



April 22, 2024

City of Aurora
Public Works Department
15151 E. Alameda Parkway, Suite 3200
Aurora, CO 80012

Re: Lot 1, Block 1, Aurora Commerce Center Subdivision Filing No. 1 – Building C – Final Drainage Compliance Letter

To Whom it May Concern:

This letter has been prepared in order to demonstrate compliance of the proposed site improvements of Aurora Commerce Center – Building C with the design intent and installed drainage measures from the original construction plans and drainage report (EDN 204196). The original Building C Final Drainage Report identified and accounted for future improvements at the center of the west and east sides of the industrial building at 22100 East 26th Ave and this letter compares the proposed development with the values calculated in the approved report during the initial development of the site.

PROJECT DESCRIPTION

The property owner intends to convert the large grass areas on each side of the existing building to additional parking which was originally planned for in the civil plans and Building C report. The drainage improvements to the site include the construction of chase drains to convey runoff from the building to the proposed parking lots, proposed sidewalks, as well as curb and gutter and regrading of the areas.

According to FEMA Flood Insurance Rate Map Panel #08005C0063L, the subject site is located within flood hazard area Zone X. Zone X is defined as area outside the 0.2-percent-chance (or 500-year) flood. Refer to Appendix for the applicable FEMA flood map.

PROPOSED DRAINAGE PATTERNS

The proposed site improvements will maintain the historic drainage patterns, as shown in the approved plans, as roof flows will be collected by downspouts and discharged through sidewalk chase drains to the existing parking lot. The basins from the existing report have not been changed within this conformance letter and are represented in the Drainage Map attached. Basins C2 and C3 contain the proposed parking lot on the west side of the existing building, while Basins C7 and C8 contain the proposed parking lot on the east side of the building. Flows from these basins will continue to be conveyed to the existing Pond C on the north side of the site via the existing onsite storm system. The revised Drainage Map has been attached to this letter.

IMPACTS OF PROPOSED IMPROVEMENTS

The proposed improvements will convert 32,040 SF of landscape area into a hardscape parking lot that was reserved for future development and accounted for in the Building C report. The original Aurora Commerce Center – Building C Report by Martin/Martin (approved by the City of Aurora under #204196) included a total of 4.24 acres of landscaped area in the future condition with a total site imperviousness of 77.2 percent. The basin imperviousness of C2, C3, C7 and C8 were recalculated in the proposed condition and the total site imperviousness was found to be 77.6 percent, which is slightly above the future imperviousness from the approved report. Based on the increased impervious percentage, the pond volume was recalculated and compared to the calculations from the original report. These calculations are provided in the appendix of this report. The required WQCV for the site remained unchanged, while the 10-year and 100-year detention volumes increased by 0.01 acre-feet, respectively. The original drainage map depicts the future improvements which are currently proposed.

The existing detention pond volume was checked and found to have an existing volume of 3.65 acre-feet which is 0.02 acre-feet above the required volume in the proposed condition. Since the project area has not changed, the required release will remain unchanged as well.

DETENTION COMPARISON TABLE

<i>STORM EVENT</i>	EXISTING CONDITION (AC-FT)	PROPOSED CONDITION (AC-FT)
WQCV	0.68	0.68
10-YEAR	1.55	1.56
100-YEAR	3.62	3.63

Runoff rates in the proposed condition were calculated and compared to the runoff rates from the existing report. Proposed runoff rates were found to be slightly below those from the original report using current NOAA Atlas 14 rainfall data.

RUNOFF COMPARISON TABLE

<i>BASIN</i>	EXISTING CONDITION (CFS)	PROPOSED CONDITION (CFS)
C2	10.4	10.0
C3	10.1	10.1
C7	13.1	12.7
C8	10.0	9.5

CONCLUSION

The proposed development will comply with the intent of the existing design, and it is our professional opinion that the proposed building addition will not cause any new negative downstream affects to the existing drainage system.

If you have any questions regarding this letter, please do not hesitate to contact me at 303.325.5709.

Sincerely,

PROOF CIVIL CO.

