

Hydrological Calculations Summary

Pellegrini Performance Group, LLC
LOT 2-D Deer Cross Park, Phase 2
2.00 acres
Section 4, T-7-S, R-10-E

The rational method was used to determine existing and proposed peak flows to size the drainage pipe network & detention pond.

The rational method is based on the following:

$$Q = CIA$$

Q = peak runoff rate, cfs

I = average rainfall intensity

A = drainage area, acres

1.0 Summary of Hydrograph Flows

1. Existing Conditions:

Area = 2.0 acres

Tc = 10 min

C = 0.65

100 – Year Storm

Total Pre-Existing Flow = 14.33 cfs

2. Developed Conditions

Area = 1.32 acres

Tc = 10 min

C = 0.69

100 – Year Storm

Total Post-Construction Flow = 10.04 cfs

Area = 0.68 acres

Tc = 10 min

C = 0.69

Total Discharge Pipe 22x13 to culvert = 5.16 cfs

Total = 15.20 cfs

2.0 Conclusion

Approximate 0.68 acres will flow through the proposed 22x13 discharge to the existing culvert.
Total Post Construction flow = 15.20 cfs.

$15.20 \text{ cfs} - 14.33 \text{ cfs} = 0.87 \text{ cfs}.$

The post construction flow is less than 1 cfs and therefore should be considered negligible.
1 cfs should not impact the downstream detention pond.

3.0 Appendices

Appendix 1 - Hydrograph Reports

Topo Survey Map

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100 - Year

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Hydrograph 100-yr Summary

Project Name: Pellegrini

Hydrology Studio v 3.0.0.26

08-04-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre Development	14.33	0.17	8,600	---		
2	Rational	Post Development	10.04	0.17	6,025	---		

Hydrograph Report

Project Name: Pellegrini

Hydrology Studio v 3.0.0.26

08-04-2022

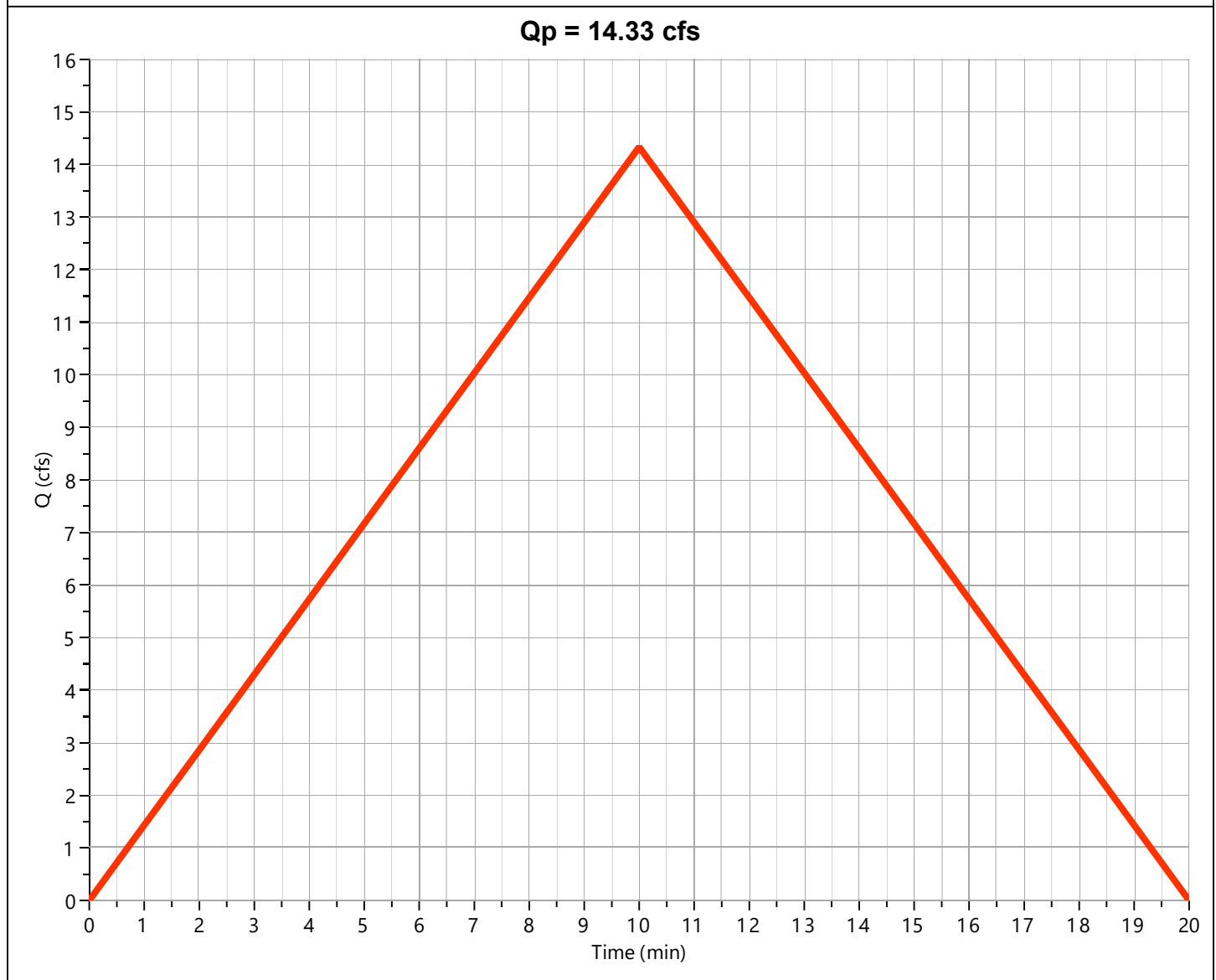
Pre Development

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 14.33 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Runoff Volume	= 8,600 cuft
Drainage Area	= 2.0 ac	Runoff Coeff.	= 0.65*
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
IDF Curve	= MandevilleLA (7).idf	Intensity	= 11.03 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1

