

STANDARD PLAN NOTES:

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY OF PFLUGERVILLE MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

1. THIS PLAN LIES WITHIN THE CITY OF PFLUGERVILLE.
2. WATER AND WASTEWATER SHALL BE PROVIDED BY THE CITY OF PFLUGERVILLE. NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO WATER AND WASTEWATER.
3. A 10-FT PUBLIC UTILITY EASEMENT (P.U.E.) ALONG AW GRIMES AND SCHULTZ LANE HAVE ALREADY BEEN DEDICATED.
4. EASEMENT(S) DEDICATED TO THE PUBLIC BY THIS PLAN SHALL ALSO BE SUBJECT TO THE TERMS AND CONDITIONS OF THE ENGINEERING DESIGN MANUAL, AS AMENDED. THE GRANTOR [PROPERTY OWNER(S)], HEIRS, SUCCESSORS AND ASSIGNS SHALL RETAIN THE OBLIGATION TO REGULARLY MOW OR CUT BACK VEGETATION AND TO KEEP THE SURFACE OF THE EASEMENT PROPERTY FREE OF LITTER, DEBRIS, AND TRASH.
5. NO IMPROVEMENTS INCLUDING BUT NOT LIMITED TO STRUCTURES, FENCES, OR LANDSCAPING SHALL BE ALLOWED IN A PUBLIC EASEMENT, EXCEPT AS APPROVED BY THE CITY.
6. THE PROPERTY OWNER SHALL PROVIDE ACCESS TO DRAINAGE AND UTILITY EASEMENTS AS MAY BE NECESSARY AND SHALL NOT PROHIBIT ACCESS FOR THE PLACEMENT, CONSTRUCTION, INSTALLATION, REPLACEMENT, REPAIR, MAINTENANCE, RELOCATION, REMOVAL, OPERATION AND INSPECTION OF SUCH DRAINAGE AND UTILITY FACILITIES, AND RELATED APPURTENANCES.
7. A SIX (6) FOOT WIDE SIDEWALK SHALL BE PROVIDED ALONG SCHULTZ LANE.
8. THIS SUBDIVISION IS SUBJECT TO ALL CITY OF PFLUGERVILLE ORDINANCES OR TECHNICAL MANUALS RELATED TO TREE PRESERVATION PER CITY ORDINANCE #1203-15-02-24 AND CITY RESOLUTION #1224-09-08-25-8A.
9. THE COMMUNITY IMPACT FEE RATE FOR WATER AND WASTEWATER WILL BE ASSESSED AT THE TIME OF FINAL PLAT.
10. ON-SITE STORM WATER FACILITIES SHALL BE PROVIDED TO MITIGATE POST-DEVELOPMENT PEAK RUNOFF RATES FOR THE 2 YEAR, 25 YEAR AND 100 YEAR STORM EVENTS.
11. ALL ELECTRIC UTILITY INFRASTRUCTURE INCLUDING BUT NOT LIMITED TO TELEPHONE, CABLE TELEVISION, ELECTRIC UTILITY LATERAL AND SERVICE LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF PFLUGERVILLE ENGINEERING DESIGN MANUAL.
12. THE OWNER OF THIS SUBDIVISION, AND HIS OR HER SUCCESSORS AND ASSIGNS, ASSUMES RESPONSIBILITY FOR PLANS FOR CONSTRUCTION OF SUBDIVISION IMPROVEMENTS WHICH COMPLY WITH APPLICABLE CODES AND REQUIREMENTS OF THE CITY OF PFLUGERVILLE.
13. CONSTRUCTION PLANS AND SPECIFICATIONS FOR ALL SUBDIVISION IMPROVEMENTS SHALL BE REVIEWED AND APPROVED BY THE CITY OF PFLUGERVILLE PRIOR TO ANY CONSTRUCTION.
14. SITE DEVELOPMENT CONSTRUCTION PLANS SHALL BE REVIEWED AND APPROVED BY THE CITY OF PFLUGERVILLE PRIOR TO ANY CONSTRUCTION.
15. NO PORTION OF THIS TRACT IS WITHIN A FLOOD HAZARD AREA AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP PANEL #48453C0260J FOR TRAVIS COUNTY, EFFECTIVE AUGUST 18, 2014.
16. ALL PROPOSED FENCES AND WALLS ADJACENT TO INTERSECTING PUBLIC ROADWAY RIGHT-OF-WAY OR ADJACENT TO PRIVATE ACCESS DRIVES SHALL BE IN COMPLIANCE WITH THE SIGHT DISTANCE REQUIREMENTS OF THE CITY OF PFLUGERVILLE ENGINEERING DESIGN MANUAL, AS AMENDED.
17. WASTEWATER AND WATER SYSTEMS SHALL CONFORM TO TCEQ (TEXAS COMMISSION ON ENVIRONMENTAL QUALITY) AND STATE BOARD OF INSURANCE REQUIREMENTS. THE OWNER UNDERSTANDS AND ACKNOWLEDGES THAT PLAT VACATION OR RE-PLATTING MAY BE REQUIRED AT THE OWNER'S SOLE EXPENSE IF PLANS TO DEVELOP THIS SUBDIVISION DO NOT COMPLY WITH SUCH CODES AND REQUIREMENTS.

SCHULTZ ADDITION PRELIMINARY PLAN

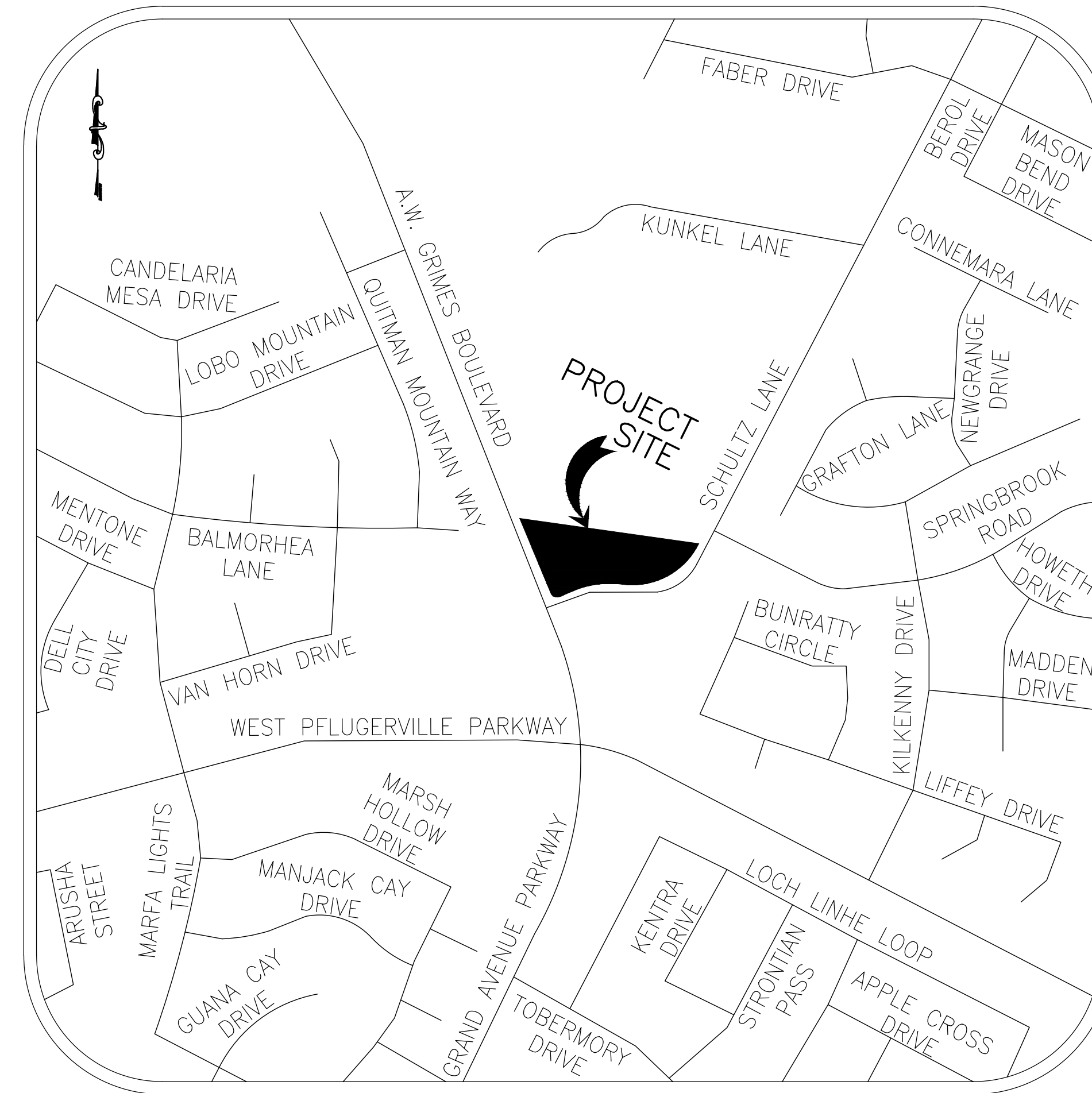
A REPLAT OF
LOT 4A, BLOCK A OF
AMENDING PLAT OF LOT 4, BLOCK A
OF RESUBDIVISION OF LOT 2, BLOCK A
SPRINGBROOK COMMERCIAL SUBDIVISION

BEING A 2.421 ACRE TRACT OF LAND LOCATED
IN THE CITY OF PFLUGERVILLE, TRAVIS COUNTY,
TEXAS.