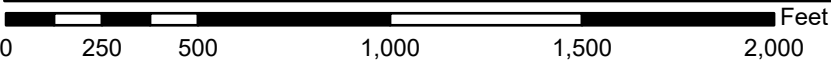


Mike Swanton, PE

National Flood Hazard Layer FIRMette



104°44'7"W 39°45'24"N



1:6,000

104°43'29"W 39°44'56"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **4/18/2024 at 3:46 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffrey Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.226 (0.181-0.282)	0.279 (0.223-0.350)	0.374 (0.299-0.470)	0.462 (0.366-0.582)	0.593 (0.460-0.787)	0.704 (0.530-0.941)	0.822 (0.598-1.12)	0.951 (0.662-1.33)	1.13 (0.758-1.63)	1.28 (0.831-1.85)
10-min	0.330 (0.265-0.414)	0.408 (0.327-0.512)	0.548 (0.438-0.689)	0.676 (0.536-0.853)	0.868 (0.673-1.15)	1.03 (0.776-1.38)	1.20 (0.876-1.65)	1.39 (0.970-1.95)	1.66 (1.11-2.38)	1.88 (1.22-2.71)
15-min	0.403 (0.323-0.504)	0.498 (0.399-0.624)	0.669 (0.534-0.840)	0.824 (0.654-1.04)	1.06 (0.821-1.40)	1.26 (0.947-1.68)	1.47 (1.07-2.01)	1.70 (1.18-2.38)	2.02 (1.35-2.91)	2.29 (1.48-3.31)
30-min	0.559 (0.449-0.701)	0.688 (0.551-0.862)	0.919 (0.733-1.15)	1.13 (0.896-1.42)	1.45 (1.12-1.92)	1.71 (1.29-2.29)	2.00 (1.46-2.74)	2.31 (1.61-3.24)	2.75 (1.84-3.96)	3.11 (2.02-4.50)
60-min	0.700 (0.561-0.876)	0.854 (0.685-1.07)	1.13 (0.905-1.42)	1.39 (1.10-1.76)	1.78 (1.38-2.37)	2.11 (1.59-2.83)	2.47 (1.80-3.38)	2.86 (1.99-4.01)	3.41 (2.28-4.90)	3.86 (2.50-5.58)
2-hr	0.840 (0.678-1.04)	1.02 (0.823-1.27)	1.35 (1.08-1.68)	1.65 (1.32-2.07)	2.12 (1.66-2.79)	2.51 (1.91-3.34)	2.94 (2.15-3.99)	3.40 (2.39-4.73)	4.07 (2.74-5.79)	4.61 (3.01-6.60)
3-hr	0.922 (0.747-1.14)	1.12 (0.902-1.38)	1.47 (1.18-1.82)	1.79 (1.44-2.23)	2.29 (1.80-3.01)	2.72 (2.07-3.59)	3.18 (2.34-4.29)	3.68 (2.60-5.09)	4.40 (2.98-6.24)	4.98 (3.28-7.10)
6-hr	1.10 (0.899-1.35)	1.32 (1.08-1.63)	1.72 (1.40-2.12)	2.09 (1.69-2.59)	2.66 (2.10-3.45)	3.13 (2.41-4.10)	3.64 (2.70-4.87)	4.20 (2.99-5.76)	5.00 (3.42-7.01)	5.64 (3.74-7.96)
12-hr	1.35 (1.11-1.64)	1.62 (1.33-1.97)	2.09 (1.71-2.55)	2.51 (2.04-3.07)	3.14 (2.49-4.02)	3.66 (2.83-4.73)	4.22 (3.15-5.57)	4.82 (3.45-6.52)	5.66 (3.90-7.85)	6.34 (4.24-8.86)
24-hr	1.64 (1.36-1.98)	1.95 (1.61-2.36)	2.50 (2.06-3.02)	2.97 (2.43-3.61)	3.66 (2.92-4.62)	4.22 (3.28-5.39)	4.81 (3.61-6.28)	5.43 (3.91-7.26)	6.29 (4.36-8.62)	6.97 (4.70-9.65)
2-day	1.92 (1.60-2.31)	2.28 (1.90-2.74)	2.89 (2.39-3.47)	3.40 (2.81-4.10)	4.14 (3.31-5.16)	4.73 (3.69-5.96)	5.33 (4.03-6.87)	5.96 (4.33-7.88)	6.82 (4.77-9.24)	7.49 (5.10-10.3)
3-day	2.09 (1.75-2.50)	2.46 (2.06-2.94)	3.09 (2.57-3.70)	3.62 (3.00-4.35)	4.39 (3.52-5.44)	4.99 (3.92-6.26)	5.62 (4.26-7.20)	6.26 (4.57-8.23)	7.15 (5.02-9.62)	7.84 (5.36-10.7)
4-day	2.22 (1.86-2.64)	2.60 (2.18-3.10)	3.25 (2.71-3.87)	3.80 (3.15-4.54)	4.58 (3.69-5.66)	5.20 (4.10-6.50)	5.84 (4.45-7.46)	6.51 (4.76-8.51)	7.42 (5.22-9.94)	8.12 (5.58-11.0)
7-day	2.53 (2.14-2.99)	2.95 (2.49-3.49)	3.65 (3.06-4.32)	4.24 (3.54-5.04)	5.08 (4.11-6.22)	5.74 (4.54-7.11)	6.41 (4.91-8.12)	7.11 (5.24-9.22)	8.06 (5.71-10.7)	8.79 (6.08-11.8)
10-day	2.81 (2.38-3.31)	3.26 (2.76-3.83)	4.00 (3.37-4.71)	4.62 (3.88-5.47)	5.50 (4.47-6.69)	6.18 (4.91-7.62)	6.88 (5.29-8.66)	7.60 (5.61-9.79)	8.56 (6.10-11.3)	9.30 (6.46-12.5)
20-day	3.63 (3.10-4.23)	4.15 (3.53-4.83)	4.99 (4.23-5.83)	5.68 (4.80-6.67)	6.65 (5.43-8.00)	7.39 (5.91-9.01)	8.14 (6.30-10.1)	8.90 (6.63-11.3)	9.90 (7.11-12.9)	10.7 (7.48-14.1)
30-day	4.30 (3.68-4.98)	4.88 (4.18-5.67)	5.84 (4.98-6.79)	6.62 (5.61-7.73)	7.68 (6.30-9.18)	8.50 (6.82-10.3)	9.30 (7.23-11.5)	10.1 (7.56-12.8)	11.2 (8.04-14.5)	11.9 (8.41-15.7)
45-day	5.10 (4.38-5.88)	5.82 (4.99-6.72)	6.96 (5.96-8.06)	7.89 (6.72-9.16)	9.12 (7.50-10.8)	10.0 (8.09-12.1)	10.9 (8.54-13.4)	11.8 (8.88-14.8)	12.9 (9.37-16.6)	13.8 (9.75-18.0)
60-day	5.76 (4.96-6.62)	6.61 (5.69-7.60)	7.96 (6.83-9.18)	9.03 (7.71-10.5)	10.4 (8.60-12.3)	11.5 (9.27-13.7)	12.5 (9.76-15.2)	13.4 (10.1-16.8)	14.6 (10.6-18.7)	15.5 (11.0-20.2)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

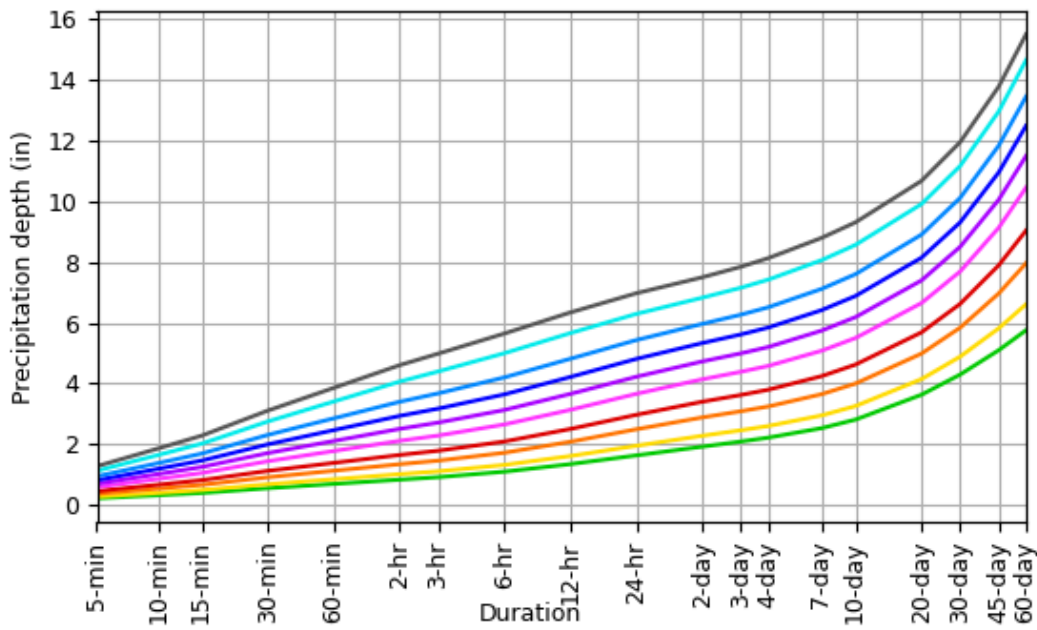
Please refer to NOAA Atlas 14 document for more information.

