

COMPOSITE RUNOFF COEFFICIENT (C)

PROJECT: AHSD 25 KINDERGARTEN ADDITIONS

PERMIT NUMBER:

LOCATION: PATTON ELEMENTARY - EXISTING SITE

DATE: 12/14/2022

TYPE OF AREA (SELECT WITH DROP-DOWN)

☐ DETAINED AREA

☐ MAJOR STORMWATER SYSTEM

☐ UNRESTRICTED AREA

☒ OTHER: SITE

☐ UPSTREAM AREA

CONDITION (SELECT WITH DROP-DOWN)

☐ PROPOSED CONDITION

☒ EXISTING CONDITION

RUNOFF COEFFICIENT

Surface Description	C	Area (acres)	Product (C)(Area)
Impervious (Village C)	0.95	2.96	2.81
Pervious (Village C)	0.50	4.48	2.24
Permeable Playground	0.75	0.16	0.12

TOTALS:

7.60

5.17

COMPOSITE RUNOFF COEFFICIENT

$$\text{Composite C} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{5.17}{7.60} \rightarrow \text{Composite C} = 0.68$$

COMPOSITE RUNOFF COEFFICIENT (C)

PROJECT: AHSD 25 KINDERGARTEN ADDITIONS

PERMIT NUMBER:

LOCATION: PATTON ELEMENTARY - PROPOSED SITE

DATE: 12/14/2022

TYPE OF AREA (SELECT WITH DROP-DOWN)

☐ DETAINED AREA

☐ MAJOR STORMWATER SYSTEM

☐ UNRESTRICTED AREA

☒ OTHER: SITE

☐ UPSTREAM AREA

CONDITION (SELECT WITH DROP-DOWN)

☒ PROPOSED CONDITION

☐ EXISTING CONDITION

RUNOFF COEFFICIENT

Surface Description	C	Area (acres)	Product (C)(Area)
Impervious (Village C)	0.95	3.05	2.90
Pervious (Village C)	0.50	4.37	2.19
Permeable Playground	0.75	0.16	0.12
Synthetic Turf Fields	0.75	0.02	0.02

TOTALS:

7.60

5.22

COMPOSITE RUNOFF COEFFICIENT

$$\text{Composite C} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{5.22}{7.60} \rightarrow \text{Composite C} = 0.69$$

COMPOSITE RUNOFF COEFFICIENT (C)

PROJECT: AHSD 25 KINDERGARTEN ADDITIONS

PERMIT NUMBER:

LOCATION: PATTON ELEMENTARY - REDEVELOPMENT

DATE: 12/14/2022

TYPE OF AREA (SELECT WITH DROP-DOWN)

☒ DETAINED AREA

☐ MAJOR STORMWATER SYSTEM

☐ UNRESTRICTED AREA

☐ OTHER:

☐ UPSTREAM AREA

CONDITION (SELECT WITH DROP-DOWN)

☒ PROPOSED CONDITION

☐ EXISTING CONDITION

RUNOFF COEFFICIENT

Surface Description	C	Area (acres)	Product (C)(Area)
Impervious (Village C)	0.95	1.30	1.24
Pervious (Village C)	0.50	0.38	0.19
Synthetic Turf Fields	0.75	0.02	0.02
Permeable Playground	0.75	0.16	0.12

TOTALS:

1.86

1.56

COMPOSITE RUNOFF COEFFICIENT

$$\text{Composite C} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{1.56}{1.86} \rightarrow \text{Composite C} = 0.84$$

MODIFIED RATIONAL METHOD: BULLETIN 75 RAINFALL DATA

PROJECT: AHSD 25 KINDERGARTEN ADDITIONS

PERMIT NUMBER:

