ENGINEERING SERVICE COMPANY

Creative Solutions Since 1954
CIVIL ENGINEERS | LAND SURVEYORS

Friday, June 4, 2021

City of Aurora, Colorado
Engineering Division
15151 E Alameda Pkwy
Aurora, CO 80012

RE: LOT 1, BLOCK 2, TOWER CENTER FOR INDUSTRY SUBDIVISION FILING NO. 2 PRELIMINARY DRAINAGE COMPLIANCE LETTER

City of Aurora Engineering Division:

Two new buildings are proposed at the southwest corner of 22nd Avenue and Tower Road in Aurora, Colorado. This parcel is known as Lot 1, Block 2, Tower Center for Industry Subdivision Filing No. 2. A 58,000 square-foot building exists on the site currently. Proposed development includes the addition of a 17,000 square-foot office building, a 5,000 square-foot storage building, and associated parking and utilities. The site was previously studied by R&R Engineers-Surveyors, Inc. in a report titled, "Final Drainage Report for Specialty Wood Products, Lot 1, Block 2, Town Center for Industry Subdivision Filing No. 2, Aurora, CO"; approved for construction on September 20, 2006 by the City of Aurora Water Department and City Engineer (COA Approval 206174). As part of that private development, improvements were constructed including a detention pond, underground utilities, parking, and the building that now all exist on the site. That development was also in conformance with the Master Drainage Report for this area. (COA Approval C8-2-1320) The site was also studied in a previous drainage compliance letter (COA Approval 221123FD1) dated February 5, 2021. That study covered an expansion to the existing building, analyses for curb chases from the building out to 22nd Avenue, and calculations showing that the existing detention pond meets Aurora's updated detention criteria.

Compared with the earlier report, the boundaries of several basins are modified. Basin C becomes basins C1 and C2 to demonstrate that some of the storm water is diverted past the north end of the proposed storage building. A new riprap rundown will convey water from Basin C1 into the pond.

The boundary between basins F and H is adjusted as well. In Basin F, storm water currently runs from an existing curb chase down the east portion of the property and then west in a wide valley pan to the detention pond. The valley pan will be removed and these waters will be conveyed along a curb near the front of the office building.

Basin G now includes the proposed building and some landscaped area east and south of the building. Rainfall on the building will be captured and diverted underground by roof drains. The roof drains direct the water to the detention pond. For the landscaped area east and south of the building, landscape inlets capture the storm water and connect to the same underground storm sewer that conveys the roof flows.

The detention pond was shown in the previous report to meet criteria with a site that was 66% impervious. With the development proposed at this time, the tributary site's imperviousness will decrease to less than 62%. Therefore, the pond has sufficient capacity based on those previous analyses.

14190 East Evans Avenue
Aurora, Colorado 80014-1431
P 303.337.1393 | **F** 303.337.7481 | **T/F** 1.877.273.0659
engineeringserviceco.com

By graphical inspection, the subject property is situated in Unshaded Flood Zone "X", the area determined to be outside the 0.2% annual chance flood plain according to Flood Insurance Rate Map (FIRM) community panel No. 08005C0182K last revised December 17, 2010. The site lies approximately 3,500 feet east of the outfall into Sand Creek.

You may reach me by phone at (303) 337-1393 or via email at canderson@engineeringserviceco.com.

Sincerely,

Chad M. Anderson, P.E.
Project Manager
Engineering Service Company
Registered P.E. No. 55094

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
TuB	Truckton sandy loam, 0 to 3 percent slopes	A	3.1	31.5%
VoB	Vona sandy loam, 1 to 3 percent slopes	A	6.7	68.5%
Totals for Area of Interest			**9.8**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

TABLE 1
RUNOFF COEFFICIENTS AND PERCENTS IMPERVIOUS

LAND USE OR SURFACE CHARACTERISTICS	PERCENT IMPERVIOUS	FREQUENCY			
		2	5	10	100
Business:					
Commercial Areas	95	.87	.87	.88	.89
Neighborhood Areas	85	.60	.65	.70	.80
Residential:					
Single-Family (**)	(*)	.40	.45	.50	.60
Multi-Unit (detached)	60	.45	.50	.60	.70
Multi-Unit (attached)	75	.60	.65	.70	.80
1/2 Acre Lot or Larger	(*)	.30	.35	.40	.60
Apartments	80	.65	.70	.70	.80
Industrial:					
Light Areas	80	.71	.72	.76	.82
Heavy Areas	90	.80	.80	.85	.90
Parks, Cemeteries	5	.10	.10	.35	.60
Playgrounds	10	.15	.25	.35	.65
Schools	50	.45	.50	.60	.70
Railroad Yard Areas	15	.40	.45	.50	.60
Undeveloped Areas:					
Historic Flow Analysis, Greenbelts, Agricultural	2	(See "Lawns")			
Off-Site Flow Analysis (when land use not defined)	45	.43	.47	.55	.65

TABLE 1 (continued)

RUNOFF COEFFICIENTS AND PERCENTS IMPERVIOUS

LAND USE OR SURFACE CHARACTERISTICS	PERCENT IMPERVIOUS	FREQUENCY			
		2	5	10	100
Streets:					
Paved	100	.87	.88	.90	.93
Gravel	40	.15	.25	.35	.65
Concrete Drive and Walks	96	.87	.87	.88	.89
Roofs	90	.80	.85	.90	.90
Lawns, Sandy Soil (A and B Soils):	2				
2% Slope		.05	.06	.08	.10
2-7% Slope		.10	.11	.13	.15
>7% Slope		.15	.16	.18	.20
Lawns, Clay Soil (C and D Soils):	5				
2% Slope		.13	.14	.15	.17
2-7% Slope		.18	.19	.20	.22
>7% Slope		.25	.27	.30	.35

NOTE: These Rational Formula coefficients may not be valid for large basins

(*)See Figures *RO-3 through RO-5* of USDCM Volume 1 for percent impervious.

(**)Up to 5 units per acre. Single-family with more than 5 units per acre, use values for multi-unit/detached

