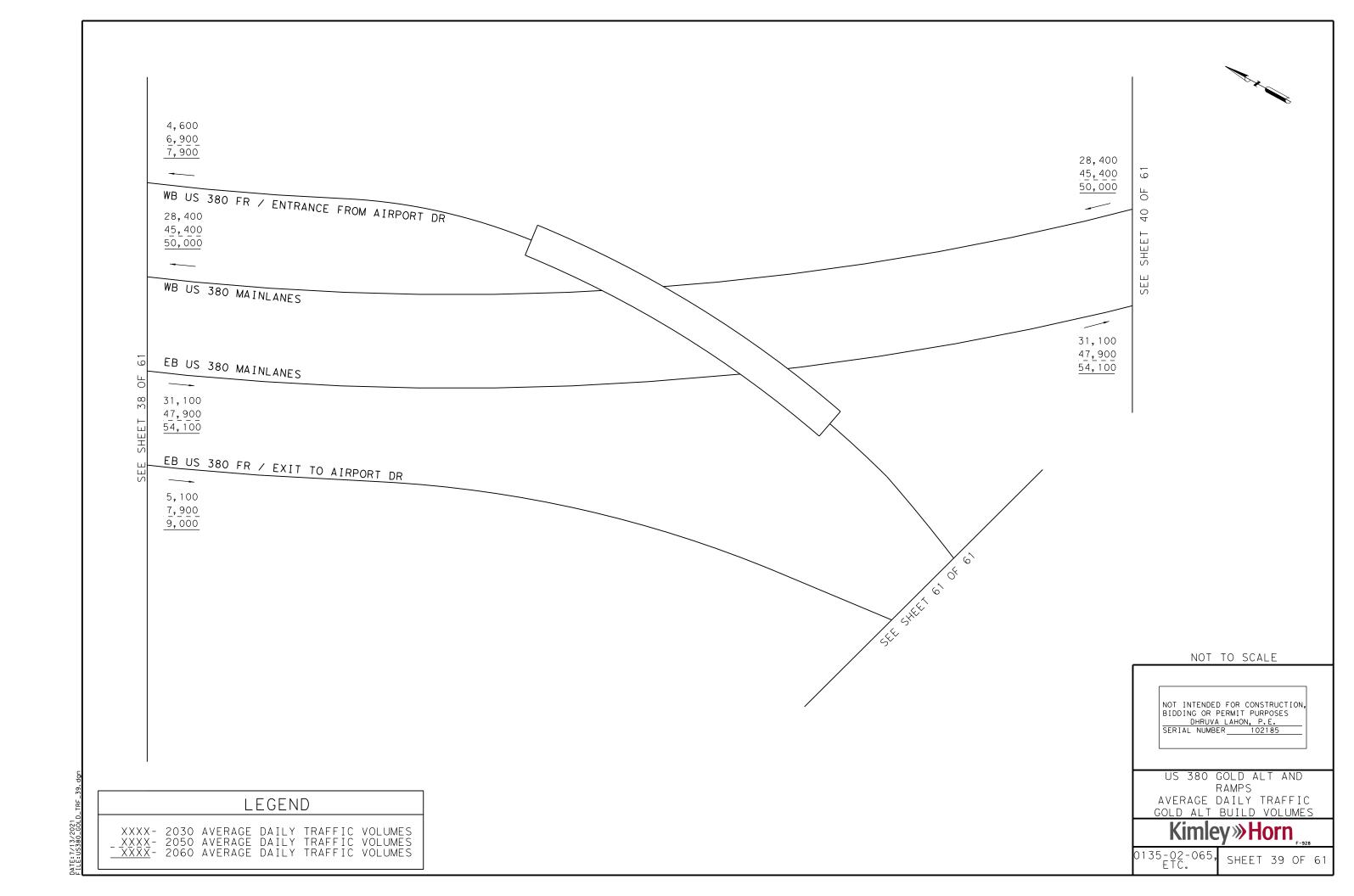


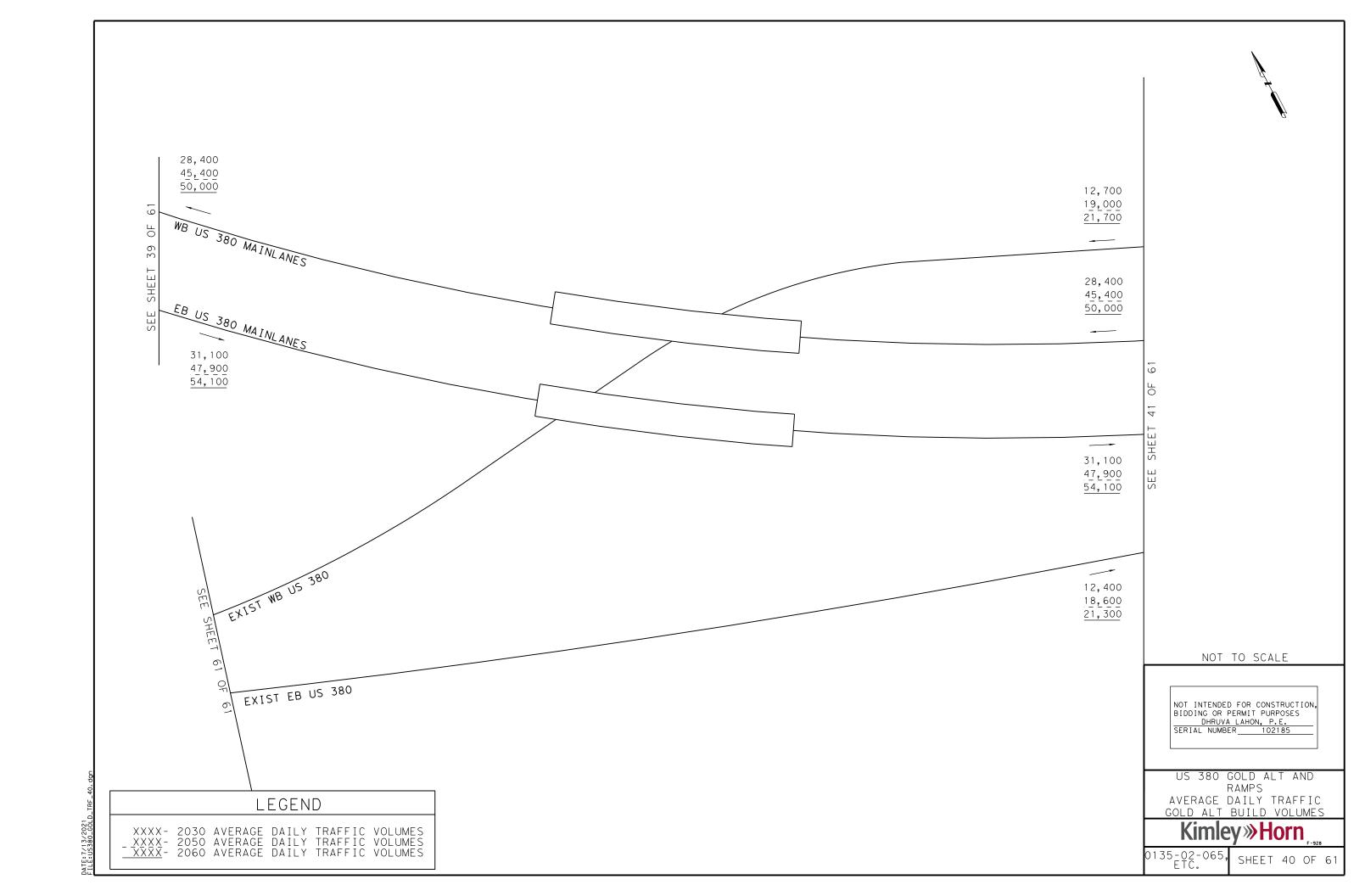


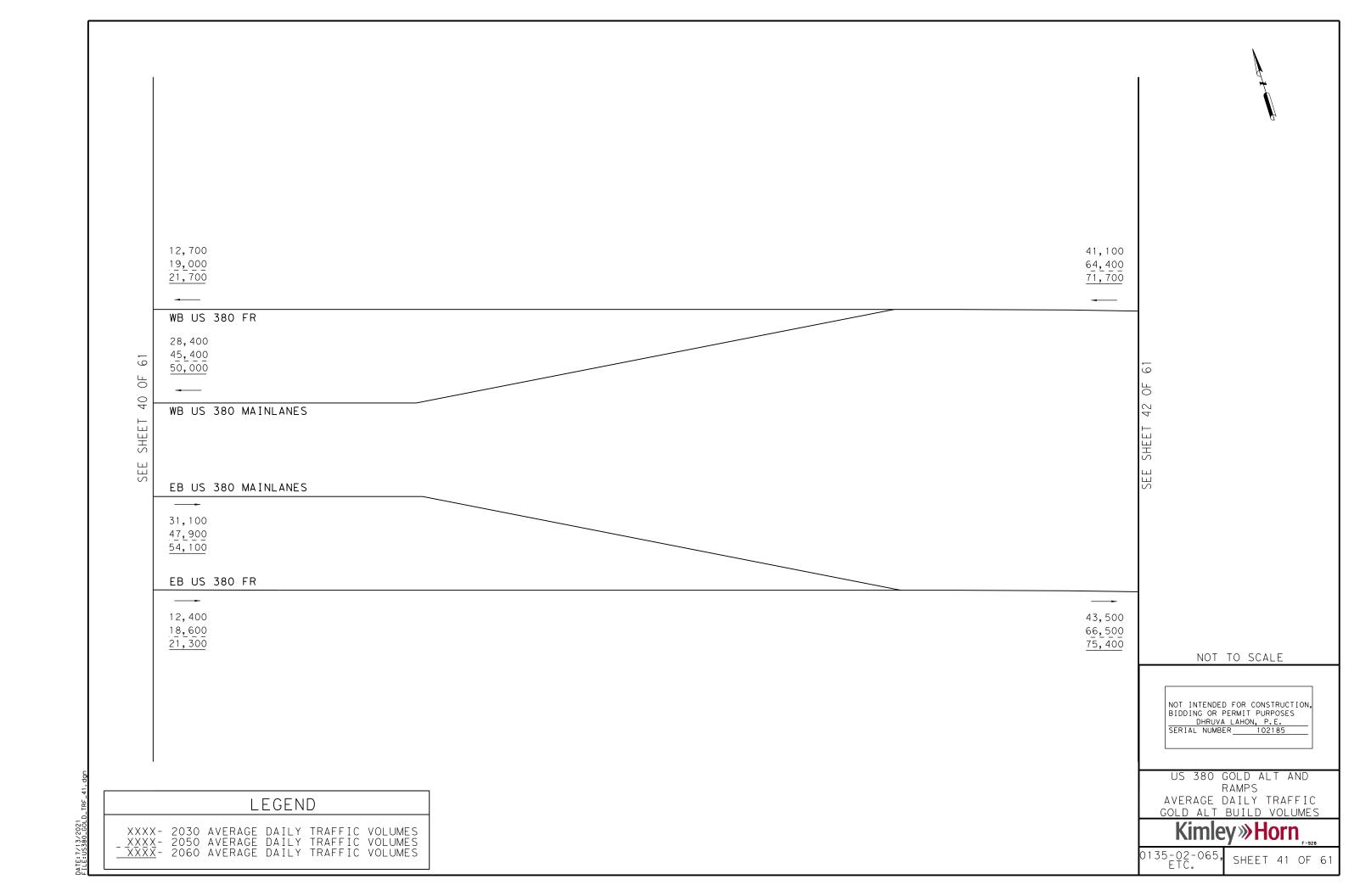


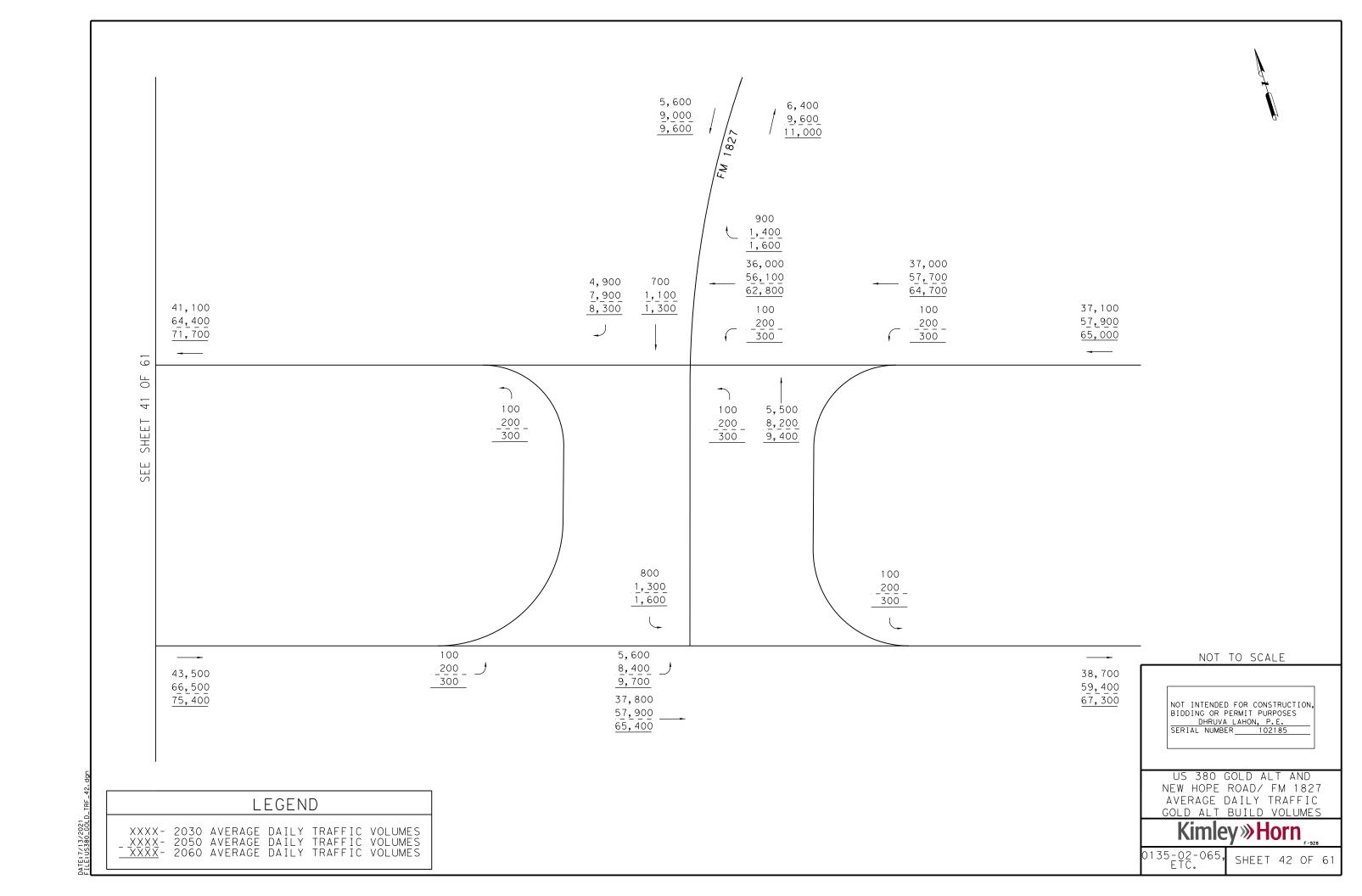