LOCATION: PATTON ELEMENTARY - REDEVELOPMENT

DATE: 12/14/2022

DEVELOPMENT INFORMATION

1. Detained Area

1.860

acres

2. Composite Runoff Coefficient

0.840

3. Actual Release Rate

0.320

cfs

REQUIRED DETENTION VOLUME

4. Required Detention Volume

0.683

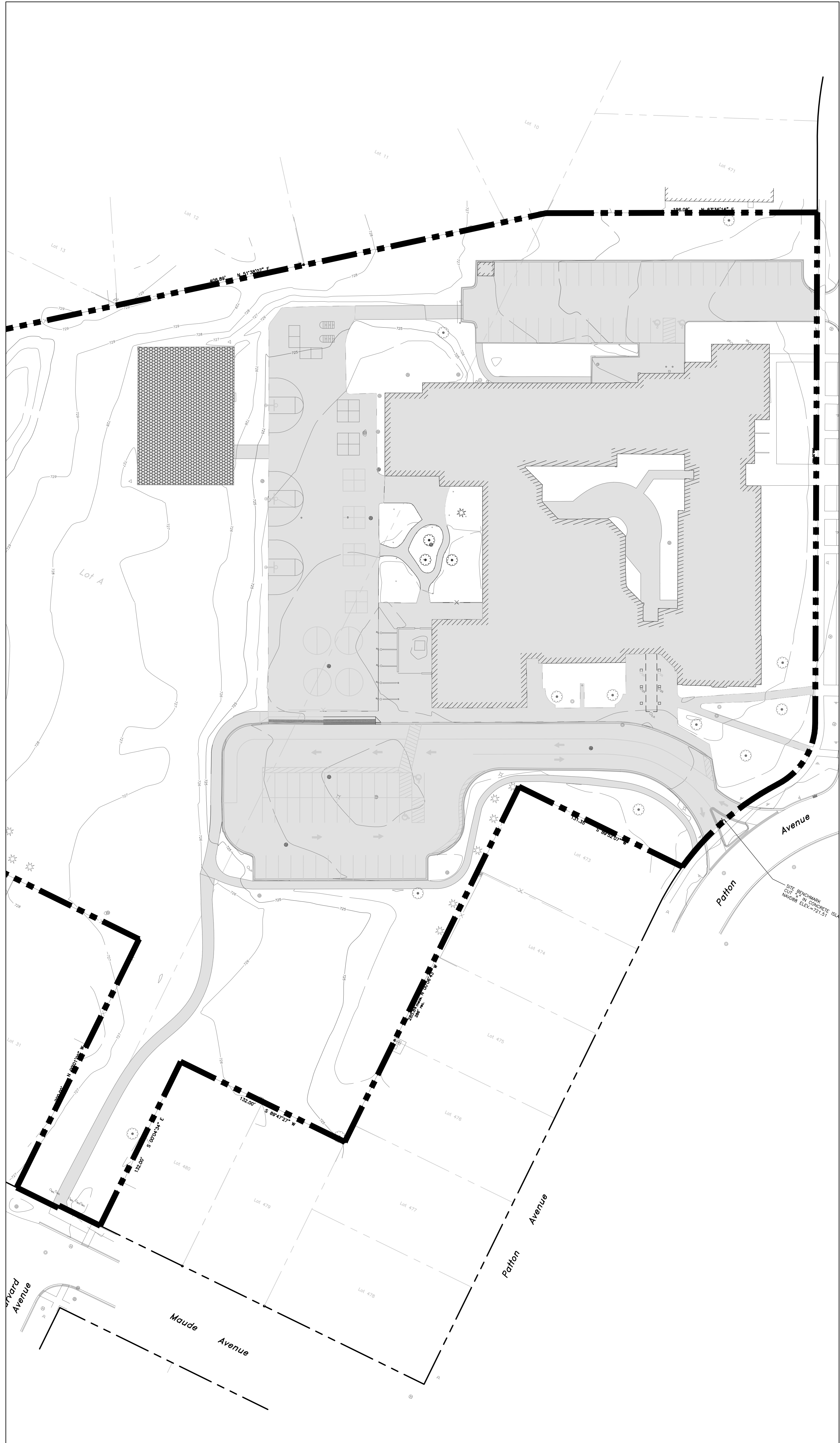
ac-ft

CALCULATION TABLE

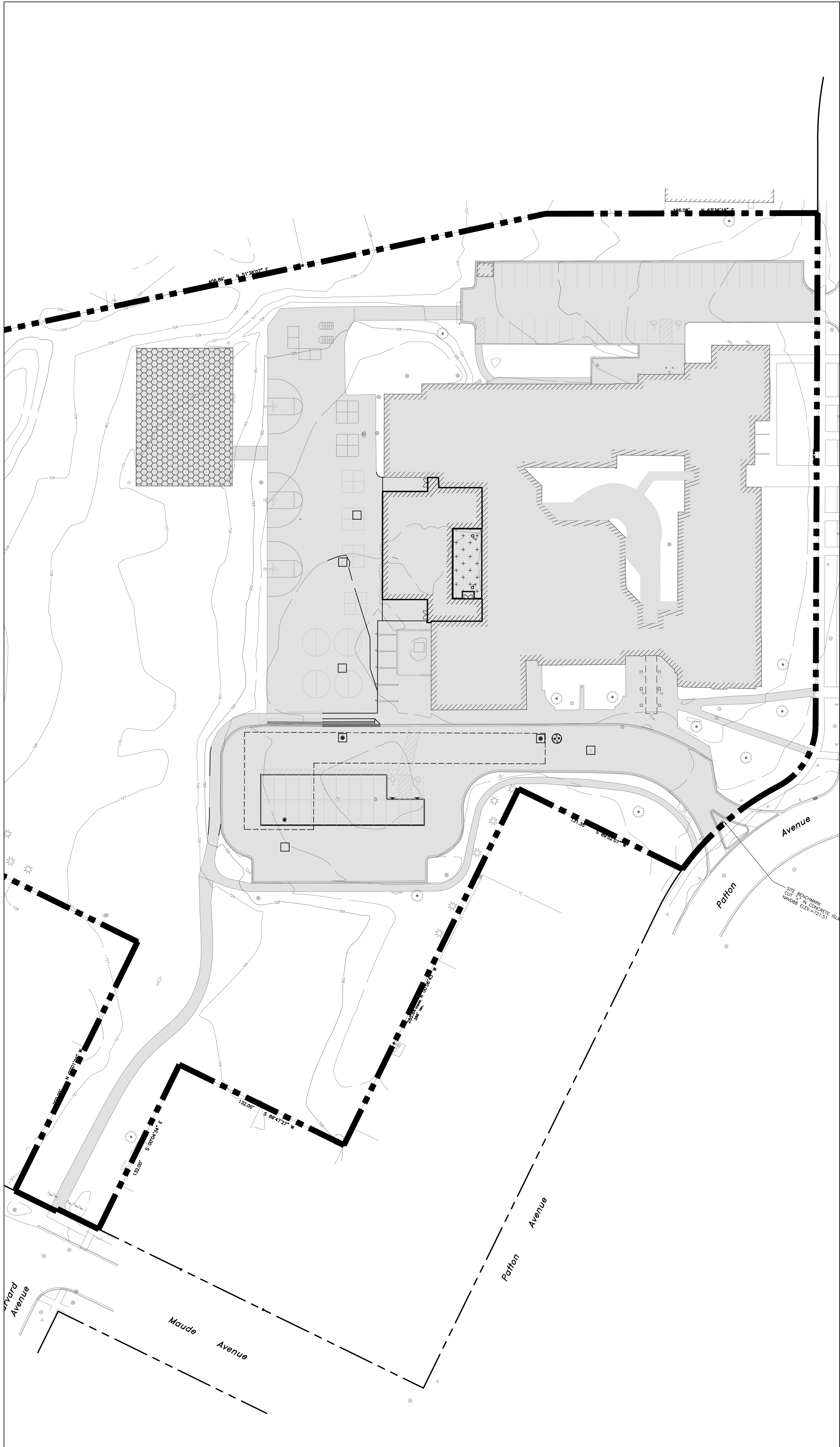
Storm Duration	Rainfall Intensity (in/hr)	Inflow Rate (cfs)	Stored Rate (cfs)	Required Storage (ac-ft)
5 min	12.36	19.31	18.99	0.131
10 min	10.80	16.87	16.55	0.228
15 min	9.28	14.50	14.18	0.293
20 min	8.04	12.56	12.24	0.337
30 min	6.34	9.91	9.59	0.396
40 min	5.28	8.25	7.93	0.437
50 min	4.55	7.11	6.79	0.468
1 hr	4.03	6.30	5.98	0.494
1.5 hr	3.03	4.73	4.41	0.547
2 hr	2.49	3.89	3.57	0.590
3 hr	1.83	2.86	2.54	0.630
4 hr	1.48	2.31	1.99	0.659
5 hr	1.25	1.95	1.63	0.675
6 hr	1.07	1.67	1.35	0.670
7 hr	0.96	1.50	1.18	0.683
8 hr	0.86	1.34	1.02	0.677
9 hr	0.79	1.23	0.91	0.680
10 hr	0.72	1.12	0.80	0.665
11 hr	0.67	1.05	0.73	0.661
12 hr	0.62	0.97	0.65	0.645
18 hr	0.45	0.70	0.38	0.564
24 hr	0.36	0.56	0.24	0.472

