

STORM WATER DRAINAGE REPORT

LOTS 9A, 11A, 13A
A REPLAT OF LOTS 9-14, BLOCK 5
LOWE'S ADDITION
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

PREPARED FOR

705 HIGH STREET LLC

PREPARED BY

BOUNDARY AND CONSTRUCTION SURVEYING, INC
1-21-2021



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3.0 PROJECT OVERVIEW

The proposed project is a lot split for three proposed duplexes in Lee's Summit, Jackson County, Missouri. The area is residential with the current zoning as R-1 (Single Family Residential), with a proposed zoning of P-MIX (Planned Mixed Use). The total area of the property contains approximately 0.49 acres, with the proposed lot splits making three 0.16 acre tracts of land. The subject property does not lie in a floodplain.

There are two areas for drainage to occur: in the front and back yards. Drainage Area 1 is designated as the front yard area, and Drainage Area 2 is the back yard. Both areas flow easterly off the subject property to the same location as the existing discharge point..

4.0 DRAINAGE ASSESSMENT OF THE PROJECT

The site has an existing house and garage with drives located on the half acre property. For the purpose of this study we will determine a weighted "C" value based on existing conditions and then one based on proposed conditions to compare pre and post construction "C" values and related runoff rates.

The weighted "C" values were determined by calculating the impervious area compared to the pervious area on the total project. See Table 1 below.

Table 1. Weighted "C" Values

Total Area = 21416 sq. ft.			
	Impervious Area (sq. ft.)	Pervious Area (sq. ft.)	Weighted "C" Value
Pre-Construction	2902	18514	0.38
Post-Construction	8339	13077	0.54

Based on the above table of weighted "C" values the flow rate for the Q10 and the Q100. See Table 2 below.

Table 2. Runoff Rates

	Q10 (cfs)	Q100 (cfs)
Pre-Construction	1.38	1.94
Post-Construction	1.94	2.74
Change in Q	0.56	0.80

Based on this comparison the difference in flow at the 100 year storm is less than 1 cfs which is insignificant.

5.0 TEMPORARY EROSION AND SEDIMENT CONTROL

Erosion and sediment control will be required during construction to limit the amount of soil leaving the site due to runoff. To ensure that soil does not leave the property or enter the street and any downstream drains, a silt fence will be installed around the perimeter of the site. To prevent mud and dirt entering the street from vehicles entering and leaving the construction site, a temporary construction entrance will also be installed. Inspection of the erosion control devices will be required throughout construction to ensure that they are working as intended and not becoming damaged or inoperative.

6.0 CONCLUSION

The proposed project shows a minimal effect on the overall storm water leaving the site. We respectfully submit for a waiver that no storm water management facilities or structures need to be constructed. APWA Section 5601.6 shown below allows for said waiver.