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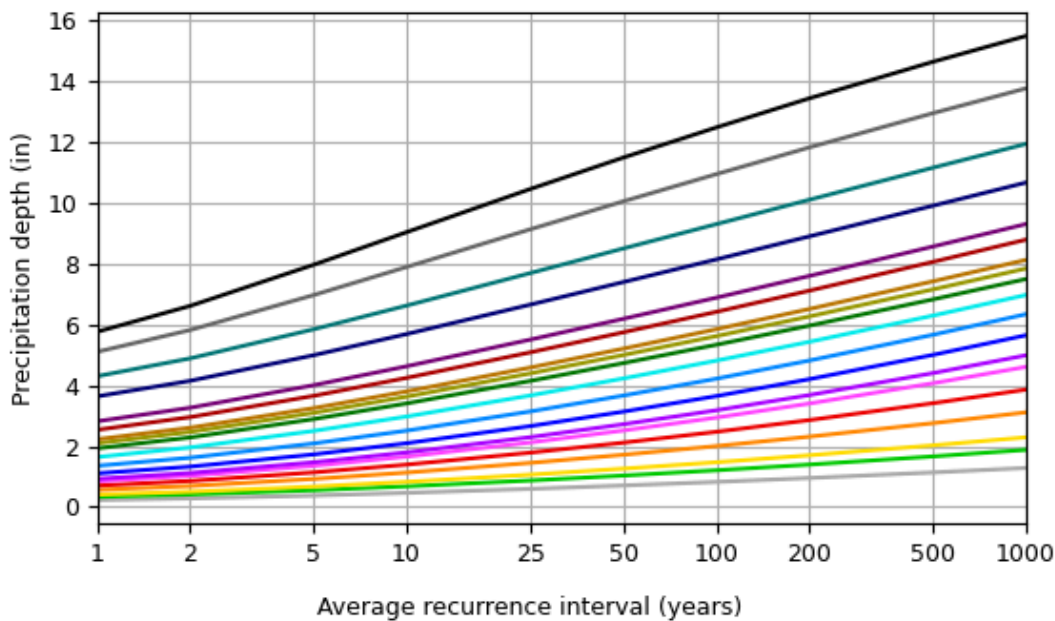
PF graphical

PDS-based depth-duration-frequency (DDF) curves

Latitude: 39.7541°, Longitude: -104.7302°



Average recurrence interval (years)	
1	2
5	10
25	50
100	200
500	1000

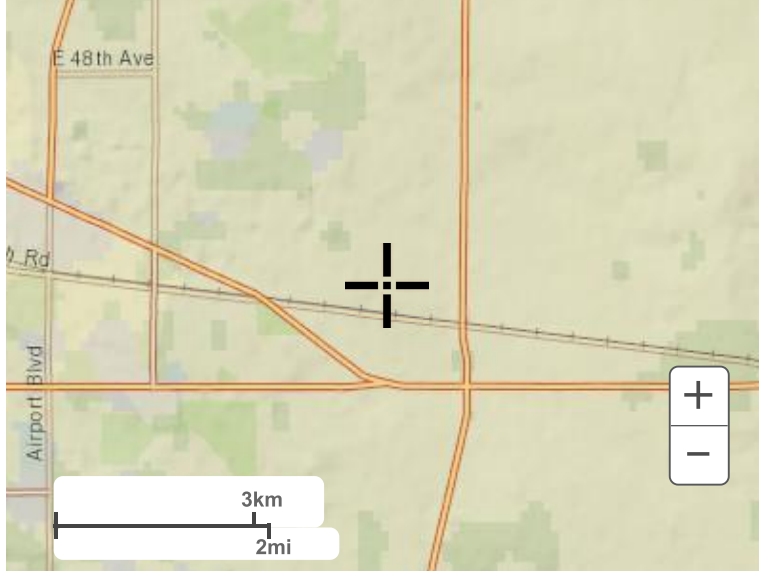


Duration	
5-min	2-day
10-min	3-day
15-min	4-day
30-min	7-day
60-min	10-day
2-hr	20-day
3-hr	30-day
6-hr	45-day
12-hr	60-day
24-hr	

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Maps & aerials

Small scale terrain



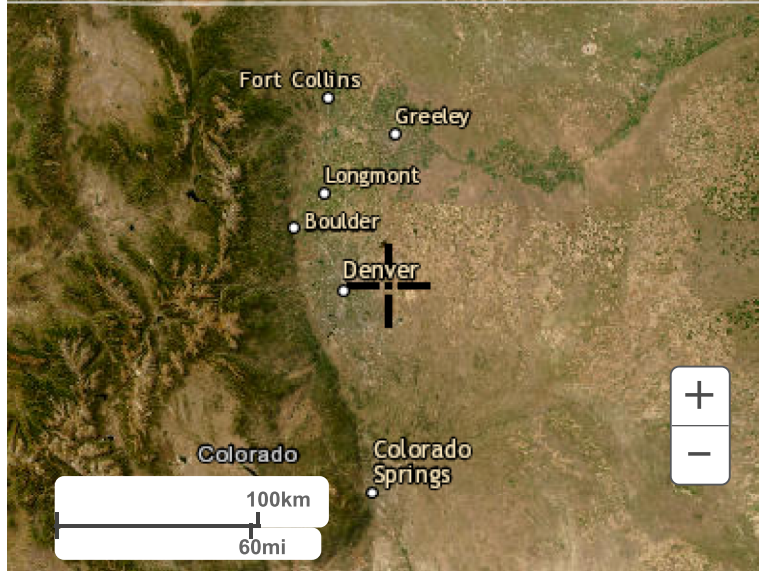
Large scale terrain



Large scale map



Large scale aerial



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[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)