REVISIONS	DATE	DESCRIPTION	SHEET
-	8.1.2022	SUBMITTAL DATE	-
1	9.2.2022	COP COMMENTS	ALL
2	9.21.2022	COP COMMENTS	ALL

SHEET INDEX

- COVER
- 1 PRELIMINARY PLAN
- 2 UTILITY PLAN
- 3 GRADING SHEET
- 4 ILLUMINATION PLAN
- 5 PRE-DEVELOPMENT DRAINAGE ANALYSIS
- 6 POST-DEVELOPMENT DRAINAGE ANALYSIS
- 7 SUB-DRAINAGE AREAS



VICINITY MAP
1"=400'

UTILITY CONTACTS

TEXAS ONE CALL	1-800-245-4545
TEXAS EXCAVATION SAFETY SYSTEM	1-800-344-8377
CITY OF PFLUGERVILLE, TX	1-512-990-6100
ATMOS	1-888-286-6700
SPECTRUM	1-866-874-2399
HERITAGE BROADBAND	1-512-548-6932
AT&T	1-800-252-1133
TIME WARNER CABLE	1-800-892-4357



OWNER:
TUFFY SCHULTZ, LLC
8721 MENDOCINO DR
AUSTIN, TEXAS 78735

ENGINEER:
TURLEY ASSOCIATES, INC.
301 NORTH 3RD STREET
TEMPLE, TEXAS 76501
TBPE NO. F-1658

SURVEYOR:
TURLEY ASSOCIATES, INC.
301 NORTH 3RD STREET
TEMPLE, TEXAS 76501
TBPLS NO. 10056000

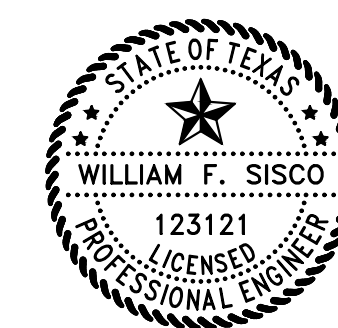
**CITY OF PFLUGERVILLE
DEPARTMENT:**
100 W MAIN STREET
PFLUGERVILLE, TEXAS 78660
512-990-6300

BM#1: CHISELED "X" IN CONCRETE
N=10146632.83
E=3144361.67
EL= 822.03
LOCATED AT THE NORTHWEST
CORNER OF LOT 1

BM#2: CONCRETE NAIL IN CONCRETE
N=10146605.57
E=3144526.62
EL= 825.62
LOCATED APPROX. 167' EAST OF
BM#1 ALONG PROPERTY LINE

GENERAL INFORMATION:

TOTAL ACREAGE: 2.421 ACRES
LOT 1 ACREAGE: 1.186 ACRES
LOT 2 ACREAGE: 1.235 ACRES
NUMBER OF LOTS: 2 LOTS
NUMBER OF BLOCKS: 1 BLOCK
STREET LENGTH, WIDTH, ACREAGE: N/A
LOT 1 PROPOSED USE: COFFEE
SHOP WITH DRIVE-THROUGH
LOT 2 PROPOSED USE: DAY
CARE CENTER



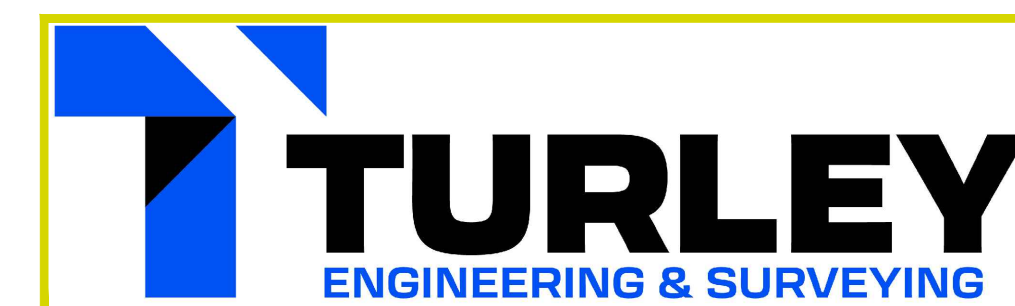
I, THE UNDERSIGNED, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, HEREBY CERTIFY, THAT PROPER ENGINEERING CONSIDERATION HAS BEEN GIVEN TO THESE PLANS:

William F. Sisco

WILLIAM F. SISCO, P.E.
NO. 123121

9/21/2022
DATE

**PRELIMINARY
PLAN ONLY-
NOT FOR
RECORDATION**



301 N. 3rd Street
Temple, TX 76501
office 254.773.2400
www.turley-inc.com
TBPE No. F-1658, TBPLS No. 10056000

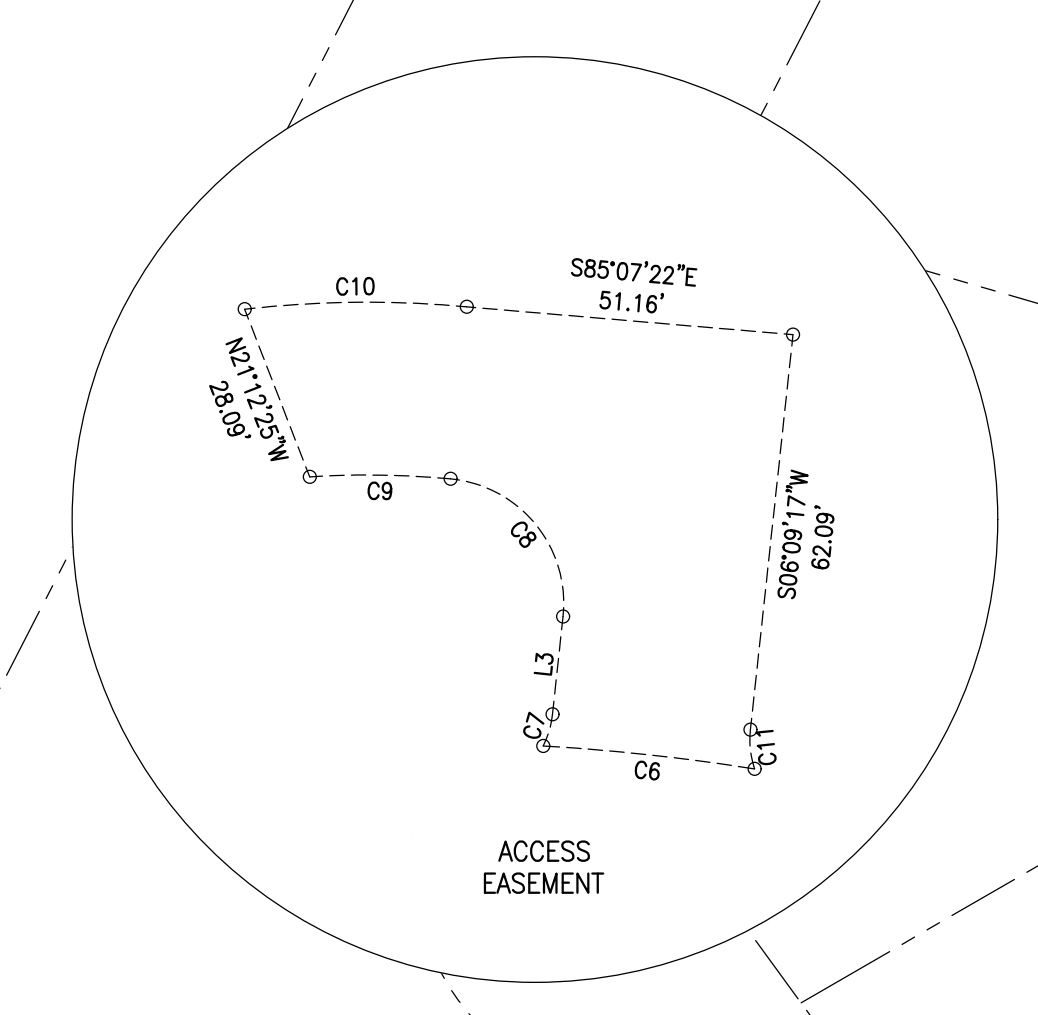
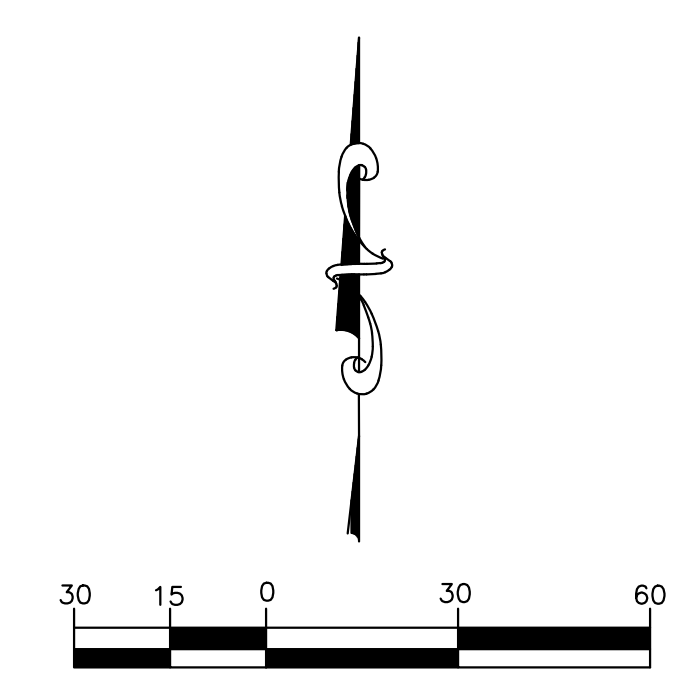
22-814
22814-D