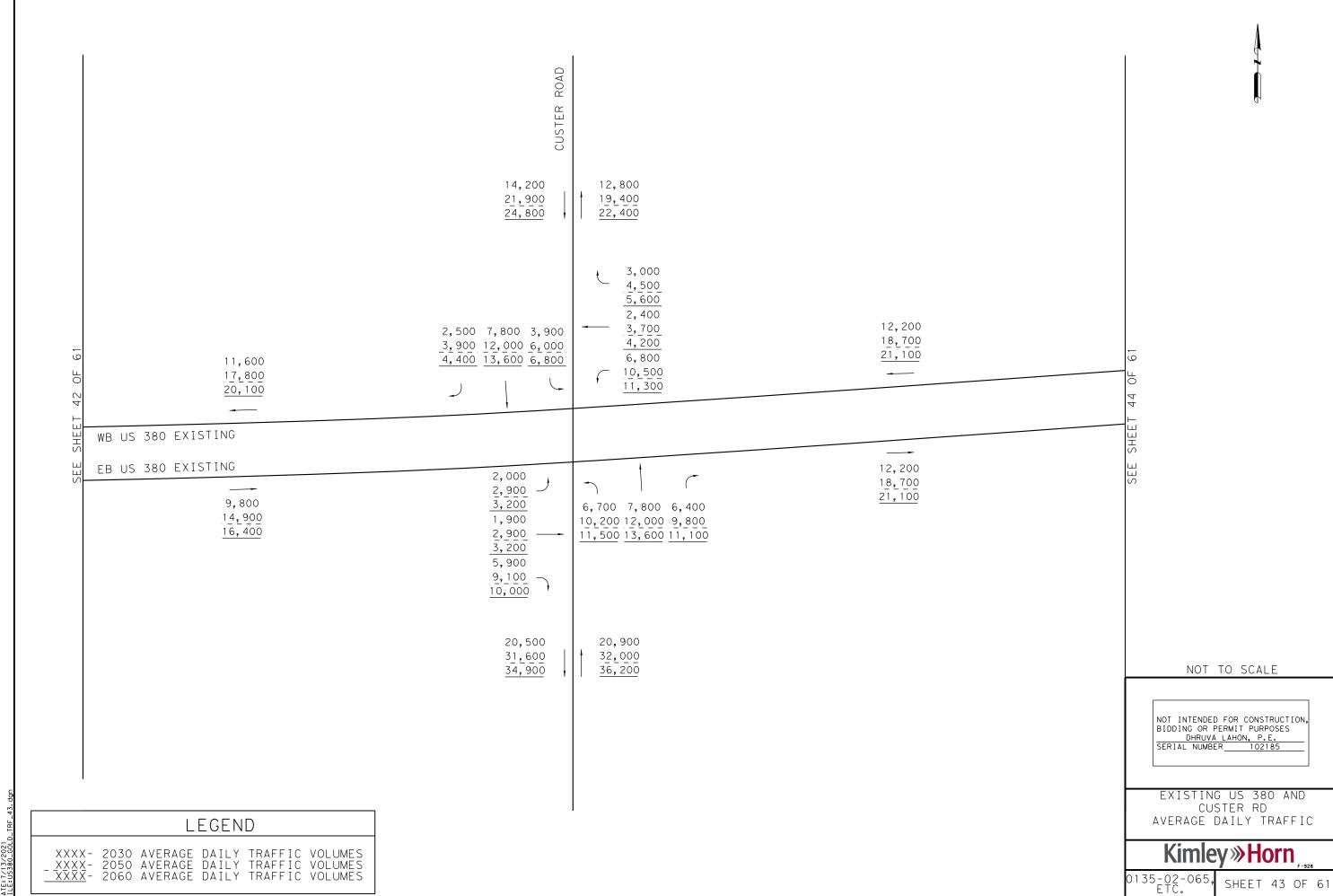






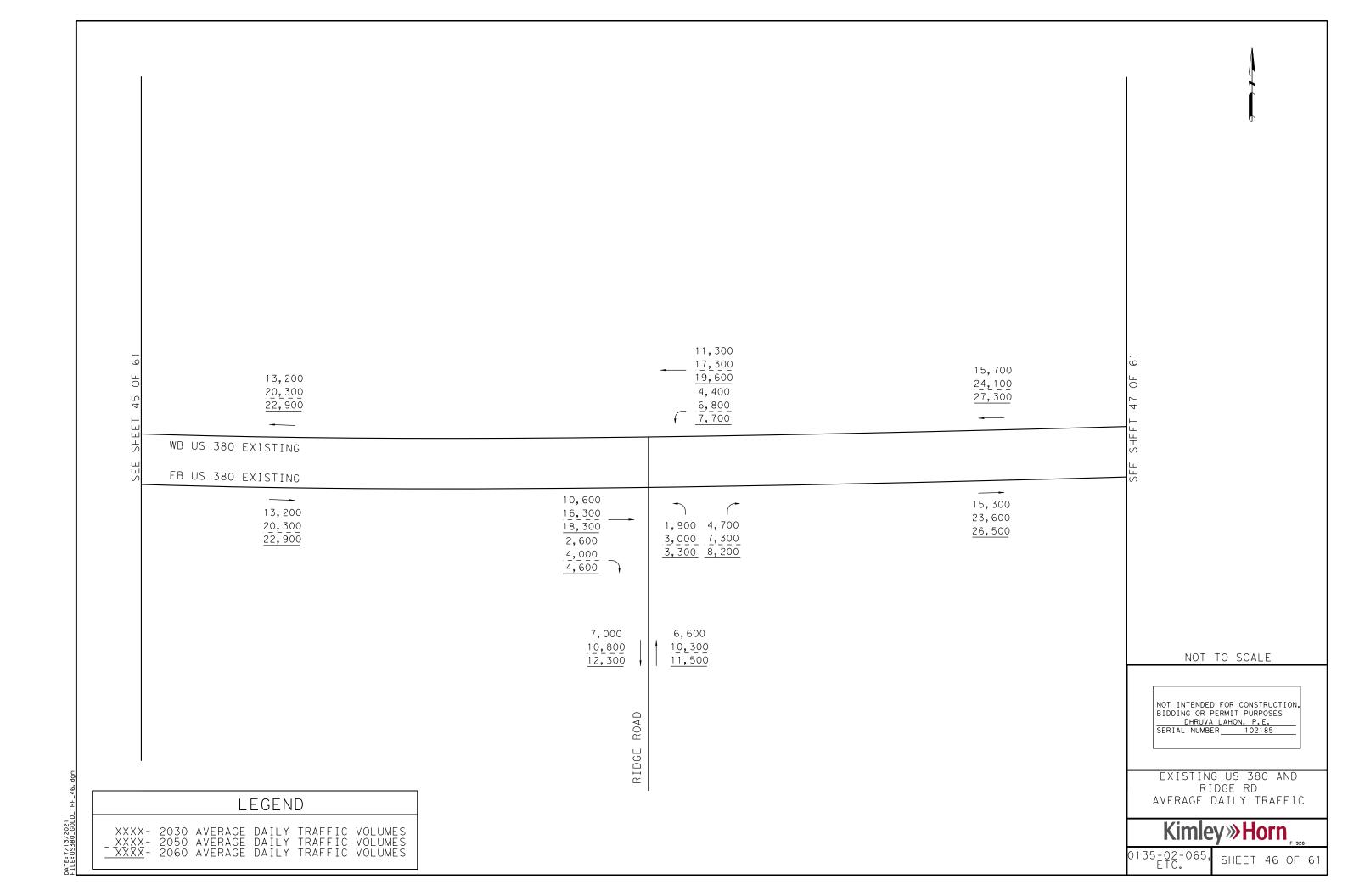


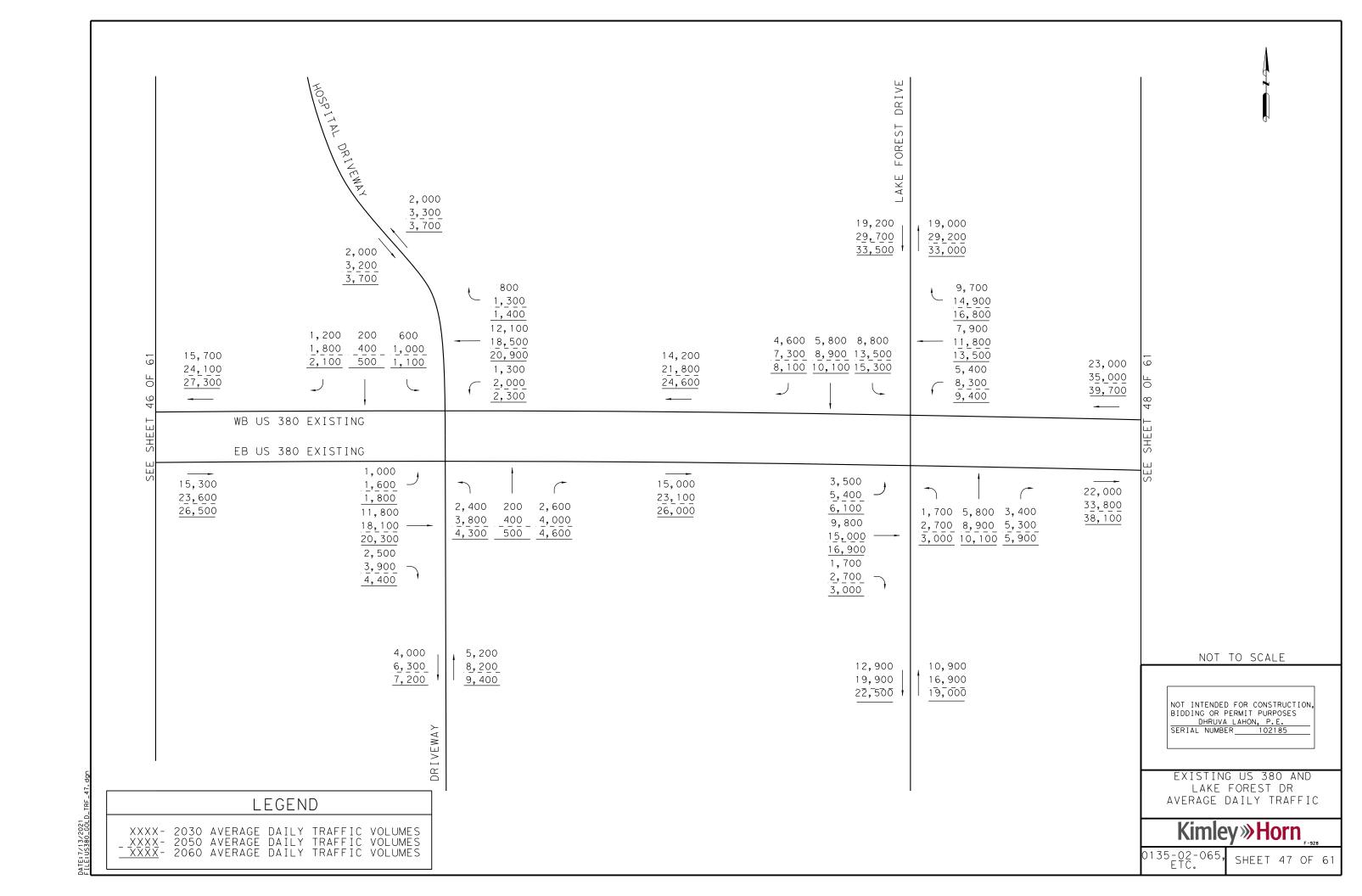


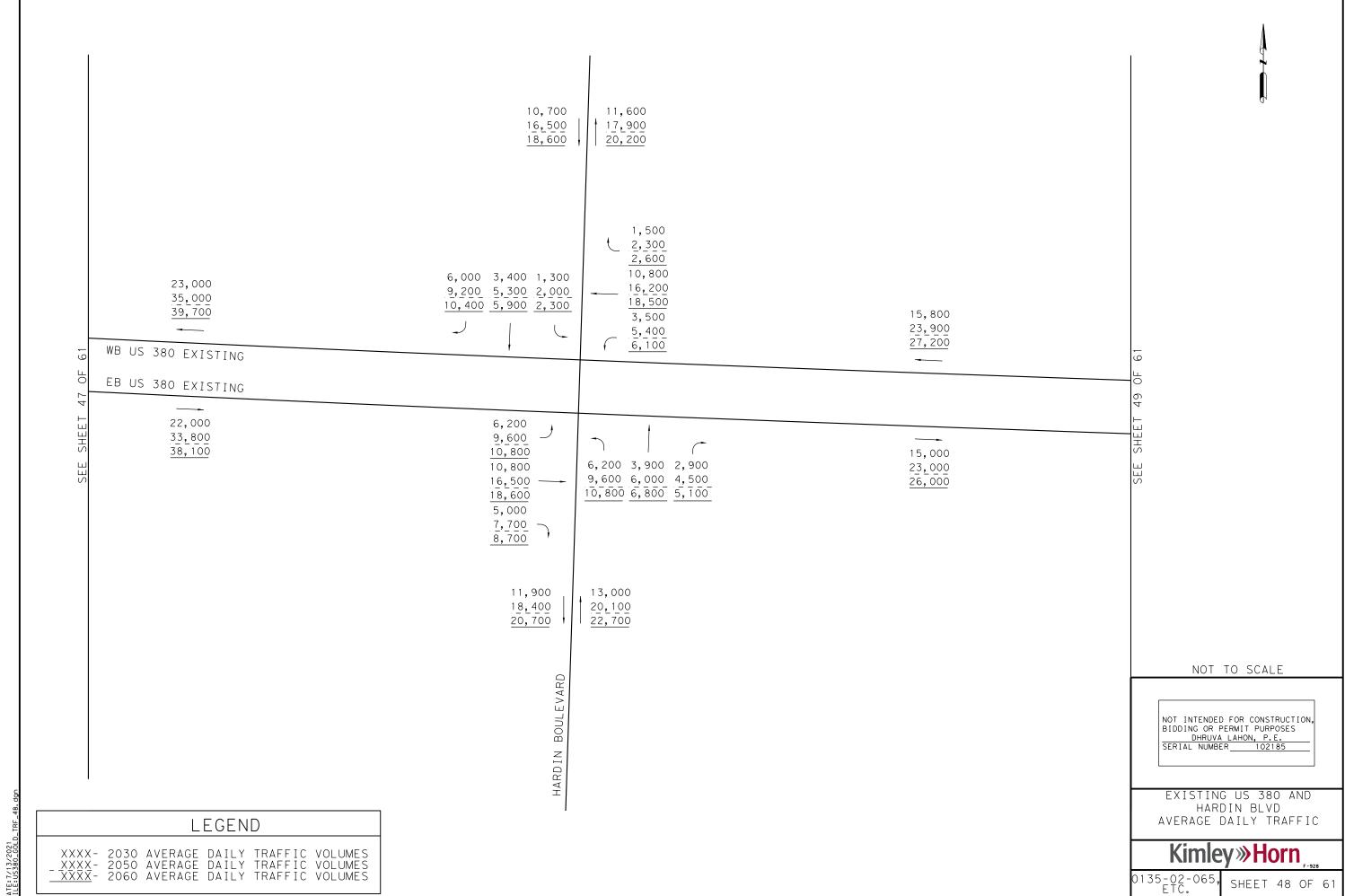