STANDARD FORM SF 2
TIME OF CONCENTRATION SUMMARY
PROJECT: BUILDING C
CALCULATED BY: P. KRIEBLE DATE: 17 Aug 04

SUB BASIN DATA			INITIAL/OVERLAND TIME (t _i)			TRAVEL TIME (t _t)					t _c CHECK (URBANIZED BASINS)			FINAL t _c	REMARKS
DESIG.	C _s	AREA A _s	LENGTH	SLOPE	t _i	LENGTH	C _v	SLOPE	VEL.	t _t	COMP. t _c	TOT. LENGTH	t _c (1.48 S _x L) ^{0.77}	Min	
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)	(9)	(10)	(11)	(12)	(13)	(14)	
C1	0.55	0.56	85	2.0	7.2	155	20	0.5	1.4	1.8	9.1	240	11.3	9.1	
C2	0.75	1.75	95	2.0	4.9	250	20	0.5	1.4	2.9	7.8	345	11.9	7.8	
C3	0.73	1.73	90	2.0	5.0	250	20	0.5	1.4	2.9	8.0	340	11.9	8.0	
C4	0.71	0.57	80	2.0	4.9	160	20	0.5	1.4	1.9	6.8	240	11.3	6.8	
C5	0.72	0.32	70	2.0	4.5	150	20	0.5	1.4	1.8	6.3	220	11.2	6.3	
C6	0.49	0.67	85	2.0	8.1	160	20	0.5	1.4	1.9	9.9	245	11.4	9.9	
C7	0.75	2.34	145	2.0	6.1	250	20	0.5	1.4	2.9	9.0	395	12.2	9.0	
C8	0.74	1.71	90	2.0	4.9	250	20	0.5	1.4	2.9	7.9	340	11.9	7.9	
C9	0.79	0.54	80	2.0	4.0	145	20	0.5	1.4	1.7	5.7	225	11.3	5.7	
C10	0.80	0.31	70	2.0	3.6	150	20	0.5	1.4	1.8	5.4	220	11.2	5.4	
C11	0.22	1.84	60	25.0	4.2	260	20	0.4	1.3	3.4	7.6	320	11.8	7.6	
RC1	0.85	1.94	200	2.0	5.1	0	20	0.0	0.0	0.0	5.1	200	11.1	5.1	
RC2	0.85	2.76	200	2.0	5.1	0	20	0.0	0.0	0.0	5.1	200	11.1	5.1	
RC3	0.85	1.94	200	2.0	5.1	0	20	0.0	0.0	0.0	5.1	200	11.1	5.1	
RC4	0.85	2.76	200	2.0	5.1	0	20	0.0	0.0	0.0	5.1	200	11.1	5.1	
O52	0.42	0.40	40	4.0	4.9	70	20	3.5	3.7	0.3	5.2	110	10.6	5.2	
O53	0.28	0.08	40	10.0	4.3	0	20	0.0	0.0	0.0	4.3	40	10.2	5.0	Urban t _c min = 5 min.
O54	0.19	0.22	60	2.0	10.1	0	20	0.0	0.0	0.0	10.1	60	10.3	10.1	
O55	0.57	0.35	40	2.0	4.8	135	20	2.8	3.3	0.7	5.5	175	11.0	5.5	
O59	0.19	3.66	260	2.0	21.0	600	20	0.3	1.1	9.1	30.1	860	14.8	14.8	

TABLE RO 2

Type of Land Surface	Conveyance Coefficient, C _v
Heavy Meadow	2.5
Tillage / Field	5
Short Pasture and Lawns	7
Nearly Bare Ground	10
Grassed Waterway	15
Paved Areas and Shallow Paved Swales	20

CALCULATED BY: P. KRIEBLE
 DATE: 17 Aug 04
 CHECKED BY: M. SCHLAGETER

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

JOB NO:
 PROJECT:
 DESIGN STORM:

15621.C.03
 BUILDING C
 100 YEAR
 PAGE 1 OF 3

PANEL	SECTION POINT	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		AREA (SQ. FT.)	AREA (AC)	Q (CFS)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	Q (MGD)	
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
C1	1		0.56	0.59	9.1	0.3	7.04	2.4				X	X	X	X	X	X	X	X	X	X X X X X
RC1	12		1.94	0.90	5.1	1.7	8.83	15.4						2.4	0.25	18	466	2.2	3.5	Inlet A3 to MH A4	
C2	2		1.75	0.80	7.8	1.4	7.48	10.4	7.8	3.1	7.48	23.4									
(MH A4)									12.6	3.5	5.88	20.4			23.4	0.25	14H	110	3.0	0.6	Inlet A4 to MH A4
RC2	13		2.76	0.90	5.1	2.5	8.83	21.9						20.4	0.25	22H	417	3.3	2.1	MH A4 to MH A3	
C3	3		1.73	0.78	8.0	1.3	7.48	10.1	8.0	3.8	7.48	28.6			34.7	0.25	24H	123	4.5	0.5	MH A3 to MH A2 (See Note 1 Below)
(MH A2)									15.1	7.3	5.18	37.8			28.6	0.25	18	35	3.0	0.2	Inlet A2 to MH A3 + Inlet A1 to MH A2
C4	4		0.57	0.76	6.8	0.4	7.92	3.4	15.1	7.7	5.18	40.0									
C5	5		0.32	0.77	6.3	0.2	8.14	2.0													To overflow channel at DP 4
																					Note 1: 1/2 flow from C3 assumed to go to each storm inlet at DP 3
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	

15621.C.03
BUILDING C
100 YEAR
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13/17/2026
National Archives

Project : 22100 E. 26th Ave
Project No. : 24007

Date : 4/17/2024
By : MDS

Drainage Basin Imperviousness - Check

Soil Type : **C**

	Roof	Concrete	Asphalt	Landscape (2-7%)									
C ₂	0.80	0.87	0.87	0.05	Note: Runoff Coefficients and Percent Imperviousness values are from the Auror Commerce Center Building C Report			Total Area (sq.ft.)	Composite % Imp.	Runoff Coefficients			
C ₅	0.85	0.87	0.88	0.06						C ₂	C ₅	C ₁₀	C ₁₀₀
C ₁₀	0.90	0.88	0.90	0.08									
C ₁₀₀	0.90	0.89	0.93	0.10									
% Impervious	90%	96%	100%	2%									
Basin Name	Areas (sq.ft.)												
EX-C2		16,311	43,673	16,246				76,230	78.3%	0.70	0.70	0.72	0.74
EX-C3		17,178	32,563	25,618				75,359	65.8%	0.59	0.60	0.62	0.64
EX-C7		23,618	59,223	19,089				101,930	80.7%	0.72	0.72	0.74	0.77
EX-C8		16,849	32,474	25,165				74,488	66.0%	0.59	0.60	0.62	0.64
EX-Total		73,956	167,933	86,118				328,007	73.4%	0.65	0.66	0.68	0.70
C2		20,696	43,316	12,218				76,230	83.2%	0.74	0.75	0.76	0.79
C3		19,496	44,331	11,532				75,359	84.0%	0.74	0.75	0.77	0.79
C7		26,553	58,745	16,632				101,930	83.0%	0.74	0.74	0.76	0.78
C8		19,320	41,472	13,696				74,488	80.9%	0.72	0.73	0.74	0.77
PR-Total		86,065	187,864	54,078				328,007	83%	0.73	0.74	0.76	0.78

Project : 22100 E. 26th Ave
 Project No. : 24007

Date : 4/17/2024
 By : MDS

SF1 - Time of Concentration

Basin ID	Area (AC.)	C _s	Initial/Overland Time			Travel Time					Time of Concentration		Final
			L _i (ft.)	S (%)	T _i (min.) ¹	L _t (ft.)	S (%)	Conveyance Factor (K)	Vel (fps) ⁴	T _t (min.) ²	Comp. T _c (min.)	Regional T _c (Min.) ³	T _c (Min.)
C2	1.75	0.75	95	2.00	5.0	250	0.5	20	1.4	2.9	8.0	11.9	8.0
C3	1.73	0.75	90	2.00	4.8	250	0.5	20	1.4	2.9	7.8	11.9	7.8
C7	2.34	0.74	145	2.00	6.2	250	0.5	20	1.4	2.9	9.2	12.2	9.2
C8	1.710	0.73	90	2.00	5.2	250	0.5	20	1.4	2.9	8.1	11.9	8.1