LOT 3, BLOCK A
RESUBDIVISION OF LOT 2, BLOCK A
SPRINGBROOK COMMERCIAL SUBDIVISION
VOL. 100, PG. 198

LOT 2, BLOCK A
RESUBDIVISION OF LOT 2, BLOCK A
SPRINGBROOK COMMERCIAL SUBDIVISION
VOL. 100, PG. 198

BM#1
EL=822.03
N=10146632.83
E=31444361.67

BM#2
CONC. NAIL IN CONC.
EL=825.62
N=10146605.57
E=3144526.62



P.O.B.
CHISELED "X" IN
CONCRETE FOUND

R.O.W. DEDICATION
DOC. NO. 2003242988

A.W. GRIMES
BOULEVARD
R.O.W. VARIES

LOT 1, BLOCK A
1.186 ACRES

LOT 2, BLOCK A
1.235 ACRES

SCHULTZ LANE
70' R.O.W.
(DOC. NO. 2009139730)

LOT 4C, BLOCK A
AMENDING PLAT OF LOT 4, BLOCK A OF
RESUBDIVISION OF LOT 2 BLOCK A OF
SPRINGBROOK COMMERCIAL SUBDIVISION
DOC. NO. 201200066

LOT 4B, BLOCK A
AMENDING PLAT OF LOT 4, BLOCK A OF
RESUBDIVISION OF LOT 2 BLOCK A OF
SPRINGBROOK COMMERCIAL SUBDIVISION
DOC. NO. 201200066

BLOCK A
SPRINGBROOK GLEN SECTION ONE
VOL. 98, PG. 1-4

Line #	Direction	Length
L1	N39°27'44"E	41.42'
L3	N6°09'17"E	15.37'

Curve #	Length	Radius	Delta	Chord
C1	331.01'	265.03'	71°33'38"	S63°22'09"W 309.91'
C2	178.39'	335.03'	30°30'29"	S83°55'28"W 176.29'
C3	39.98'	25.00'	91°38'13"	N66°31'14"W 35.86'
C4	54.50'	335.03'	9°19'14"	N85°28'55"W 54.44'
C5	123.89'	335.03'	21°11'15"	S79°15'51"W 123.19'
C6	33.23'	335.03'	5°40'58"	N83°48'44"W 33.22'
C7	5.18'	14.50'	20°27'27"	N16°23'00"E 5.15'
C8	30.90'	19.50'	90°47'43"	N39°14'35"W 27.77'
C9	22.04'	139.50'	9°03'09"	N89°10'01"W 22.02'
C10	34.76'	166.50'	11°57'45"	N89°22'41"E 34.70'
C11	6.19'	14.50'	24°27'55"	S6°04'41"E 6.14'

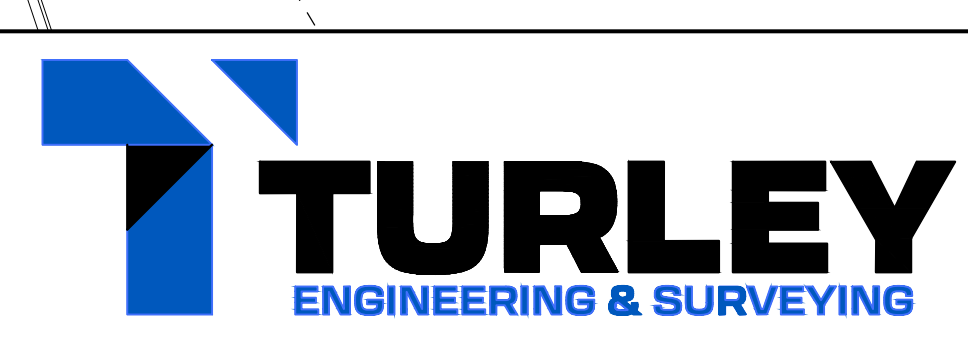
- LEGEND:**
- D.E. DRAINAGE EASEMENT
 - P.O.B. POINT OF BEGINNING
 - PUE PUBLIC UTILITY EASEMENT
 - DOC. DOCUMENT
 - R.O.W. RIGHT-OF-WAY
 - IRF IRON ROD FOUND
 - VOL VOLUME
 - PG PAGE
 - CH CHORD LENGTH
 - L ARC LENGTH
 - BM BENCHMARK
 - EXISTING 6" SIDEWALK
 - PROPOSED 6" SIDEWALK
 - BOUNDARY LINE
 - EASEMENT LINE
 - LOT LINE
 - SUBDIVISION BOUNDARY

BM#1: CHISELED "X" IN CONCRETE
N=10146632.83
E=31444361.67
EL= 822.03

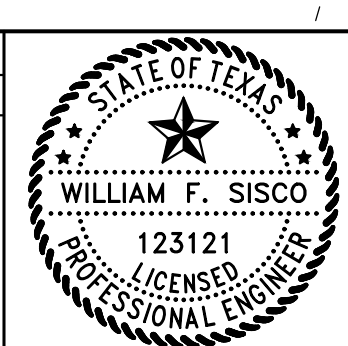
BM#2: CONCRETE NAIL IN CONCRETE
N=10146605.57
E=3144526.62
EL= 825.62

REVISIONS	DATE	DESCRIPTION	DFTR.
	9/2/2022	COP COMMENTS	MEB
	9/21/2022	COP COMMENTS	MEB

WWW.TURLEY-INC.COM
254-773-2400
301 N. 3RD ST.
TEMPLE, TEXAS 76501
ENGINEERING FIRM NO. 1658
SURVEY FIRM NO. 10056000



DRAFTSMAN: LJC
DESIGNER: MEB
ENGINEER: *[Signature]*
DATE: 9/21/2022



PROJECT: SCHULTZ ADDITION
PRELIMINARY PLAN
PROJECT NUMBER 2022-7-PP
FILE NAME: 22-814 Preliminary Plan.dwg
REF. DWG(S):

TITLE: PRELIMINARY PLAN
JOB#: 22-814
PAGE#: 1

LOT 3, BLOCK A
RESUBDIVISION OF LOT 2, BLOCK A
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VOL. 100, PG. 198

LOT 2, BLOCK A
RESUBDIVISION OF LOT 2, BLOCK A
SPRINGBROOK COMMERCIAL SUBDIVISION
VOL. 100, PG. 198

LOT 1, BLOCK A
1.186 ACRES

LOT 2, BLOCK A
1.235 ACRES

A.W. GRIMES
BOULEVARD
R.O.W. VARIES

SCHULTZ LANE
70' R.O.W.
(DOC. NO. 2009139730)

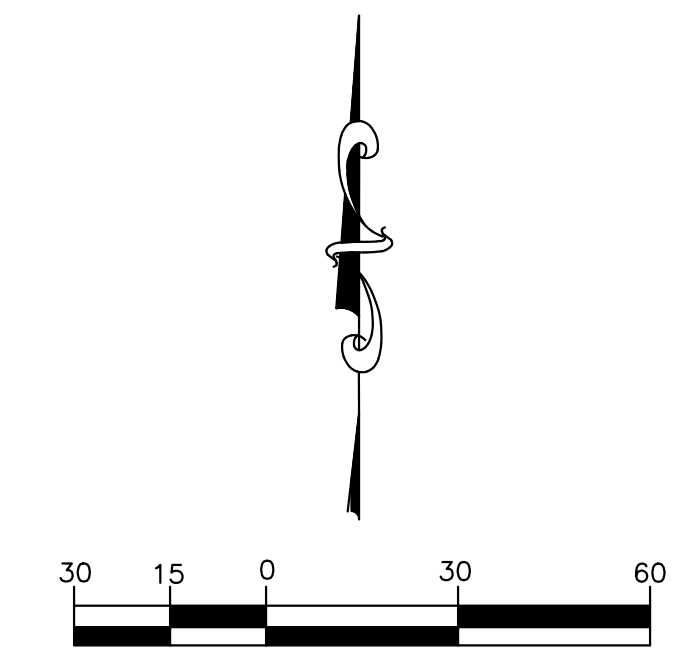
LOT 3
WASH N ROLL: A REPLAT OF
LOT 58, BLOCK B CAMBRIDGE
HEIGHTS COMMERCIAL
DOC. NO. 201800335

LOT 2
WASH N ROLL: A REPLAT OF
LOT 58, BLOCK B CAMBRIDGE
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DOC. NO. 201800335

LOT 4C, BLOCK A
AMENDING PLAT OF LOT 4, BLOCK A OF
RESUBDIVISION OF LOT 2 BLOCK A
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DOC. NO. 201200066

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AMENDING PLAT OF LOT 4, BLOCK A OF
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DOC. NO. 201200066

BLOCK A
SPRINGBROOK GLEN SECTION ONE
VOL. 98, PG. 1-4



BM#1
EL=822.03
N=1014632.83
E=3144361.67

BM#2
CONC. NAIL IN CONC.
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N=1014605.57
E=3144526.62

N=10146363.46
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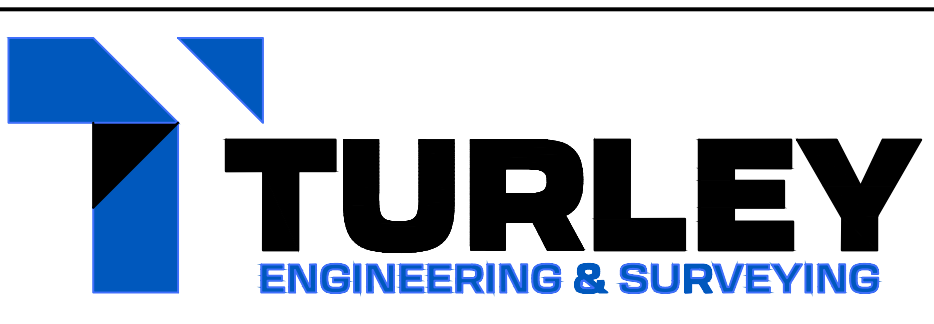
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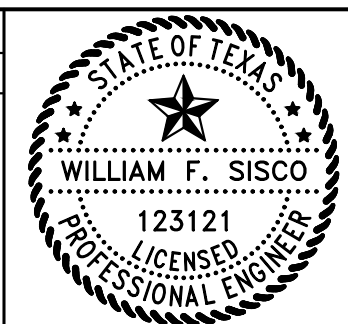
UTILITY PLAN KEYED NOTES	
1	F&I: 4' MANHOLE
2	F&I: 84.26 LF OR 8" SEWER MAIN
3	F&I: CONNECTION TO EXISTING MANHOLE
4	EXISTING 8" WASTEWATER LINE
5	F&I: 1-8"x8" WET TAPPING SLEEVE AND VALVE
6	F&I: 58 LF 18" STEEL CASING AND SPACERS BY BORE
7	F&I: 62.61 LF OF 8" C900/CL150 WATERLINE
8	F&I: FIRE HYDRANT ASSEMBLY
9	EXISTING 8" WATERLINE