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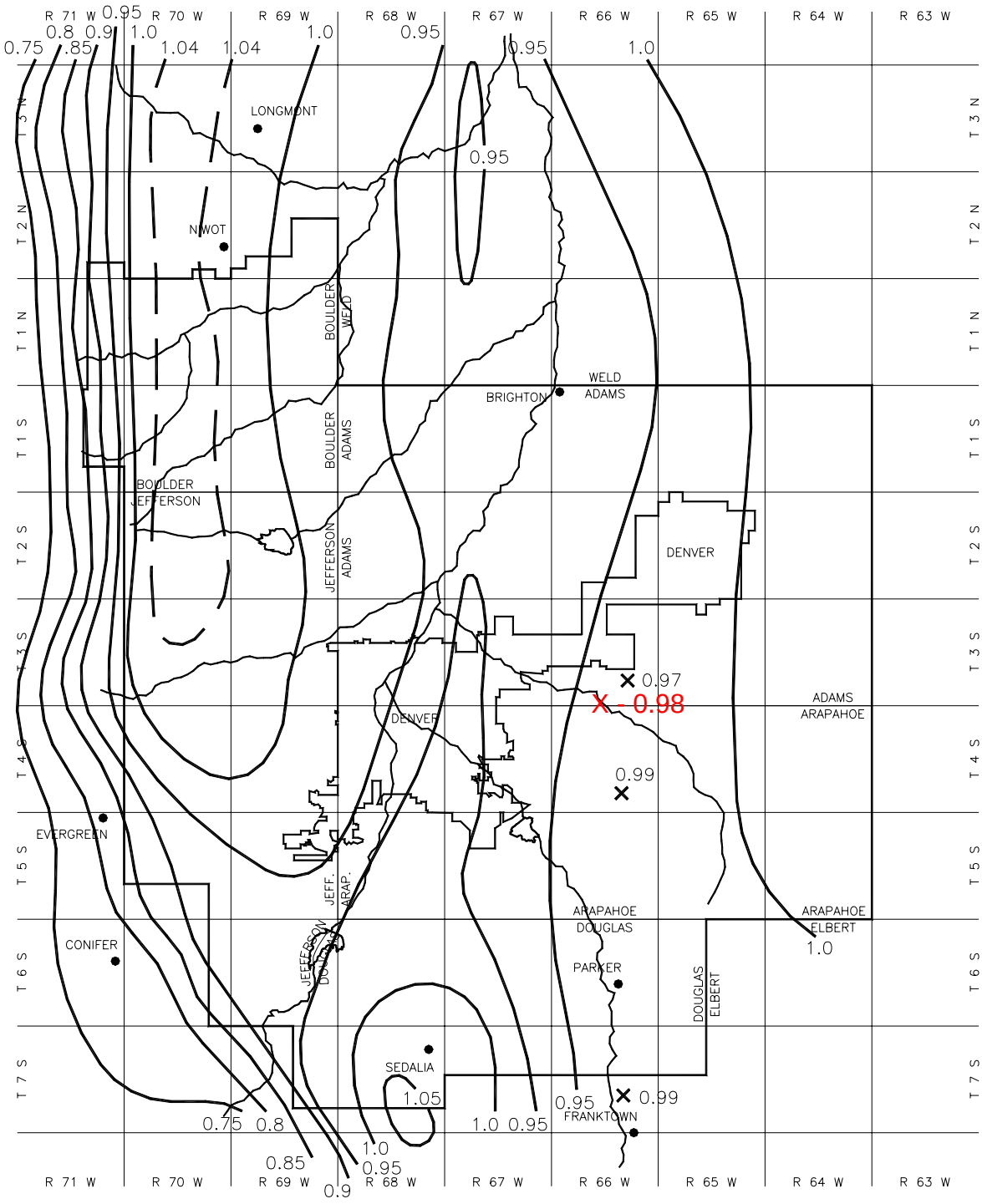