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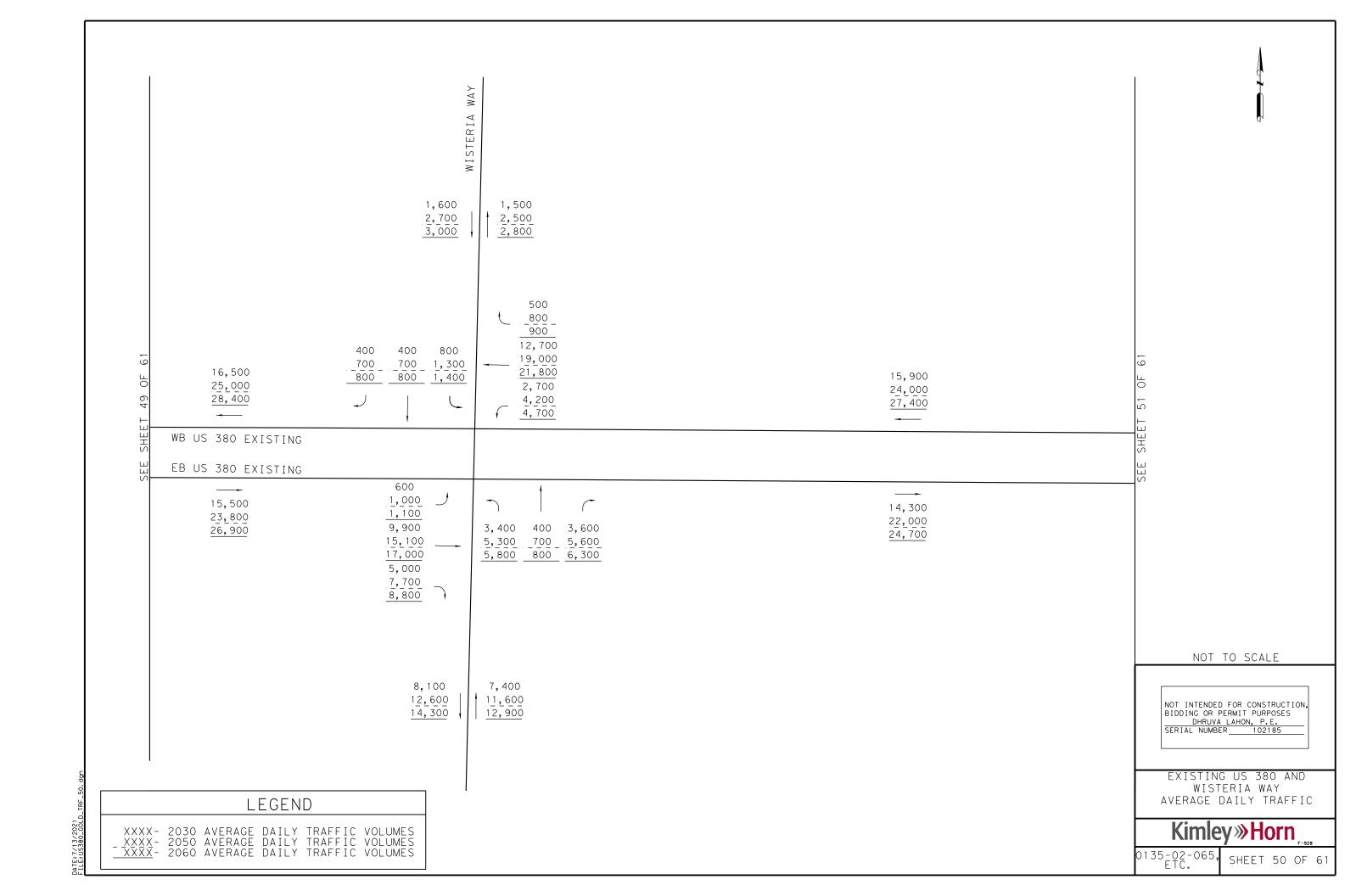
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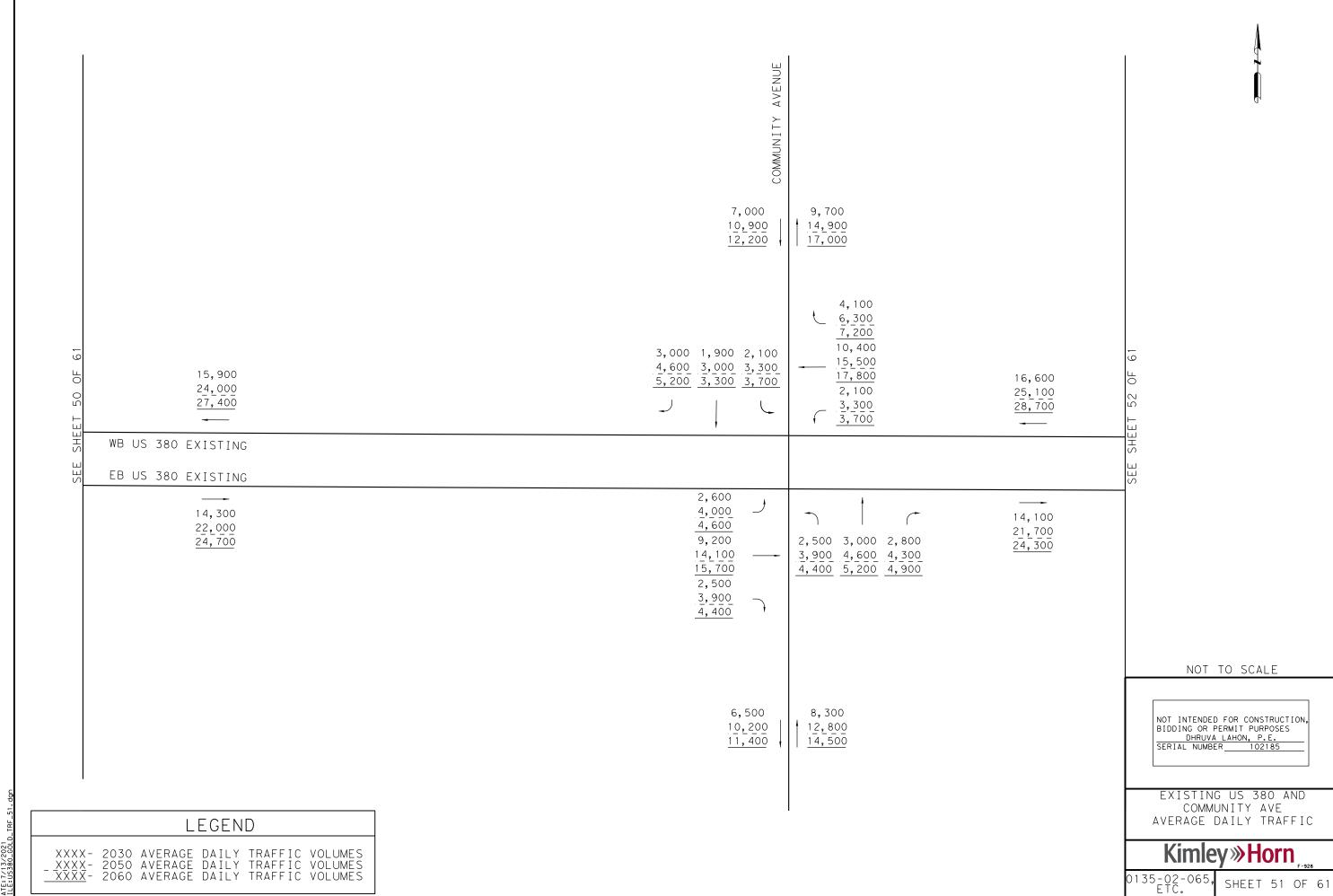


