



**SEBAGO TECHNICS, INC.**

JOB 05439 - University Credit Union, Portland

1 Chabot Street

SHEET NO. 2 OF 2

P.O. Box 1339

CALCULATED BY DAM

DATE 11/6/2006

WESTBROOK, MAINE 04098

CHECKED BY

FILE NAME 05439 Water Quality Calculations SCALE N.T.S.

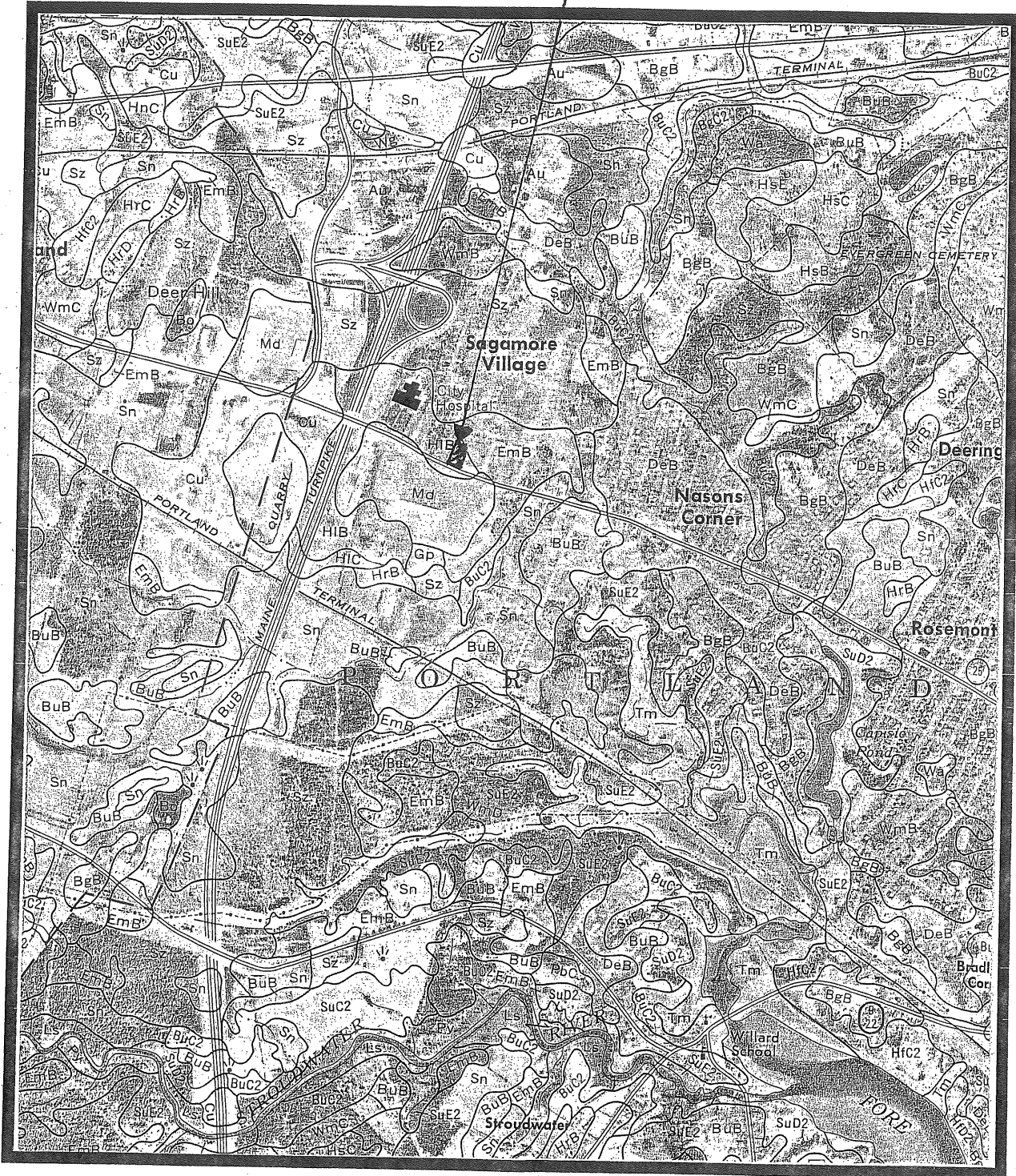
(207) 856-0277 FAX (207) 856-2206

<b>Determination of Water Quality Volume Calculations</b>									
<b>Calculation of Minimum Required Water Quality Volume for Treatment</b>									
Maine DEP Stormwater regulations require the treatment of 95% of impervious area, and 80% developed area.									
so;									
95% treatment of Impervious = 2,525 s.f. x 95% =	2,399								
Based on the calculations above, treatment would be required on 2,399 sf of impervious area and no landscaped area. Since impervious parking lots and driveways are a more intense use, the treatment portion of the proposed developed will be collected from mainly the parking lot/drives. Therefore, calculations have been completed to determine the required water quality volume required for treatment.									