Figure RA-1—Rainfall Depth-Duration-Frequency: 2-Year, 1-Hour Rainfall

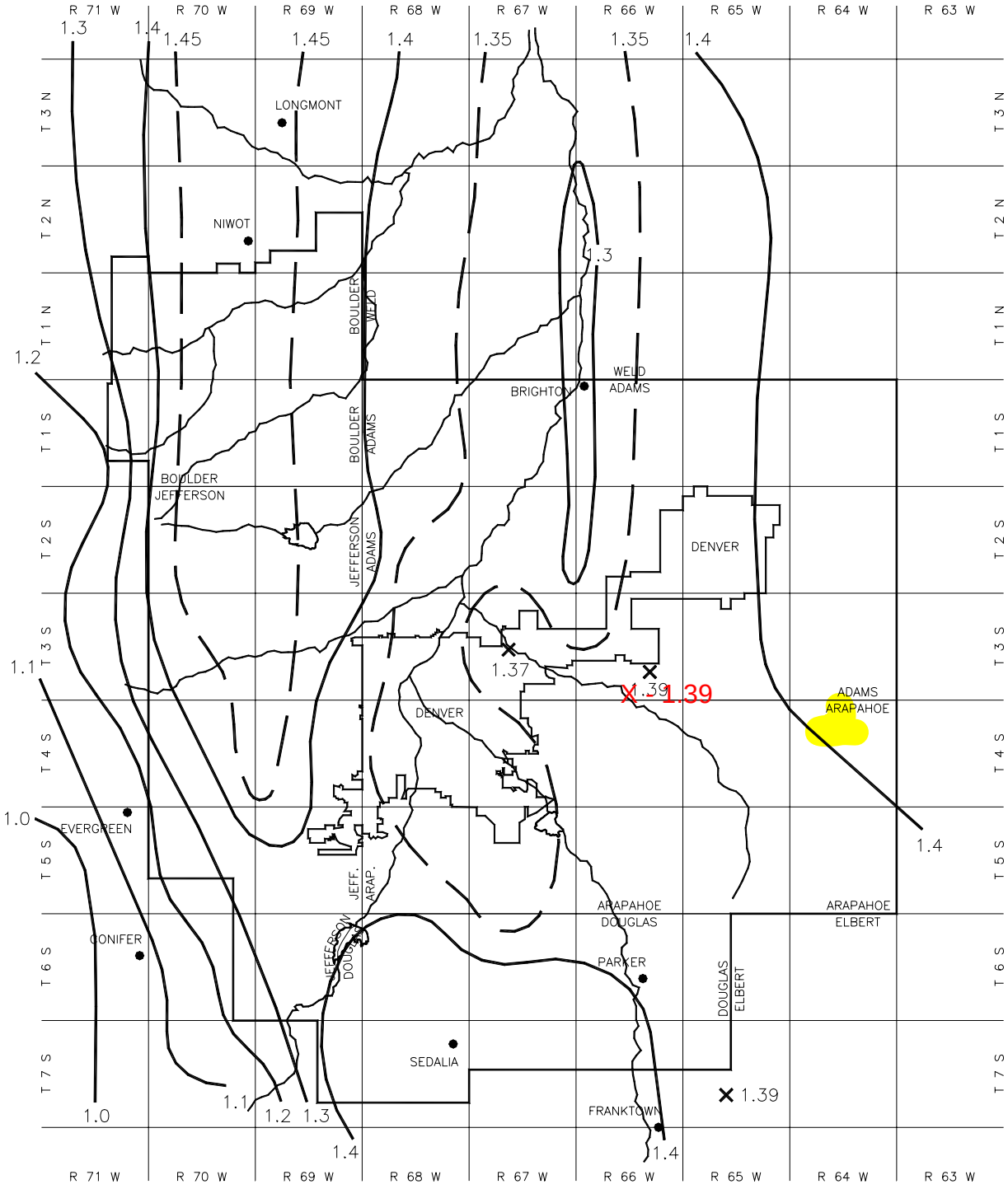


Figure RA-2—Rainfall Depth-Duration-Frequency: 5-Year, 1-Hour Rainfall

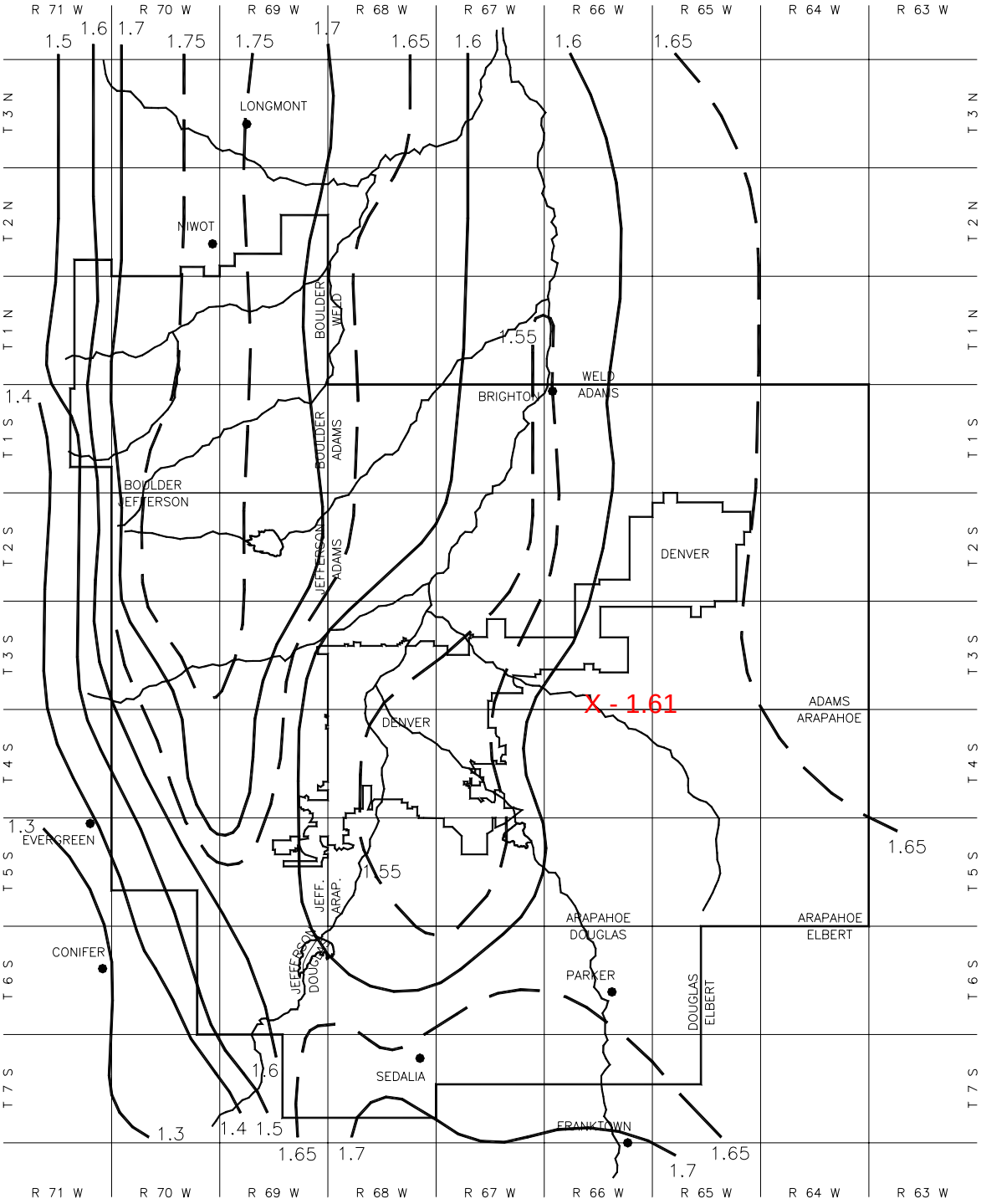


Figure RA-3—Rainfall Depth-Duration-Frequency: 10-Year, 1-Hour Rainfall

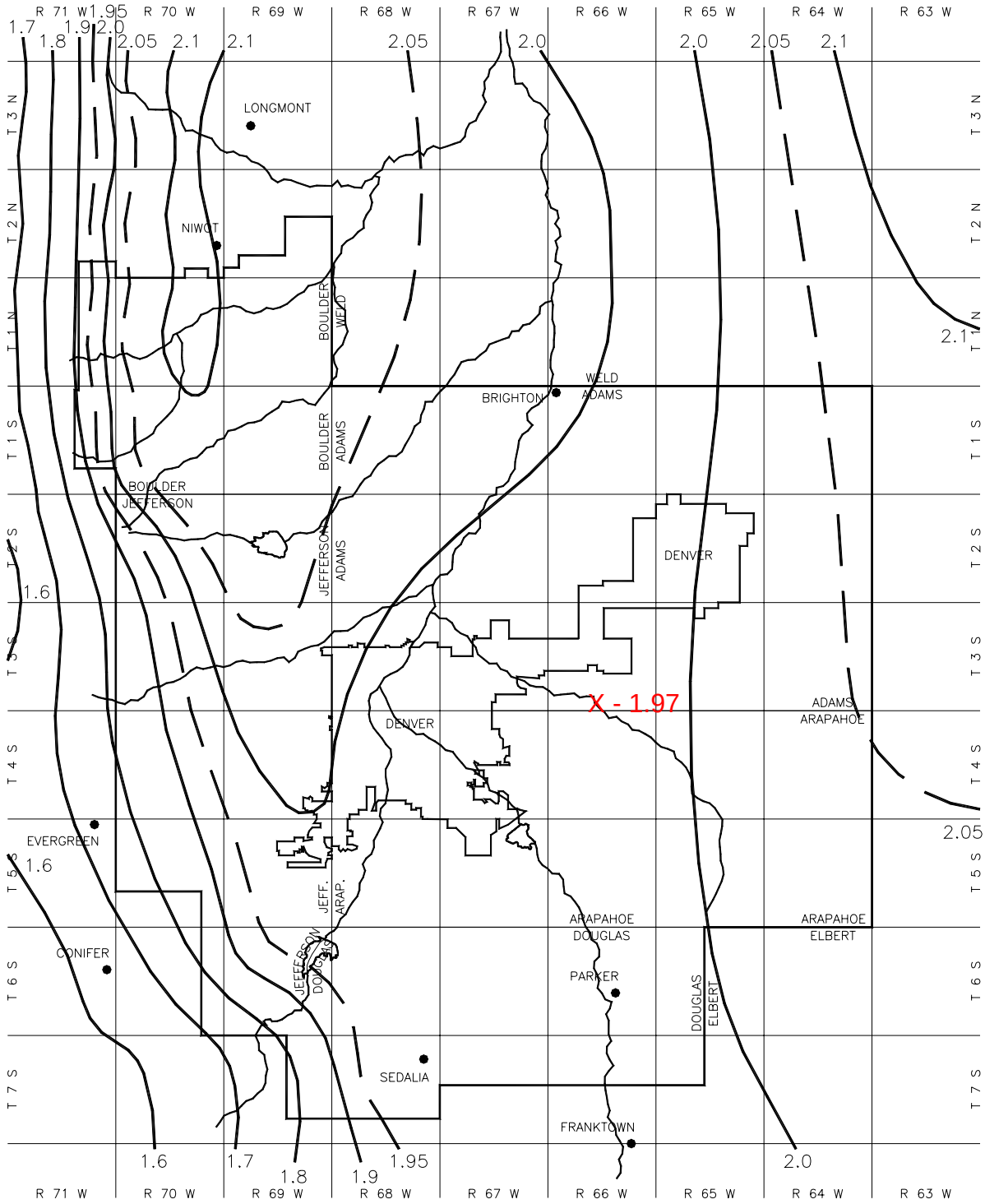


Figure RA-4—Rainfall Depth-Duration-Frequency: 25-Year, 1-Hour Rainfall

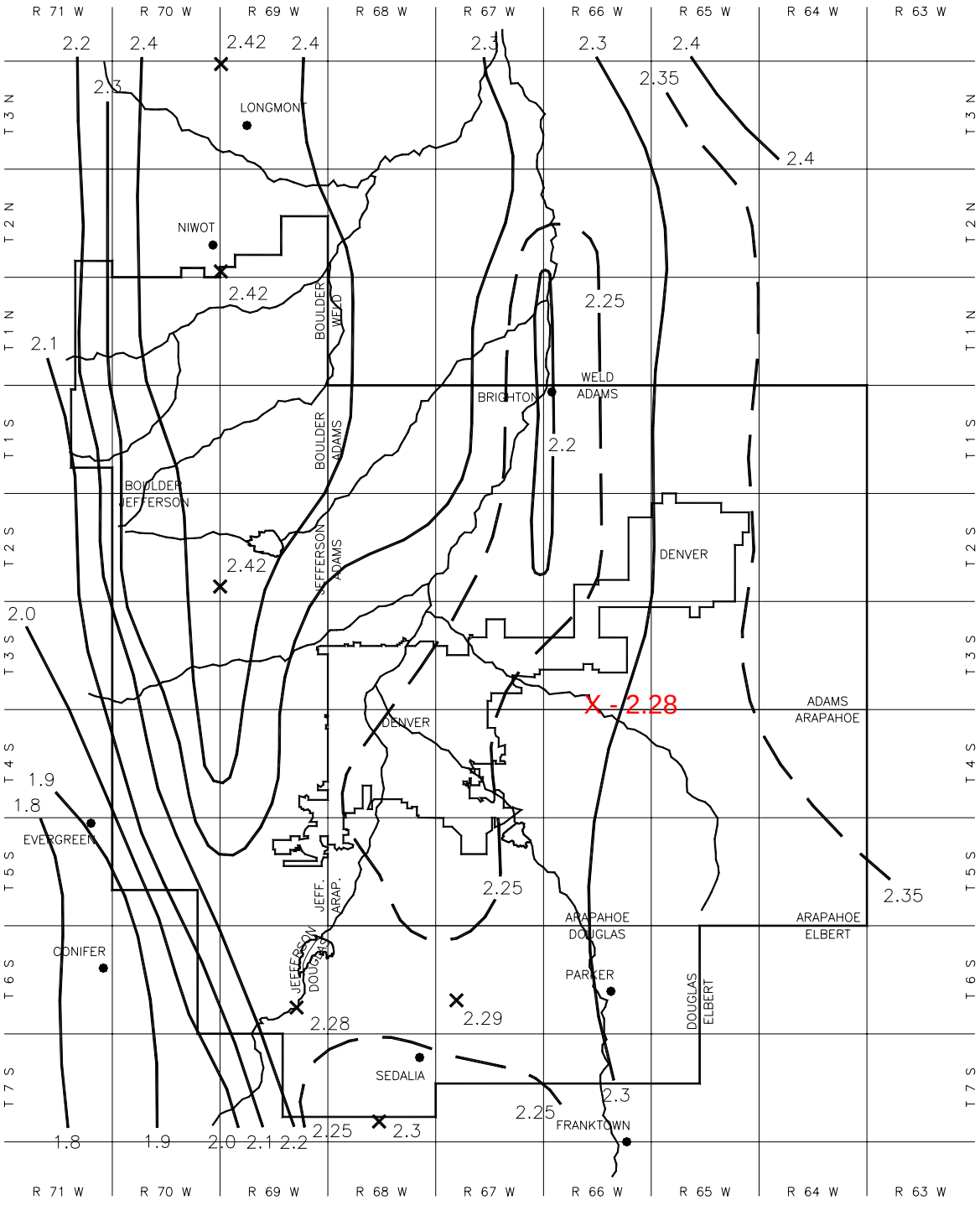


Figure RA-5—Rainfall Depth-Duration-Frequency: 50-Year, 1-Hour Rainfall