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DRAFTSMAN: LJC
DESIGNER: MEB
ENGINEER: *[Signature]*
DATE: 9/21/2022



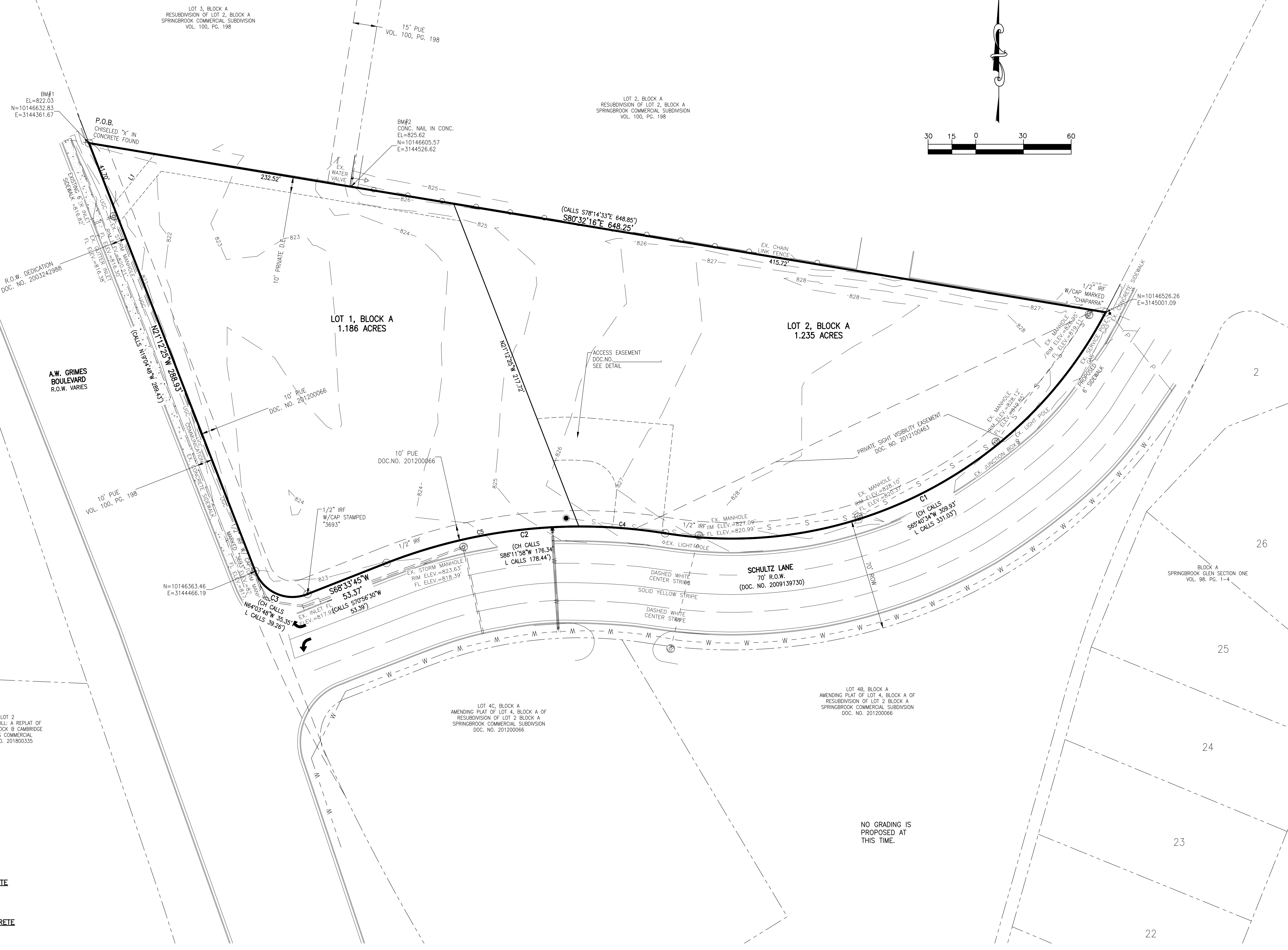
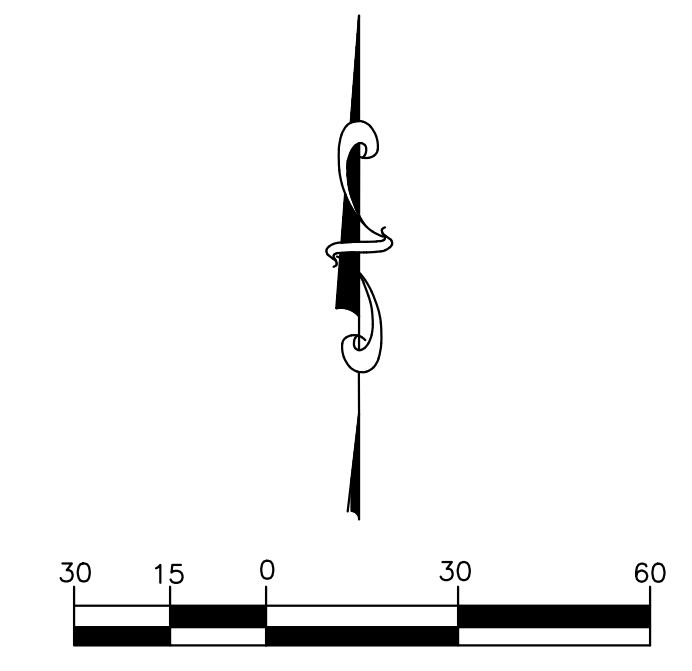
PROJECT: SCHULTZ ADDITION
PRELIMINARY PLAN
PROJECT NUMBER 2022-7-PP

FILE NAME: 22-814 Preliminary Plan.dwg
REF. DWG(s):

TITLE: UTILITY PLAN

JOB#: 22-814
PAGE#: 2

LEGEND:
 - - - - - NATURAL GROUND
 _____ FINISHED GROUND
 NO GRADING IS PROPOSED AT THIS TIME



LOT 3, BLOCK A
 RESUBDIVISION OF LOT 2, BLOCK A
 SPRINGBROOK COMMERCIAL SUBDIVISION
 VOL. 100, PG. 198

LOT 2, BLOCK A
 RESUBDIVISION OF LOT 2, BLOCK A
 SPRINGBROOK COMMERCIAL SUBDIVISION
 VOL. 100, PG. 198

LOT 1, BLOCK A
 1.186 ACRES

LOT 2, BLOCK A
 1.235 ACRES

SCHULTZ LANE
 70' R.O.W.
 (DOC. NO. 2009139730)

A.W. GRIMES
 BOULEVARD
 R.O.W. VARIES

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 LOT 58, BLOCK B CAMBRIDGE
 HEIGHTS COMMERCIAL
 DOC. NO. 201800335

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 WASH N ROLL: A REPLAT OF
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LOT 4C, BLOCK A
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LOT 4B, BLOCK A
 AMENDING PLAT OF LOT 4, BLOCK A OF
 RESUBDIVISION OF LOT 2, BLOCK A OF
 SPRINGBROOK COMMERCIAL SUBDIVISION
 DOC. NO. 201200066

LOT 26
 BLOCK A
 SPRINGBROOK GLEN SECTION ONE
 VOL. 98, PG. 1-4

LOT 25

LOT 24

LOT 23

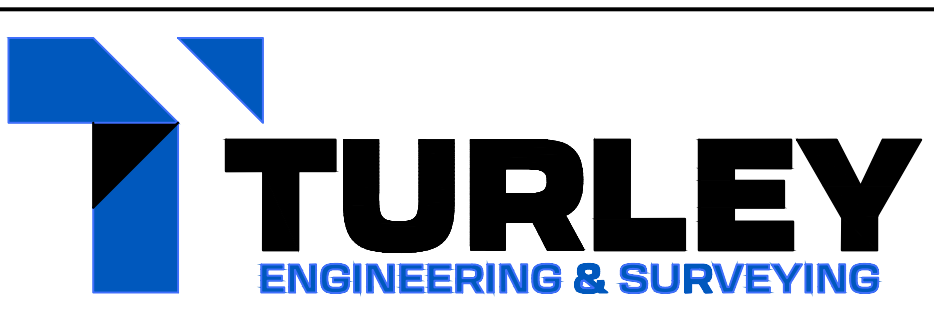
LOT 22

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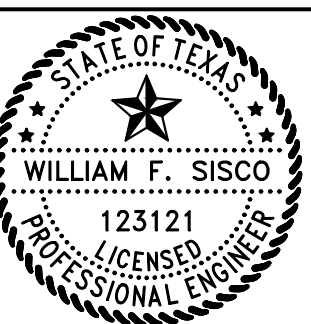
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 DESIGNER: MEB
 ENGINEER: *William F. Sisco*
 DATE: 9/21/2022



