



Memorandum

To: City of Lone Tree – Public Works

From: EVstudio

Date: September 8, 2023

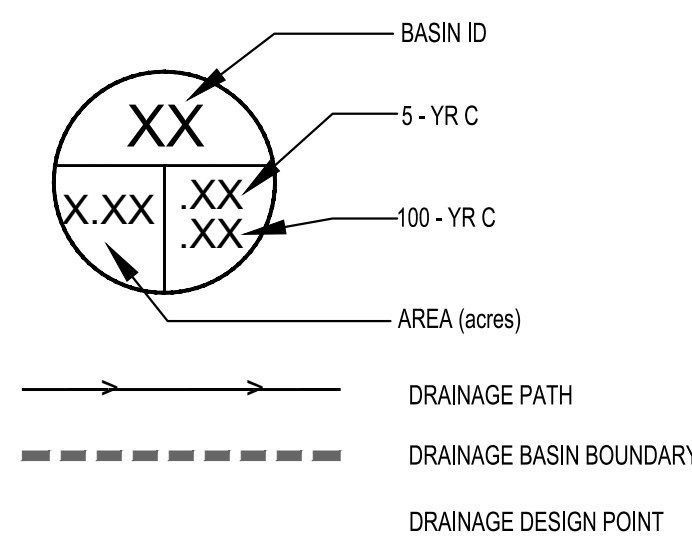
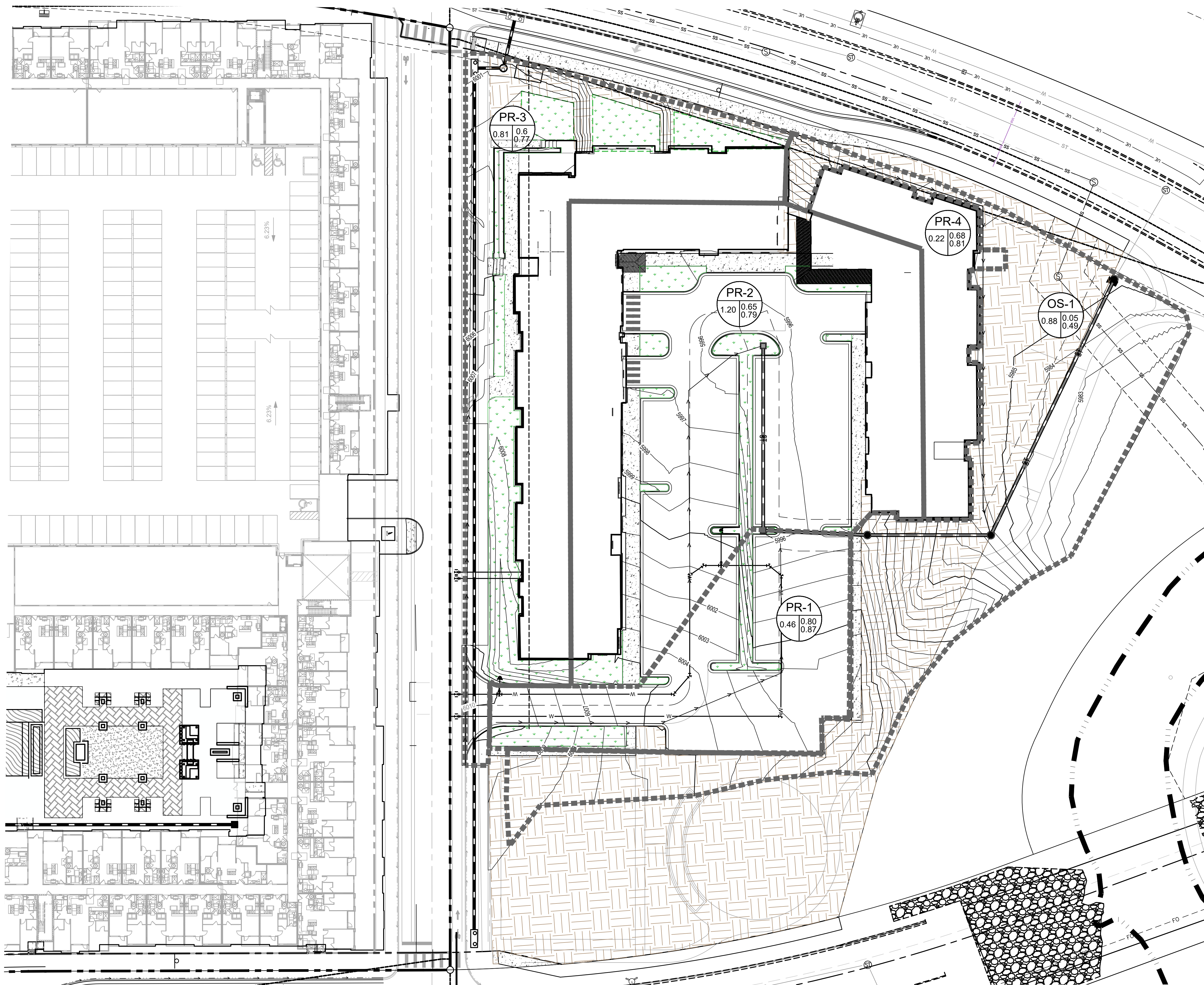
Re: Ridgeway Senior Living