<b>Determination of Required Water Quality Volume</b>									
Impervious Area x 1" = 2,399 s.f. x 1 in =	199.9 c.f.								
<b>199.9 c.f. Total Water Quality Volume Required to Treat</b>									
<b>Proposed Treatment Volume</b>									
Area proposed treatment swale is designed to treat = 4,800 s.f. impervious (drives/parking)									
4,800 s.f. x in = 400 c.f. water quality volume provided.									
Area to drain to proposed treatment swale = 10,973 s.f. impervious (drives/parking)									
Area greater than designed treatment volume (10,973 s.f. - 4,800 s.f. = 6,173 s.f.) to overflow treatment swale and drain to catch basin.									

1e.4

1e.5

PROJECT SITE

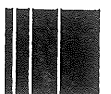


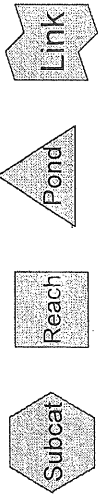
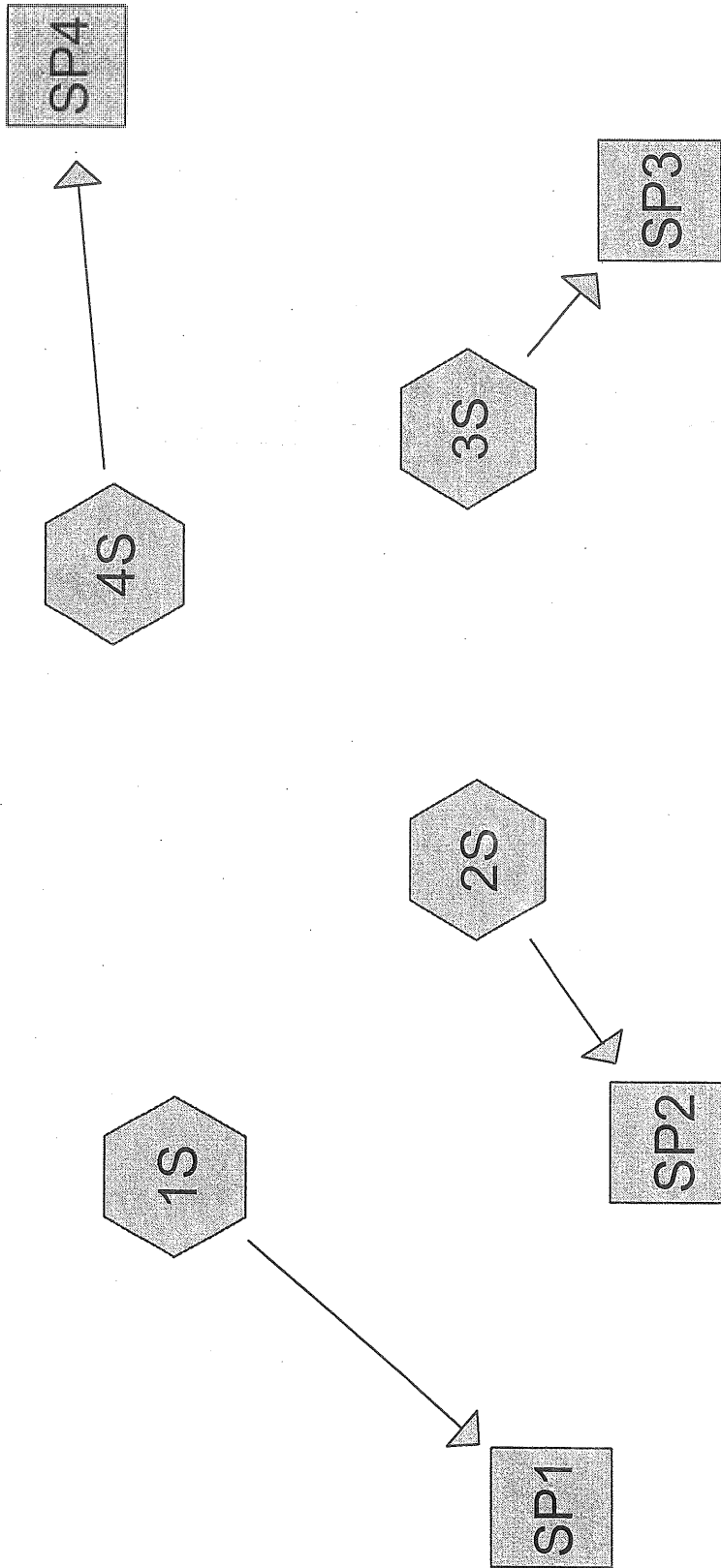
MEDIUM INTENSITY SOIL SURVEY  
 CUMBERLAND COUNTY  
 SHEET 81  
 SCALE 1:20,000