* Composite C Worksheet

AREA (ac)	C	DESCRIPTION
1.46	0.70	limestone
0.19	0.90	paving
0.35	0.30	grass
2.0	0.65	



Hydrograph Report

Project Name: Pellegrini

Hydrology Studio v 3.0.0.26

08-04-2022

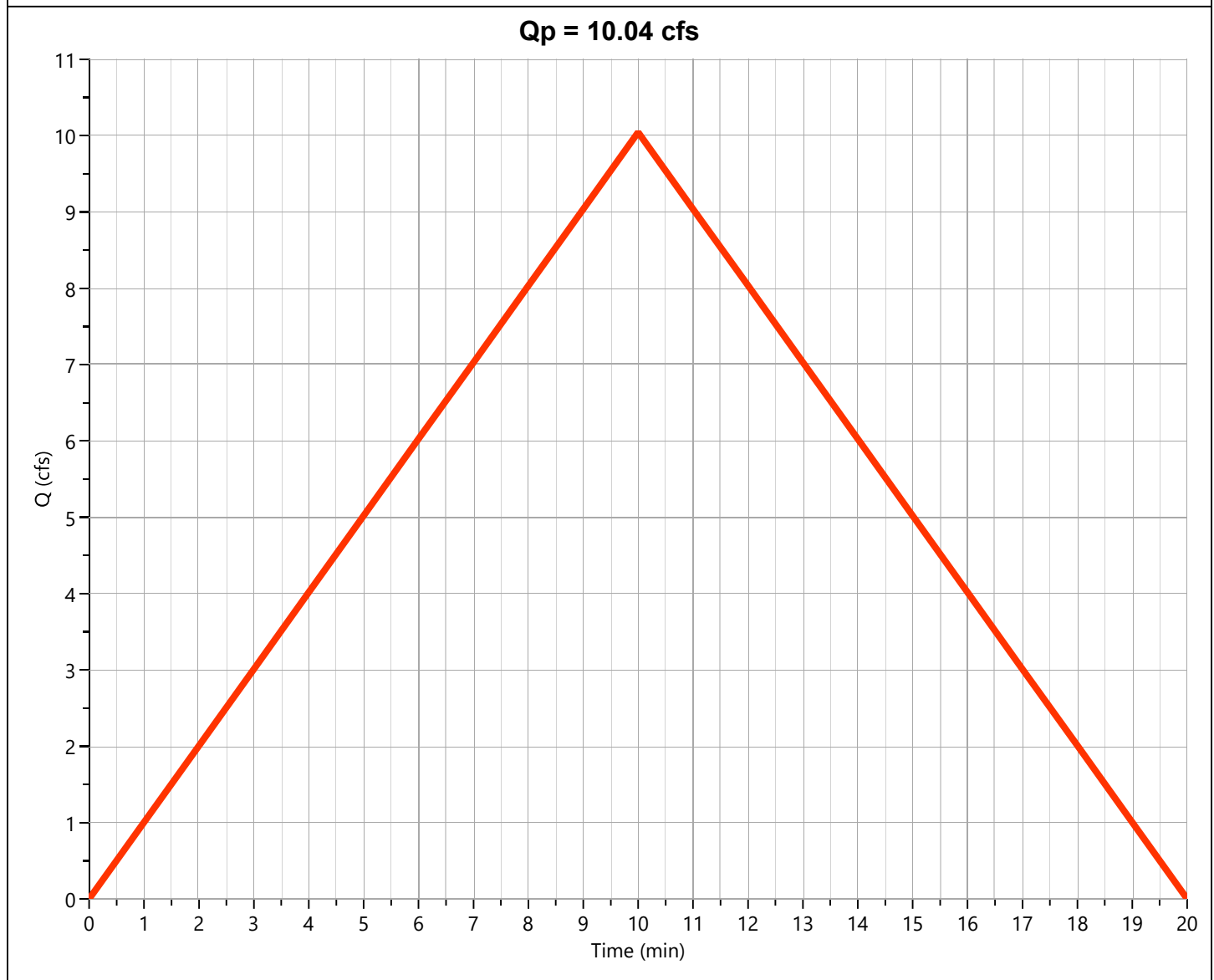
Post Development

Hyd. No. 2

Hydrograph Type	= Rational	Peak Flow	= 10.04 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Runoff Volume	= 6,025 cuft
Drainage Area	= 1.32 ac	Runoff Coeff.	= 0.69*
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
IDF Curve	= MandevilleLA (7).idf	Intensity	= 11.03 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1

* Composite C Worksheet

AREA (ac)	C	DESCRIPTION
0.5	0.70	limestone
0.5	0.90	paving
0.32	0.35	grass
1.32	0.69	



Design Storm Report

Custom Storm filename:

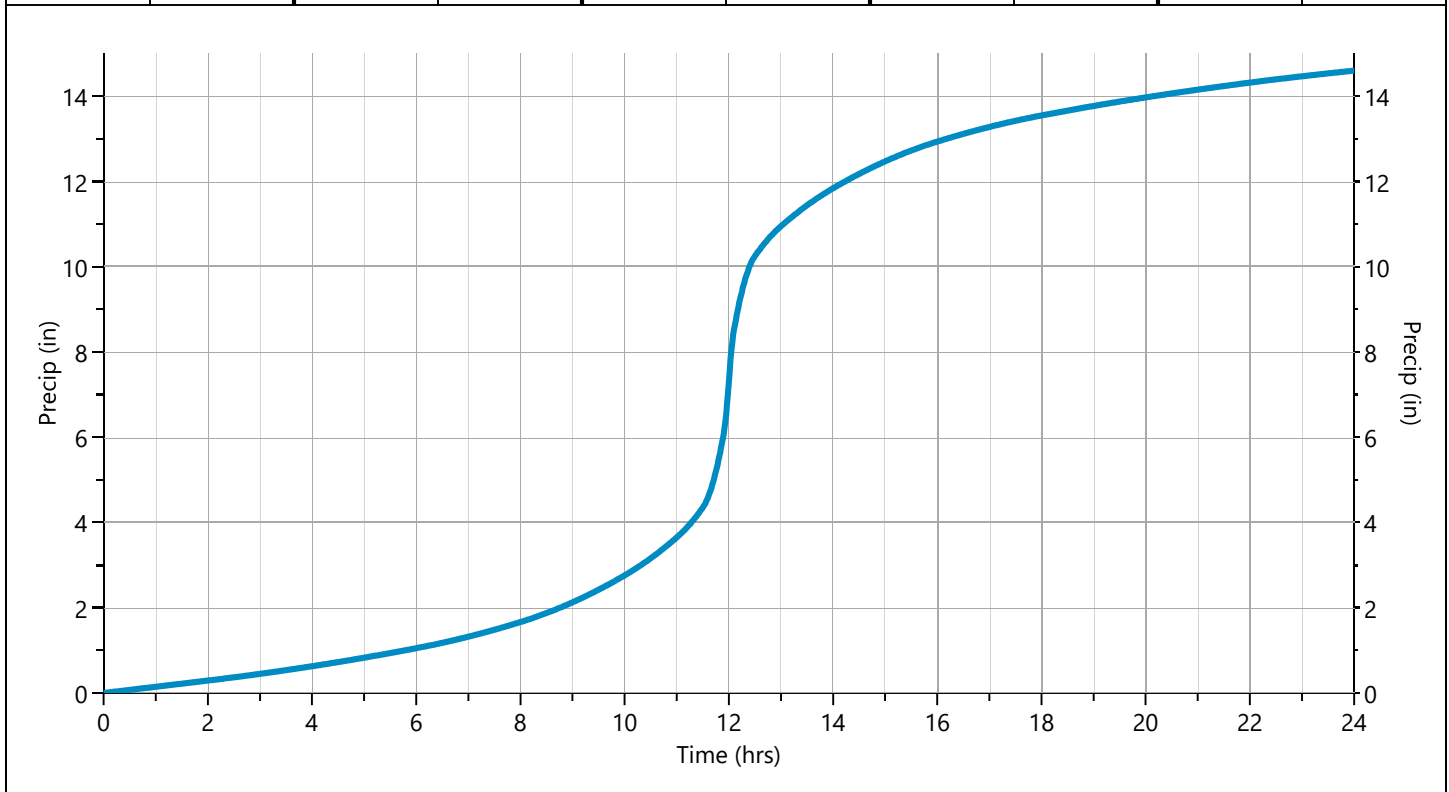
Hydrology Studio v 3.0.0.26

08-04-2022

Storm Distribution: NRCS/SCS - Type III, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	✓ 100-yr	
24 hrs	4.60	5.49	0.00	7.09	8.55	10.80	12.60	14.60	

Incremental Rainfall Distribution, 100-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.028770	11.68	0.066430	11.87	0.105688	12.05	0.219364	12.23	0.087843
11.52	0.030658	11.70	0.069999	11.88	0.109257	12.07	0.189434	12.25	0.084275
11.53	0.034310	11.72	0.073567	11.90	0.112825	12.08	0.159504	12.27	0.080706
11.55	0.037879	11.73	0.077137	11.92	0.129992	12.10	0.129574	12.28	0.077137
11.57	0.041448	11.75	0.080706	11.93	0.159506	12.12	0.113254	12.30	0.073567
11.58	0.045017	11.77	0.084274	11.95	0.189436	12.13	0.109257	12.32	0.069999
11.60	0.048585	11.78	0.087843	11.97	0.219366	12.15	0.105688	12.33	0.066430
11.62	0.052154	11.80	0.091412	11.98	0.249296	12.17	0.102119	12.35	0.062861
11.63	0.055723	11.82	0.094981	12.00	0.279226	12.18	0.098550	12.37	0.059293
11.65	0.059292	11.83	0.098550	12.02	0.278555	12.20	0.094981	12.38	0.055723
11.67	0.062861	11.85	0.102119	12.03	0.249294	12.22	0.091413	12.40	0.052155