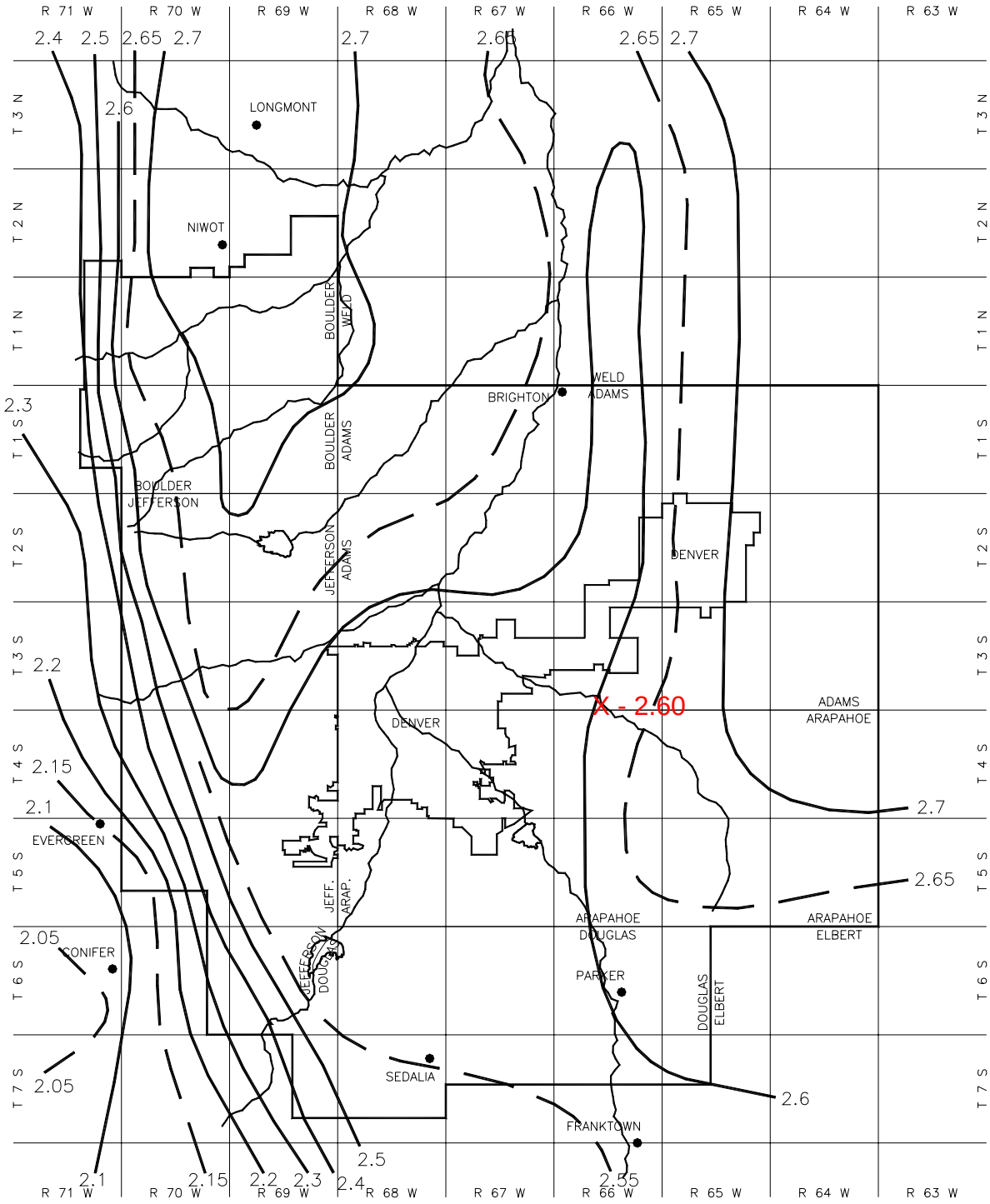


Figure RA-6—Rainfall Depth-Duration-Frequency: 100-Year, 1-Hour Rainfall

APPENDIX B

A. Developed Condition Hydrologic Conditions
B. Detention Pond Analysis and Design

Composite Basin Parameter Calculations

Date: 2021-06-04

Job Name: T-Mobile Switch Expansion

By: CMA

Imperviousness and "C" Values

	I	C_2	C_5	C_{100}
Roofs	90.00%	0.80	0.85	0.90
Lawn, 2-7% Slope, A&B Soils	2.00%	0.15	0.16	0.20
(Asphalt) Drives & Walks	100.00%	0.87	0.88	0.93

