



July 27, 2017

Attn: Bill McCormick, PE
City of Aurora Associate City Engineer
15151 E. Alameda Pkwy
Aurora, CO 80012

Preliminary Drainage Conformance Letter for Les Schwab Tire Center – Lot 1, Gateway East At Tower Subdivision Filing No. 1

Dear Mr. McCormick,

This drainage conformance letter has been prepared for Les Schwab Tire Center - Lot 1 of Gateway East At Tower Subdivision Filing No. 1 to evaluate drainage design conformance to the City of Aurora Storm Drainage Design and Technical Criteria and the previously approved site improvements and drainage system.

Description & Location

The site is located near the northeast corner of East 32nd Parkway and Tower Road Road in Aurora, CO and exists as a Les Schwab Tire store whose legal description reads:

Lot 1, Block 1, Gateway East At Tower Subdivision Filing No. 1, City of Aurora, County of Adams, State of Colorado.

The property is approximately 1.4± acres of developed land. The property is bound on the north, east, and south by a private drive and the west by Tower Road.

The proposed project includes construction of a new 2,920 sf warehouse building, relocation of the trash and tire storage enclosure, and addition of a new driveway access onto the Private Drive on the south side of the property in order to improve the operations and meet the needs of the existing store.

Existing Drainage Design

The project site is designed to drain surface runoff with a private storm drain system and the use of a detention pond, inlets, curb cuts, channels, and swales. All runoff from the site is routed to the detention pond to the west where it enters the Tower Road storm drain system via an outlet structure. Existing sub-basins 3, 6, and 7 are the only sub-basins that will be affected by the proposed project. For the purpose of this letter, only existing sub-basins 3, 6, and 7 were analyzed.

Percent Impervious and Runoff Coefficients for Existing Conditions

Basin	Land Use	Percent Impervious	Area (FT²)	Area (Ac.)	Soil Type	Composite C ₂	Composite C ₅	Composite C ₁₀	Composite C ₁₀₀
3	Paved Areas	100%	6,472	0.15		0.87	0.88	0.90	0.93
	Roofs	90%	2,735	0.06		0.80	0.85	0.90	0.90
	Landscape	5%	0	0.00		0.18	0.19	0.20	0.15
	TOTAL	97%	9,207	0.211	C	0.85	0.87	0.9	0.92
6	Paved Areas	100%	12,415	0.29		0.87	0.88	0.90	0.93
	Roofs	90%	0	0.00		0.80	0.85	0.90	0.90
	Landscape	5%	0	0.00		0.18	0.19	0.20	0.15
	TOTAL	100%	12,415	0.285	C	0.87	0.88	0.9	0.93
7	Paved Areas	100%	0	0.00					
	Roofs	90%	0	0.00					
	Landscape	5%	20,473	0.47					
	TOTAL	5%	20,473	0.470	C	0.21	0	0	0.25

2-YEAR DIRECT RUNOFF								
	Design Point	Basin	AREA (ac)	Runoff Coeff.	Tc (min)	CA (ac)	I (in/hr)	Q (cfs)
BASIN 3		3	0.21	0.85	5.0	0.18	3.26	0.6 cfs
BASIN 6		6	0.29	0.87	5.0	0.25	3.26	0.8 cfs
BASIN 7		7	0.47	0.21	5.0	0.10	3.26	0.32 cfs

100-YEAR DIRECT RUNOFF								
	Design Point	Basin	AREA (ac)	Runoff Coeff.	Tc (min)	CA (ac)	I (in/hr)	Q (cfs)
BASIN 3		3	0.21	0.92	5.0	0.19	8.82	1.7 cfs
BASIN 6		6	0.29	0.93	5.0	0.27	8.82	2.3 cfs
BASIN 7		7	0.47	0.25	5.0	0.12	8.82	1.04 cfs

Existing site Drainage Plan is attached with this letter.

Proposed Drainage

The project as proposed does not impact the overall configuration of the site drainage and will maintain the existing storm drainage and detention system. The boundaries for sub-basin 6 and sub-basin 7 will see a slight adjustment. Both sub-basins surface flow to the detention pond. This small increase in impervious area resulting from the proposed project improvements will not require any sizing adjustment to the on-site private storm system.

Percent Impervious and Runoff Coefficients

Basin	Land Use	Percent Impervious	Area (FT ²)	Area (Ac.)	Soil Type	Composite C ₂	Composite C ₅	Composite C ₁₀	Composite C ₁₀₀
3	Paved Areas	100%	3,358	0.08		0.87	0.88	0.90	0.93
	Roofs	90%	5,849	0.13		0.80	0.85	0.90	0.90
	Landscape	5%	0	0.00		0.18	0.19	0.20	0.15
	TOTAL	94%	9,207	0.211	C	0.83	0.86	0.9	0.91
6	Paved Areas	100%	13,948	0.32		0.87	0.88	0.90	0.93
	Roofs	90%	0	0.00		0.80	0.85	0.90	0.90
	Landscape	5%	0	0.00		0.18	0.19	0.20	0.15
	TOTAL	100%	13,948	0.320	C	0.87	0.88	0.9	0.93
7	Paved Areas	100%		0.00					
	Roofs	90%	0	0.00					
	Landscape	5%	19,166	0.44					
	TOTAL	5%	19,166	0.440	C	0.21	0	0	0.25