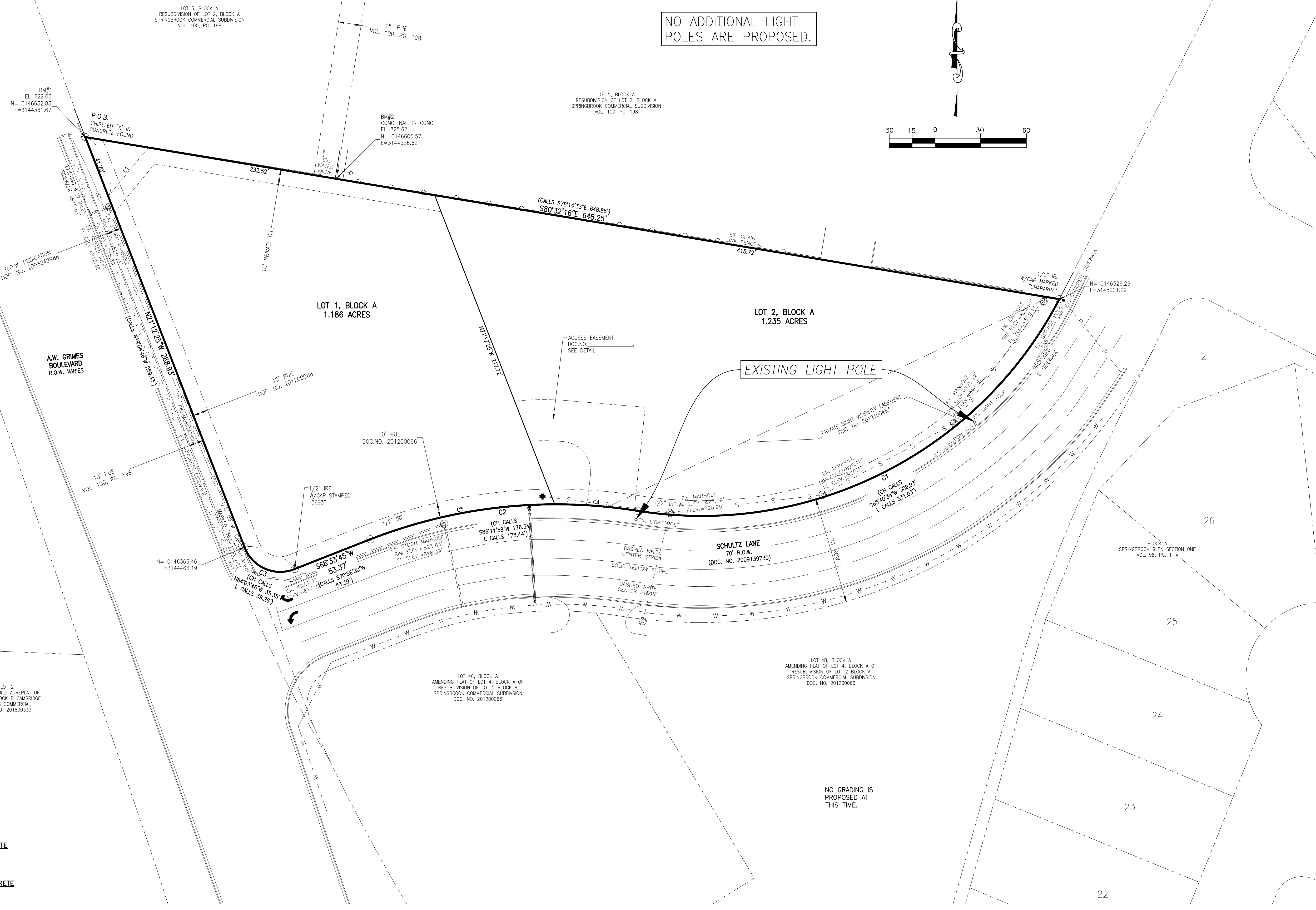
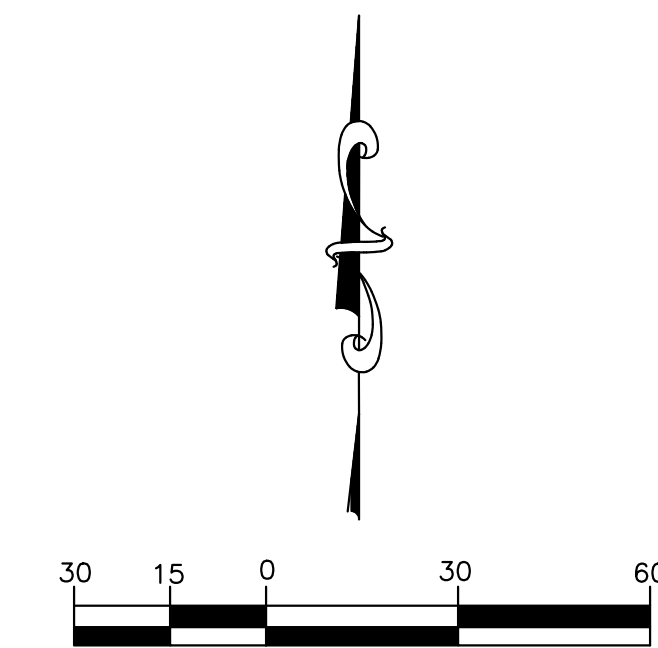
PROJECT: SCHULTZ ADDITION
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FILE NAME: 22-814 Preliminary Plan.dwg
 REF. DWG(s):

TITLE: GRADING SHEET

JOB# 22-814 PAGE# 3

NO ADDITIONAL LIGHT POLES ARE PROPOSED.

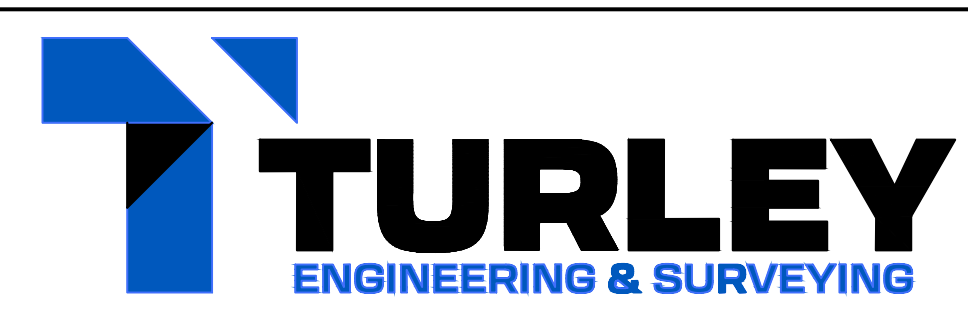


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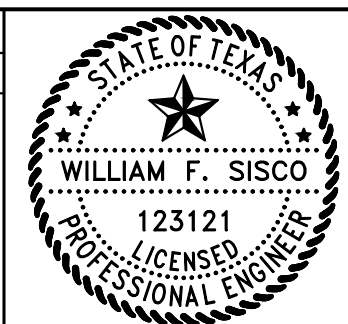
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 E=3144526.62
 EL= 825.62

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	9/21/2022	COP COMMENTS	MEB

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DRAFTSMAN: LJC
 DESIGNER: MEB
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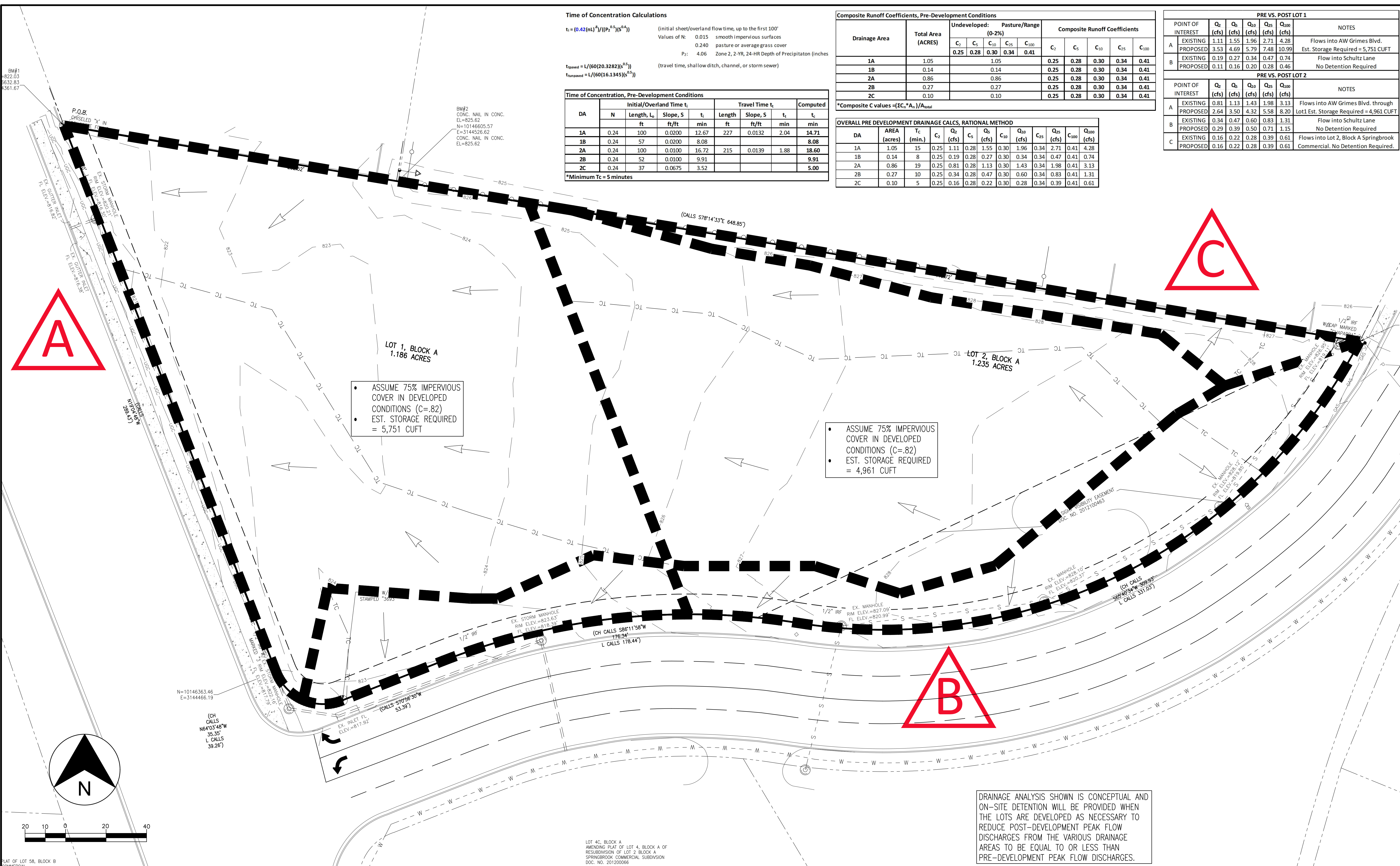