←

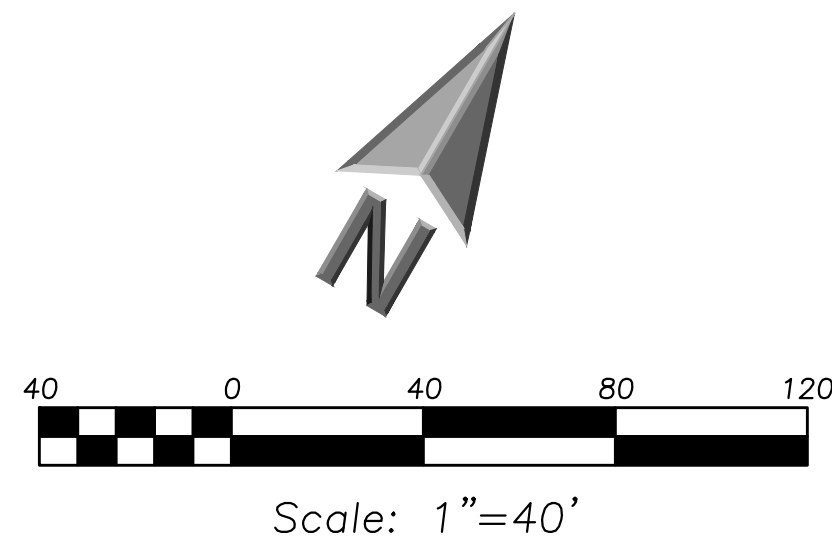
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EXISTING CONDITIONS



PROPOSED CONDITIONS



Scale: 1"=40'

EXHIBIT LEGEND

- IMPERVIOUS AREA
- PERMEABLE PLAYGROUND AREA
- SYNTHETIC TURF AREA
- PROPERTY LINE
330,927 SF
7.60 ACRES

EXISTING SITE CONDITIONS

- IMPERVIOUS AREA
128,086 SF = 2.96 ACRES
- PERMEABLE PLAYGROUND AREA
6,850 SF = 0.16 ACRES
- PERVIOUS AREA
195,136 SF = 4.48 ACRES
- RUNOFF COEFFICIENT
C = 0.68