	2-YEAR DIRECT RUNOFF							
	Design Point	Basin	AREA (ac)	Runoff Coeff.	Tc (min)	CA (ac)	I (in/hr)	Q (cfs)
BASIN 3		3	0.21	0.83	5.0	0.18	3.26	0.6 cfs
BASIN 6		6	0.32	0.87	5.0	0.28	3.26	0.9 cfs
BASIN 7		7	0.44	0.21	5.0	0.09	3.26	0.3 cfs

	100-YEAR DIRECT RUNOFF							
	Design Point	Basin	AREA (ac)	Runoff Coeff.	Tc (min)	CA (ac)	I (in/hr)	Q (cfs)
BASIN 3		3	0.21	0.91	5.0	0.19	8.82	1.7 cfs
BASIN 6		6	0.32	0.93	5.0	0.30	8.82	2.6 cfs
BASIN 7		7	0.44	0.25	5.0	0.11	8.82	0.97 cfs

Developed Site Plan is attached with this letter.

Conclusion

The following table compares the existing and proposed 2 year and 100 year storm runoff flows for each of the affected sub-basins.

EXISTING AND PROPOSED CONDITIONS						
	2-YEAR STORM			100-YEAR STORM		
	BASIN 3	BASIN 6	BASIN 7	BASIN 3	BASIN 6	BASIN 7
EXISTING CONDITION	0.6 cfs	0.8 cfs	0.32 cfs	1.7 cfs	2.3 cfs	1.04 cfs
PROPOSED CONDITION	0.6 cfs	0.9 cfs	0.3 cfs	1.7 cfs	2.6 cfs	0.97 cfs

Per these findings and calculations the proposed project should not negatively impact the site drainage or detention system. Galloway believes the proposed project will still be in full conformance with the approved drainage system as well as City of Aurora standards and requirements.

If any questions arise, please feel free to contact me directly.