Ref. Aurora Storm Drainage Design and Technical Criteria, Table 1

Basin	Roof	Lawn	Drives & Walks	Total		Weighted Runoff Coeff I	C_2	C_5	C_{100}
A1	0.20	0.18	0.03	0.41		53.10%	0.53	0.56	0.60
A2	0.21	0.09	0.02	0.33		65.63%	0.62	0.66	0.70
B	0.91	0.00	0.00	0.91		90.00%	0.80	0.85	0.90
C1	0.00	0.06	0.69	0.75		91.59%	0.81	0.82	0.87
C2	0.14	0.04	0.30	0.48		89.71%	0.80	0.82	0.87
D	0.00	0.26	0.13	0.39		34.29%	0.39	0.40	0.44
E	0.00	0.55	0.04	0.60		9.05%	0.20	0.21	0.25
F	0.00	0.27	1.28	1.55		83.19%	0.75	0.76	0.80
G	0.00	0.23	1.04	1.27		82.05%	0.74	0.75	0.80
H	0.40	0.23	0.07	0.70		62.08%	0.59	0.63	0.67
OS-1	0.15	1.84	0.59	2.58		29.53%	0.35	0.36	0.41
Total	2.02	3.75	4.19	9.97		56.75%	0.58	0.60	0.65
Total Into Pond	1.61	3.48	4.14	9.23		61.29%	0.59	0.60	0.65

(Includes all except A1 and A2)

Time of Concentration Calculations

Date: 2021-06-04

Job Name: T-Mobile Switch Expansion

By: CMA

Basin Data			*Initial/Overland Flow Time (Ti)			Travel Time (Tt)				**Tc Check Urbanized Basin		Final Tc	Remarks
Desig	C_5	Area Ac	Length Ft	Slope %	Ti Min	Length Ft	Slope %	***Vel FPS	Tt Min	Ti+Tt	Tc Max	Min	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
A1	0.53	0.41	36	3.50	4.10	750	1.00	2.00	6.25	10.35	28.15	10.35	
A2	0.62	0.33	36	3.50	3.44	3200	1.00	2.00	26.67	30.11	61.70	30.11	
B	0.80	0.91	300	1.00	9.38	44	1.00	2.00	0.37	9.75	22.58	9.75	
C1	0.81	0.75	170	2.50	5.08	219	1.00	2.00	1.83	6.90	22.01	6.90	
C2	0.80	0.48	181	4.00	4.68	135	1.00	2.00	1.13	5.81	20.50	5.81	
D	0.39	0.39	117	1.50	12.18	0	1.50	2.45	0.00	12.18	19.26	12.18	
E	0.20	0.60	118	2.00	14.01	0	2.00	2.83	0.00	14.01	19.12	14.01	
F	0.75	1.55	300	2.00	8.79	115	2.00	2.83	0.68	9.47	21.90	9.47	
G	0.74	1.27	300	2.00	9.00	247	2.50	3.16	1.30	10.30	22.91	10.30	
H	0.59	0.70	300	2.50	11.71	10	3.00	3.46	0.05	11.76	20.59	11.76	
OS-1	0.35	2.58	300	2.00	18.60	184	2.50	3.16	0.97	19.57	22.46	19.57	

*Ti calculated from City of Aurora Storm Drainage Criteria Manual, Equation 5.3

**Tc calculated from City of Aurora Storm Drainage Criteria Manual, Equation 5.4

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{\sqrt[3]{S}} \qquad (5.3)$$

where t_i = initial or overland flow time (minutes)
C_5 = runoff coefficient for 5-year frequency
L = length of overland flow, (ft., 500 ft. max.)
S = average basin slope (ft/ft)

$$t_c = \frac{L'}{180} + 10 \qquad (5.4)$$

Where t_c = time of concentration (minutes)

L' = length of flow to first design point from the most remote point (feet)

Stormwater Runoff

Job Name: T-Mobile Switch Expansion

Date: 2021-06-04 Project:

Calculated by: CMA Design Storm: 2-yr

1-hr runoff depth 0.97 in

Design Point	Direct Runoff							Total Runoff				Remarks
	Basin ID	Area (Ac)	Runoff Coeff	Tc (min)	CA	I^1 (in/hr)	Q (cfs)	Tc (min)	Total CA	I^1 (in/hr)	Q (cfs)	
1	A1	0.41	0.53	10.35	0.22	2.59	0.56					Flows North along Tower Road.
10	A2	0.33	0.62	30.11	0.20	1.52	0.31					Flows west along 22nd.
2	B	0.91	0.80	9.75	0.73	2.65	1.94					Flows into Pond.
3	C1	0.75	0.81	6.90	0.61	3.00	1.82					Flows into Pond.
10	C2	0.48	0.80	5.81	0.38	3.16	1.21					Flows into Pond.
4	D	0.39	0.39	12.18	0.15	2.42	0.36					Flows into Pond.
5	E	0.60	0.20	14.01	0.12	2.27	0.27					Flows into Pond.
6	F	1.55	0.75	9.47	1.15	2.68	3.09	10.30	2.82	2.59	7.32	B, G, and F. Flows into Pond.
7	G	1.27	0.74	10.30	0.94	2.59	2.44	10.30	1.67	2.59	4.33	B and G. Flows into Pond.
8	H	0.70	0.59	11.76	0.42	2.46	1.02					Flows into Pond.
9	OS-1	2.58	0.35	19.57	0.91	1.93	1.76					Flows into Pond.

*Intensity (I) calculated using COA Intensity equation 5.5

$$I = \frac{28.5\ P_1}{(10 + T_C)^{0.786}} \qquad (5.5)$$

Where:

I = rainfall intensity (inches per hour)

P_1 = one-hour rainfall depth (inches) from Figures RA-1 through RA-6 in USDCM, Volume 1

T_c = time of concentration (minutes).

Stormwater Runoff

Job Name: T-Mobile Switch Expansion

Date: 2021-06-04 Project:

Calculated by: CMA Design Storm: 100-Yr

1-hr runoff depth 2.6 in

Design Point	Direct Runoff							Total Runoff				Remarks
	Basin ID	Area (Ac)	Runoff Coeff	Tc (min)	CA	I^1 (in/hr)	Q (cfs)	Tc (min)	Total CA	I^1 (in/hr)	Q (cfs)	
1	A1	0.41	0.60	10.35	0.25	6.94	1.72					Flows North along Tower Road.
10	A2	0.33	0.70	30.11	0.23	4.07	0.93					Flows west along 22nd.
2	B	0.91	0.90	9.75	0.82	7.10	5.85					Flows into Pond.
3	C1	0.75	0.87	6.90	0.65	8.03	5.23					Flows into Pond.
10	C2	0.48	0.87	5.81	0.42	8.46	3.54					Flows into Pond.
4	D	0.39	0.44	12.18	0.17	6.49	1.10					Flows into Pond.
5	E	0.60	0.25	14.01	0.15	6.09	0.92					Flows into Pond.
6	F	1.55	0.80	9.47	1.24	7.18	8.94	10.30	3.08	6.95	21.41	B, G, and F. Flows into Pond.
7	G	1.27	0.80	10.30	1.01	6.95	7.04	10.30	1.84	6.95	12.76	B and G. Flows into Pond.
8	H	0.70	0.67	11.76	0.47	6.58	3.11					Flows into Pond.
9	OS-1	2.58	0.41	19.57	1.05	5.17	5.45					Flows into Pond.

