

## Memo

To: City of Lone Tree  
From: EVstudio Engineering  
Cc:  
Date: August 01, 2023  
Re: Snow Storage Basis of Design for RidgeGate Senior Homes Development

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EVstudio has reviewed the snow storage required for the proposed development at the RidgeGate Senior Homes site. While the City of Lone Tree Municipal Code did not provide a basis for design or calculations, our team proactively conducted research on surrounding communities and analyzed snow properties. This effort allowed us to develop an appropriate approach for the project in a well-informed manner.

Certain sections, such as areas with overhead canopy and covered parking, will be cleared into neighboring greenspace. This has led us to conduct a thorough review of the remaining drive aisle areas, which are designated to be plowed. The basis of design was dependent on a few variables including moisture content, snowfall depth, height of storage, and compaction.

To devise an efficient snow removal strategy, we consider a standard snow compaction rate of 20% (leaving 80% of the original depth) and an average snowfall depth of 4 inches. This combination effectively captures the typical snowfall conditions that warrant the need for snow removal.

Location	Area (sf)	Calculation	Storage (cf)
Parking lot	36429	36429 sf x 4/12 ft x 0.8 ratio	9714

Another widely employed approach in municipal design incorporates a 20% ratio, coupled with a maximum snowfall depth of 12 inches. The ensuing calculations for storage are presented below.

Location	Area (sf)	Calculation	Storage (cf)
Parking lot	36429	36429 sf x 1 ft x 0.2 ratio	9714

Our approach was to utilize an average of the two previously listed approaches.

Location	Area (sf)	Average	Storage (cf)
Parking lot	36429	( 9714 sf + 7286 sf )/2	8500

With the total volume of snow storage known, we needed to review the depth of snow to calculate total area. Although this exercise can be circular, meaning the larger the area, the higher the snow is piled, our average location was the depth of a stall (~18') leaving an average pile height of 5'.

Location	Area (cf)	Average	Storage Required (sf)	Storage Provided (cf)
Southeast Parking lot	8500	8500 cf/5'	1700	8640

In summary, the estimated storage requirement of 8500 cubic feet can be met by using 12 parking stalls. The project requires 83 parking stalls at ½ stall per unit, and 165 parking stalls are provided. Snow storage will take place in 12 parking stalls, as indicated in the provided exhibit. This is within the limits allowed by Section 16-28-130 (2) b of Lone Tree Municipal Code. If you have any concerns or need further information, please feel free to let us know.