Sincerely,
Galloway

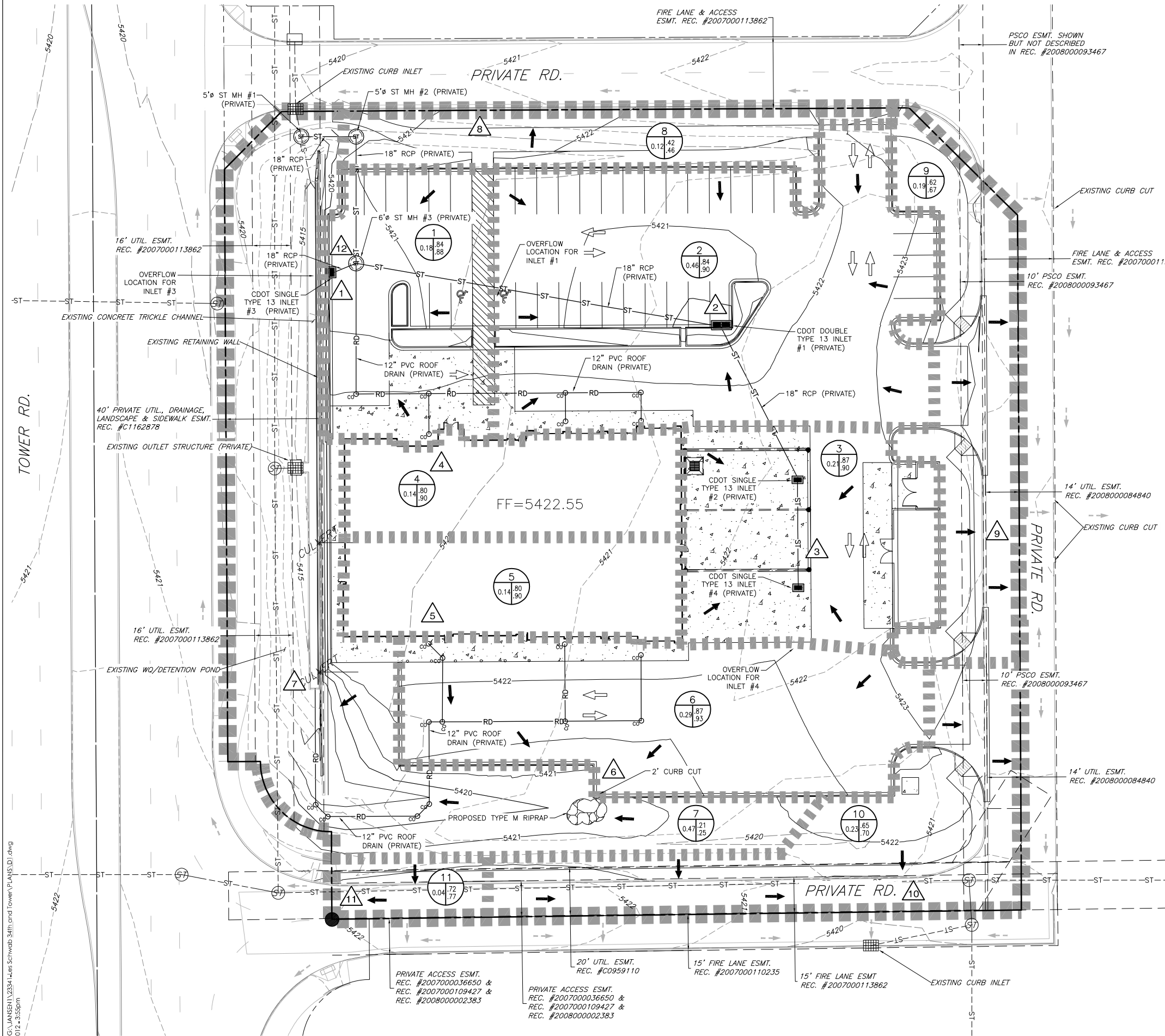


Randy Smith, PE
Colorado Licensed Professional Engineer #45449
RandySmith@GallowayUS.com

Attachments:

Existing Drainage Map
Proposed Drainage Map

CAD FILE: G:\JANSEN\12341-Les Schwab 34th and Tower\PLANS\LD1.dwg
Apr 23, 2012 3:55pm



BENCHMARK

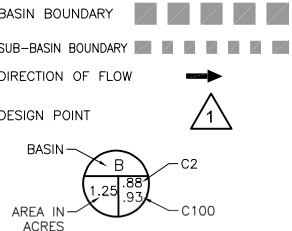
ELEVATIONS ARE BASED ON THE CITY OF AURORA VERTICAL CONTROL NETWORK BM #356628NE002 A CITY OF AURORA 3" BRASS CAP (STAMPED COA BM, 356628NE002, 2007) ON THE NORTHWEST CORNER OF A 5 FOOT WIDE TYPE R STORM INLET, WEST SIDE OF TOWER ROAD, NORTHWEST CORNER OF EAST AND MOST SOUTH ENTRANCE TO WALMART (3301 NORTH TOWER ROAD)

ELEVATION = 5421.286 US. FT. (CITY OF AURORA VERTICAL CONTROL DATUM, NAVD 88)

NOTES:

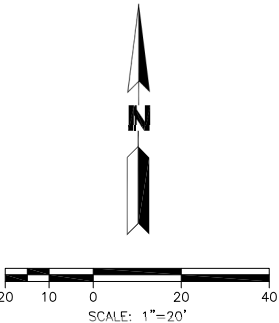
1. ALL STORM SEWER PIPES AND INLETS ARE PRIVATE UNLESS OTHERWISE NOTED AND ARE DESIGNED FOR THE 100-YEAR STORM EVENT UNLESS NOTED OTHERWISE.
2. CITY OF AURORA IS NOT RESPONSIBLE FOR FACILITIES LABELED AS "PRIVATE".

LEGEND



CITY OF AURORA PLAN REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH CITY OF AURORA DESIGN CRITERIA AND THE CITY CODE. THE CITY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, OF DIMENSIONS AND ELEVATIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE. THE CITY OF AURORA, THROUGH THE APPROVAL OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

BASIN SUMMARY				
BASIN	C2	C100	Q2(cfs)	Q100(cfs)
1	0.84	0.88	0.5	1.4
2	0.84	0.90	1.3	3.7
3	0.87	0.90	0.6	1.7
4	0.80	0.90	0.4	1.1
5	0.80	0.90	0.4	1.1
6	0.87	0.93	0.8	2.4
7	0.21	0.25	0.2	0.8
8	0.42	0.46	0.2	0.5
9	0.62	0.67	0.4	1.1
10	0.65	0.70	0.5	1.4
11	0.72	0.77	0.1	0.3



CALL 811 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. THE UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS, HOWEVER, THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

Approved for One Year From this Date

City Engineer _____ Date _____
Aurora Water Department _____ Date _____



1120 NW Couch Street
Suite 300, Portland
OR 97209
Tel: (503) 224.9656
Fax: (503) 299.6273
www.gbdarchitects.com

**LES SCHWAB
TOWER ROAD
AURORA, COLORADO**

LOT 1, BLOCK 1,
GATEWAY EAST AT
TOWER SUBDIVISION
FILING NO. 1,
AMENDMENT NO. 1



01-20-2012
02-08-2012
PR #7
04-23-2012

REVISIONS

DATE
12-20-2011

PROJECT NUMBER
20112001

SHEET TITLE
DRAINAGE PLAN

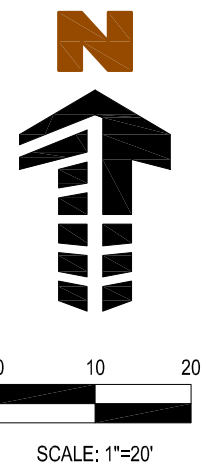
SCALE
AS NOTED

D1

SHEET 14

Project No:	LST00014
Drawn By:	WLMR
Checked By:	WTF
Date:	JULY 2017

C2.0



1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE FIELD LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POT-HOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.