**Sebago Technics**

Engineering Expertise You Can Build On

One Chabot Street  
 Westbrook, Me 04098-1339  
 Tel (207) 856-0277





Drainage Diagram for 05439PRE  
Prepared by {enter your company name here} 11/6/2006  
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1e.7

05439PRE

Type III 24-hr Rainfall=2.60"

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Page 1

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11/6/2006

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=2.60"  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: (new node)

Tc=5.0 min CN=70 Area=5,637 sf Runoff= 0.06 cfs 0.005 af

Subcatchment 2S: (new node)

Tc=5.0 min CN=96 Area=4,506 sf Runoff= 0.25 cfs 0.018 af

Subcatchment 3S: (new node)

Tc=5.0 min CN=96 Area=12,014 sf Runoff= 0.66 cfs 0.047 af

Subcatchment 4S: (new node)

Tc=10.0 min CN=95 Area=10,058 sf Runoff= 0.46 cfs 0.037 af

Reach SP1: (new node)

Inflow= 0.06 cfs 0.005 af  
Outflow= 0.06 cfs 0.005 af

Reach SP2: (new node)

Inflow= 0.25 cfs 0.018 af  
Outflow= 0.25 cfs 0.018 af

Reach SP3: (new node)

Inflow= 0.66 cfs 0.047 af  
Outflow= 0.66 cfs 0.047 af

Reach SP4: (new node)

Inflow= 0.46 cfs 0.037 af  
Outflow= 0.46 cfs 0.037 af

Runoff Area = 0.740 ac Volume = 0.107 af Average Depth = 1.73"

1e.8

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Type III 24-hr Rainfall=2.60"

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Page 2

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**Subcatchment 1S: (new node)**

Runoff = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=2.60"

Area (sf)	CN	Description
3,210	49	50-75% Grass cover, Fair, HSG A
2,427	98	Paved parking & roofs
5,637	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	30	0.0130	0.1		Sheet Flow, A to B
					Grass: Short n= 0.150 P2= 2.60"
0.1	13	0.0750	1.9		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.0	43	Total			

**Subcatchment 2S: (new node)**

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.018 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=2.60"

Area (sf)	CN	Description
184	49	50-75% Grass cover, Fair, HSG A
4,322	98	Paved parking & roofs
4,506	96	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 3S: (new node)**

Runoff = 0.66 cfs @ 12.07 hrs, Volume= 0.047 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=2.60"

Area (sf)	CN	Description
515	49	50-75% Grass cover, Fair, HSG A
11,499	98	Paved parking & roofs
12,014	96	Weighted Average

1e.9

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Type III 24-hr Rainfall=2.60"