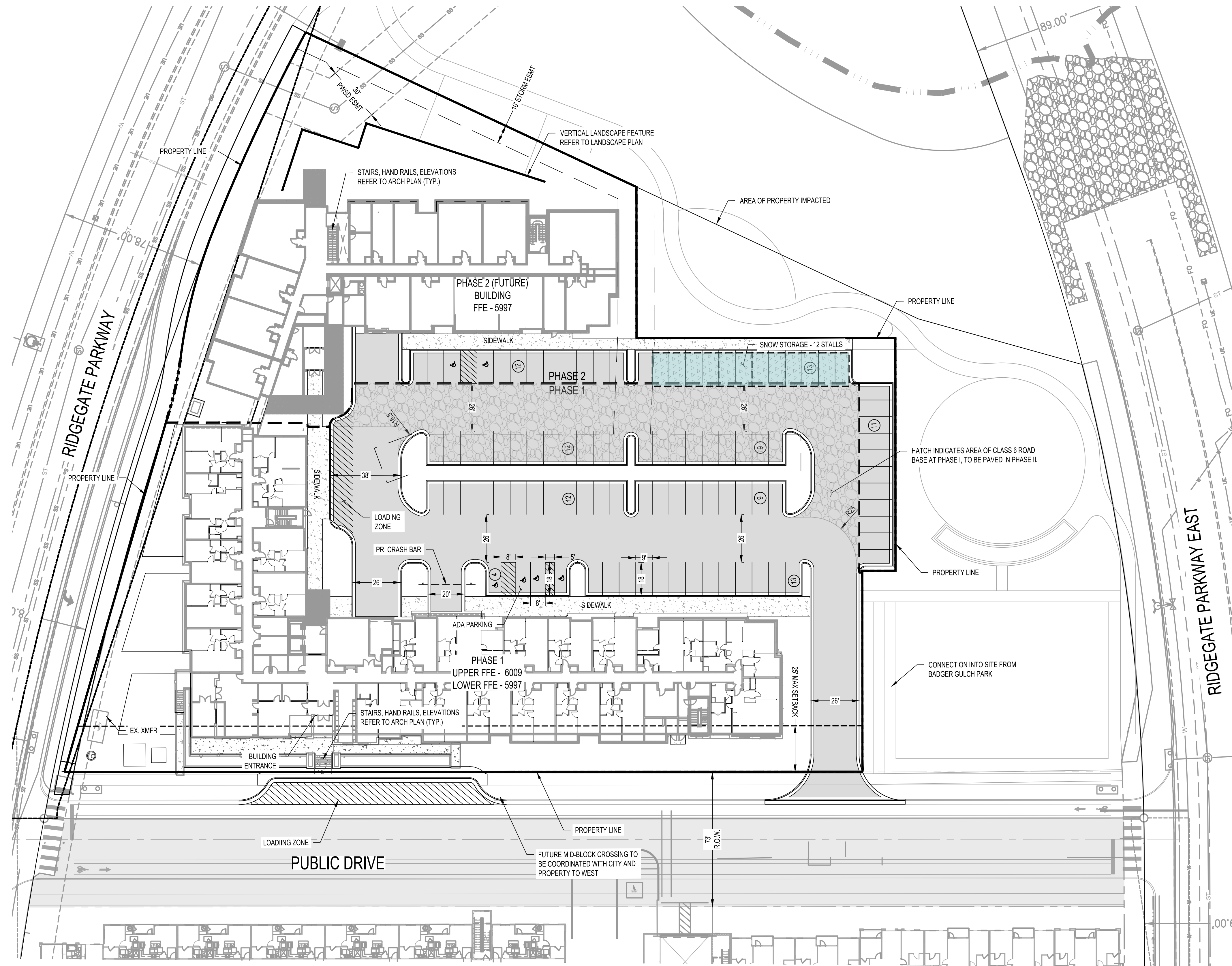
Thanks,

EVstudio

Brian Welch, PE

# RIDGEGATE SENIOR HOUSING

RIDGEGATE EAST FILING NO. 4, LOT 3  
 CENTRAL VILLAGE EAST COUplet DISTRICT (MU CORE AREA)  
 2.857 ACRES  
 SIP-SPXX-XX

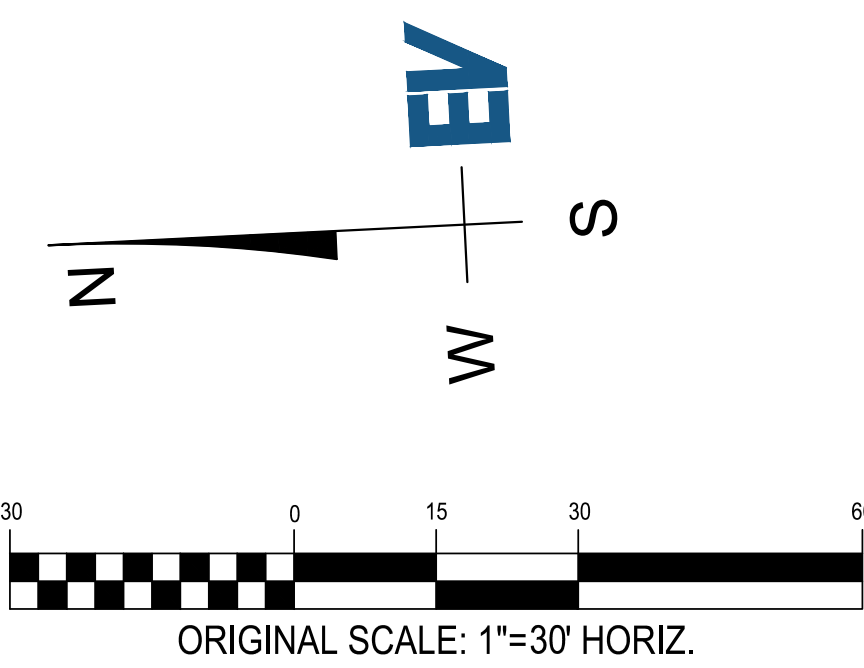


## LEGEND

EXISTING	PROPOSED	
[Symbol]	[Symbol]	ASPHALT
[Symbol]	[Symbol]	SIDEWALK / CONCRETE
[Symbol]	[Symbol]	BUILDING
[Symbol]	[Symbol]	GRAVEL
[Symbol]	[Symbol]	ASPHALT PATCH
[Symbol]	[Symbol]	SOFTSCAPE
[Symbol]	[Symbol]	COVERED PARKING
[Symbol]	[Symbol]	GRAVEL DURING PH. 1
[Symbol]	[Symbol]	PAVED DURING PH. 2
[Symbol]	[Symbol]	TOP OF CURB
[Symbol]	[Symbol]	FLOWLINE
[Symbol]	[Symbol]	PAN
[Symbol]	[Symbol]	SUBJECT BOUNDARY
[Symbol]	[Symbol]	LOT LINE
[Symbol]	[Symbol]	BUILDING SETBACK
[Symbol]	[Symbol]	EASEMENT LINE
[Symbol]	[Symbol]	RIGHT-OF-WAY (R.O.W.)
[Symbol]	[Symbol]	ST-ST STORM SEWER LINE
[Symbol]	[Symbol]	SS-SS SANITARY SEWER LINE
[Symbol]	[Symbol]	SAN SRV SANITARY SERVICE LINE
[Symbol]	[Symbol]	W-W WATER LINE
[Symbol]	[Symbol]	WTR SRV WATER SERVICE LINE
[Symbol]	[Symbol]	WATER FIRE LINE
[Symbol]	[Symbol]	G-G GAS LINE
[Symbol]	[Symbol]	T-T TELEPHONE LINE
[Symbol]	[Symbol]	E-E ELECTRIC LINE
[Symbol]	[Symbol]	OE-OE OVERHEAD ELECTRIC LINE
[Symbol]	[Symbol]	ADA PARKING SYMBOL
[Symbol]	[Symbol]	STORM SEWER INLET
[Symbol]	[Symbol]	STORM SEWER MANHOLE