Project : 22100 E. 26th Ave
Project No. : 24007

Date : 4/17/2024
By : MDS

SF2 - Major Storm

1-hr Point Rainfall 2.6 in. (100-year Event)

		Direct Runoff						Total Runoff				Street		Travel Time			Comments
Description	Design Point	Area (ac.)	C ₁₀₀	Tc (min.)	CA (ac.)	I (in/hr)	Q (cfs)	Tc (min.)	CA (ac.)	I (in/hr)	Q (cfs)	Slope (%)	Flow (cfs)	Length (ft)	Vel. (fps)	tt (min.)	
C2	2	1.75	0.79	8.0	1.38	7.65	10.5										PROPSOED 100-YR FLOW
C3	3	1.73	0.79	7.8	1.37	7.73	10.6										PROPSOED 100-YR FLOW
C7	7	2.34	0.78	9.2	1.83	7.27	13.3										PROPSOED 100-YR FLOW
C8	8	1.71	0.77	8.1	1.31	7.61	10.0										PROPSOED 100-YR FLOW

CALCULATED BY: F. KRIEBLE

DATE: 5/11/2004

CHECKED BY: M. SCHLAGETER

PROJECT: ACC FILING NO. 1 - BUILDING C

BASIN: TRIBUTARY TO POND C

	SUB-BASIN ID	TOTAL AREA (AC)	AREA PAVED (AC)	AREA LANDSCAPED (AC)	IMP (%)	MINOR AMEND.
	C1	0.56	0.30	0.27	54.8%	
SW OF BLDG	C2	1.75	1.42	0.33	82.2%	83.2%
NW OF BLDG	C3	1.73	1.36	0.37	79.5%	84.0%
	C4	0.57	0.43	0.14	77.1%	
	C5	0.32	0.25	0.07	78.0%	
	C6	0.67	0.29	0.38	46.1%	
SE OF BLDG	C7	2.34	1.89	0.45	81.7%	83.0%
NW OF BLDG	C8	1.71	1.36	0.35	80.4%	80.9%
	C9	0.54	0.47	0.07	87.2%	
	C10	0.31	0.27	0.04	88.6%	
	C11	1.84	0.08	1.76	9.0%	
	RC1	1.94	1.94	0.00	90.0%	
	RC2	2.76	2.76	0.00	90.0%	
	RC3	1.94	1.94	0.00	90.0%	
	RC4	2.76	2.76	0.00	90.0%	
	TOTAL:	21.74	17.50	4.24	77.2%	77.6%

SUB-BASINS NOT INCLUDED ARE: OS2 AND OS3 BECAUSE THEY DRAIN OFF-SITE

SUB-BASINS OS5 AND OS9 ARE LOCATED OUTSIDE OF THE PROJECT AREA

NOTES:

% IMP = (Impervious Area * 1 (0.9 for roof) + Pervious Area * 0.05)/Total Area

CALCULATED BY: F. KR EBLE
 DATE: 11-May-04
 CHECKED BY: M. SCHLAGETER
 PROJECT: LOT 1, ACC FILING NO. 1

DETENTION POND: C

WATER QUALITY CONTROL VOLUME (WQCV)

MINOR AMENDMENT

SOURCE: UDFCD VOLUME 3 - EXTENDED DETENTION BASIN (EDB)

EQUATIONS:

$$WQCV = a(0.91 \cdot I^3 - 1.19 \cdot I^2 + 0.78 \cdot I)$$

$$DESIGN VOL. = (WQCV/12) \cdot AREA \cdot 1.2$$

$$a = 0.7 \text{ 6-HR DRAIN TIME}$$

$$0.8 \text{ 12-HR DRAIN TIME}$$

$$0.9 \text{ 24-HR DRAIN TIME}$$

$$1.0 \text{ 40-HR DRAIN TIME}$$

CONTRIBUTING WATERSHED AREA (ACRES) 21.74 AC

SUB-BASINS TRIBUTARY C1 - C1, RC1 - RC4

IMPERVIOUSNESS, I 77.2% 77.6%

IMPERVIOUSNESS RATIO, I = 1/100 0.77 0.776

WATER QUALITY CONTROL VOLUME 0.312 WATERSHED INCHES 0.313

DESIGN VOLUME 0.68 AC-FT 0.68 AC-FT

10-YEAR DETENTION VOLUME, V=KA METHOD

SOURCE: CITY OF AURORA STORM DRAINAGE DESIGN & TECHNICAL CRITERIA JAN. 2002

EQUATIONS:

$$K_{10} = (0.95 \cdot I - 1.90)/1000$$

$$V = K \cdot AREA \text{ (AC-FT)}$$

$$K = 0.071$$

$$10\text{-YR VOL.} = 1.55 \text{ AC-FT}$$

$$1.56 \text{ AC-FT}$$

$$10\text{-YR} + WQCV \text{ VOL.} = 2.23 \text{ AC-FT}$$

$$2.24 \text{ AC-FT}$$

$$(0.95 \cdot 0.776 - 1.90)/1000 = 0.07182$$

100-YEAR DETENTION VOLUME, V=KA METHOD

SOURCE: CITY OF AURORA STORM DRAINAGE DESIGN & TECHNICAL CRITERIA JAN. 2002

EQUATIONS:

$$K_{100} = (1.75 \cdot I - 3.56)/900$$

$$V = K \cdot AREA \text{ (AC-FT)}$$

$$K = 0.135$$

$$100\text{-YR VOL.} = 2.95 \text{ AC-FT}$$

$$1.35$$

$$2.95 \text{ AC-FT}$$

$$100\text{-YR} + WQCV \text{ VOL.} = 3.62 \text{ AC-FT}$$

$$3.63 \text{ AC-FT}$$

ALLOWABLE RELEASE RATES (CFS/ACRE)

SOURCE: CITY OF AURORA STORM DRAINAGE DESIGN & TECHNICAL CRITERIA JAN. 2002

FREQUENCY	NRCS/SCS SOIL GROUP		
	A	B	C & D
10-YEAR	0.18	0.23	0.30
100-YEAR	0.50	0.55	1.00

$$RELEASE RATES \quad G_L = 0.30 \cdot AREA$$

$$G_{100} = 1.00 \cdot AREA - G_{OK} - G_{OFF}$$

$$G_L = 6.5 \text{ CFS}$$

$$G_{100} = 21.7 \text{ CFS}$$

$$G_{OK} = 0.0 \text{ CFS}$$

$$G_{OFF} = 2.0 \text{ CFS}$$

$$G_{100} = 19.6 \text{ CFS}$$

* 100 YR RELEASE RATES ARE ADJUSTED TO ACCOUNT FOR OFF-SITE FLOW CONDITIONS

Project : 22100 E 26th Ave
Project No. : 24007

Calculated By : MDS
Date : 4/17/2024

Basin Information

Tributary Area =	21.74	acres
Basin Imperviousness =	77.6%	
Soil Type =	C or D	
100-yr, 1-hour Point Rainfall =	2.46	inches