Drainage Compliance Letter

The project Site is approximately 2.86 acres and is located between the north and south Ridgeway Parkway couplet in the City of Lone Tree, Douglas County, Colorado. The project site is currently undeveloped and zoned MU/COM. The project comprises two buildings that will be constructed in two phases. Phase I will consist of 101 units, while Phase II will have 64 units, along with a total of 165 parking stalls.

A master drainage study, prepared by Merrick & Company and dated May 2017, was conducted as part of the Ridgeway Happy Canyon Creek & Badger Gulch drainage basin improvements. This study served as the basis for the stormwater management plan for the project. The proposed stormwater management strategy involves implementing a private on-site storm system that includes curb, gutter, area inlets, and curb inlets. This system is designed to collect and convey the majority of the developed flows from the site. Any excess flows that are not captured within the system will be limited to specific areas where they will surface flow to existing storm inlets off-site, as outlined in the Master Study.

According to the master study, the project site is designated to be inside Basin E215 and is estimated to be 15.6 acres of 81% imperviousness. The site will have the proposed development is proposed to have an imperviousness of 76.5% Because the imperviousness of the site is lower than the master study the site is in general compliance with the previous design intent as outlined in the master study. We have ensured that the stormwater management plan will be appropriately incorporated into the existing drainage infrastructure.



Proposed Drainage				
Basin	C5	C100	Q5	Q100
PR-1	0.80	0.87	1.60	1.74
PR-2	0.65	0.79	3.33	4.07
PR-3	0.60	0.77	2.18	2.78
PR-4	0.68	0.81	0.61	0.73

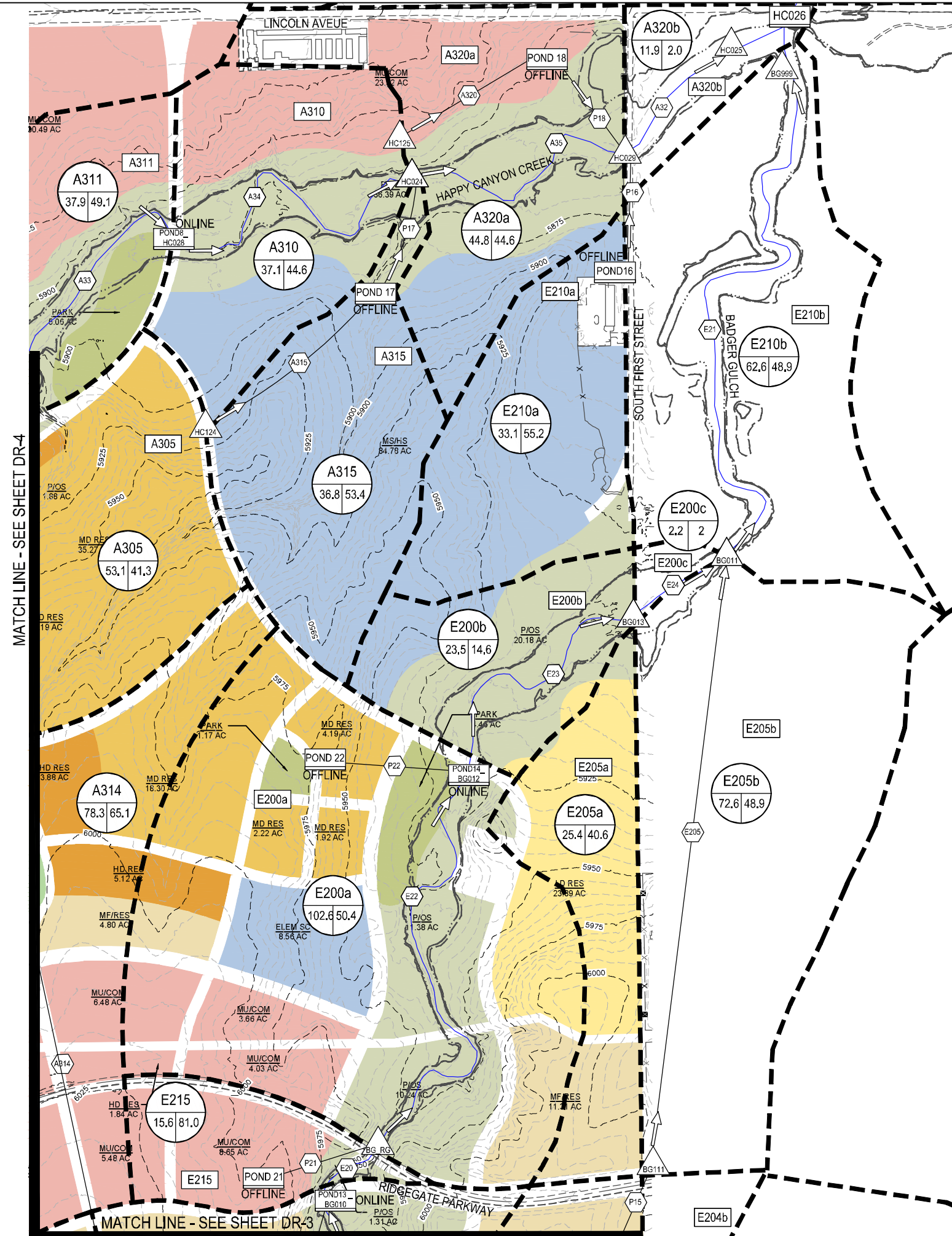
RIDGEGATE SENIOR HOUSING
 LONE TREE, CO
 23A037