*Intensity (I) calculated using COA Intensity equation 5.5

$$I = \frac{28.5\ P_1}{(10 + T_C)^{0.786}} \qquad (5.5)$$

Where:

I = rainfall intensity (inches per hour)

P_1 = one-hour rainfall depth (inches) from Figures RA-1 through RA-6 in USDCM, Volume 1

T_c = time of concentration (minutes).

206174
03m
Rpt-206174
1981-3044

R&R ENGINEERS – SURVEYORS, INC.

FINAL DRAINAGE REPORT

FOR

SPECIALTY WOOD PRODUCTS
LOT 1, BLOCK 2, TOWN CENTER FOR INDUSTRY SUBDIVISION
FILING NO. 2
AURORA, COLORADO

PREPARED FOR:

CMC GROUP, INC.
COLORADO CENTER, TOWER 1
2000 S. COLORADO BLVD. SUITE 10500
DENVER, CO 80222
(303) 741-4500
CONTACT: GRAHAM BENES

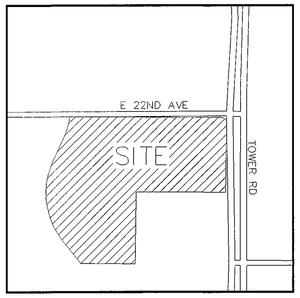
PREPARED BY:

R & R ENGINEERS - SURVEYORS, INC.
710 W. COLFAX AVE.
DENVER, CO 80204
CONTACT: COLE C. HABERER
(303) 753-6730
JOB # CM06002

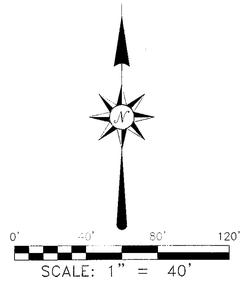
AUGUST 9, 2006

APPROVED FOR ONE YEAR FROM THIS DATE 09. 20. 06	
Water Department	Date 9-07-06
City Engineer	Date 9-8-06

206129



VICINITY MAP
SCALE: 1" = 300'



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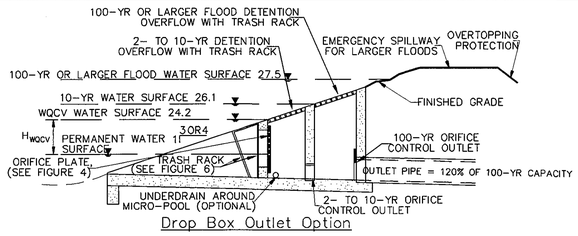


Drop Box Outlet Option

NOTE:
1. OWNER/CONTRACTOR MUST OBTAIN N.P.D.E.S. STORM WATER DISCHARGE PERMIT FROM COLORADO DEPARTMENT OF HEALTH IF REQUIRED.
2. ALL STORM PIPE IS PRIVATE UNLESS OTHERWISE STATED (PUBLIC).
3. PRIVATE STORM PIPE AND INLETS ARE DESIGNED FOR THE 100-YEAR STORM.

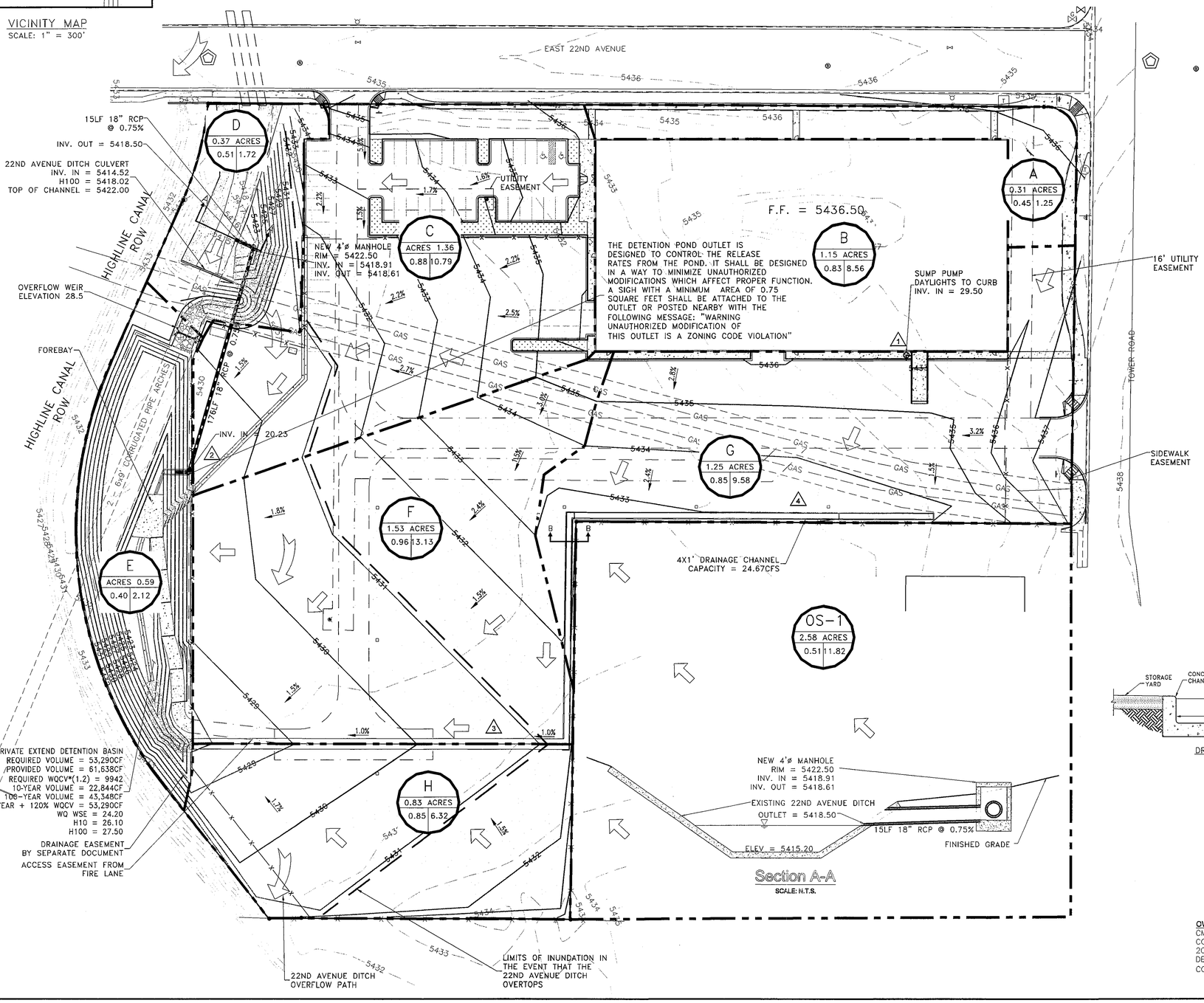
CITY OF AURORA PLAN REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH CITY OF AURORA DESIGN CRITERIA AND THE CITY CODE. THE CITY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, OF DIMENSIONS, AND ELEVATIONS, WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE. THE CITY OF AURORA THROUGH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

FLOOD NOTE: BASED ON A REVIEW OF FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 080002 0185 E PANEL 185 OF 510, DATED AUGUST 16, 1995, THIS PROPERTY IS NOT WITHIN THE 100-YEAR FLOOD PLAIN LIMITS.

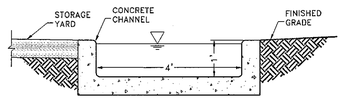
BENCHMARK – COA 12-024A: CHISELED SQ CENTER WEST EDGE CO INLET AT NORTH PCR NORTHEAST CORNER OF RIFLE STREET AND EAST 22nd AVENUE. ELEVATION = 5412.295.