Required Volumes

10-Year =	1.55	ac-ft
100-year Detention =	3.63	ac-ft

Pond Volume by Contour Area

Contour Elevation	Areas (sq.ft.)	Area (Acre)	Volume (ft ³)	Cumulative Volume (ac-ft)
5476.86	0	0.00	0	0.00
5477	1,618	0.04	76	0.00
5478.7	23,138	0.53	17,571	0.40
5479	25,273	0.58	24,830	0.57
5480	32,667	0.75	53,721	1.23
5481	40,444	0.93	90,208	2.07
5482	48,446	1.11	134,593	3.09
OVERFLOW ELEV. 5482.49	51,937	1.19	159,182	3.65
5483	56,634	1.30	186,859	4.29

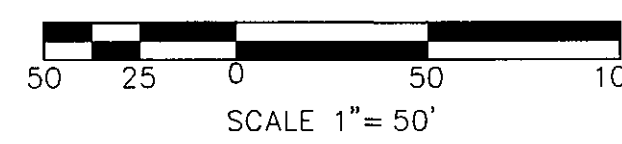
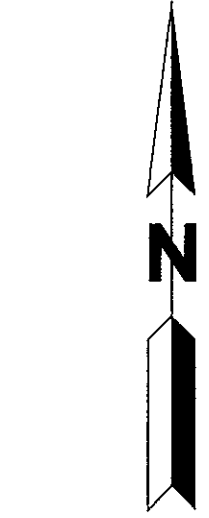
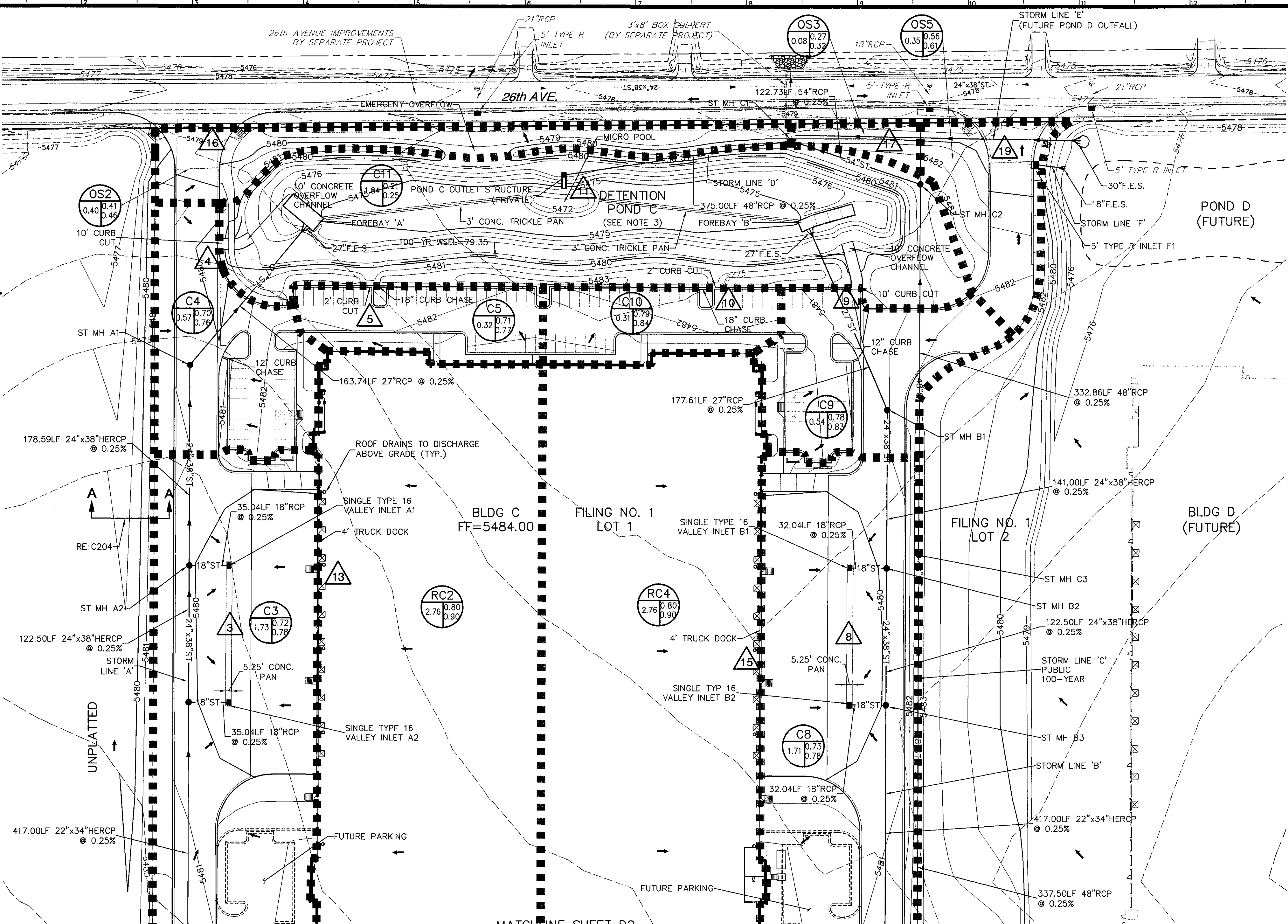
Design EURV WSEL = 5480.38
Design EURV Depth = 3.52 ft