PROPOSED SITE CONDITIONS

- IMPERVIOUS AREA
132,591 SF = 3.05 ACRES
- PERMEABLE PLAYGROUND AREA
6,959 SF = 0.16 ACRES
- PERVIOUS AREA
190,336 SF = 4.37 ACRES
- SYNTHETIC TURF AREA
1,041 SF = 0.02 ACRES
- RUNOFF COEFFICIENT
C = 0.69

SUMMARY

- IMPERVIOUS AREA
= +0.09 ACRES
- SYNTHETIC TURF AREA
= +0.02 ACRES
- PERVIOUS AREA
= -0.11 ACRES

SWM REQUIREMENTS

- VILLAGE:
PROPOSED CONDITIONS (MRM B-75, Village Allowable Release)
= 0.683 AC-FT

**ERIKSSON
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**PATTON ELEMENTARY SCHOOL
BUILDING ADDITION AND RENOVATIONS**
1616 N. PATTON AVENUE
ARLINGTON HEIGHTS, ILLINOIS

Reserved for Seal:

No.	Date	Description
	12/06/22	ISSUE FOR PLAN COMMISSION

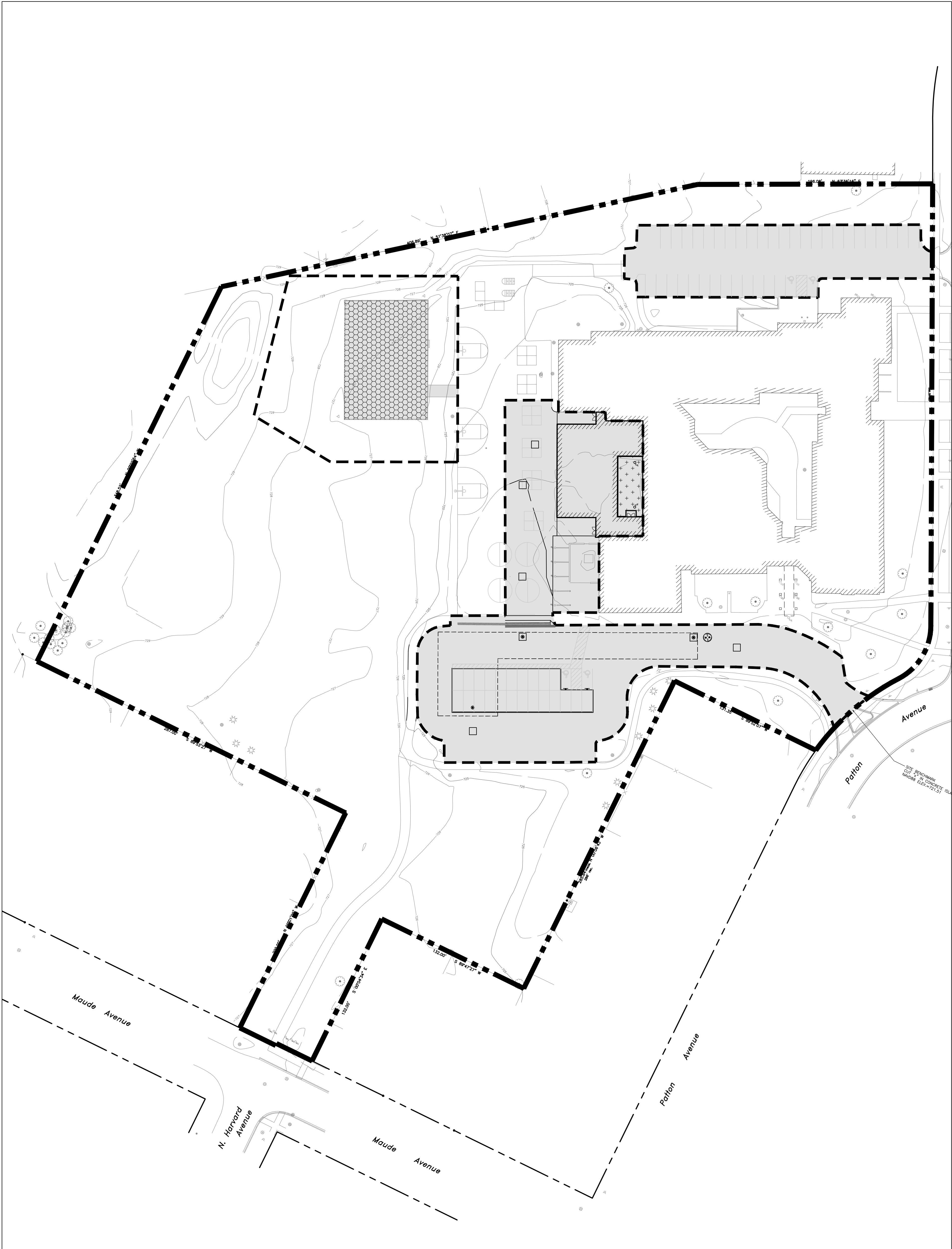
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Design By:	Approved By:	Date:
LMR	JC	12/05/22