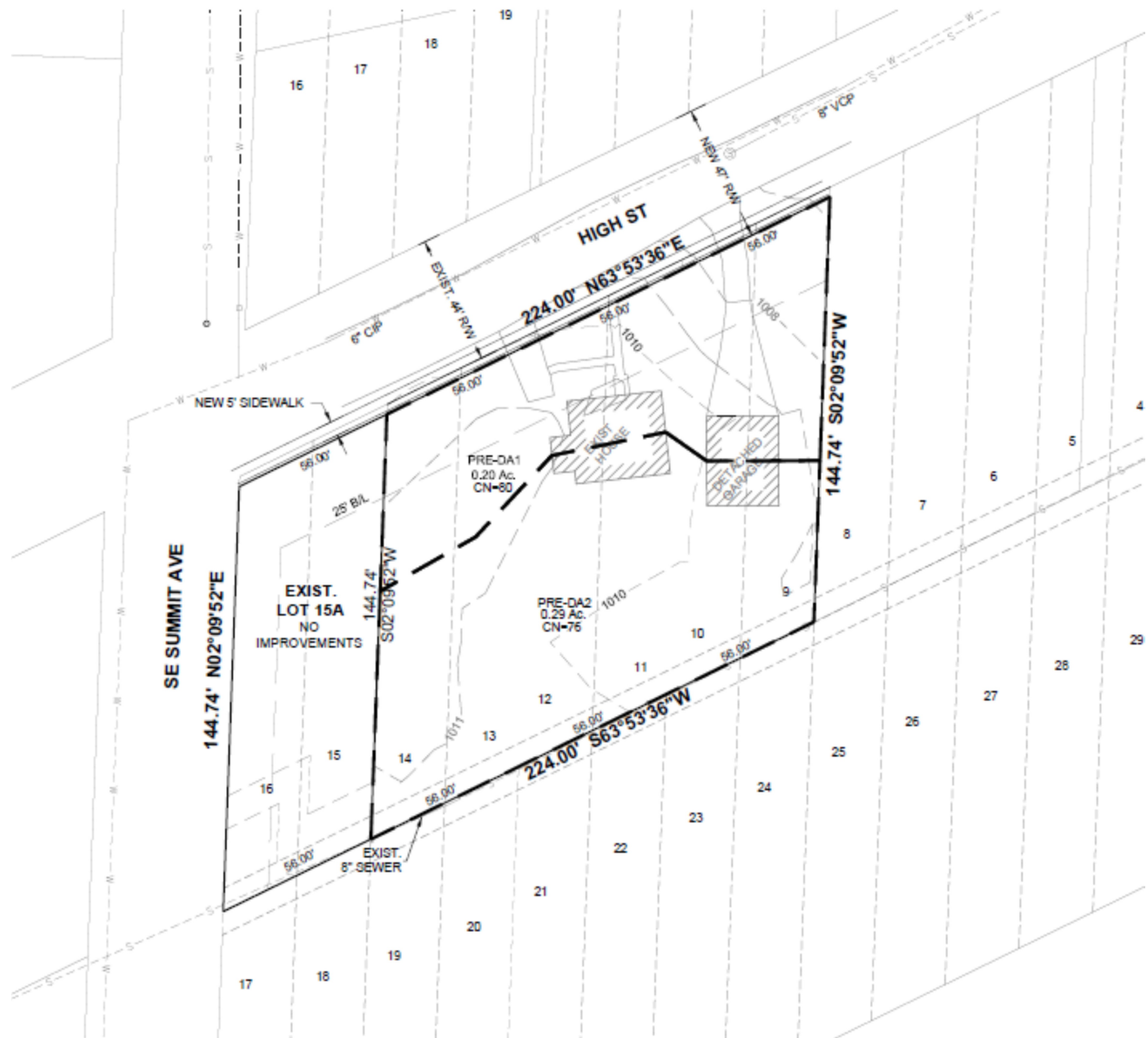
5601.6 Waivers The Developer may submit a study by a registered professional engineer that quantifies the problems and demonstrates that a waiver (exemption) of the requirement to provide stormwater management is appropriate. The City/County Engineer may waive requirements to address unique conditions or constraints: A. Stormwater Management Facilities: Stormwater management facilities may be waived and/or release rates other than those permitted by Section 5608 when supported by a developer's Drainage Study performed in accordance with Section 5609 and approved by the City/County Engineer

Also, in APWA Section 5600 it states that drainage systems to convey the storm water are usually for drainage areas 2 acres or more. It is suggested that good grading principles be used related to storm water drainage areas less than 2 acres.

Generally, a drainage system is engineered and constructed when the drainage area exceeds 2 acres.