IDF Report

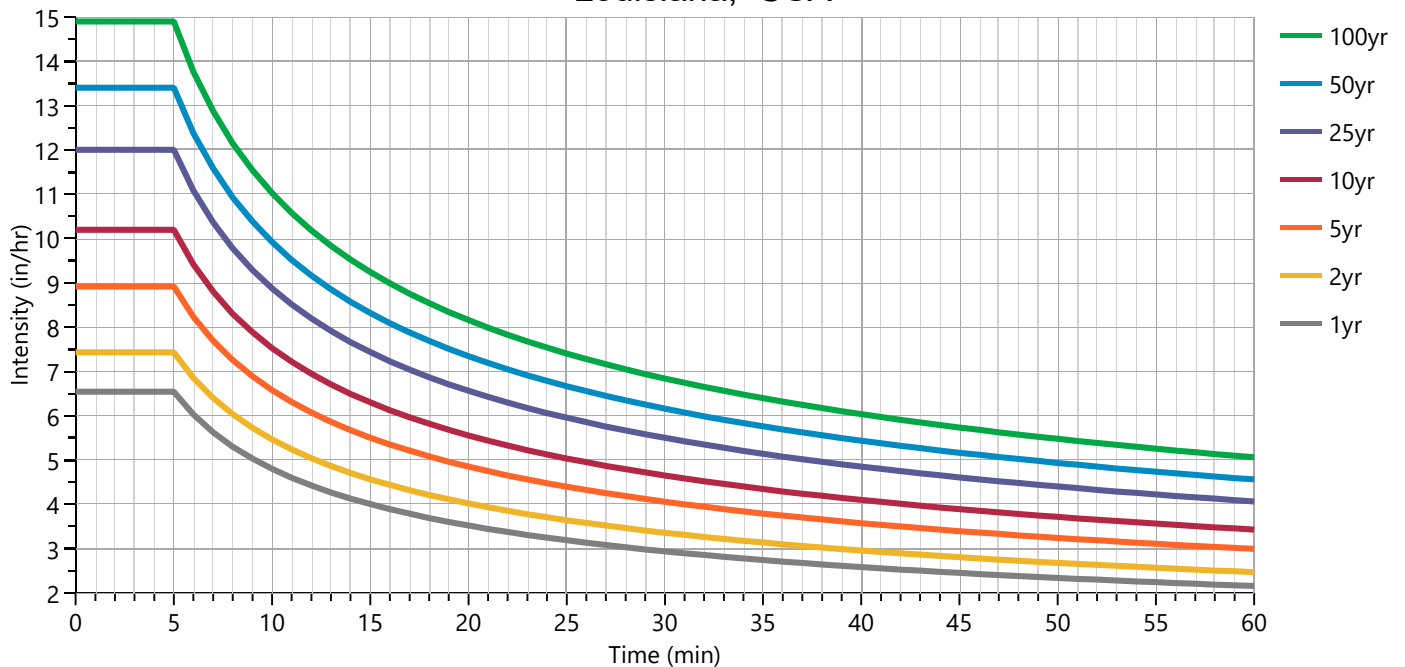
Equation Coefficients	Intensity = B / (Tc + D)^E (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
B	13.4114	15.1554	0.0000	18.0892	20.6554	24.1837	26.9330	29.9854	
D	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
E	0.4462	0.4429	0.0000	0.4393	0.4384	0.4354	0.4338	0.4345	

Minimum Tc = 5 minutes

Tc (min)	Intensity Values (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
Cf	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
5	6.54	7.43	0	8.92	10.20	12.00	13.40	14.90	
10	4.80	5.47	0	6.58	7.53	8.87	9.92	11.03	
15	4.01	4.57	0	5.51	6.30	7.44	8.32	9.24	
20	3.52	4.02	0	4.85	5.55	6.56	7.34	8.16	
25	3.19	3.64	0	4.40	5.04	5.95	6.67	7.40	
30	2.94	3.36	0	4.06	4.65	5.50	6.16	6.84	
35	2.74	3.14	0	3.79	4.35	5.14	5.76	6.40	
40	2.59	2.96	0	3.58	4.10	4.85	5.44	6.04	
45	2.45	2.81	0	3.40	3.89	4.61	5.17	5.74	
50	2.34	2.68	0	3.24	3.72	4.40	4.94	5.48	
55	2.24	2.57	0	3.11	3.56	4.22	4.74	5.26	
60	2.16	2.47	0	2.99	3.43	4.07	4.56	5.06	

Cf = Correction Factor applied to Rational Method runoff coefficient.

Louisiana, USA



Precipitation Report

Precipitation filename: SlidellLA.pcp

Hydrology Studio v 3.0.0.26 (Rainfall totals in Inches)