[Symbol]	[Symbol]	SANITARY SEWER MANHOLE
[Symbol]	[Symbol]	TELECOMM MANHOLE
[Symbol]	[Symbol]	LIGHT POLE
[Symbol]	[Symbol]	POWER POLE
[Symbol]	[Symbol]	FIRE HYDRANT
[Symbol]	[Symbol]	WATER VALVE
[Symbol]	[Symbol]	FLARED END SECTION
[Symbol]	[Symbol]	ELECTRICAL BOX
[Symbol]	[Symbol]	GAS METER
[Symbol]	[Symbol]	TELEPHONE PEDESTAL/BOX
[Symbol]	[Symbol]	FENCE
[Symbol]	[Symbol]	PROPERTY CORNER
[Symbol]	[Symbol]	MAJOR CONTOUR
[Symbol]	[Symbol]	MINOR CONTOUR
[Symbol]	[Symbol]	ADA ACCESS ROUTE
[Symbol]	[Symbol]	SPOT ELEVATION TRUNCATION
[Symbol]	[Symbol]	0.00 = 5000.00
[Symbol]	[Symbol]	PARKING STALL COUNT

SITE DATA CHART (PHASE 1 & 2)		
TOTAL PROJECT SITE AREA = 124,475 SF / 2.857 AC		
IMPERVIOUS		
TYPE	AREA	%
SIDEWALK	6,786 SF	5.45
ASPHALT	35,944 SF	28.88
CONCRETE (C&G)	4974 SF	4.00
BUILDINGS	45,213 SF	36.32
PERVIOUS		
LANDSCAPE	31,558 SF	25.35
PARKING		
STANDARD PARKING	156	
COMPACT PARKING	2	
ADA PARKING	7	
TOTAL	165	

NOTE:  
 SNOW STORAGE TO OCCUR AT TWO PARKING STALLS. SNOW STORAGE IS ALLOWED TO OCCUR WITHIN STALLS ABOVE THE MINIMUM OBLIGATION PER SECTION 16-28-130 (2) B OF LONE TREE MUNICIPAL CODE



Location	Area (cf)	Average	Storage Required (sf)	Storage Provided (cf)
Southeast Parking lot	8500	8500 cf/5'	1700	8640

**B F A D**  
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PREPARATION DATE:		
REVISION / COMMENTS		
NO.	DATE	DESCRIPTION