COPYRIGHT 2019
This document is an instrument of service, and as such remains the property of the Architect. Permission for use of this document is limited and can be extended only by written agreement with EVstudio, LLC.

REVISION:
 DATE: 9/8/2023
 DRAWN BY: TRO
 CHECKED BY: BMW

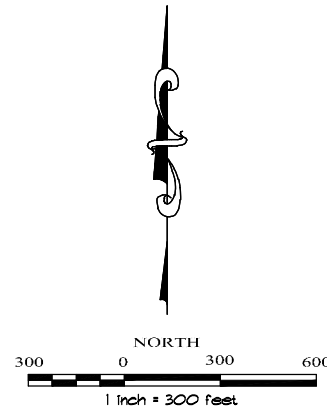
PROPOSED DRAINAGE PLAN

C02



MATCH LINE - SEE SHEET DR-4

MATCH LINE - SEE SHEET DR-3



LEGEND

- BASIN ID
- BASIN PERCENT IMPERVIOUS
- BASIN AREA (ACRES)
- DESIGN POINT
- POND
- SWMM CONVEYANCE ELEMENT
- SWMM NODE
- EXISTING MAJOR BASIN BOUNDARY
- EXISTING SUB-BASIN BOUNDARY
- PROPOSED SUB-BASIN BOUNDARY
- EXISTING TRACT LINE
- PROPOSED TRACT LINE
- SECTION LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- FLOW DIRECTION
- PROPOSED RIDGEGATE DEVELOPMENT BOUNDARY

LAND USE

- LD RES
- MF RES
- MD RES
- HD RES
- MU/COM
- SCHOOL/ INST
- P/OS
- CMTY PARK
- PARK

REVISIONS:

NO.	DATE	BY	DESCRIPTION

DESIGN BY:	CM
DRAWN BY:	JG
CHECKED BY:	CB
APPROVED BY:	CM

**HAPPY CANYON CREEK MASTER
DRAINAGE PLAN
DEVELOPED DRAINAGE MAP
NORTHEAST PART**

JOB NO.:	65119103
DATE:	11/23/2016
SHEET:	DR-5





PROJECT: Ridgeway Senior
 SUBJECT: Imperviousness

JOB #: 21195
 DATE: 9/8/2023
 BY: TRO

Basin Name	Square Footage	Acres	Lawns/Landscaped (sf)	Lawns/Landscaped (Acres)	Asphalt/Concrete (sf)	Asphalt/Concrete (Acres)	Roofs (sf)	Roofs (Acres)	Gravel (sf)	Gravel (Acres)	Soil Type "C" Composite Runoff Factors			
											C ₅	C ₁₀	C ₁₀₀	I %
											PR-1	19,892	0.46	1,352
PR-2	52,465	1.20	11,624	0.27	20,982	0.48	19,859	0.46	0	0.00	0.65	0.68	0.79	74.50
PR-3	35,470	0.81	9,530	0.22	11,137	0.26	14,803	0.34	0	0.00	0.60	0.64	0.77	69.50
PR-4	9,385	0.22	1,199	0.03	0	0.00	8,186	0.19	0	0.00	0.68	0.71	0.81	78.76
PR-TOTAL	117,212	2.69	23,704	0.54	50,659	1.16	42,849	0.98	0	0.00	0.66	0.70	0.80	76.53
OS-1	38,333	0.88	38,333	0.88	0	0.00	0	0.00	0	0.00	0.05	0.15	0.49	2.00
Totals:	155,545	3.57	62,037	1.42	50,659	#VALUE!	42,849	0.98	0	0.00	0.51	0.56	0.72	58.16

Lans Use	Imp., I %
Lawns/landscaped	2%
Asphalt/Concrete	100%
Packed Gravel	40%
Roofs	90%



PROJECT: All-Star RV
 SUBJECT: TIME OF CONCENTRATION
 Ridgegate Senior

JOB #: 21195
 DATE: 9/8/2023
 BY: TRO

TIME OF CONCENTRATION

			TIME (Ti) [Max. 300]					TRAVEL TIME (Tt)							Tc CHECK (Urbanized Basins)			FINAL Tc	Time to Peak**	Remarks
Basin No.	Area (acres)	5Yr. co-eff.	Elevations		Dist. (ft)	Slope (%)	Ti (min)	Elevations		Dist. (ft)	Slope (%)	*	Vel. (fps)	Tt (min)	Tc	Length (ft)	Tc (min)	(min)	Flow	
			Upstream	Downstream				Upstream	Downstream											
PR-1	0.46	0.80	6006.56	6006.09	26	1.8	2.3	6006.09	5996.12	312	3.2	6	3.66	1.4	3.7	338	10.5	3.7	10.5	Developed
PR-2	1.20	0.65	5997	5997.46	74.7	1.5	6.2	5997.46	5995.57	190.12	1.0	6	2.00	1.6	7.8	265	11.5	7.8	11.5	Developed
PR-3	0.81	0.60	5997	6006.13	56.93	1.5	5.9	6006.13		10	4.0	6	4.30	0.0	6.0	67	10.4	6.0	10.4	Developed
PR-4	0.22	0.68	5997	5986.39	34.7	30.6	1.4	5986.39	5986.53	303.42	4.0	6	4.30	1.2	2.6	338	11.9	2.6	11.9	Developed

- 1 = Heavy Meadow 1 2.5 0
- 2 = Tillage / Field 2 5
- 3 = Short pasture & lawns 3 7
- 4 = Nearly bare ground 4 10
- 5 = Grassed waterway 5 15
- 6 = Paved areas and shallow paved swales 6 20



Ridgegate Senior

**STANDARD FORM SF-3
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)**

CALCULATED BY: TRO
DATE: 9/8/23
CHECKED BY:

JOB NO: 21195
PROJECT: Ridgegate Senior
DESIGN STORM: 5 Year

BASIN	DESIGN POINT	AREA DESIG.	DIRECT RUNOFF						TOTAL RUNOFF			
			AREA (Acres)	RUNOFF COEFF	Tc (min)	C-A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C-A) (Acres)	I (in/hour)	Q (cfs)
PR-1	1	PR-1	0.46	0.80	10.54	0.36	4.40	1.60				
PR-2	2	PR-2	1.20	0.65	11.47	0.78	4.28	3.33				
PR-3	3	PR-3	0.81	0.60	10.37	0.49	4.45	2.18				
PR-4	4	PR-4	0.22	0.68	11.88	0.15	4.20	0.61				



Ridgegate Senior

**STANDARD FORM SF-3
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)**

CALCULATED BY: TRO
DATE: 9/8/23
CHECKED BY:

JOB NO: 21195
PROJECT: Ridgegate Senior
DESIGN STORM: 100 YEAR

BASIN	DESIGN POINT	AREA DESIG.	DIRECT RU					TOTAL RUNOFF				
			AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)
PR-1	1	PR-1	0.46	0.87	10.54	0.40	4.40	1.74				
PR-2	2	PR-2	1.20	0.79	11.47	0.95	4.28	4.07				
PR-3	3	PR-3	0.81	0.77	10.37	0.62	4.45	2.78				
PR-4	4	PR-4	0.22	0.81	11.88	0.17	4.20	0.73				

STREET

PIPE

TRAVEL TIME