PROJECT: SCHULTZ ADDITION
 PRELIMINARY PLAN
 PROJECT NUMBER 2022-7-PP

FILE NAME: 22-814 Preliminary Plan.dwg
 REF. DWG(s):

TITLE: ILLUMINATION PLAN

JOB# 22-814 PAGE# 4



Time of Concentration Calculations
 $t_t = (0.42(nL)^0.8) / (P_2^{0.5})(S^{0.5})$ (Initial sheet/overland flow time, up to the first 100'
 Values of N: 0.015 smooth impervious surfaces
 0.240 pasture or average grass cover
 P_2 : 4.06 Zone 2, 2-YR, 24-HR Depth of Precipitation (inches)
 $t_{\text{trapped}} = L / (60(20.3282)(S^{0.5}))$ (travel time, shallow ditch, channel, or storm sewer)
 $t_{\text{unpaved}} = L / (60(16.1345)(S^{0.5}))$

Time of Concentration, Pre-Development Conditions

DA	N	Initial/Overland Time t_i			Travel Time t_t			Computed t_c
		Length, L_i ft	Slope, S ft/ft	t_i min	Length ft	Slope, S ft/ft	t_t min	
1A	0.24	100	0.0200	12.67	227	0.0132	2.04	14.71
1B	0.24	57	0.0200	8.08				8.08
2A	0.24	100	0.0100	16.72	215	0.0139	1.88	18.60
2B	0.24	52	0.0100	9.91				9.91
2C	0.24	37	0.0675	3.52				5.00

*Minimum $T_c = 5$ minutes

Composite Runoff Coefficients, Pre-Development Conditions

Drainage Area	Total Area (ACRES)	Undeveloped: Pasture/Range (0-2%)					Composite Runoff Coefficients				
		C_1	C_5	C_{10}	C_{25}	C_{100}	C_2	C_5	C_{10}	C_{25}	C_{100}
1A	1.05						0.25	0.28	0.30	0.34	0.41
1B	0.14						0.25	0.28	0.30	0.34	0.41
2A	0.86						0.25	0.28	0.30	0.34	0.41
2B	0.27						0.25	0.28	0.30	0.34	0.41
2C	0.10						0.25	0.28	0.30	0.34	0.41

*Composite C values = $\{ \sum C_i \cdot A_i \} / A_{\text{total}}$

OVERALL PRE DEVELOPMENT DRAINAGE CALCS, RATIONAL METHOD

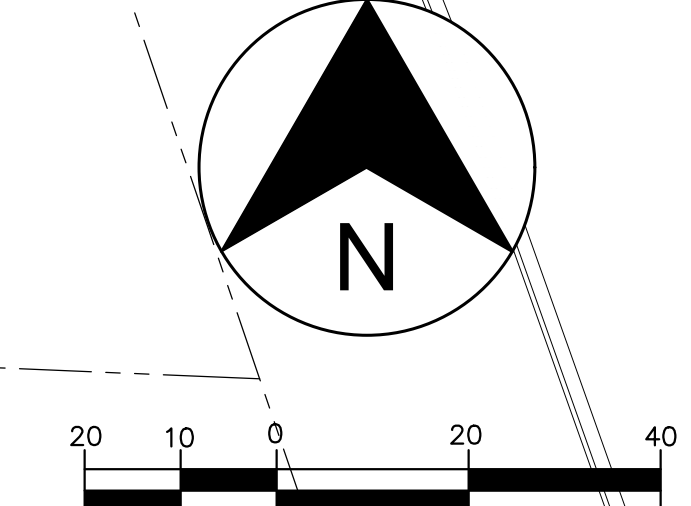
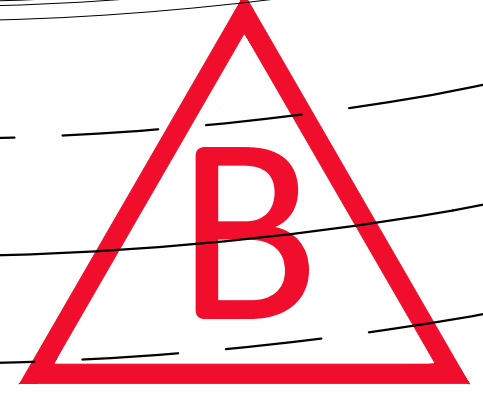
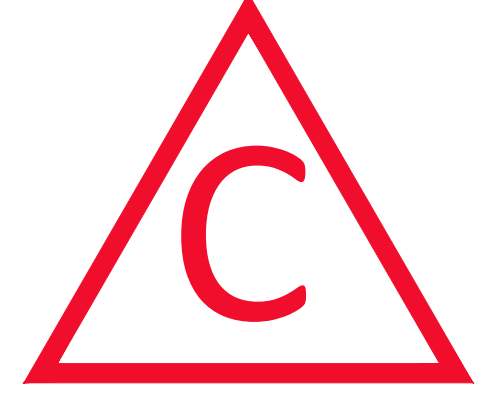
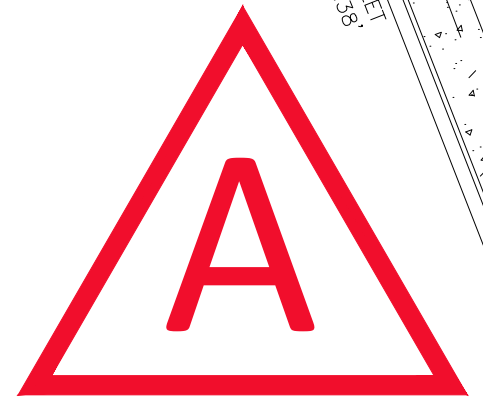
DA	AREA (acres)	T_c (min.)	C_2	Q_2 (cfs)	C_5	Q_5 (cfs)	C_{10}	Q_{10} (cfs)	C_{25}	Q_{25} (cfs)	C_{100}	Q_{100} (cfs)
1A	1.05	15	0.25	1.11	0.28	1.55	0.30	1.96	0.34	2.71	0.41	4.28
1B	0.14	8	0.25	0.19	0.28	0.27	0.30	0.34	0.34	0.47	0.41	0.74
2A	0.86	19	0.25	0.81	0.28	1.13	0.30	1.43	0.34	1.98	0.41	3.13
2B	0.27	10	0.25	0.34	0.28	0.47	0.30	0.60	0.34	0.83	0.41	1.31
2C	0.10	5	0.25	0.16	0.28	0.22	0.30	0.28	0.34	0.39	0.41	0.61

PRE VS. POST LOT 1

POINT OF INTEREST	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)	NOTES
A EXISTING	1.11	1.55	1.96	2.71	4.28	Flows into AW Grimes Blvd.
A PROPOSED	3.53	4.69	5.79	7.48	10.99	Est. Storage Required = 5,751 CUFT
B EXISTING	0.19	0.27	0.34	0.47	0.74	Flow into Schultz Lane
B PROPOSED	0.11	0.16	0.20	0.28	0.46	No Detention Required

PRE VS. POST LOT 2

POINT OF INTEREST	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)	NOTES
A EXISTING	0.81	1.13	1.43	1.98	3.13	Flows into AW Grimes Blvd. through Lot 1 Est. Storage Required = 4,961 CUFT
A PROPOSED	2.64	3.50	4.32	5.58	8.20	
B EXISTING	0.34	0.47	0.60	0.83	1.31	Flow into Schultz Lane
B PROPOSED	0.29	0.39	0.50	0.71	1.15	No Detention Required
C EXISTING	0.16	0.22	0.28	0.39	0.61	Flows into Lot 2, Block A Springbrook Commercial. No Detention Required.
C PROPOSED	0.16	0.22	0.28	0.39	0.61	



• ASSUME 75% IMPERVIOUS COVER IN DEVELOPED CONDITIONS (C=.82)
 • EST. STORAGE REQUIRED = 5,751 CUFT

• ASSUME 75% IMPERVIOUS COVER IN DEVELOPED CONDITIONS (C=.82)
 • EST. STORAGE REQUIRED = 4,961 CUFT

DRAINAGE ANALYSIS SHOWN IS CONCEPTUAL AND ON-SITE DETENTION WILL BE PROVIDED WHEN THE LOTS ARE DEVELOPED AS NECESSARY TO REDUCE POST-DEVELOPMENT PEAK FLOW DISCHARGES FROM THE VARIOUS DRAINAGE AREAS TO BE EQUAL TO OR LESS THAN PRE-DEVELOPMENT PEAK FLOW DISCHARGES.