08-04-2022

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active									✓
SCS Storms	> SCS Dimensionless Storms								
SCS 6hr		3.37	3.90	0	4.93	5.95	7.59	9.05	10.70
Type I, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
Type IA, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
Type II, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
Type II FL, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
Type III, 24-hr	✓	4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
Synthetic Storms	> IDF-Based Synthetic Storms								
1-hr		2.16	2.47	0	2.99	3.43	4.07	4.56	5.06
2-hr		3.17	3.64	0	4.42	5.06	6.02	6.75	7.49
3-hr		3.96	4.56	0	5.54	6.36	7.56	8.50	9.42
6-hr		5.82	6.71	0	8.18	9.39	11.18	12.58	13.94
12-hr		8.54	9.87	0	12.06	13.85	16.54	18.62	20.63
24-hr		12.54	14.52	0	17.79	20.45	24.46	27.58	30.53
Huff Distribution	> 1st Quartile (0 to 6 hrs)								
1-hr		2.02	2.32	0	2.85	3.33	4.06	4.66	5.32
2-hr		2.55	2.91	0	3.58	4.21	5.21	6.07	7.01
3-hr		2.86	3.25	0	4.02	4.78	6.01	7.10	8.32
6-hr		3.37	3.90	0	4.93	5.95	7.59	9.05	10.70
Huff Distribution	> 2nd Quartile (>6 to 12 hrs)								
8-hr		0	0	0	0	0	0	0	0
12-hr		3.90	4.66	0	6.06	7.37	9.38	11.10	13.00
Huff Distribution	> 3rd Quartile (>12 to 24 hrs)								
18-hr		0	0	0	0	0	0	0	0
24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
Custom Storms	> Custom Storm Distributions								
My Custom Storm 1		0	0	0	0	0	0	0	0
My Custom Storm 2		0	0	0	0	0	0	0	0
My Custom Storm 3		0	0	0	0	0	0	0	0
My Custom Storm 4		0	0	0	0	0	0	0	0
My Custom Storm 5		0	0	0	0	0	0	0	0
My Custom Storm 6		0	0	0	0	0	0	0	0
My Custom Storm 7		0	0	0	0	0	0	0	0
My Custom Storm 8		0	0	0	0	0	0	0	0
My Custom Storm 9		0	0	0	0	0	0	0	0
My Custom Storm 10		0	0	0	0	0	0	0	0

Precipitation Report Cont'd

Precipitation filename: SlidellA.pcp

Rainfall totals in Inches

08-04-2022

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active									✓
Huff Indiana	> Indianapolis								
30-min		1.49	1.73	0	2.12	2.45	2.90	3.26	3.62
1-hr		2.02	2.32	0	2.85	3.33	4.06	4.66	5.32
2-hr		2.55	2.91	0	3.58	4.21	5.21	6.07	7.01
3-hr		2.86	3.25	0	4.02	4.78	6.01	7.10	8.32
6-hr		3.37	3.90	0	4.93	5.95	7.59	9.05	10.70
12-hr		3.90	4.66	0	6.06	7.37	9.38	11.10	13.00
24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
Huff Indiana	> Evansville								
30-min		1.49	1.73	0	2.12	2.45	2.90	3.26	3.62
1-hr		2.02	2.32	0	2.85	3.33	4.06	4.66	5.32
2-hr		2.55	2.91	0	3.58	4.21	5.21	6.07	7.01
3-hr		2.86	3.25	0	4.02	4.78	6.01	7.10	8.32
6-hr		3.37	3.90	0	4.93	5.95	7.59	9.05	10.70
12-hr		3.90	4.66	0	6.06	7.37	9.38	11.10	13.00
24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
Huff Indiana	> Fort Wayne								
30-min		1.49	1.73	0	2.12	2.45	2.90	3.26	3.62
1-hr		2.02	2.32	0	2.85	3.33	4.06	4.66	5.32
2-hr		2.55	2.91	0	3.58	4.21	5.21	6.07	7.01
3-hr		2.86	3.25	0	4.02	4.78	6.01	7.10	8.32
6-hr		3.37	3.90	0	4.93	5.95	7.59	9.05	10.70
12-hr		3.90	4.66	0	6.06	7.37	9.38	11.10	13.00
24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
Huff Indiana	> South Bend								
30-min		1.49	1.73	0	2.12	2.45	2.90	3.26	3.62
1-hr		2.02	2.32	0	2.85	3.33	4.06	4.66	5.32
2-hr		2.55	2.91	0	3.58	4.21	5.21	6.07	7.01
3-hr		2.86	3.25	0	4.02	4.78	6.01	7.10	8.32
6-hr		3.37	3.90	0	4.93	5.95	7.59	9.05	10.70
12-hr		3.90	4.66	0	6.06	7.37	9.38	11.10	13.00
24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60

Precipitation Report Cont'd

Precipitation filename: SlidellLA.pcp

Rainfall totals in Inches

08-04-2022

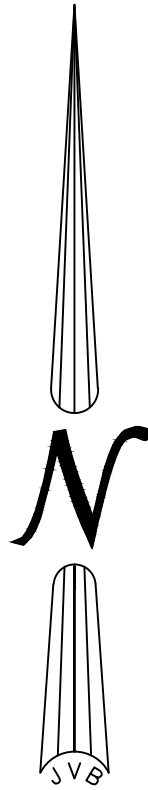
	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active									✓
NRCS Storms	> NRCS Dimensionless Storms								
NRCS MSE1, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NRCS MSE2, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NRCS MSE3, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NRCS MSE4, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NRCS MSE5, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NRCS MSE6, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NOAA-A, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NOAA-B, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NOAA-C, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NOAA-D, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NRCC-A, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NRCC-B, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NRCC-C, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
NRCC-D, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
CA-1, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
CA-2, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
CA-3, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
CA-4, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
CA-5, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
CA-6, 24-hr		4.60	5.49	0	7.09	8.55	10.80	12.60	14.60
FDOT Storms	> Florida DOT Storms								
FDOT, 1-hr		0	0	0	0	0	0	0	0
FDOT, 2-hr		0	0	0	0	0	0	0	0
FDOT, 4-hr		0	0	0	0	0	0	0	0
FDOT, 8-hr		0	0	0	0	0	0	0	0
FDOT, 24-hr		0	0	0	0	0	0	0	0
FDOT, 72-hr		0	0	0	0	0	0	0	0
SFWMD, 72-hr		0	0	0	0	0	0	0	0
Austin Storms	> Austin Frequency Storms								
Austin Zone 1, 24-hr		0	0	0	0	0	0	0	0
Austin Zone 2, 24-hr		0	0	0	0	0	0	0	0