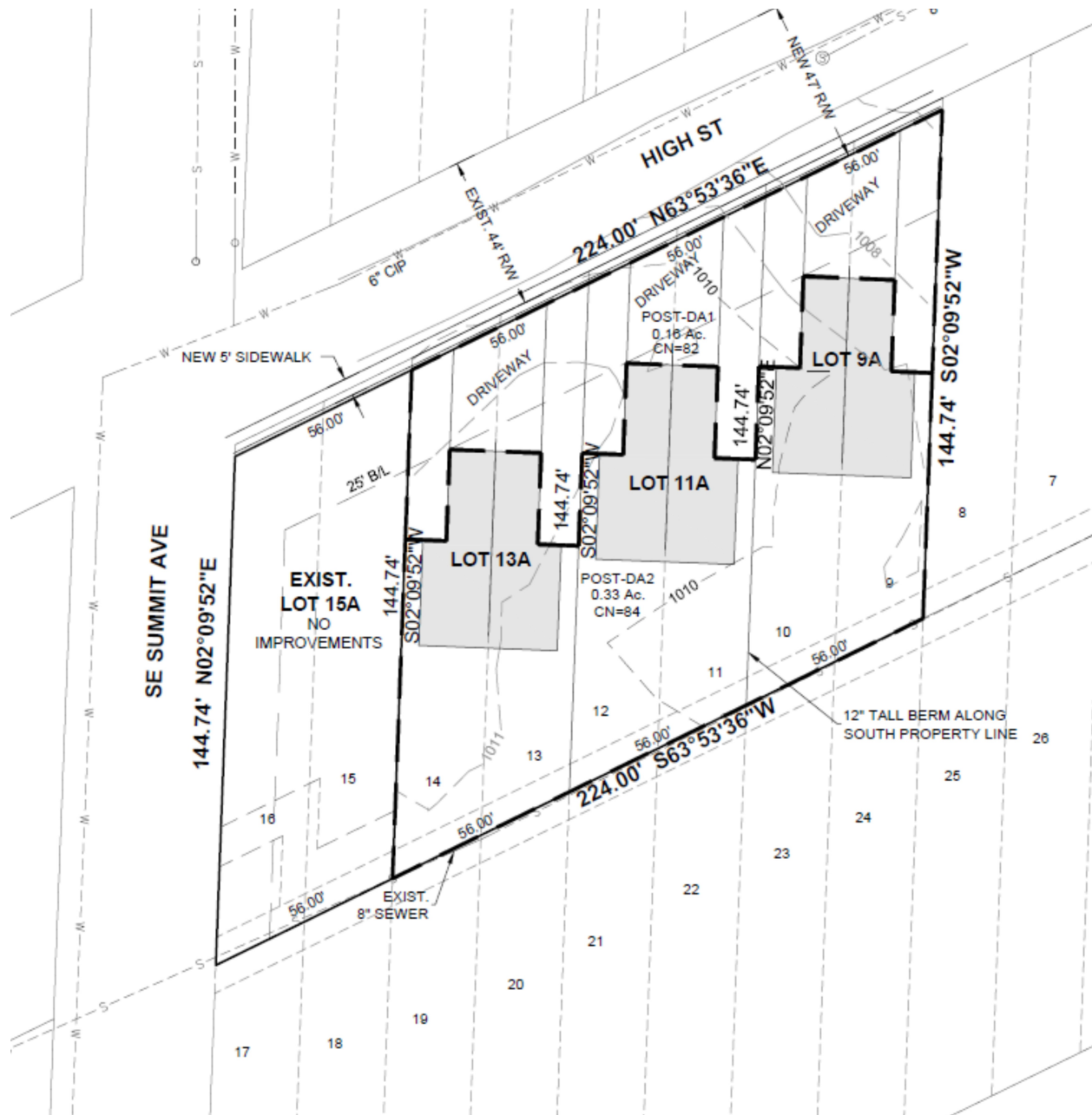
It is our opinion that granting of the waiver meets the intent of APWA section 5600 and the City of Lee's Summit requirements.

7.0 APPENDIX



PRE-DEVELOPMENT

Figure A1. Pre-Development Drainage Area



POST-DEVELOPMENT

Figure A2. Post-Development Drainage Area



Figure A3. Web Soil Survey Map from Natural Resources Conservation Service (NRCS)

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
10082	Arisburg-Urban land complex, 1 to 5 percent slopes	C	1.4	100.0%
Totals for Area of Interest			1.4	100.0%

Figure A4. Hydrologic Soil Group from NRCS