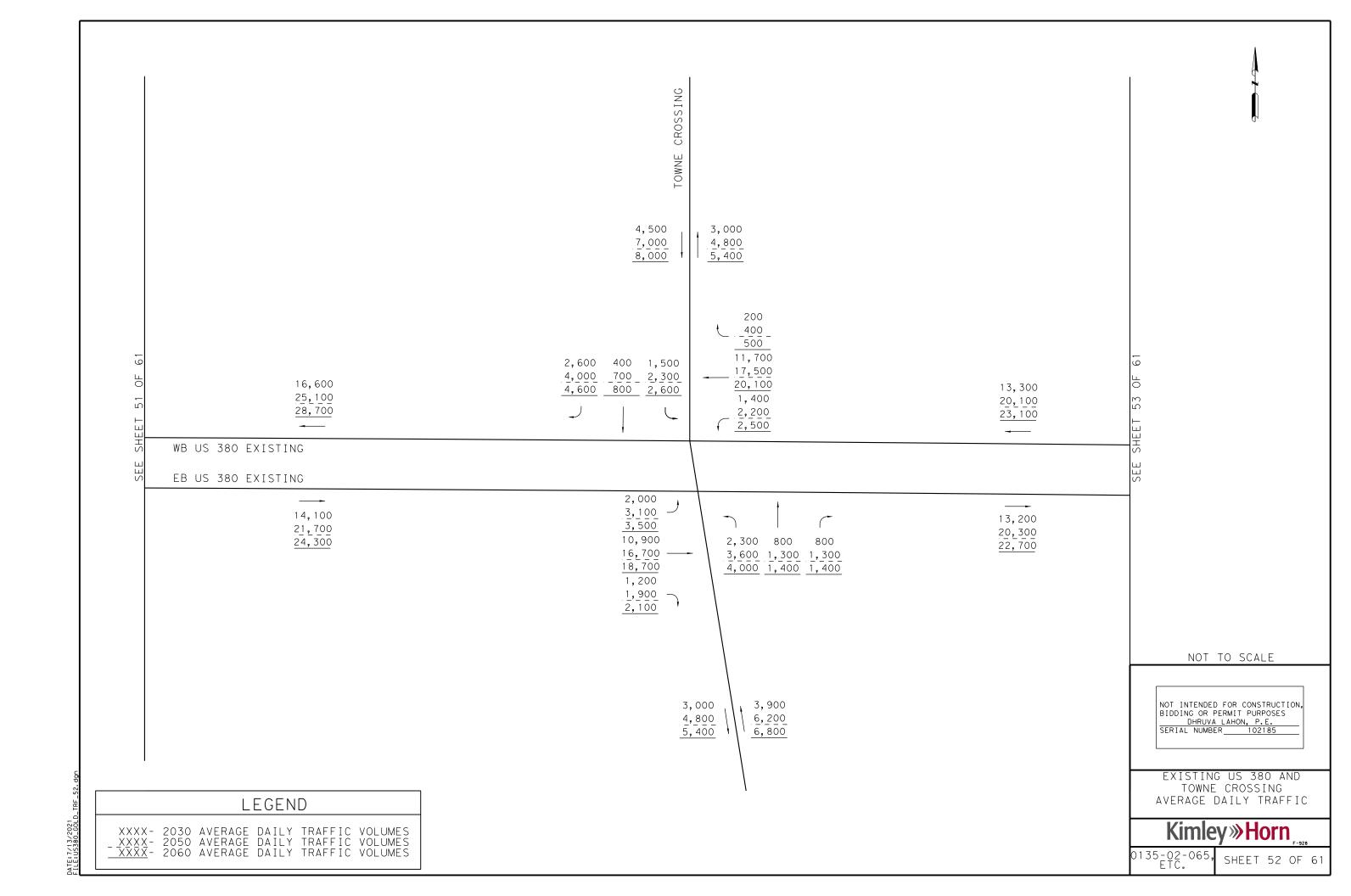


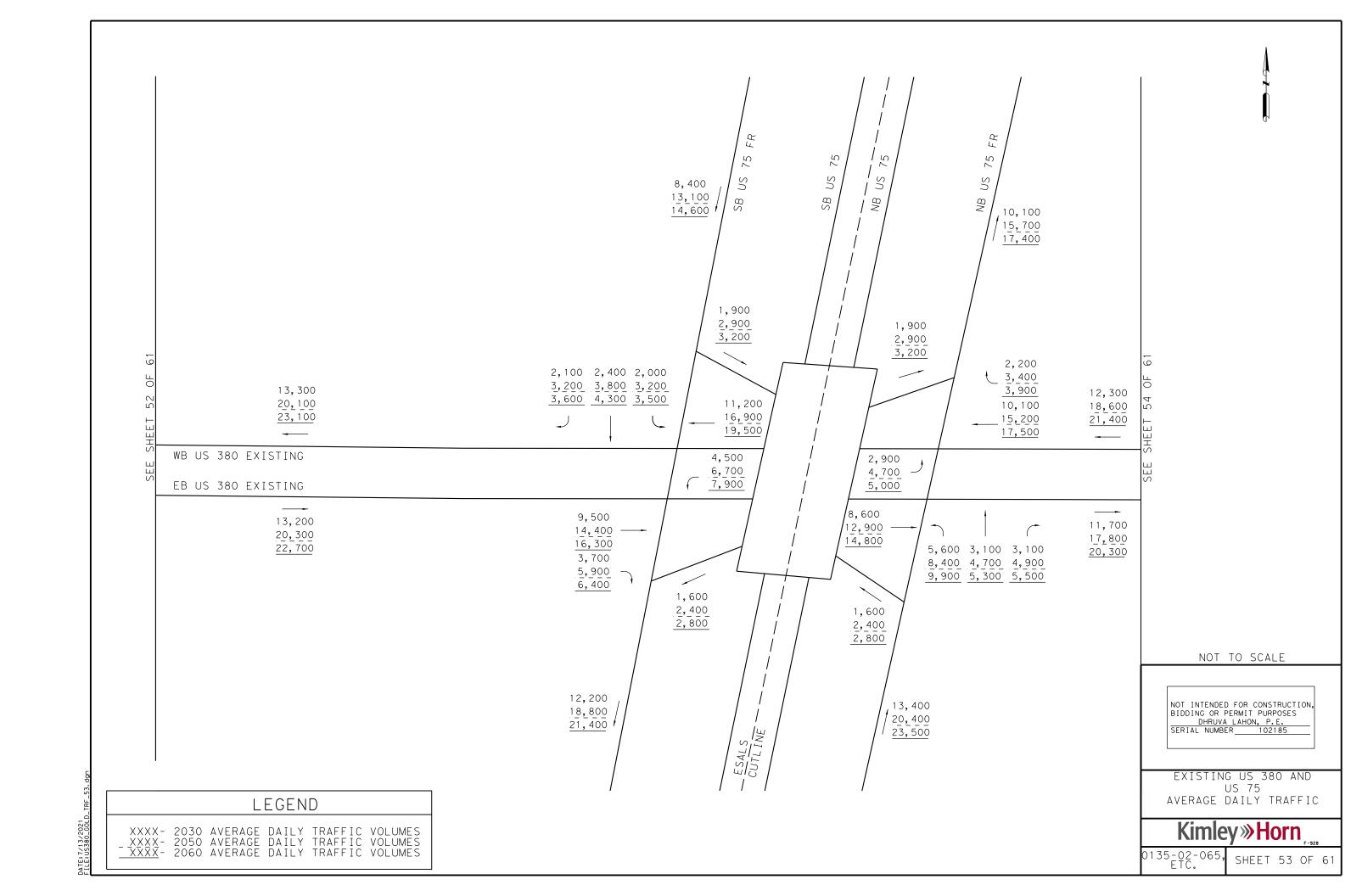


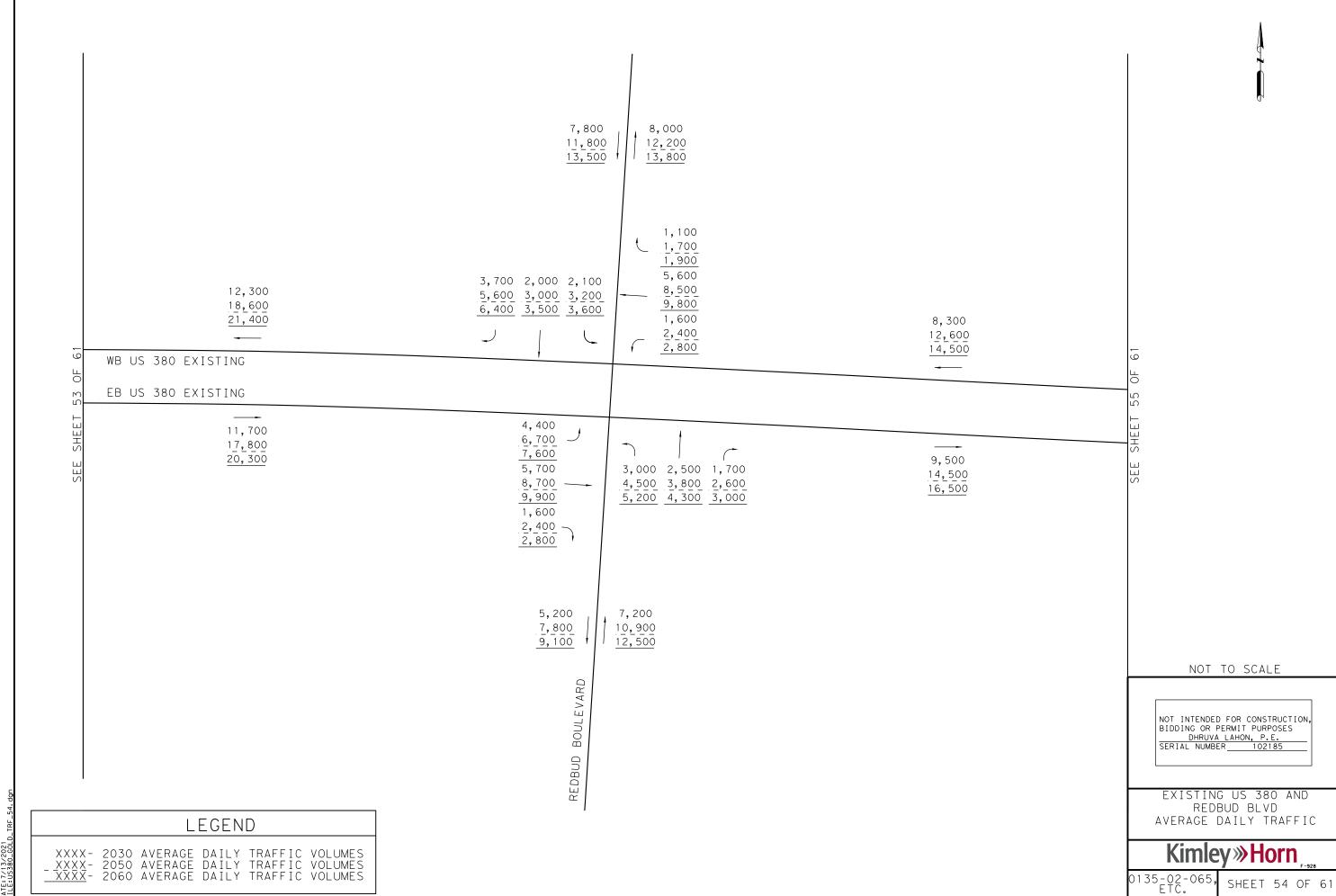
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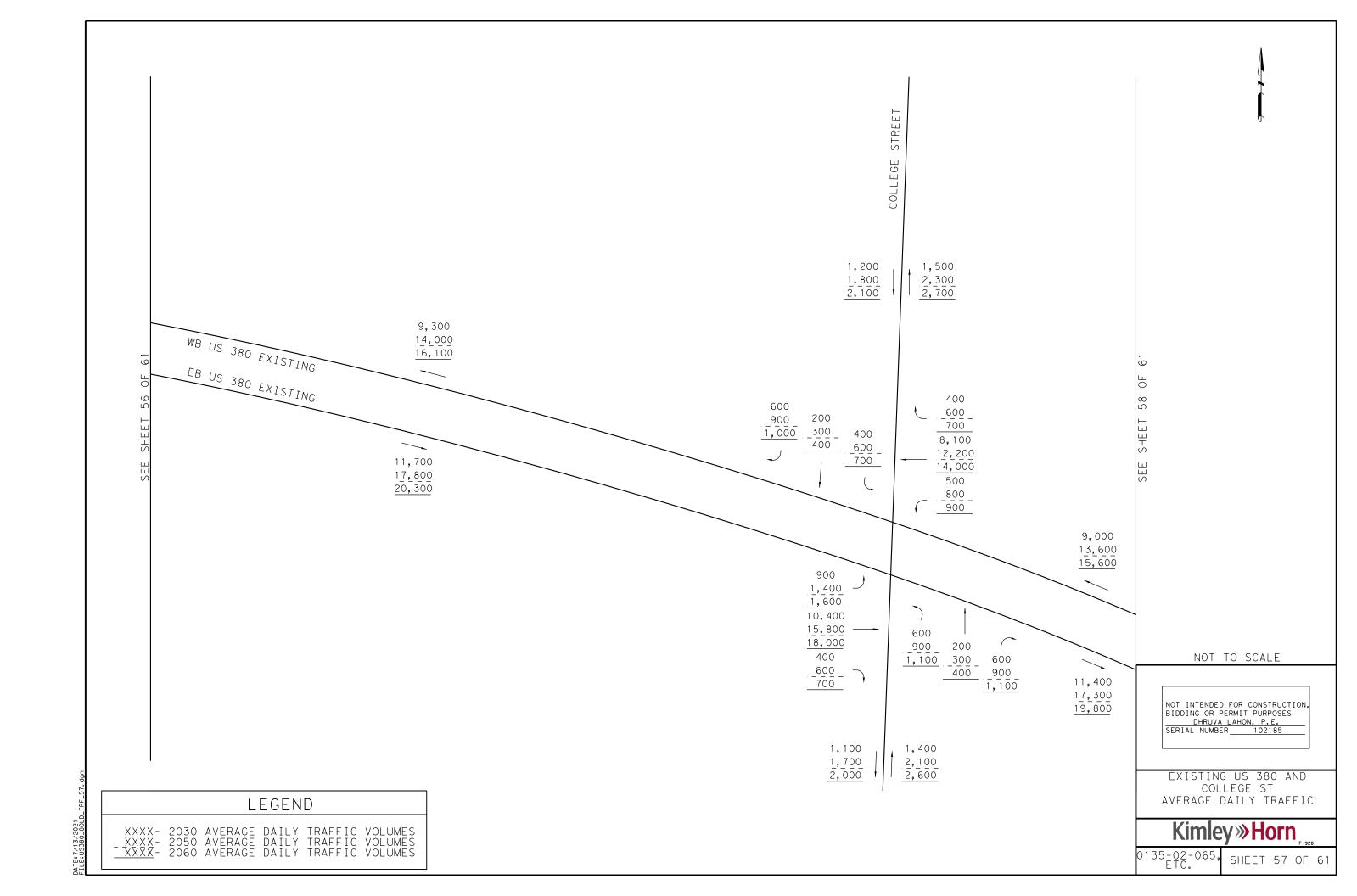