Sheet Title:
**EXISTING VS.
PROPOSED SITE
COVERAGE**

Sheet No:
CX101

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PROPOSED CONDITIONS

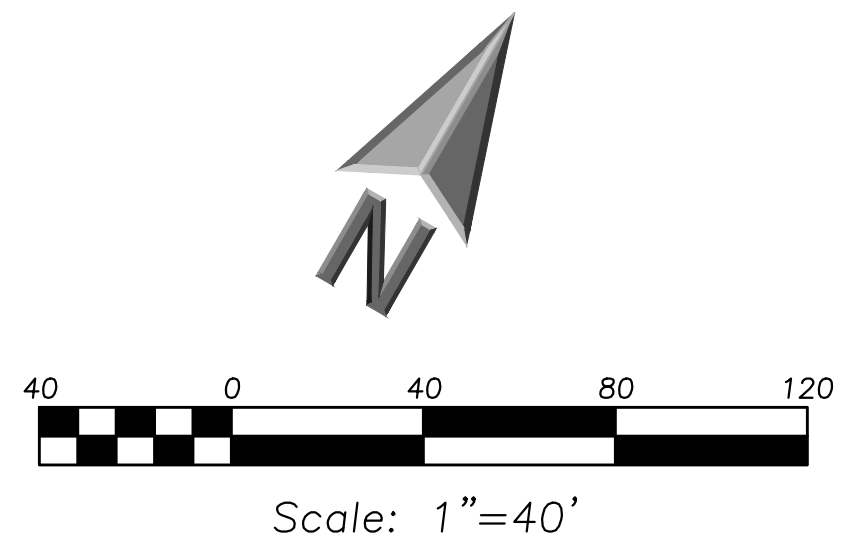


EXHIBIT LEGEND

- IMPERVIOUS AREA
- PERMEABLE PLAYGROUND AREA
- SYNTHETIC TURF AREA
- PROPERTY LINE
330,927 SF
7.60 ACRES
- DEVELOPMENT AREA (VILLAGE)
±81,115 SF
1.86 ACRES

PROPOSED CONDITIONS

- IMPERVIOUS AREA
56,785 SF = 1.30 ACRES
- PERMEABLE PLAYGROUND AREA
6,850 SF = 0.16 ACRES
- PERVIOUS AREA
52,395 SF = 0.38 ACRES
- PERVIOUS AREA
1,041 SF = 0.02 ACRES
- RUNOFF COEFFICIENT
C = 0.84

SWM REQUIREMENTS

- VILLAGE:
PROPOSED CONDITIONS (MRM B-75, Village Allowable Release)
= 0.683 AC-FT



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Design By: LMR	Approved By: JC	Date: 12/05/22

Sheet Title:
EXISTING VS.
PROPOSED
DEVELOPMENT AREA
(VILLAGE SWM)

Sheet No:
CX201