GENERAL NOTES

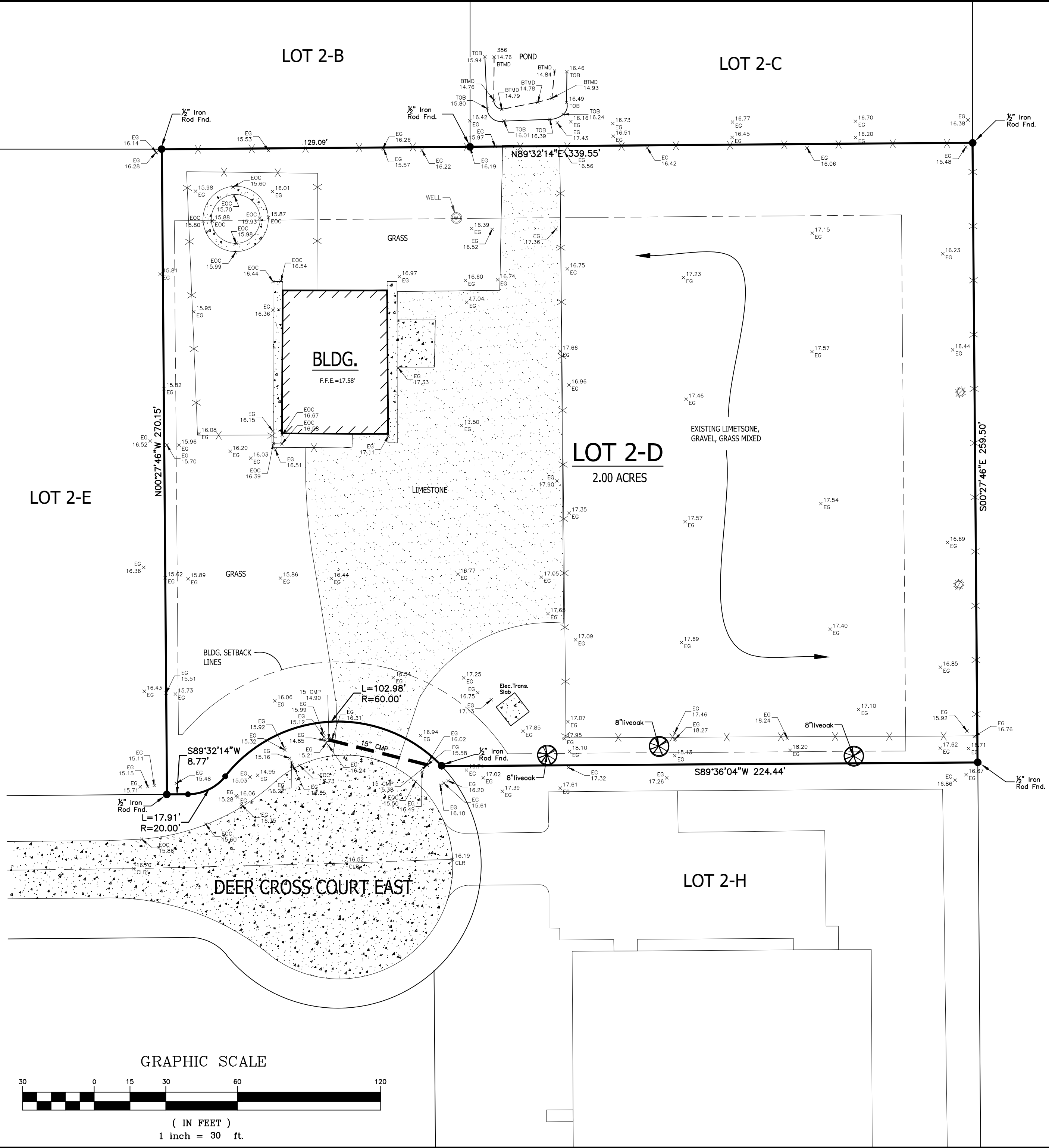
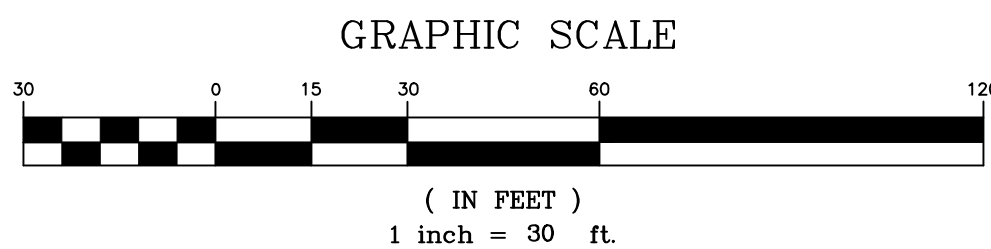
THE LOCATIONS OF UNDERGROUND UTILITIES AS SHOWN HEREON ARE BASED ON ABOVEGROUND STRUCTURES AND RECORD DRAWINGS PROVIDED THE SURVEYOR. LOCATIONS OF UNDERGROUND UTILITIES OR STRUCTURES MAY VARY FROM LOCATIONS SHOWN HEREON. ADDITIONAL BURIED UTILITIES OR STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES OR STRUCTURES.