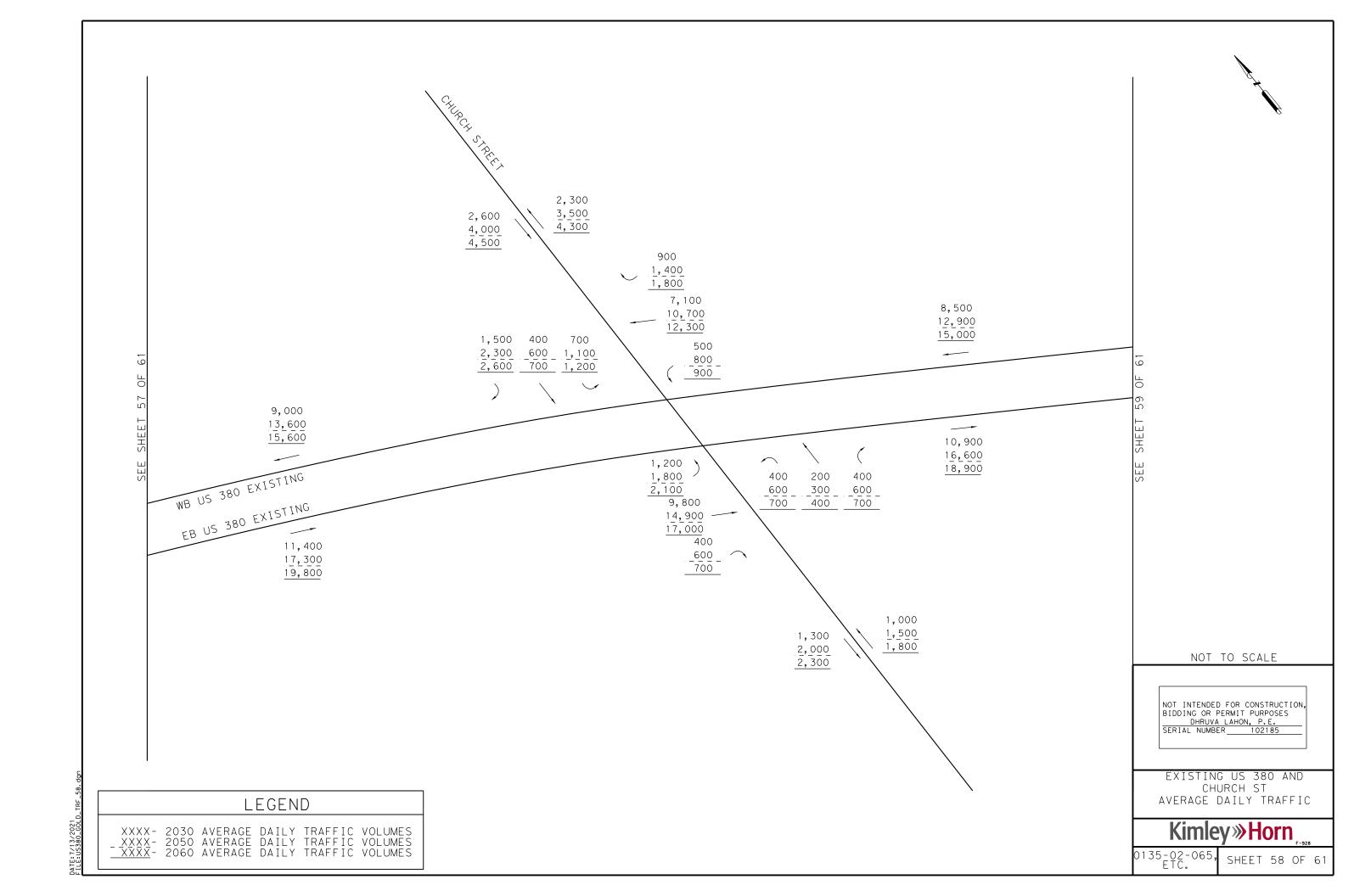


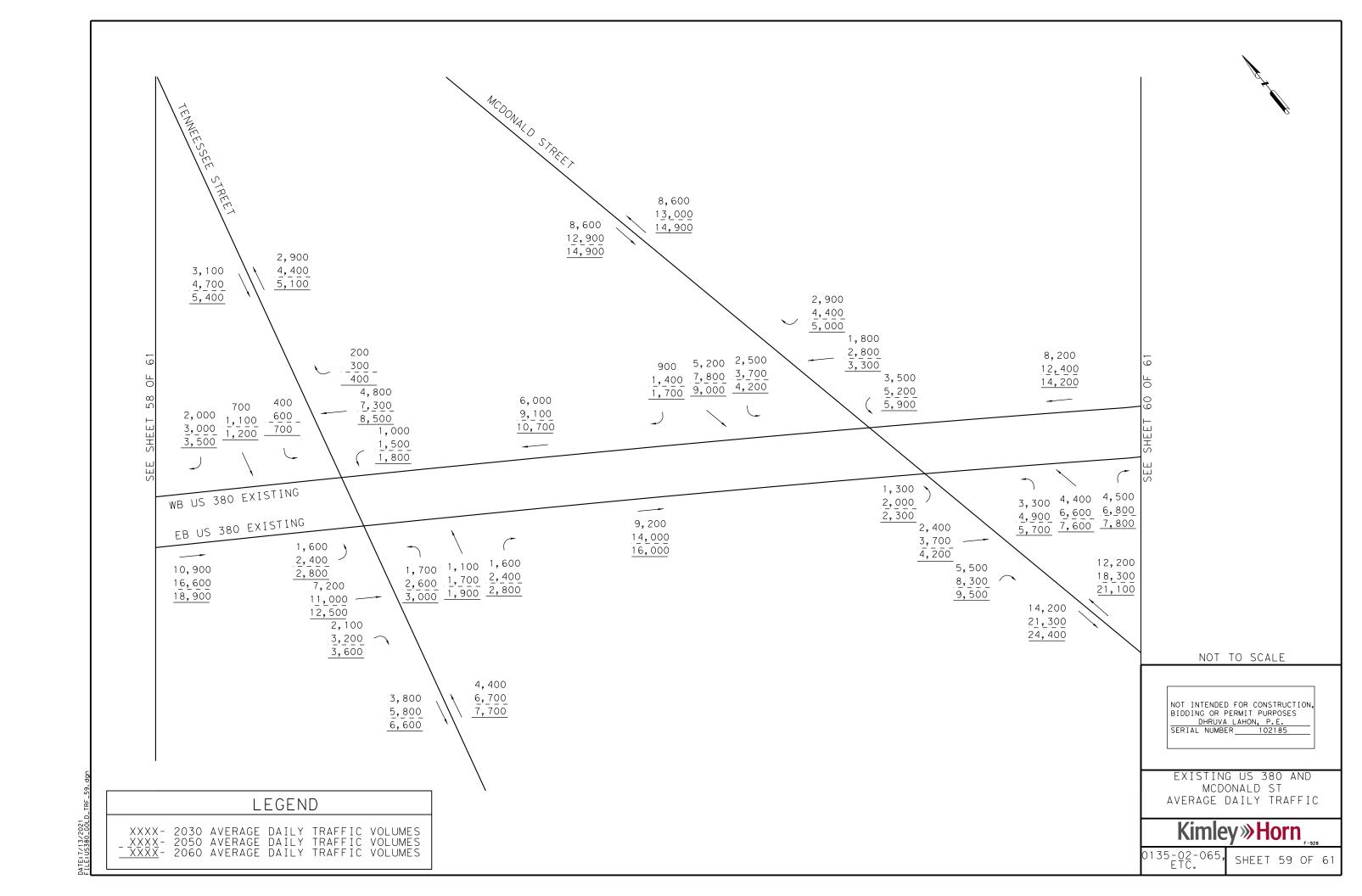
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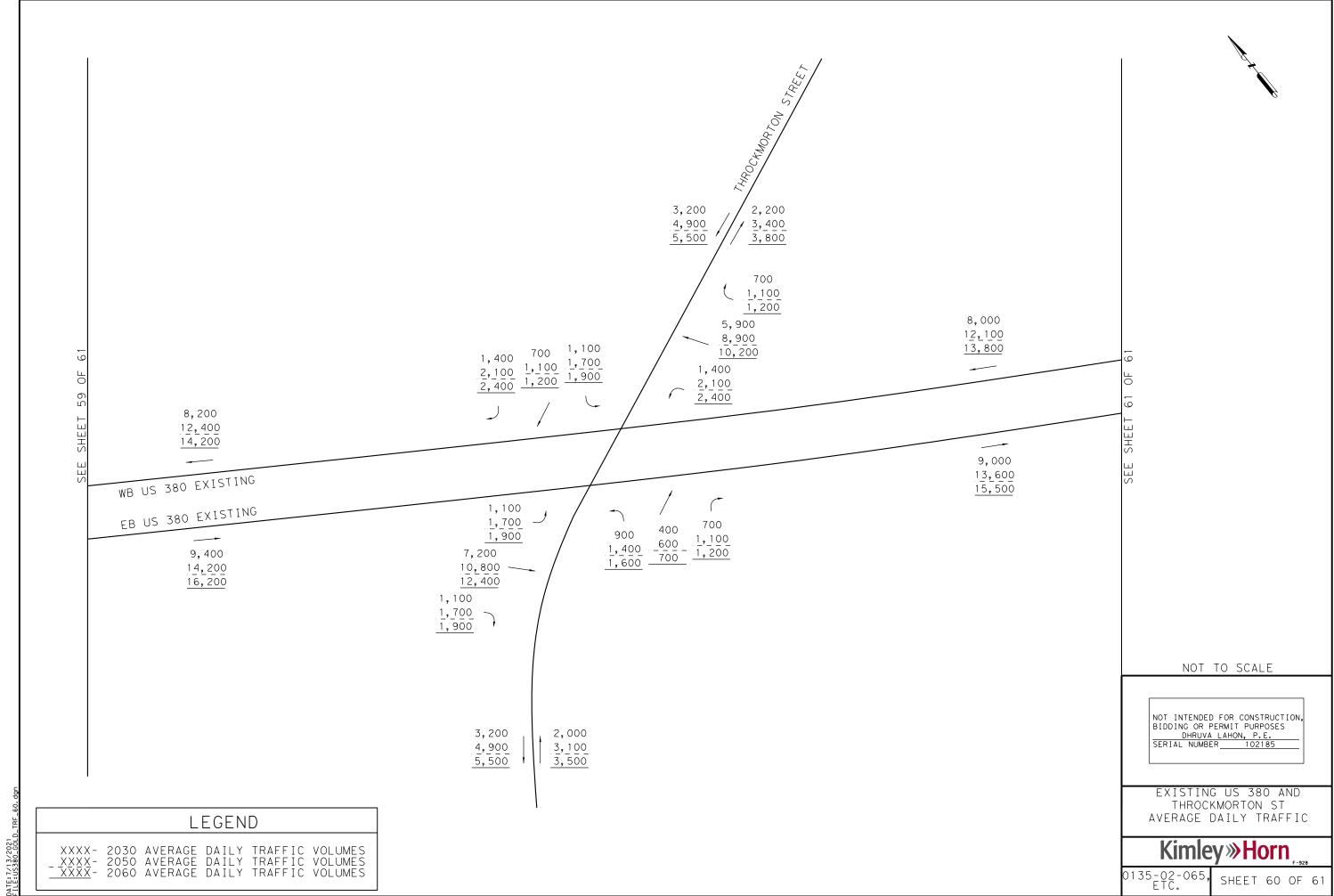
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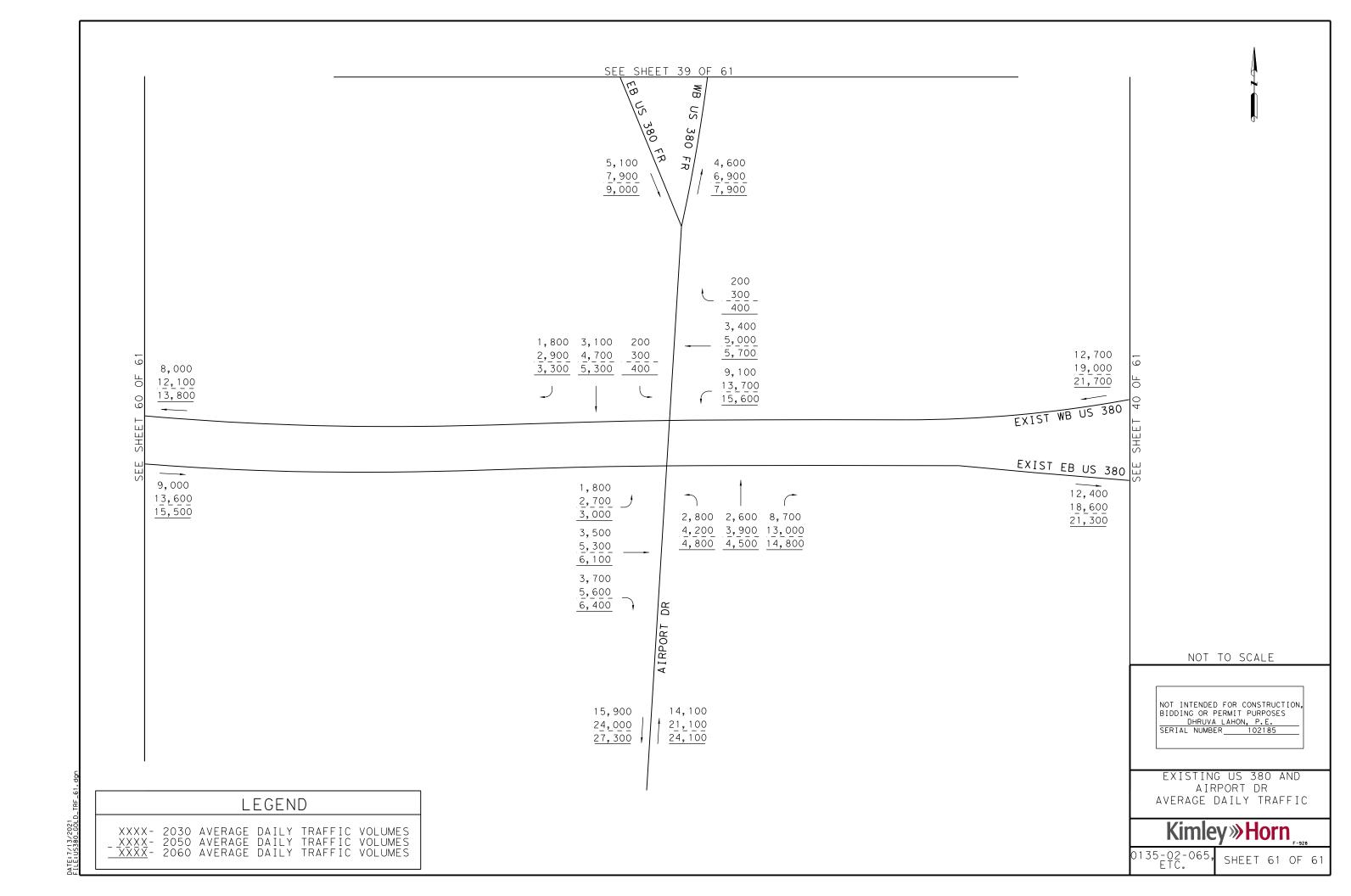
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MEMO November 12, 2021