RUNOFF TABLE

BASIN	DESIGN POINT	AREA (ACRES)	Q_2 (CFS)	Q_{100} (CFS)	C_{100}
A	N/A	0.31	0.17	1.25	0.45
B	1	1.15	2.79	8.56	0.83
C	2	1.36	3.53	10.79	0.88
D	N/A	0.37	0.32	1.72	0.51
E	N/A	0.59	0.18	2.12	0.40
F	3	1.53	4.50	13.13	0.96
G	4	1.25	3.06	9.58	0.85
H	3	0.83	2.02	6.32	0.85
OS-1	N/A	2.58	1.80	11.82	0.51



Section A-A
SCALE: N.T.S.



DRAINAGE CHANNEL B-B
N.T.S.

LEGEND

- PROPERTY LINE
- 5481 NEW CONTOUR
- 5483 EXISTING CONTOUR
- 55 NEW SEWER
- SS EXISTING SEWER
- W NEW WATER
- W EXISTING WATER
- NEW STORM
- ST EXISTING STORM
- NEW CURB
- NEW FLOW LINE
- NEW PAN/LIP
- EXISTING CURB
- EXISTING FLOW LINE
- EXISTING PAN/LIP (IF APPLICABLE)
- NEW FIRE HYDRANT *
- EXISTING FIRE HYDRANT *
- S1 NEW STORM MANHOLE *
- S1 EXISTING STORM MANHOLE *
- NEW STORM INLET *
- EXISTING STORM INLET *
- NEW DOWN SPOUT *
- NEW NDS GRATE *
- EXISTING NDS GRATE *
- S NEW SEWER MANHOLE *
- S EXISTING SEWER MANHOLE *
- NEW CLEAN OUT *
- EXISTING CLEAN OUT *
- 2% SLOPE
- A 1.27 ACRES 0.69 6.50 BASIN CALLOUT / BASIN SIZE IN ACRES / 100 YEAR FLOW (CFS) / 100-YR COMPOSITE "C" VALUE
- BASIN BOUNDARY
- DIRECTION OF FLOW
- EMERGENCY OVERFLOW
- NEW CONCRETE
- NEW ASPH
- TYPE "M" RIP RAP
- DETENTION POND LIMITS

* NOTE: SYMBOLS MAY NOT BE TO SCALE FOR BETTER GRAPHICAL REPRESENTATION.

ENGINEERS CERTIFICATE:

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME AND/OR UNDER MY SUPERVISION AND THAT I AM A REGISTERED PROFESSIONAL ENGINEER UNDER THE STATUTES OF THE STATE OF COLORADO.

COLORADO REGISTERED ROBERT D. COLOSIMO 37327 PROFESSIONAL ENGINEER

ROBERT D. COLOSIMO, P.E. #37327 — 06/07/06 DATE

APPROVED FOR ONE YEAR FROM THIS DATE
6-28-06

CITY ENGINEER — DATE 6/6/06

WATER DEPARTMENT — FOR J.E.W. — DATE 6/27/06

OWNER:
CMC GROUP, INC.
COLORADO CENTER, TOWER 1
2000 S. COLORADO BLVD. SUITE 10500
DENVER, CO 80222
CONTACT: GRAHAM BENES (303)741-4500

R&R ENGINEERS-SURVEYORS, INC.
710 WEST COLFAX AVENUE
DENVER, COLORADO 80204
PH 303-753-6730 FX 303-753-6568
WWW.RRENGINEERS.COM

PRELIMINARY DRAINAGE PLAN

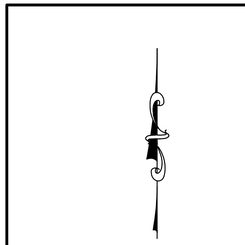
SITE: SPECIALTY WOOD PRODUCTS, TOWER CENTER FOR INDUSTRY FILING #2, L1, B1
EAST 22 AVE & TOWER ROAD AURORA, CO

FOR: CMC GROUP, INC.
2000 S. COLORADO BLVD. SUITE 10500
DENVER, CO 80222

REVISIONS

PRELIMINARY DRAINAGE 4/7/06
RESUBMIT 05/24/06
MYLARS 06/07/06

File Name CM06002
Plot Date 6/7/2006
Date 03/30/06 Sheet D1.1
Drawn CJD
Checked RDC
Job No. CM06002 of 1



LEGEND

- (E) ELECTRICAL LINE
- (E) GAS LINE
- (E) SANITARY SEWER LINE
- (E) TELEPHONE LINE
- (E) WATER LINE
- (E) CONTOUR LINE
- (P) CONTOUR LINE
- (P) BERM RIDGE LINE
- BASIN LINE
- (E) FIRE HYDRANT
- (E) MANHOLE
- DRAINAGE FLOW ARROW
- (P) EMERGENCY OVERFLOW
- (E) EXISTING ITEMS
- (P) PROPOSED ITEMS
- DESIGN POINT
- BASIN DESIGNATION
- MINOR RUNOFF COEFFICIENT
- MAJOR RUNOFF COEFFICIENT
- BASIN AREA IN ACRES

EAST 22ND AVENUE
(70' PUBLIC R.O.W.)

10' UTILITY EASEMENT (BY PLAT)

4' SIDEWALK EASEMENT (REC. NO. 2007000117163)

EX. 22ND AVENUE DITCH

DRAINAGE EASEMENT (BK 2007-PG 324)

DRAINAGE EASEMENT (BY PLAT)

HIGHLINE CANAL

OVERFLOW DIRECTION

16' UTILITY EASEMENT (REC. NO. 2007000117165)

LOT 1, BLOCK 2
TOWER CENTER FOR INDUSTRY
SUBDIVISION FILING NO. 2

PARCEL CONTAINS
321,679 SQUARE FEET
7.3847 ACRES

FFE = 5440.20

FFE = 5440.20

PROPOSED VALLEY PAN TO PROVIDE DRAINAGE NEAR EAST DOOR

TOWER ROAD
(80' PUBLIC R.O.W.)

35' C.I.G. EASEMENT (BK 2576-PG 420-423)

100-YEAR+1/2 EURV WSEL

DRAINAGE EASEMENT TO BE VACATED AND RE-DEDICATED

EX. DETENTION POND

EX. 4' MANHOLE

23' FIRE LANE EASEMENT (REC. NO. 2007000117166)

6'x9' CMP ARCH PIPE

EX. OUTLET CONTROL STRUCTURE

EX. 4H:1V

EX. DRAINAGE CHANNEL

10' UTILITY EASEMENT (REC. NO. 20180000301)

UNPLATTED
(OWNER: VICTORY GRANGE NO. 452 / COLORADO STATE GRANGE)

DRAINAGE/MAINTENANCE ACCESS EASEMENT

EX. POND MAINTENANCE ACCESS

UNPLATTED
(OWNER: DILLON COMPANIES INC DBAKING SOOPERS INC)

OS-1 (2.58 | 0.35 | 0.41)

OFFSITE BASIN DOES FLOW ONTO SUBJECT SITE PER PREVIOUS DRAINAGE REPORT. DETENTION AND WATER QUALITY FOR THIS SITE IS PROVIDED IN THE POND ON OUR SITE.