I HAVE CONSULTED THE FLOOD INSURANCE RATE MAPS AND FOUND THIS PROPERTY IS NOT IN A SPECIAL FLOOD HAZARD AREA AS PER COMMUNITY MAP NO. 225205 0205 C, DATED: 10/17/1989. IT IS LOCATED IN FLOOD ZONE: C; BASE FLOOD ELEVATION: N/A.

BUILDING SETBACK LINES
 FRONT = 25'
 SIDE = 5'
 REAR = 30'



LEGEND	
	SEWER MANHOLE, SEWER LINE
	WATER MANHOLE, WATER LINE
	GAS MANHOLE, GAS LINE
	TELE. MANHOLE, TELE. LINE
	DRAIN MANHOLE, DRAIN LINE
	DRAIN INLET, DRAIN LINE
	POWER POLE / OVERHEAD LINES
	ELEC. TOWER / OVERHEAD LINES
	CATCH BASIN
	LIGHT STANDARD
	TRAFFIC LIGHT
	TELE., ELEC., CATV PEDESTAL
	GAS, WATER, ELECTRIC METER
	GAS, WATER VALVE
	SEWER, DRAIN CLEANOUT
	FIRE HYDRANT
	GUY WIRE ANCHOR
	SIGN
	PYLON
	MAILBOX
	TREE
	SHRUB
	FENCE

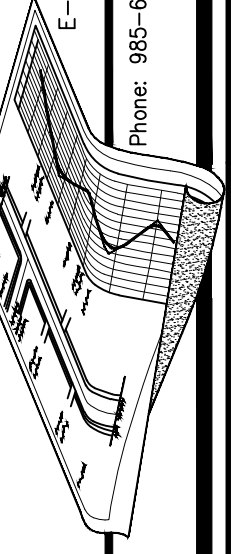


P:\PROJECTS\2021\LOT SURVEY\DEER CROSS\20210092 - Lot 2D - Pellegriini\20210092-1.tssd.dwg

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**TOPOGRAPHIC SURVEY MAP OF
 LOT 2-D, DEER CROSS PARK, PHASE 2
 SECTION 4, T-7-S, R-10-E,
 GREENSBURG LAND DISTRICT
 ST. TAMMANY PARISH, LOUISIANA**

DECLARATION IS MADE TO ORIGINAL PURCHASERS OF THE SURVEY. IT IS NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS. SURVEY IS VALID ONLY IF PRINT HAS ORIGINAL SEAL OF SURVEYOR.

PELLEGRINI PERFORMANCE GROUP, LLC

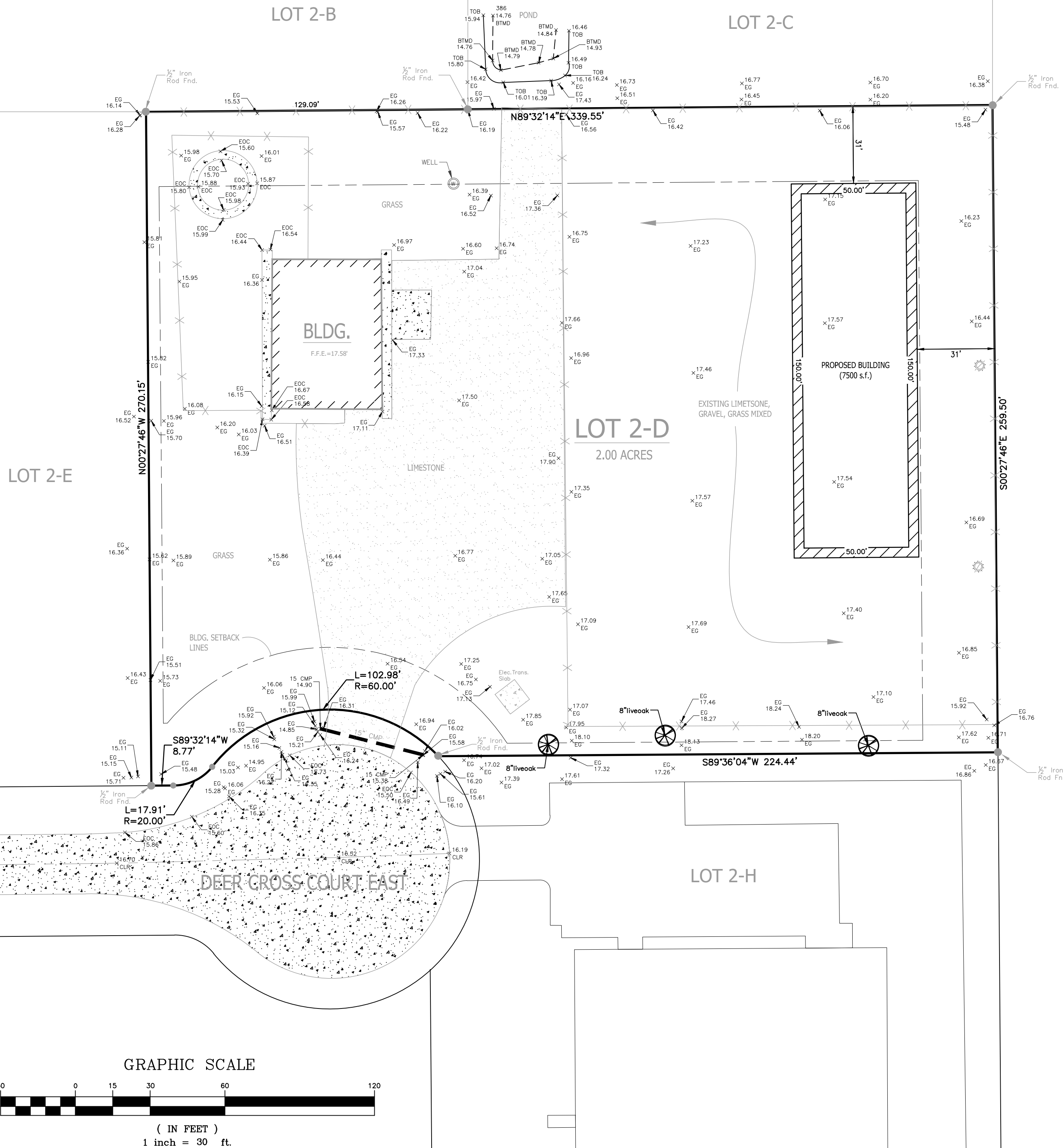
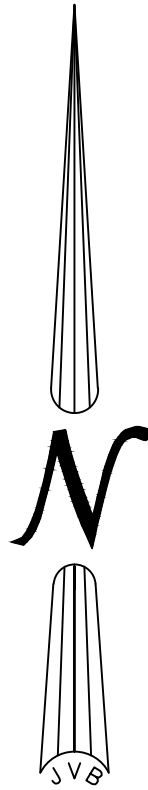
SCALE:	1" = 30'
DATE:	02.22.2021
DRAWN BY:	RMK
CHECKED BY:	SMB
DWG. NO.	20210092
SHEET	1 OF ?