Time of Concentration Calculations

$t_t = (0.42(nL)^2)/(P_2^{0.5})(S^{0.4})$ (Initial sheet/overland flow time, up to the first 100'
 Values of N: 0.015 smooth impervious surfaces
 0.240 pasture or average grass cover
 P: 4.06 Zone 2, 2-YR, 24-HR Depth of Precipitation (inches)
 $t_{travel} = L/(60(20.3282)(S^{0.5}))$ (travel time, shallow ditch, channel, or storm sewer)
 $t_{unimpaved} = L/(60(16.1345)(S^{0.5}))$

Time of Concentration, Post-Development Conditions

DA	Initial/Overland Time t_t			Travel Time t_t			Computed
	N	Length, L _o ft	Slope, S ft/ft	L _o ft	Slope, S ft/ft	t_t min	
1A	0.24	59	0.0200	8.31			8.83
1B	0.24	43	0.0100	8.51			8.31
2A	0.24	43	0.0100	8.51			11.16
2B	0.24	37	0.0675	3.52			8.51
2C	0.24	37	0.0675	3.52			5.00

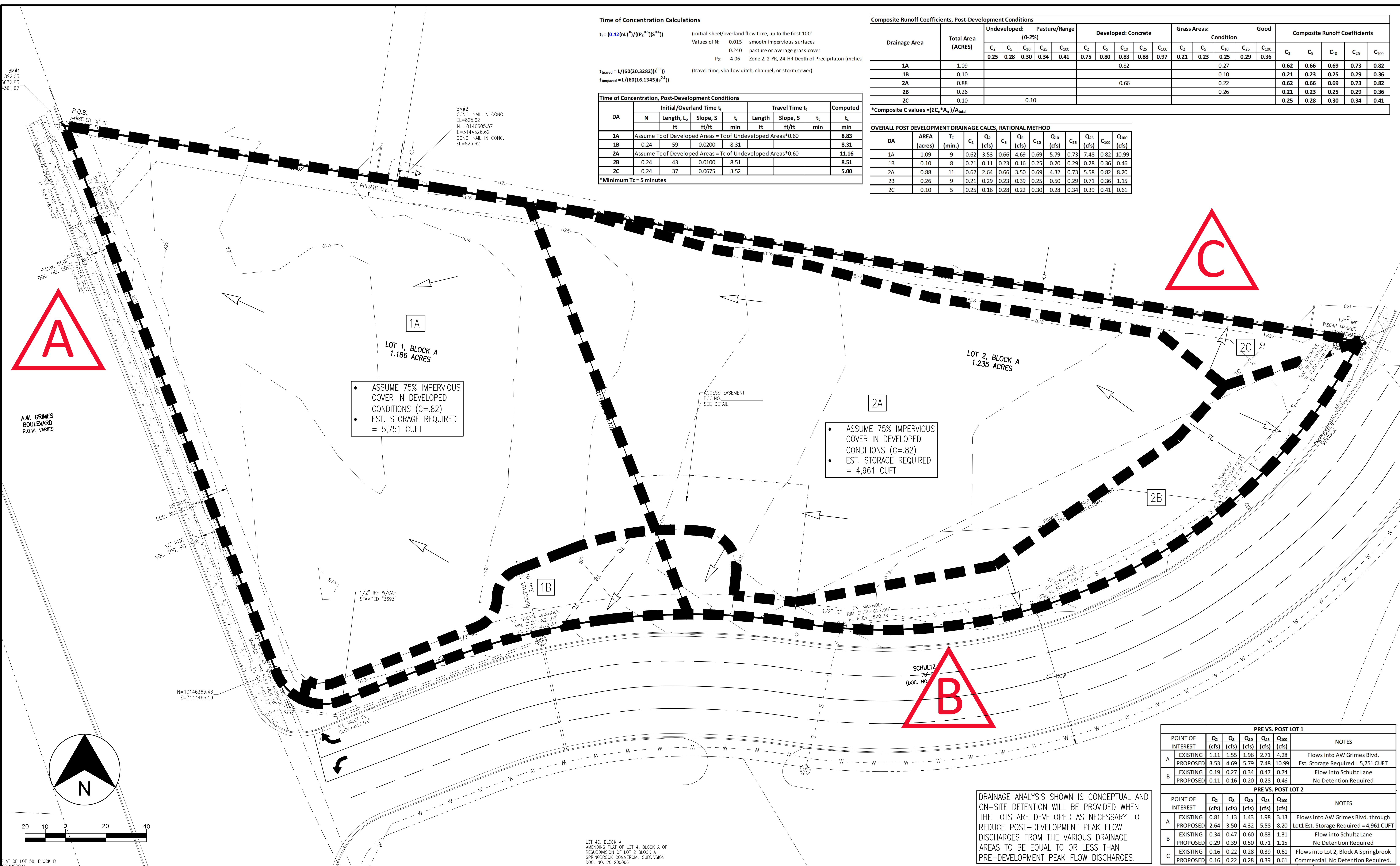
*Minimum Tc = 5 minutes

Composite Runoff Coefficients, Post-Development Conditions

Drainage Area	Total Area (ACRES)	Undeveloped: Pasture/Range (0-2%)					Developed: Concrete					Grass Areas: Condition Good					Composite Runoff Coefficients				
		C ₁	C ₂	C ₁₀	C ₂₅	C ₁₀₀	C ₁	C ₂	C ₁₀	C ₂₅	C ₁₀₀	C ₁	C ₂	C ₁₀	C ₂₅	C ₁₀₀	C ₁	C ₂	C ₁₀	C ₂₅	C ₁₀₀
1A	1.09	0.25	0.28	0.30	0.34	0.41	0.75	0.80	0.83	0.88	0.97	0.21	0.23	0.25	0.29	0.36	0.62	0.66	0.69	0.73	0.82
1B	0.10																0.21	0.23	0.25	0.29	0.36
2A	0.88																0.62	0.66	0.69	0.73	0.82
2B	0.26																0.21	0.23	0.25	0.29	0.36
2C	0.10																0.25	0.28	0.30	0.34	0.41

OVERALL POST DEVELOPMENT DRAINAGE CALCS, RATIONAL METHOD

DA	AREA (acres)	T _c (min.)	C ₂	Q ₂ (cfs)	C ₅	Q ₅ (cfs)	C ₁₀	Q ₁₀ (cfs)	C ₂₅	Q ₂₅ (cfs)	C ₁₀₀	Q ₁₀₀ (cfs)
1A	1.09	9	0.62	3.53	0.66	4.69	0.69	5.79	0.73	7.48	0.82	10.99
1B	0.10	8	0.21	0.11	0.23	0.16	0.25	0.20	0.29	0.28	0.36	0.46
2A	0.88	11	0.62	2.64	0.66	3.50	0.69	4.32	0.73	5.58	0.82	8.20
2B	0.26	9	0.21	0.29	0.23	0.39	0.25	0.50	0.29	0.71	0.36	1.15
2C	0.10	5	0.25	0.16	0.28	0.22	0.30	0.28	0.34	0.39	0.41	0.61



• ASSUME 75% IMPERVIOUS COVER IN DEVELOPED CONDITIONS (C=.82)
 • EST. STORAGE REQUIRED = 5,751 CUFT

• ASSUME 75% IMPERVIOUS COVER IN DEVELOPED CONDITIONS (C=.82)
 • EST. STORAGE REQUIRED = 4,961 CUFT

PRE VS. POST LOT 1

POINT OF INTEREST	Q ₂ (cfs)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	NOTES
A EXISTING	1.11	1.55	1.96	2.71	4.28	Flows into AW Grimes Blvd.
A PROPOSED	3.53	4.69	5.79	7.48	10.99	Est. Storage Required = 5,751 CUFT
B EXISTING	0.19	0.27	0.34	0.47	0.74	Flow into Schultz Lane
B PROPOSED	0.11	0.16	0.20	0.28	0.46	No Detention Required

PRE VS. POST LOT 2

POINT OF INTEREST	Q ₂ (cfs)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	NOTES
A EXISTING	0.81	1.13	1.43	1.98	3.13	Flows into AW Grimes Blvd. through Lot1 Est. Storage Required = 4,961 CUFT
A PROPOSED	2.64	3.50	4.32	5.58	8.20	
B EXISTING	0.34	0.47	0.60	0.83	1.31	Flow into Schultz Lane
B PROPOSED	0.29	0.39	0.50	0.71	1.15	No Detention Required
C EXISTING	0.16	0.22	0.28	0.39	0.61	Flows into Lot 2, Block A Springbrook
C PROPOSED	0.16	0.22	0.28	0.39	0.61	Commercial. No Detention Required.

DRAINAGE ANALYSIS SHOWN IS CONCEPTUAL AND ON-SITE DETENTION WILL BE PROVIDED WHEN THE LOTS ARE DEVELOPED AS NECESSARY TO REDUCE POST-DEVELOPMENT PEAK FLOW DISCHARGES FROM THE VARIOUS DRAINAGE AREAS TO BE EQUAL TO OR LESS THAN PRE-DEVELOPMENT PEAK FLOW DISCHARGES.