DETENTION POND DATA

DETENTION POND TRIBUTARY AREA = 9.23 ACRES
MICROPOOL WSEL = 5424.20
WQCV = 0.198 ACRE*FEET; WQCV ELEVATION = 5427.15; DEPTH = 2.95'
EURV = 0.561 ACRE*FEET; EURV ELEVATION = 5429.18; DEPTH = 4.98'
100-YEAR+1/2EURV DETENTION VOLUME = 1.543 ACRE*FEET
100-YEAR+1/2EURV WSEL = 5431.11; DEPTH = 6.91'
100-YEAR RELEASE = 6.1 CFS
SPILLWAY CREST EL = 5431.06

SUMMARY RUNOFF TABLE

D.P.	BASIN	I (%)	C_2	C_{100}	Q_2 (CFS)	Q_{100} (CFS)
1	A1	53.10%	0.53	0.60	0.56	1.72
10	A2	65.63%	0.62	0.70	0.31	0.93
2	B	90.00%	0.80	0.90	1.94	5.85
3	C	95.04%	0.83	0.89	3.06	8.78
4	D	34.29%	0.39	0.44	0.36	1.10
5	E	2.00%	0.15	0.20	0.20	0.71
6	F	98.69%	0.86	0.92	3.61	10.35
7	G	82.05%	0.74	0.80	2.44	7.04
8	H	90.08%	0.80	0.86	1.95	5.63
9	OS-1	29.53%	0.35	0.41	1.76	5.45
	Total Into Pond (All Except A1 and A2)	65.98%	0.62	0.68	15.31	44.90

GENERAL NOTES:

1. ALL STORM SEWER INFRASTRUCTURE IS PRIVATE, WILL BE MAINTAINED BY THE PROPERTY OWNER AND IS SIZED FOR THE 100-YR EVENT, UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION, SIZE, NUMBER, AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON MEASUREMENTS TAKEN IN THE FIELD AND RECORDS OF THE VARIOUS UTILITY COMPANIES. THIS INFORMATION IS NOT TO BE RELIED ON TO BE COMPLETE OR EXACT. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION TO REQUEST UTILITIES BE LOCATED AND MARKED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THIS PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING IMPROVEMENTS AND UTILITIES AND SHALL REPAIR ANY DAMAGE AT HIS EXPENSE.
3. ALL CONSTRUCTION OR CONSTRUCTION STAKING FOR THIS PROJECT SHALL BE DONE PER THE SIGNED AND APPROVED CIVIL CONSTRUCTION PLANS. ENGINEERING SERVICE COMPANY IS NOT LIABLE FOR ANY DISCREPANCIES BETWEEN ANY BID SET AND/OR BUILDING SET AND THE APPROVED CIVIL CONSTRUCTION PLANS.
4. 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, 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.
5. EXISTING UTILITIES, SITE WORK AND TOPOGRAPHY, AS SHOWN ON THESE PLANS, ARE BASED ON A ALTA/NSPS LAND TITLE SURVEY PREPARED BY CHARLES N. BECKSTROM (L.S. NO. 33202) FOR AND ON BEHALF OF ENGINEERING SERVICE COMPANY WITH AN LAST REVISED DATE OF 2/4/2019.
6. THE DEVELOPER SHALL HAVE A LICENSED PROFESSIONAL ENGINEER CERTIFY EACH STORMWATER DETENTION POND AND/OR WATER QUALITY BMP IS BUILT ACCORDING TO THE APPROVED PLANS AND SPECIFICATIONS AND THE REQUIRED DETENTION VOLUME, INCLUDING THE WQCV WHEN USED, IS MET. THE CERTIFICATION SHALL ALSO VERIFY ALL PERTINENT DIMENSIONS, ELEVATIONS, REQUIRED OUTLET ORIFICE PLATES FOR DETENTION AND WQCV AND OTHER PERMANENT BMPS REQUIREMENTS ARE INSTALLED PER THE APPROVED PLANS AND SPECIFICATIONS, AND SHALL SHOW THE AS-BUILT DESIGN VOLUMES (WQCV, 10- YEAR, 100 YEAR, EURV) AND OTHER PERTINENT DIMENSIONS, ELEVATIONS AND CAPACITY REQUIREMENTS ASSOCIATED WITH THE WQ BMP USED. THE CERTIFICATION SHALL BE PROVIDED TO THE CITY OF AURORA ENGINEERING CONTROL SECTION PRINCIPAL ENGINEER. AN APPROVED POND CERTIFICATE SHALL BE REQUIRED PRIOR TO THE RETURN OF ANY FISCAL SECURITY DEPOSIT (AS WELL AS SATISFYING OTHER CONDITIONS OF THE STORMWATER PERMIT) FOR SITES THAT DO NOT REQUIRE A CERTIFICATE OF OCCUPANCY. EXAMPLES OF THESE SITES INCLUDE BUT ARE NOT LIMITED TO: SITES WITHOUT VERTICAL CONSTRUCTION, OIL AND GAS WELL PADS, OUTDOOR STORAGE, AND TOW YARDS. AN APPROVED POND CERTIFICATE SHALL BE REQUIRED PRIOR TO COMMENCEMENT OF BUSINESS OPERATIONS. IN NO CASE SHALL A CERTIFICATE OF OCCUPANCY OR TEMPORARY CERTIFICATE OF OCCUPANCY BE ISSUED WITHOUT AN APPROVED POND CERTIFICATE.

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE EAST LINE OF THE NE 1/4 OF SECTION 33, TOWNSHIP 3 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN BEARING N00°08'22"E AS REFERENCED ON THE CITY OF AURORA HORIZONTAL NETWORK

BENCHMARK:

CITY OF AURORA BM 3S6633SE002 - CHISELED SQUARE AT THE SOUTHWEST CORNER OF INLET AT THE SOUTHWEST CORNER OF TOWER ROAD AND SOUTH ACCESS ROAD TO ASSOCIATED GROCERS EMPLOYEE PARKING ENTRANCE.. ELEVATION: 5432.981 FEET (NAVD 1988 DATUM). THE CONTOURS SHOWN HEREON ARE AT ONE (1) FOOT INTERVALS.

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No.:	Description:	Date:
-	FIRST SUBMITTAL	2021-02-08
-	SECOND SUBMITTAL	2021-04-07

ENGINEERING SERVICE COMPANY
Creative Solutions Since 1954
CIVIL ENGINEERS | LAND SURVEYORS
14190 East Evans Avenue
Aurora, Colorado 80014
P 303.337.1393
F 303.337.7481
T/F 1.877.273.0659
engineeringservicecco.com

Title: **PRELIMINARY DRAINAGE PLAN**
LOT 1, BLOCK 2, TOWER CENTER FOR INDUSTRY SUBDIVISION FILING NO. 2
T-MOBILE PH II SWITCH EXPANSION - CIVIL CONSTRUCTION PLANS
SITUATED IN THE NE 1/4 OF SECTION 33, T 3S., R 66W., OF THE 6TH P.M.
CITY OF AURORA, COUNTY OF ADAMS, STATE OF COLORADO

Client: **SWSG CONSTRUCTION MANAGEMENT**
555 HERNDON PARKWAY, SUITE 260
HERNDON, VA 20170-5262
PHONE: (703) 471-6803
ATTN: MARK KING

Prepared Under The Direct Supervision Of:
Chad M. Anderson, P.E. No. 55094
For and on behalf of Engineering Service Company

Designed by:	Engineering No.:
CMA	E-20-013
Drawn by:	Date:
CMA	2021-02-08
Checked by:	Scale: Horz.: 1"=30' Vert.: N.A.
CMA	
Sheet No.:	1 OF 1

File Name: D:\Users\canderson\Desktop\Projects\SWSG\Aurora - New Office Building\CAD\SWSG - T-Mobile Aurora - Drainage.dwg Plot Date: 2021-08-31 Company: ESC