Design 100-yr WSEL = 5482.47
Design 100-yr Depth = 5.61 ft

Updated 204196 21

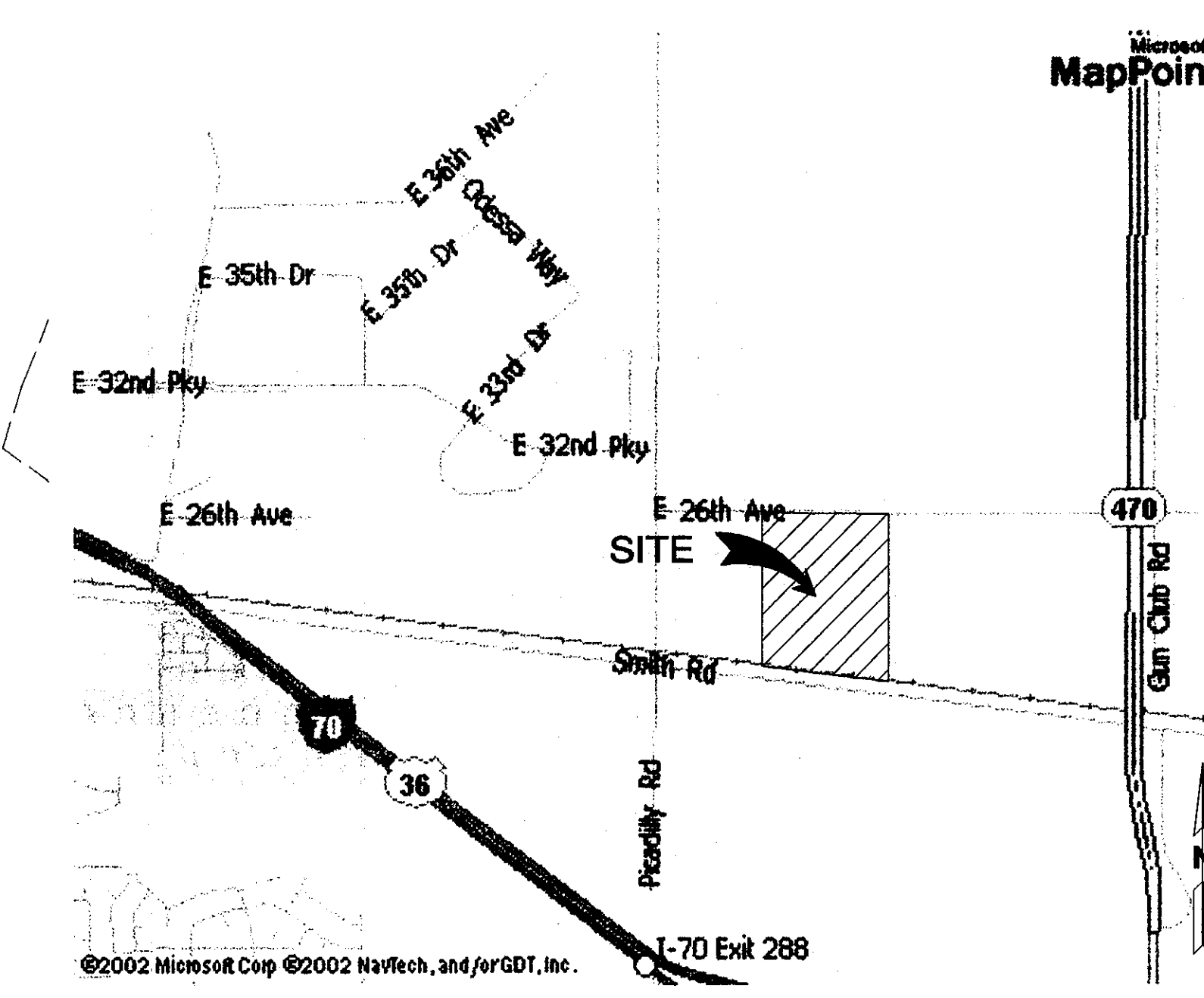
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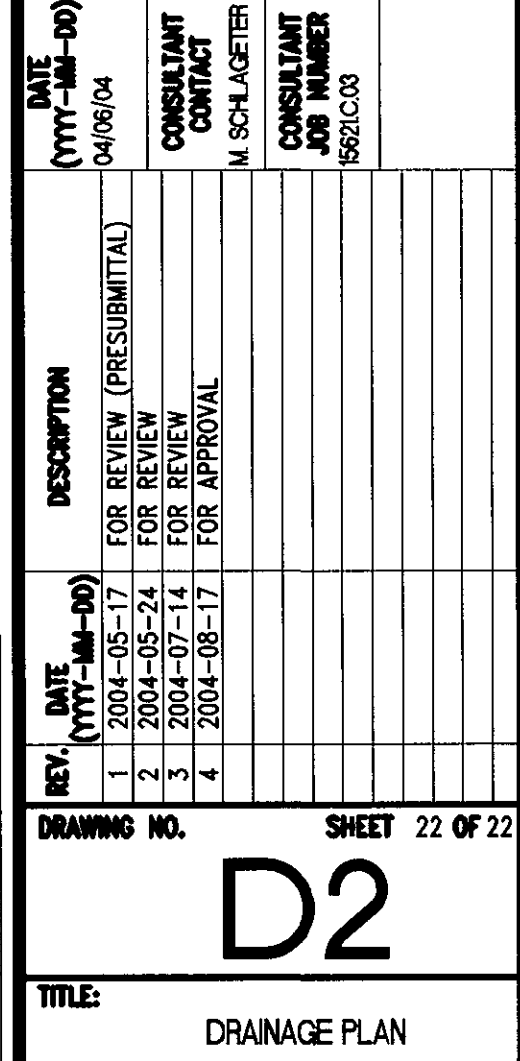
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Drawn By: [Signature]
Designed By: [Signature]
Check By: [Signature]
Scale: 1" = 50'



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 location of all utilities prior to the commencement of any construction.

"THE DEVELOPER SHALL HAVE A REGISTERED LAND SURVEYOR OR REGISTERED PROFESSIONAL ENGINEER CERTIFY THAT THE DETENTION POND IS BUILT ACCORDING TO THE APPROVED PLANS AND SPECIFICATIONS, AND THAT THE REQUIRED DETENTION VOLUME, INCLUDING THE WQCV WHEN USED, IS MET. THE CERTIFICATION SHALL ALSO VERIFY THAT ALL REQUIRED OUTLET ORIFICE PLATES FOR DETENTION AND WQCV AND OTHER PERMANENT BMPs REQUIREMENTS ARE INSTALLED PER APPROVED PLANS AND SPECIFICATIONS, AND SHALL SHOW THE AS-BUILT VOLUMES FOR THE 100-YEAR, 10-YEAR STORM EVENTS, AND FOR THE WQCV. THE CERTIFICATION SHALL BE PROVIDED TO THE CITY OF AURORA ENGINEERING CONTROL SECTION SENIOR ENGINEER BEFORE A CERTIFICATE OF OCCUPANCY CAN BE ISSUED."