Time of Concentration Calculations

$t_t = (0.42(nL)^2)/(P_2^{0.5})(S^{0.5})$ (Initial sheet/overland flow time, up to the first 100'
 Values of N: 0.015 smooth impervious surfaces
 0.240 pasture or average grass cover
 P: 4.06 Zone 2, 2-YR, 24-HR Depth of Precipitation (inches)
 $t_{travel} = L/(60(20.3282)(S^{0.5}))$ (travel time, shallow ditch, channel, or storm sewer)
 $t_{unimpeded} = L/(60(16.1345)(S^{0.5}))$

Time of Concentration, Post-Development Conditions

DA	Initial/Overland Time t_t			Travel Time t_t			Computed t_t
	N	Length, L _o ft	Slope, S ft/ft	Length ft	Slope, S ft/ft	t_t min	
1A	Assume Tc of Developed Areas = Tc of Undeveloped Areas*0.60						8.83
1B	0.24	59	0.0200			8.31	8.31
2A	Assume Tc of Developed Areas = Tc of Undeveloped Areas*0.60						11.16
2B	0.24	43	0.0100			8.51	8.51
2C	0.24	37	0.0675			3.52	5.00

*Minimum Tc = 5 minutes

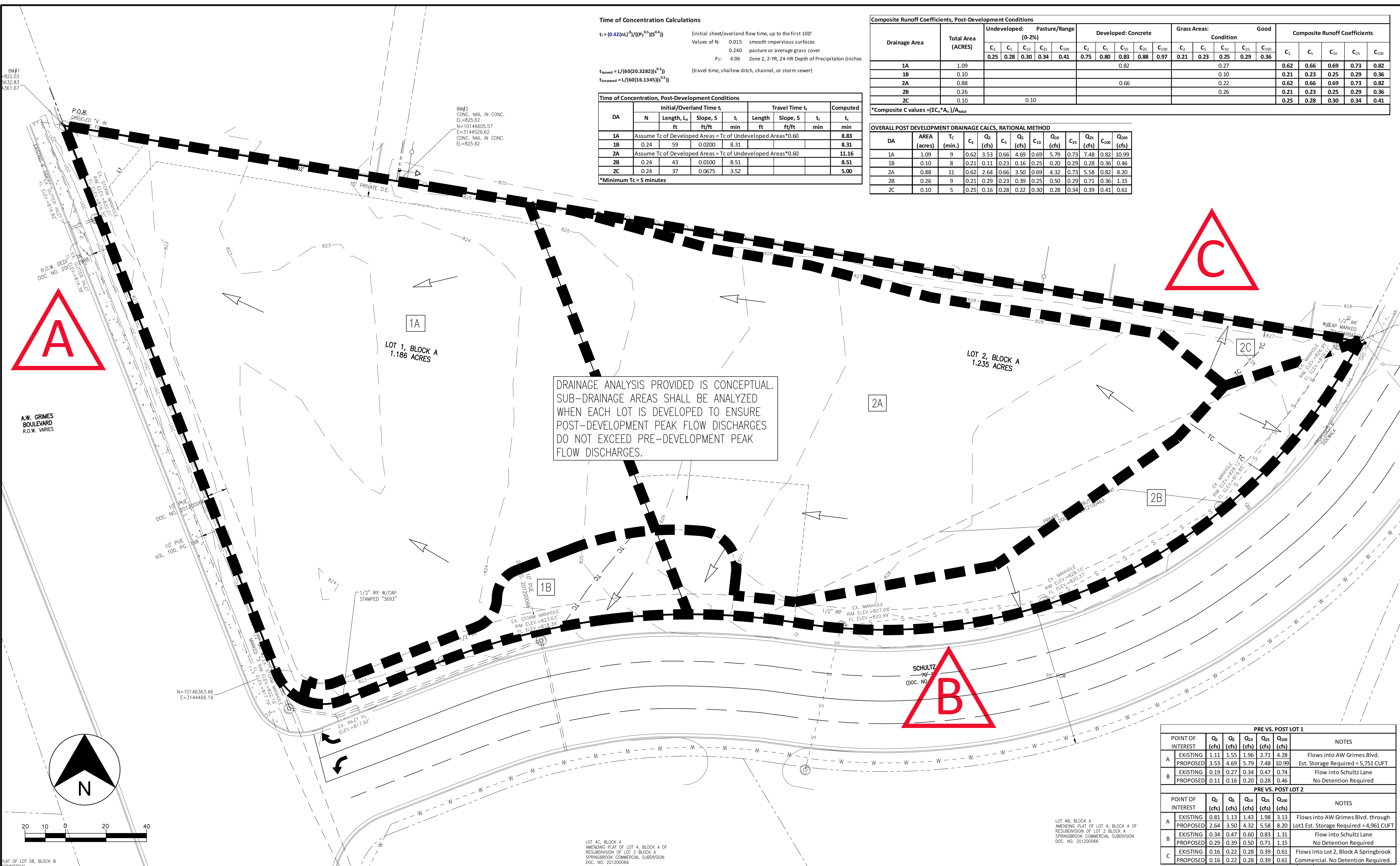
Composite Runoff Coefficients, Post-Development Conditions

Drainage Area	Total Area (ACRES)	Undeveloped: (0-2%)					Developed: Concrete					Grass Areas: Condition Good					Composite Runoff Coefficients				
		C ₁	C ₂	C ₁₀	C ₂₅	C ₁₀₀	C ₁	C ₂	C ₁₀	C ₂₅	C ₁₀₀	C ₁	C ₂	C ₁₀	C ₂₅	C ₁₀₀	C ₁	C ₂	C ₁₀	C ₂₅	C ₁₀₀
1A	1.09	0.25	0.28	0.30	0.34	0.41	0.75	0.80	0.83	0.88	0.97	0.21	0.23	0.25	0.29	0.36	0.62	0.66	0.69	0.73	0.82
1B	0.10																0.21	0.23	0.25	0.29	0.36
2A	0.88																0.62	0.66	0.69	0.73	0.82
2B	0.26																0.21	0.23	0.25	0.29	0.36
2C	0.10																0.25	0.28	0.30	0.34	0.41

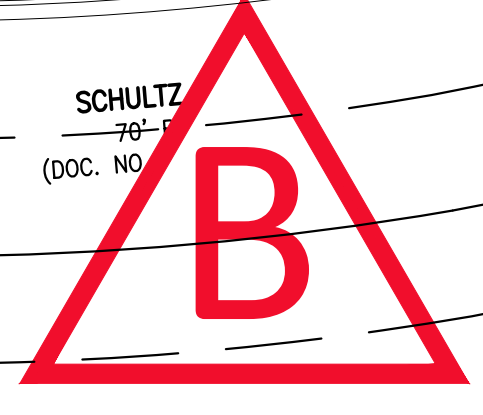
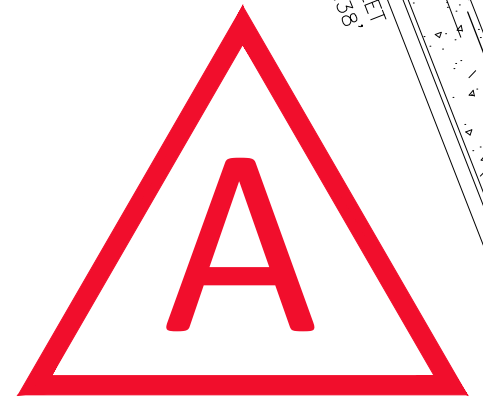
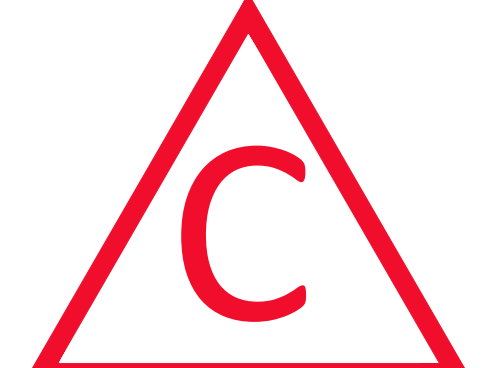
*Composite C values = $(\sum C_i A_i) / A_{total}$

OVERALL POST DEVELOPMENT DRAINAGE CALCS, RATIONAL METHOD

DA	AREA (acres)	T _c (min.)	C ₂	Q ₂ (cfs)	C ₅	Q ₅ (cfs)	C ₁₀	Q ₁₀ (cfs)	C ₂₅	Q ₂₅ (cfs)	C ₁₀₀	Q ₁₀₀ (cfs)
1A	1.09	9	0.62	3.53	0.66	4.69	0.69	5.79	0.73	7.48	0.82	10.99
1B	0.10	8	0.21	0.11	0.23	0.16	0.25	0.20	0.29	0.28	0.36	0.46
2A	0.88	11	0.62	2.64	0.66	3.50	0.69	4.32	0.73	5.58	0.82	8.20
2B	0.26	9	0.21	0.29	0.23	0.39	0.25	0.50	0.29	0.71	0.36	1.15
2C	0.10	5	0.25	0.16	0.28	0.22	0.30	0.28	0.34	0.39	0.41	0.61



DRAINAGE ANALYSIS PROVIDED IS CONCEPTUAL. SUB-DRAINAGE AREAS SHALL BE ANALYZED WHEN EACH LOT IS DEVELOPED TO ENSURE POST-DEVELOPMENT PEAK FLOW DISCHARGES DO NOT EXCEED PRE-DEVELOPMENT PEAK FLOW DISCHARGES.



PRE VS. POST LOT 1						
POINT OF INTEREST	Q ₂ (cfs)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	NOTES
A	EXISTING 1.11	1.55	1.96	2.71	4.28	Flows into AW Grimes Blvd.
	PROPOSED 3.53	4.69	5.79	7.48	10.99	Est. Storage Required = 5,751 CUFT
B	EXISTING 0.19	0.27	0.34	0.47	0.74	Flow into Schultz Lane
	PROPOSED 0.11	0.16	0.20	0.28	0.46	No Detention Required

PRE VS. POST LOT 2						
POINT OF INTEREST	Q ₂ (cfs)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	NOTES
A	EXISTING 0.81	1.13	1.43	1.98	3.13	Flows into AW Grimes Blvd. through
	PROPOSED 2.64	3.50	4.32	5.58	8.20	Lot1 Est. Storage Required = 4,961 CUFT
B	EXISTING 0.34	0.47	0.60	0.83	1.31	Flow into Schultz Lane
	PROPOSED 0.29	0.39	0.50	0.71	1.15	No Detention Required
C	EXISTING 0.16	0.22	0.28	0.39	0.61	Flows into Lot 2, Block A Springbrook
	PROPOSED 0.16	0.22	0.28	0.39	0.61	Commercial. No Detention Required.

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	9/2/2022 COP COMMENTS 9/21/2022 COP COMMENTS			MEB		254-773-2400			
				301 N. 3RD ST. TEMPLE, TEXAS 76501		ENGINEER: <i>William F. Sisco</i>	DATE: 9/21/2022		
				ENGINEERING FIRM NO. 1658 SURVEY FIRM NO. 10056000					