**To:** Transportation Planning & Programming Division

David Freidenfeld

Through: John Hudspeth, P.E.

Dallas Director of Transportation Planning and Development, TP&D

**Through:** Dan Perge, P.E.

Dallas District Environmental (DAL-ENV) Director

**From:** Grace Lo, P.E.

Transportation Engineer Supervisor, PDO

Stephen Endres, P.E.
Project Manager, PDO

**Subject:** Traffic Request for ESALs (Option-C)

CSJ: 0135-02-065, 0135-15-002, 0135-03-053

**US 380** 

From Coit Rd to FM 1827, Collin County

The attached traffic projections and traffic methodology were prepared by Kimley Horn, and reviewed by TTI for QA/QC. The Dallas District approves the traffic methodology and line diagrams. The line diagrams depict 2030, 2050, and 2060 anticipated average daily traffic and turning movements for the proposed corridor improvements.

We request TPP to develop the noise, air and pavement data for this project.

If any additional information is needed, please contact Stephen Endres, P.E. at (214)-320-6628 or Tim Wright at (214) 319-6477.

**Attachments** 

**CC:** Stephen Endres, P.E.

Tim Wright

C-5E, - (APD Traffic Data file, request date 11/12/2021

## TECHNICAL MEMORANDUM (DRAFT)

Task Report #8, Technical Assistance in the Environmental Process

**TxDOT Project:** QA/QC of Traffic Forecast Methodology for US 380

**Project CSJ:** 0135-02-065, 0135-03-053, 0135-15-002

**DATE:** November 10, 2021

**TO:** Stephen Endres, Project Manager, TxDOT Dallas District

**COPY TO:** Dan Perge, Advance Project Development, TxDOT Dallas District

FROM: Sushant Sharma, Research Scientist and John Overman, Research Scientist, Texas

A&M Transportation Institute

### FOR MORE INFORMATION:

Name: Sushant Sharma, John Overman Phone: 817-462-0508, 817-462-0516

Email: s-sharma@tti.tamu.edu, JOVERM-C@txdot.gov

## **Executive Summary**

The goal of this activity was to check the schematics and projected volumes. The Advance Project Development department at TxDOT's Dallas District requested quality assurance assistance from Texas A&M Transportation Institute (TTI) to check the sechematics of projected traffic for US 380 for various build options (gold, blue, brown, purple and no-build).

### **Findings**

• Traffic projections for all the alternatives (gold, blue, brown, purple and no-build) and future years (2030, 2050 and 2060) were checked and turning and through movements were verified. The traffic projections add up correctly, except for minor issue with the purple schematics (See Appendix A).

### Conclusion

• Based on this review, the traffic projection methodology is complete.

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## Introduction

The goal of this activity was to check the schematics and projected volumes. The Advance Project Development department at TxDOT's Dallas District requested quality assurance assistance from Texas A&M Transportation Institute (TTI) to check the sechematics of projected traffic for US 380 for various build options (gold, blue, brown, purple and no-build).

### **Traffic Volumes**

The traffic volumes for 2030, 2050, and 2060 for the Build and No-Build case were provided along with various build options (gold, blue, brown, and purple). Traffic projections for all the alternatives and future years were checked and turning and through movements were verified. The traffic projections add up correctly, except for minor issue with the purple schematics (See Appendix A).

### **Conclusions**

The goal of this activity was to check the projected volumes.

### **Findings**

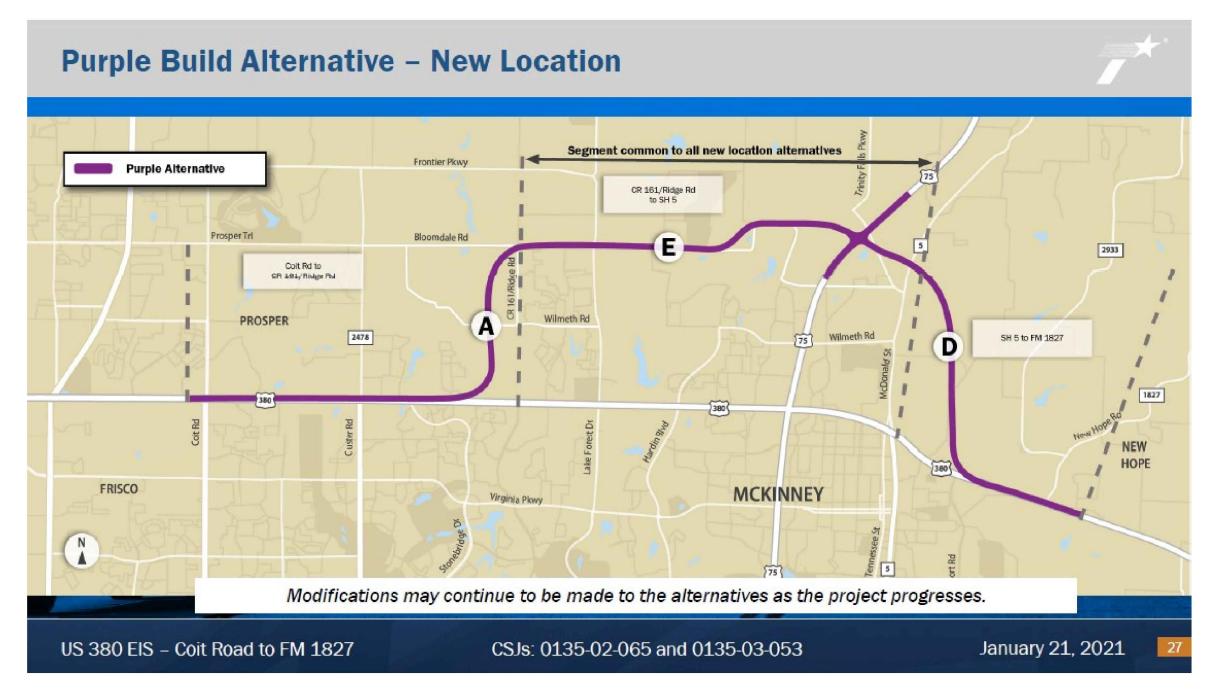
Traffic projections for all the alternatives (gold, blue, brown, purple and no-build) and future years (2030, 2050 and 2060) were checked and turning and through movements were verified. The traffic projections add up correctly, except for minor issue with the purple schematics (See Appendix A).

### Conclusion

Based on this review, the traffic projection methodology is complete.

# Appendix A. Traffic Volume Verifications

This appendix contains the traffic volume verifications for the US 380

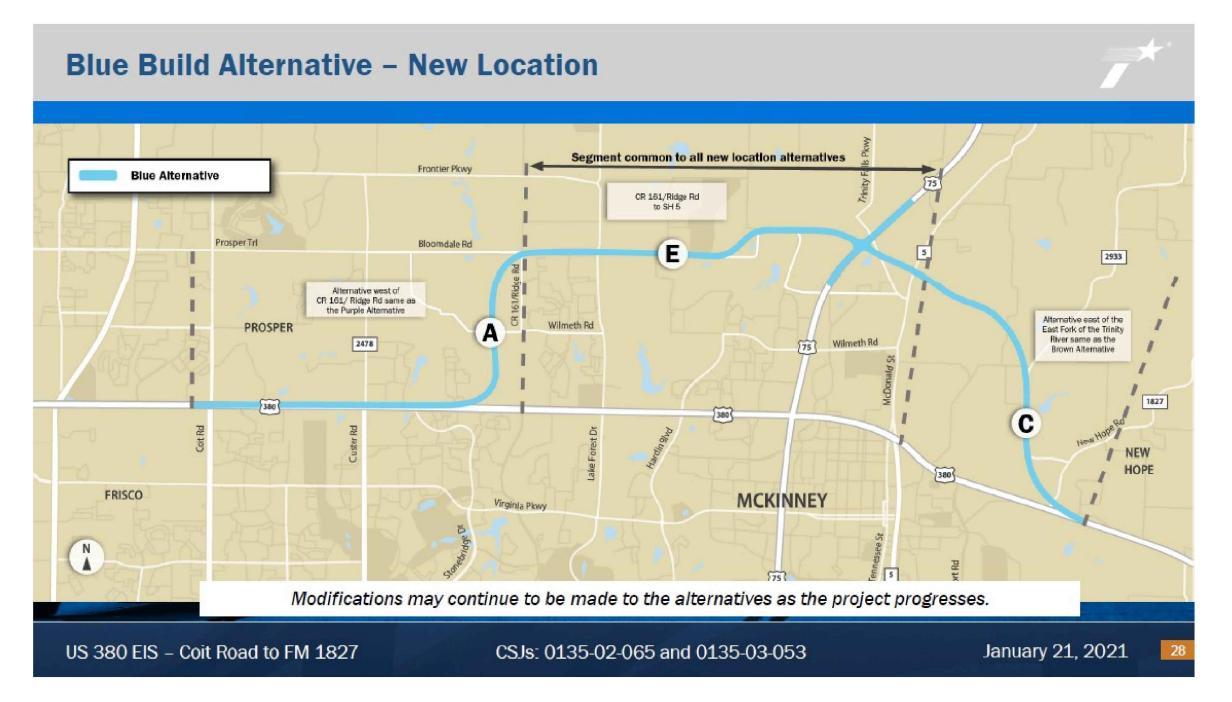


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BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185

US 380 PURPLE ALT KEYMAP

Kimley » Horn
0135-02-065, SHEET 1 OF 1

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NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185

US 380 BLUE ALT KEYMAP

Kimley»Horn

0135-02-065, ETC.