Approved for One Year From this Date

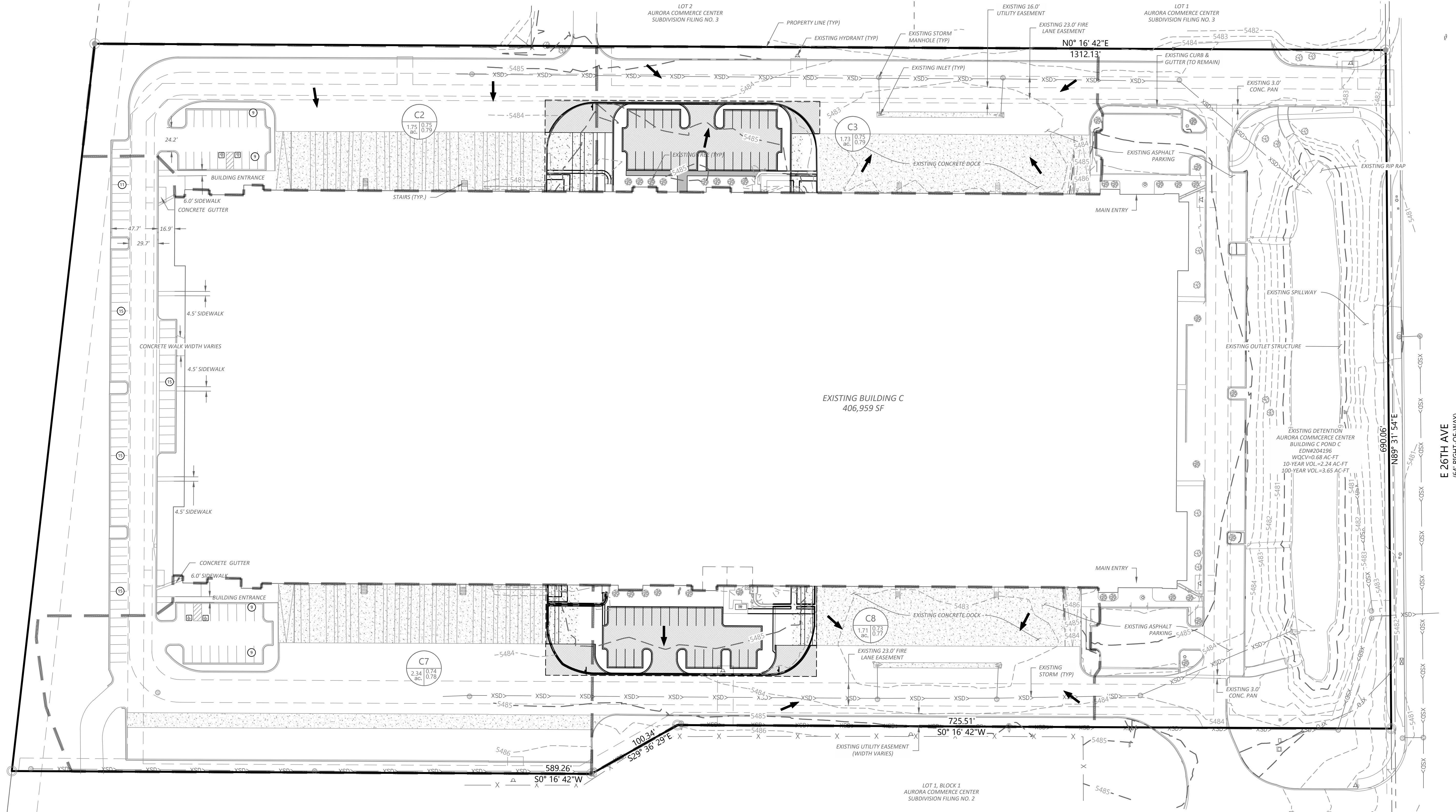
9-1-04 **5-3-06**

WERNER
REINHOLD

Reinhold Werner **2-27-0**
City Engineer Date

Frank E. Way **8-26-0**
Planning Department Date

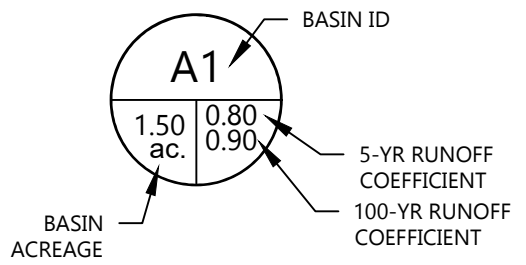
AURORA COMMERCE CENTER - BUILDING C
CONTEXTUAL SITE PLAN - MINOR AMENDMENT
LOT 1, BLOCK 1, AURORA COMMERCE CENTER SUBDIVISION FILING NO.1
CITY OF AURORA, COUNTY OF ADAMS, STATE OF COLORADO



LEGEND:

- PROPERTY LINE
- PROPOSED BUILDING
- EXISTING BUILDING
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED BASIN BOUNDARY
- HISTORICAL BASIN BOUNDARY
- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- PROPOSED STORM LINE W/F.E.S.
- EXISTING STORM LINE W/F.E.S.

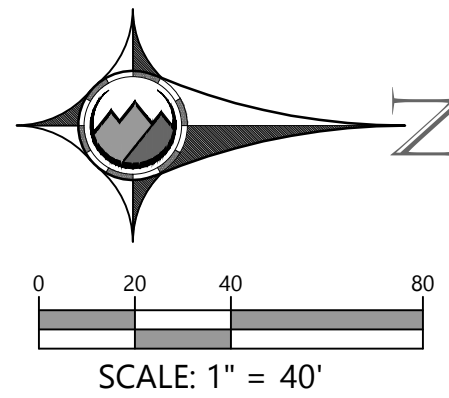
- PROPOSED SAWCUT
- PROPOSED STORM INLET
- EXISTING STORM INLET
- FLOW DIRECTION
- OVERFLOW PATH
- PROPOSED SPOT GRADE
- EXISTING SPOT GRADE
- SLOPE AND DIRECTION
- HP HIGH POINT
- LP LOW POINT
- GB GRADE BREAK



BASIN IDENTIFICATION TAG

- NOTES:
- 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 MUST 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.
 - APPROVAL OF THIS DOCUMENT BY CITY OF AURORA DOES NOT IMPLY APPROVAL FOR ANY OFF-SITE WORK ON ADJACENT PRIVATE PROPERTY. IN IS THE OWNER'S RESPONSIBILITY TO COORDINATE WITH ADJACENT PROPERTY OWNERS AND OBTAIN ALL NECESSARY APPROVALS AND EASEMENTS FOR SUCH WORK.
 - APPLICANT UNDERSTANDS RECERTIFICATION MAY BE REQUIRED. IF A POND CERTIFICATE, AN EXECUTED IBM PLAN, OR DRAINAGE EASEMENTS DO NOT EXIST, THE APPLICANT WILL BE REQUIRED TO PROVIDE THESE PRIOR TO CIVIL PLAN APPROVAL.
 - ALL STORM INFRASTRUCTURE IS PRIVATE AND IS DESIGNED FOR THE 100-YEAR STORM.

NOTE:
BASINS ARE REPRESENTATIVE OF THE EXISTING
BASINS FROM THE AURORA COMMERCE CENTER
BUILDING C REPORT.



REVISIONS

DESCRIPTION

NO.

DATE

24007

04/XX/2024

ANM

JGY

COLORADO

DRAINAGE MAP

22100 E 26TH AVE
SITE PLAN AMENDMENT

AURORA

DRAWING NO.

DR01

SEAL:

FOR AND ON BEHALF OF PROOF CIVIL CO.

PROOF CIVIL
consulting engineers



600 Grant Street | Suite 210 | Denver, CO