SEAN M. BURKES
 LA REG. NO. 4785

GENERAL NOTES

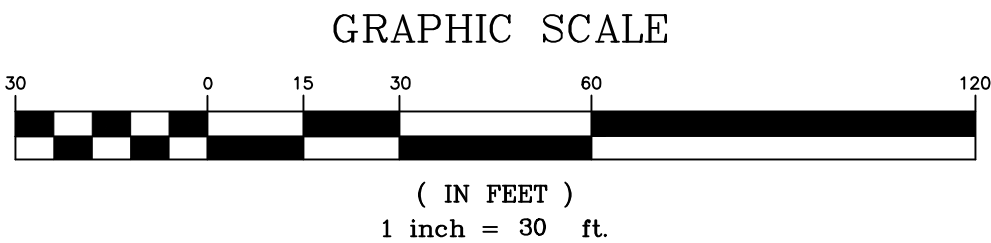
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I HAVE CONSULTED THE FLOOD INSURANCE RATE MAPS AND FOUND THIS PROPERTY IS NOT IN A SPECIAL FLOOD HAZARD AREA AS PER COMMUNITY MAP NO. 225205 0205 C, DATED: 10/17/1989. IT IS LOCATED IN FLOOD ZONE: C; BASE FLOOD ELEVATION: N/A.



LEGEND

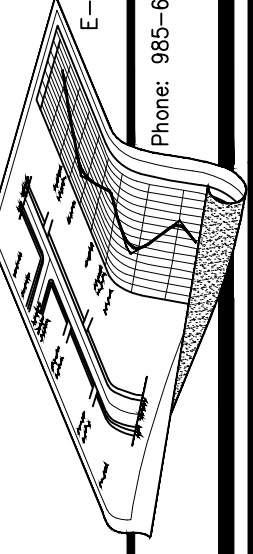
- S SEWER MANHOLE, SEWER LINE
- W WATER MANHOLE, WATER LINE
- G GAS MANHOLE, GAS LINE
- T TELE. MANHOLE, TELE. LINE
- D DRAIN MANHOLE, DRAIN LINE
- DI DRAIN INLET, DRAIN LINE
- P POWER POLE / OVERHEAD LINES
- ET ELEC. TOWER / OVERHEAD LINES
- CB CATCH BASIN
- LS LIGHT STANDARD
- TL TRAFFIC LIGHT
- TE TELE., ELEC., CATV PEDESTAL
- GV GAS, WATER, ELECTRIC METER
- SV GAS, WATER VALVE
- FH SEWER, DRAIN CLEANOUT
- GWA FIRE HYDRANT
- S GUY WIRE ANCHOR
- P SIGN
- M PYLON
- TR MAILBOX
- SH TREE
- F SHRUB
- F FENCE



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**TOPOGRAPHIC SURVEY MAP OF
 LOT 2-D, DEER CROSS PARK, PHASE 2
 SECTION 4, T-7-S, R-10-E,
 GREENSBURG LAND DISTRICT
 ST. TAMMANY PARISH, LOUISIANA**

DECLARATION IS MADE TO ORIGINAL PURCHASERS OF THE SURVEY. IT IS NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS. SURVEY IS VALID ONLY IF PRINT HAS ORIGINAL SEAL OF SURVEYOR.

PELLEGRINI PERFORMANCE GROUP, LLC

SCALE: 1" = 30'	
DATE: 02.22.2021	
DRAWN BY: RMK	CHECKED BY: SMB
DWG. NO. 20210092	
SHEET 2 OF ?	

SEAN M. BURKES
 LA REG. NO. 4785

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