SHEET 1 OF 1



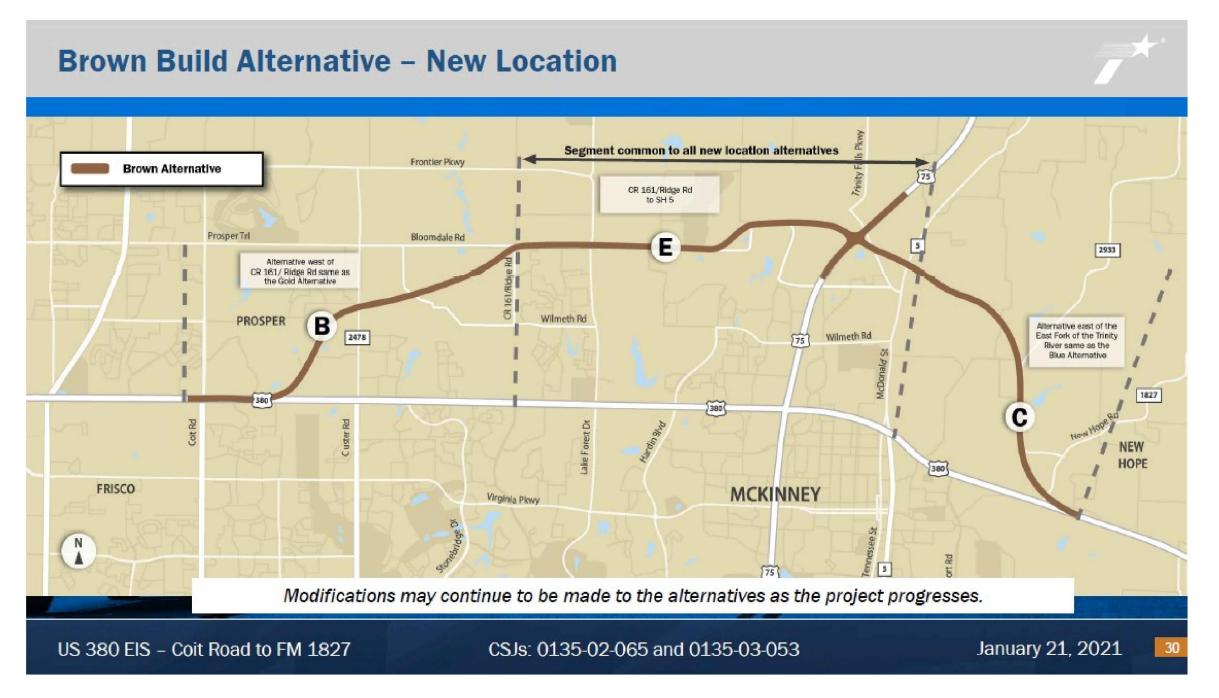
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BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185

US 380 GOLD ALT KEYMAP

Kimley»Horn

0135-02-065, ETC.

SHEET 1 OF 1



NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
DHRUVA LAHON, P.E.
SERIAL NUMBER 102185

US 380 BROWN ALT KEYMAP

Kimley»Horn

0135-02-065, ETC.

SHEET 1 OF 1

## TECHNICAL MEMORANDUM (DRAFT)

Task Report #8, Technical Assistance in the Environmental Process

**TxDOT Project:** Re-review of Traffic Forecast Methodology for US 380.

**Project CSJ:** 0135-02-065

**DATE:** March 24, 2021

**TO:** Stephen Endres, Project Manager, TxDOT Dallas District

**COPY TO:** Dan Perge, Advance Project Development, TxDOT Dallas District

FROM: Sushant Sharma, Associate Research Scientist and John Overman, Research

Scientist, Texas A&M Transportation Institute

### FOR MORE INFORMATION:

Name: Sushant Sharma, John Overman Phone: 817-462-0508, 817-462-0516

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## **Executive Summary**

The goal of this activity was to re-review traffic projection methodology. The Advance Project Development department at TxDOT's Dallas District requested quality assurance assistance from Texas A&M Transportation Institute (TTI) to evaluate the Traffic Forecast Methodology for US 380 from Coit Road to FM 1827 (see Appendix A). The initial findings of the QA/QC found the proposed traffic growth rates on US 380 were inadequately supported and greater than the recommended growth rates in the TPP Corridor Analysis Package. The consultant was requested to revise and/or provide additional details justifying the growth rate.

### Conclusion

• Based on this review, the justification for using a different growth rate compared to the growth rates provided in TPP Corridor Analysis Package is sufficient. However, the traffic projection methodology is incomplete as we cannot verify the turning and through movements as traffic projections were NOT provided.

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### Introduction

The goal of this activity was to re-review traffic projection methodology. The Advance Project Development department at TxDOT's Dallas District requested quality assurance assistance from Texas A&M Transportation Institute (TTI) to evaluate the Traffic Forecast Methodology for US 380 from Coit Road to FM 1827. The initial findings of the QA/QC found the proposed traffic growth rates on US 380 were inadequately supported and greater than the recommended growth rates in the TPP Corridor Analysis Package (see Appendix A). The consultant was requested to revise the growth rates or provide additional details justifying the recommended growth rate.

## **Estimated Growth Rates in Traffic Methodology Report**

The previous version of the traffic forecast methodology used the three data sources and recommended a growth rate of **5.0%** for short-term growth (from 2020 to the pivot year 2040) for the west of US 380 and along Spur 399 and **4.0%** east of US 75.

In the revised version, the consultant makes a case for growth rates higher than the growth rate of 2.0% based on linear regression analysis from the TxDOT's Transportation Planning and Programming (TPP) Division Corridor Analysis Package (as pointed in the first QA/QC tech memo). The following reasons were provided by the consultant for using these higher growth rates:

- 1. US 380 will be upgraded from an arterial to a six-lane freeway. Hence, expected induced traffic will be significantly higher. As in Sam Rayburn Tollway (SRT), traffic volumes on SRT increased by about 30% the year it was converted from an arterial to a tollway. According to the revised methodology report, after being converted to a tollway, traffic has been increasing at SRT by an average of 10% per year.
- 2. According to the revised report, the calculated annual average historical traffic growth rates per year were higher than 5% west of US 380 and about 4% east of US 75.
- 3. The historical population growth based on the US Census Bureau is 5.8% for McKinney and Collin County population growth is projected to increase 166% from the year 2018 through the year 2040 or 7.5% per year.

Figure 1 (screenshot from the revised report) shows the growth rates and growth factors for each period along with projected daily traffic for the year 2050.

	Year 2020-2030		Year 202	0-2050	Year 202	Year 2050 Average	
Highway	AGR	GF	AGR	GF	AGR	GF Trat Project	
US 380 (West of US 75)	5%	1.5	4.3%	2.3	4%	2.6	114,400
US 380 (East of US 75)	4%	1.4	3.7%	2.1	3.5%	2.4	89,100

AGR=Average Linear Growth Rate; GF=Growth Factor

Figure 1. US 380 Corridor Growth Rates

### **Traffic Volumes**

The traffic volumes for 2030, 2050, and 2060 for the Build and No-Build case were not provided and hence could not be reviewed to verify turning and through movements.

### **Conclusions**

This activity aimed to re-review traffic projection methodology and projected volumes for US 380 from Coit Road to FM 1827 in Collin County.

### Findings

• The proposed traffic growth rates on US 380 are supported by more information and are greater than the TPP Corridor Analysis Package's recommended growth rates. TPP is advised to look at the supporting arguments and documentation.

#### Limitations

• Traffic projections for both the alternatives (No-build and Build) and all future years were not provided along with the traffic methodology report. TTI can verify turning and through movements when these traffic projections are provided.

### Conclusion

• Based on this review, the justification for using a different growth rate compared to the growth rates provided in TPP Corridor Analysis Package is sufficient. However, the traffic projection methodology is incomplete as we cannot verify the turning and through movements as traffic projections were NOT provided.

## APPENDIX A- First Review of the Methodology Report

## TECHNICAL MEMORANDUM (DRAFT)

Task Report #8, Technical Assistance in the Environmental Process

**TxDOT Project:** QA/QC of Traffic Forecast Methodology for US 380.

**Project CSJ:** 0135-02-065

**DATE:** September 24, 2020

**TO:** Stephen Endres, Project Manager, TxDOT Dallas District

**COPY TO:** Dan Perge, Advance Project Development, TxDOT Dallas District

**FROM:** Sushant Sharma, Associate Research Scientist and John Overman, Research

Scientist, Texas A&M Transportation Institute

### FOR MORE INFORMATION:

Name: Sushant Sharma, John Overman Phone: 817-462-0508, 817-462-0516

Email: s-sharma@tti.tamu.edu, JOVERM-C@txdot.gov

## **Executive Summary**

The goal of this activity was to review traffic projection methodology and projected volumes. The Advance Project Development department at TxDOT's Dallas District requested quality assurance assistance from Texas A&M Transportation Institute (TTI) to evaluate the Traffic Forecast Methodology for US 380 from Coit Road to FM 1827 and the SPUR 399 extension from US 75 to US 380 in Collin County.

### **Findings**

• The proposed traffic growth rates on US 380 (in Table 2) are inadequately supported and greater than than the recommended growth rates in the TPP Corridor Analysis Package. More justification is needed for departing from TPP estimates and also a detailed explanation of how the growth rates were estimated as compared to TPP Standard Operating Procedures (4).

### Limitations

• Traffic projections for both the alternatives (No-build and Build) and all future years were not provided along with the traffic methodology report. TTI can verify turning and through movements when these traffic projections are provided.

### Conclusion

• Based on this review, the traffic projection methodology is incomplete and **inconsistent** with TPP Standard Procedures.

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## Introduction

The reviewed Traffic Forecast Methodology report is for the proposed potential roadway alternatives for US 380 from Coit Road to FM 1827 and the SPUR 399 extension from US 75 to US 380 in Collin County. The length of the study corridor is 12.5 miles and has 27 existing study intersections. The estimated traffic volumes are to be developed for main lanes and intersections for 2030 (opening year), 2050 (design year), and 2060 (pavement design year).

### **Estimated Growth Rates in Traffic Methodology Report**

#### **Data Sources**

The traffic forecast methodology used the following data sources:

- TxDOT's Traffic Count Database System (TCDS)
- NCTCOG's Travel Demand Model (TDM)
- US Census Bureau

The Traffic Forecast Methodology report adopted a growth rate of **5.0%** for short-term growth (from 2020 to the pivot year 2040) for the west of US 380 and along Spur 399 and **4.0%** east of US 75. However, according to the TxDOT's Transportation Planning and Programming (TPP) Division Corridor Analysis Package provided to the consultant dated March 17, 2020, the recommended growth rate on US 380 (from Coit Rd to Spur 399) is **2.0%** (or 2.5%) as shown in Figure 1 (screenshot of the growth rates provided in the TPP package).

According to the Traffic Forecast Methodology report, the historical growth rate determined using TCDS data was 4.52% for US 380, west of US 75, 2.69% for US 380, east of US 75, and 6.2% for Spur 399. It is not clear how the analyst came up with these estimates by essentially using the same data from 1998-2018 as provided in the TPP consultant package, which has a recommended growth rate of 2.5% or 2.0%. Further, the mentioned percentages were not found in the Traffic Forecast Methodology report; instead, a different value of growth rate is in the Appendix of the report. For instance, the growth rate on US 380 (West of US 75) as in the Appendix is 6.56%, whereas the recommended value in the Traffic Forecast Methodology is 4.52%. Further, it should be noted that TPP uses linear regression to estimate the annual growth rates and not an average of 20-years of annual growth rate.

According to the Traffic Forecast Methodology, the NCTCOG TDM determines the growth rate from 2017 to 2027 to be **4.24%** for US 380, west of US 75, **2.73%** for US 380, east of US 75, and 3.91% for Spur 399. The model growth rate from 2017 to 2040 was determined to be 2.37% for US 380, west of US 75, 2.12% for US 380, east of US 75, and 2.23% for Spur 399. The model growth rate from 2017 to 2045 was determined to be 2.16% for US 380, west of US 75, 2.42% for US 380, east of US 75, and 2.58% for Spur 399.

The recommended Traffic Forecast Methodology growth rates were also compared with the historical population growth from the US Census Bureau for a further check of reasonableness. The reported population growth rate is 5.8% for McKinney. According to the Traffic Forecast Methodology, the Texas State Demographer projects Collin County population growth is by 166% from year 2018 through year 2040 or 7.5% per year. While, the reviewer acknowledges that this is the right approach, the 3.0% difference between estimated growth rates

in Traffic Methodology Report and growth rates recommended in the TPP package is not very well supported or examined.

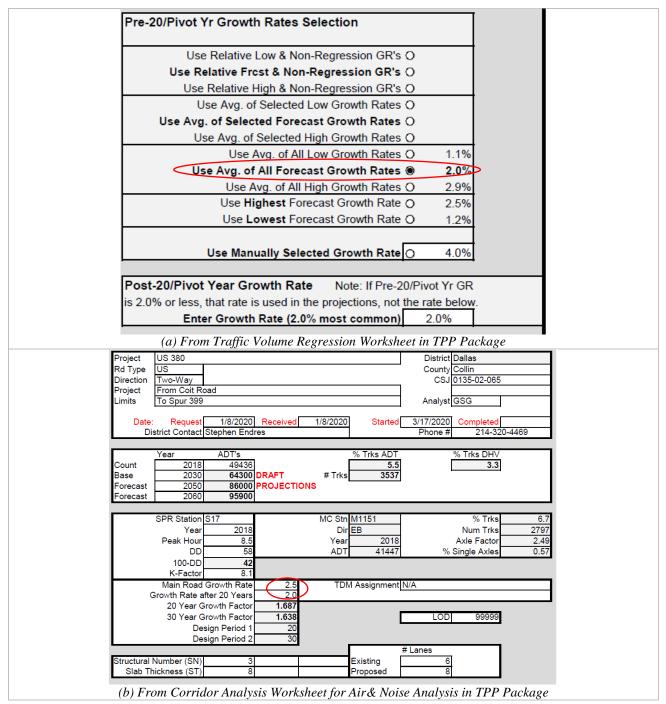


Figure 1. Estimated Growth Rates for US 380 Provided in the TPP Package.

## **Background**

Traffic forecasting is often an iterative process, involving assessment, corrections, or adjustments and retesting. Steps in this review range from data analysis to forecasting accuracy (1). Traffic forecasts should be logical when compared with other studies and traffic forecasting work in the

past, especially the recent past. Typically, the forecasts should be examined for scope, study area compatibility, forecast year, growth rates, assumptions used, quality of the tools used to develop the forecasts, and land use changes. Resources that can be leveraged by the traffic forecaster can include state Department of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) planning studies, Traffic impact studies, Long-range transportation plans and state DOTs Planning studies (1). The common elements contained in a traffic forecast report include: table of contents, request for the forecast, project description/purpose of the forecast, data types and sources, forecasting parameters, discussion of tools and methods, results, supporting data/information, and glossary (1).

Section 9 (Traffic Data and Forecast Request Procedures) and Chapter 3 (Project Level Traffic Data Development) of the TxDOT's *Traffic Data and Analysis Manual* (2) state that a request for a traffic feasibility study should include the information in Table 1. Table 1 lists the provided information from the Traffic Forecasting Methodology report for US 380 from Coit Road to FM 1827 and the SPUR 399 extension from US 75 to US 380 in Collin County.

Table 1. Requirements for Traffic Feasibility Study (2,3).

Requirements	Provided
Base year and design year for the project.	Yes
Current land use maps for the area surrounding the proposed project.	Yes
Location and type of major traffic generators.	Yes
Past and current traffic counts for an existing facility.	Yes
Major cross-streets.	Yes
Map giving general project alignment.	Yes
Identification of proposed facility type.	Yes
One- or two-way operation.	Yes
Number of lanes.	Yes
Preliminary schematic or straight-line map.	Yes
Length (in feet) for each link of the proposed facility (new location projects, only).	N.A.

### **TPP Estimated and Recommended Growth Rates**

The TPP Package presents forecasted linear annual growth rates based on 20-year historical data from nearby stations from TxDOT's Traffic Count Database System (5). Figure 2 shows the traffic data at five locations near the study corridor. Among the count locations on US 380, three each were west of US75 and east of US 75. The figure also shows low and high annual growth rates as well as a forecasted linear annual growth rate. The TPP recommended linear annual growth rate is 2.0%, for pre 20-year/pivot year and post 20-year/pivot year growth. TPP uses linear regression to estimate the annual growth rates with a significant coefficient of determination at confidence interval.

				TRAFFIC VO	LUME REGR	ESSION WOR	RKSHEET				Ma	arch 20, 2020
PROJECT:	US 380								District:	Dallas		
LIMITS:	From Coit Ro								County:	Collin		
	To Spur 399,	/FM 1827							CSJ:	0135-02-065		
ROUTE	US 380	US 380	US 380	US 380	US 380							
LOCATION	43H157	43H159	43H161	43H156	43T9							
1998	19000	13600	12,400	24000	22000							
1999	22000	17200	15900	28000	23000							
2000	27000	18600	16900	29000	24000							
2001	30000	19500	22000	31000	27000							
2002	31000	21000	21000	31000	26000							
2003	32000	23000	25000	31000	28000							
2004	33000	25000	23000	30000	26000							
2005	36000	28000	25000	34710	28960							
2006	35000	27000	23000	29000	28000							
2007	35000	26000	26000	30000	27000							
2008	39000	28000	25000	29000	27000							
2009	37000	25000	25000	28000	26000							
2010	35000	24000	23000	26000	25000							
2011	38000	26000	25000	28000	27000							
2012	42000	29000	27000	32000	28000							
2013	39290	27368	25823	32088	27697							
2014	41843	30516	31031	35484	28757							
2015	44809	31639	31566	38064	33706							
2016	42130	29918	33412	33939	30341							
2017	49021	37381	33522	38528	33034							
2018	49436	37381	33522	37939	34928							
Low Linear Annual Growth Rate	Regr01	Regr02 1.5%	Regr03 1.5%	Regr04 0.5%	Regr05 0.7%	Regr06	Regr07	Regr08	Regr09	Regr10	Regr11	Regr12
Forecast Lnr. An. Grwth Rate	1.5% <b>2.5</b> %□	2.5%□	2.5%□	1.2%□	1.3%□	_	_	_	_	_		_
High Linear Annual Growth Rate	3.5%	3.6%	3.6%	1.9%	2.0%							
Estimated Standard Deviation	2461.98	2445.39	2232.54	2888.04	1919.54							
B (Slope)	1192	879	842	435	425							
A (Intercept)	24154	17166	16538	26919	23435							
R=	0.949	0.912	0.920	0.683	0.809							
Confidence Interval	+/- 90% CI 473	+/- 90% CI 473			+/- 90% CI 198							
	Avg. of selec	cted Forecast	Linear Annua	Growth Rates	i.		Avg. of all Fo	orecast Linear	Annual Grow	th Rates:	2.0%	
GR's for Non-Regression vol's only												
			PROJECTION	NS OF ABOVE	TRAFFIC V	OLUME DAT	A TO FOREC	ASTED YEAR	S			
							Dec 20/Dive	4 Va Cassida	Datas Cala	4:		1
		Una la	4 C4 V	from above.		ſ	Pre-20/Pivo	t ii Growin	Rates Selec	cuon		
		USE IA	st Count Year	from above.	✓		H	lea Palativa I	ou 2 Non Po	secretor CD's		
Do not use last Count Year from above □						Use Relative Low & Non-Regression GR's O						
Do not use last Count Year from above. ☐  Enter any one of previous						Use Relative Frost & Non-Regression GR's () Use Relative High & Non-Regression GR's ()						
count years from above. 2010							Use Avg. of Selected Low Growth Rates ()					
Enter Base Year 2020							Use Avg. of Selected Forecast Growth Rates () Use Avg. of Selected High Growth Rates ()					
Pivot Growth Rate at 20 Years from Count Year (most commonly used). ☑ Use Avg. of All Forecast Growth Rates ● 2.0%												
i iiot Growtii Kate t		ooun Te	(	y useuj.				•		Growth Rates	-	
Pivot Growth Rate (GR) at other than 20 Years from Count Year. □									t Growth Rate			
Enter years from Count Year for pivoting Growth Rate									t Growth Rate	-		
			rom Count Ye		10							1

Figure 2. Data Used For Estimated and Recommended Growth Rates in TPP Package.

Figure 3 shows the linear regression models developed by TTI from the historical data (including the year 2018 AADT) as obtained from TCDS. The y-axis is AADT value and the x-axis is the year. Data of five nearby stations were used, where station ID 43H157, 43H159, 43H160 are on US 380, west of US 75 and 43H156 and 43T9 on the east of US 75.

As seen in Figure 4, in the linear regression-based prediction model, the coefficient of determination (R-square) was found robust for stations on the west side of US 75 (R-square of 0.90, 0.85, and 0.83). Hence we developed the growth rates and compared the estimates for only the US 380 west of US 75.

After generating the regression models, the traffic was projected, and annual growth rates were computed and compared as shown in the Table 2. This process may be different from TPP's standard process of linear regression modeling (due to lack of access to Calypso 7.1 Tool used by TPP) but still robust enough for estimation.

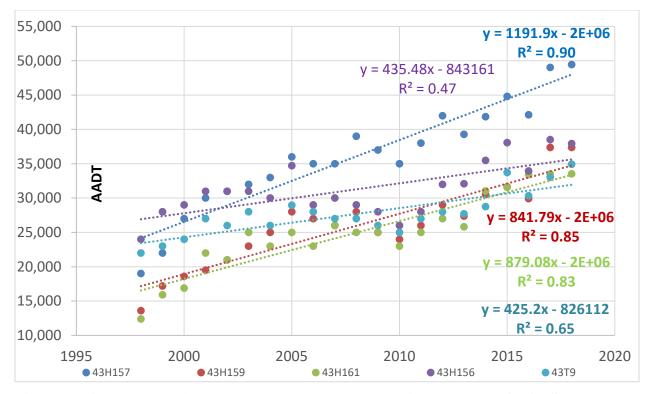


Figure 3. Linear Regression Models Developed by TTI Using 20 Years of TCDS Data.

Table 2 compares the growth rates used in the Traffic Forecast Methodology report. The TPP recommends a linear growth rate of **2.0%** for pre-20 year pivot and post-20 year pivot. TTI calculated the growth rates of **3.1%** pre-20 year pivot and **2.9%** post-20 year pivot using the linear regression model. TTI found the recommended annual growth rate is not adequately justified, especially compared to the TPP recommendation. One of the reason could be that the developed annual growth rate in the report is an average of historical growth rates, while the TPP process of using linear regression model follows the TPP Standard Operating Procedures (4)

Table 2. Comparison of Reported and Estimated Growth Rates for 2040 and 2060 on US 380 on the West of US 75.

Year	TTI Recommended Growth Rates [West of US 75]	TPP TxDOT Avg. Forecasted Linear Growth Rate	Reported Growth Rates	Rating of Proposed Growth Rate (Low/Good/High)
2030	3.1%	2.0%	5.0%	Low
2050	2.9%	(or 2.5%)	4.3%	23 11
2060	2.9%	2.0%	4.0%	

## **Traffic Volumes**

The traffic volumes for 2030, 2050, and 2060 for the Build and No-Build case were not provided and hence could not be reviewed to verify turning and through movements.

## **K** Factor

The reviewed Traffic Forecast Methodology Report adopts a K factor or value of 8.1% for US 380 and 10.4% for Spur 399 as recommended in the TPP corridor analysis information packet. TTI consulted *TxDOT's Roadway Design Manual (3)* that suggests the following default values for K Factor (percentage of ADT representing the 30<sup>th</sup> highest hourly volume in the design year):

"For typical main rural highways, K factors generally range from 12 to 18 percent. For urban facilities, K factors are typically somewhat lower, ranging from 8 to 12 percent."

Based on the manual, the choice of K factor seems reasonable.

### **Conclusions**

The goal of this activity was to review traffic projection methodology and projected volumes. The Advance Project Development department at TxDOT's Dallas District requested quality assurance assistance from Texas A&M Transportation Institute (TTI) to evaluate the Traffic Forecast Methodology for US 380 from Coit Road to FM 1827 and the SPUR 399 extension from US 75 to US 380 in Collin County.

### **Findings**

• The proposed traffic growth rates on US 380 (in Table 2) are inadequately supported and greater than the recommended growth rates in the TPP Corridor Analysis Package. More justification is needed for departing from TPP estimates and also a detailed explanation of how the growth rates were estimated as compared to TPP Standard Operating Procedures (4).

### Limitations

• Traffic projections for both the alternatives (No-build and Build) and all future years were not provided along with the traffic methodology report. TTI can verify turning and through movements when these traffic projections are provided.

### Conclusion

 Based on this review, the traffic projection methodology is incomplete and inconsistent with TPP Standard Procedures.

### References

- 1. CDM Smith, Horowitz, A., Creasey, T., Pendyala, R., and Chen, M., 2014. *Analytical Travel Forecasting Approaches for Project-Level Planning and Design*, NCHRP Report 765, Project 08-83. http://www.trb.org/Main/Blurbs/170900.aspx Accessed April 2019.
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