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Page 3

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 4S: (new node)**

Runoff = 0.46 cfs @ 12.14 hrs, Volume= 0.037 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=2.60"

Area (sf)	CN	Description
558	49	50-75% Grass cover, Fair, HSG A
9,500	98	Paved parking & roofs
10,058	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0250	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.60"
0.1	25	0.0400	4.1		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.0	125	Total			

**Reach SP1: (new node)**

Inflow = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af  
Outflow = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP2: (new node)**

Inflow = 0.25 cfs @ 12.07 hrs, Volume= 0.018 af  
Outflow = 0.25 cfs @ 12.07 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP3: (new node)**

Inflow = 0.66 cfs @ 12.07 hrs, Volume= 0.047 af  
Outflow = 0.66 cfs @ 12.07 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

1e.10

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Type III 24-hr Rainfall=2.60"

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Page 4

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**Reach SP4: (new node)**

Inflow = 0.46 cfs @ 12.14 hrs, Volume= 0.037 af  
Outflow = 0.46 cfs @ 12.14 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type III 24-hr Rainfall=4.50"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=4.50"

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: (new node)

Tc=5.0 min CN=70 Area=5,637 sf Runoff= 0.25 cfs 0.017 af

Subcatchment 2S: (new node)

Tc=5.0 min CN=96 Area=4,506 sf Runoff= 0.45 cfs 0.033 af

Subcatchment 3S: (new node)

Tc=5.0 min CN=96 Area=12,014 sf Runoff= 1.20 cfs 0.087 af

Subcatchment 4S: (new node)

Tc=10.0 min CN=95 Area=10,058 sf Runoff= 0.85 cfs 0.071 af

Reach SP1: (new node)

Inflow= 0.25 cfs 0.017 af

Outflow= 0.25 cfs 0.017 af

Reach SP2: (new node)

Inflow= 0.45 cfs 0.033 af

Outflow= 0.45 cfs 0.033 af

Reach SP3: (new node)

Inflow= 1.20 cfs 0.087 af

Outflow= 1.20 cfs 0.087 af

Reach SP4: (new node)

Inflow= 0.85 cfs 0.071 af

Outflow= 0.85 cfs 0.071 af

Runoff Area = 0.740 ac Volume = 0.208 af Average Depth = 3.37"

1e.12

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Type III 24-hr Rainfall=4.50"

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**Subcatchment 1S: (new node)**

Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.017 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=4.50"

Area (sf)	CN	Description
3,210	49	50-75% Grass cover, Fair, HSG A
2,427	98	Paved parking & roofs
5,637	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	30	0.0130	0.1		Sheet Flow, A to B
					Grass: Short n= 0.150 P2= 2.60"
0.1	13	0.0750	1.9		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.0	43	Total			

**Subcatchment 2S: (new node)**

Runoff = 0.45 cfs @ 12.07 hrs, Volume= 0.033 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=4.50"

Area (sf)	CN	Description
184	49	50-75% Grass cover, Fair, HSG A
4,322	98	Paved parking & roofs
4,506	96	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 3S: (new node)**

Runoff = 1.20 cfs @ 12.07 hrs, Volume= 0.087 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=4.50"

Area (sf)	CN	Description
515	49	50-75% Grass cover, Fair, HSG A
11,499	98	Paved parking & roofs
12,014	96	Weighted Average

1e.13

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Type III 24-hr Rainfall=4.50"

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Page 3  
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 4S: (new node)**

Runoff = 0.85 cfs @ 12.14 hrs, Volume= 0.071 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=4.50"

Area (sf)	CN	Description
558	49	50-75% Grass cover, Fair, HSG A
9,500	98	Paved parking & roofs
10,058	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0250	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.60"
0.1	25	0.0400	4.1		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.0	125	Total			

**Reach SP1: (new node)**

Inflow = 0.25 cfs @ 12.08 hrs, Volume= 0.017 af  
Outflow = 0.25 cfs @ 12.08 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP2: (new node)**

Inflow = 0.45 cfs @ 12.07 hrs, Volume= 0.033 af  
Outflow = 0.45 cfs @ 12.07 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP3: (new node)**

Inflow = 1.20 cfs @ 12.07 hrs, Volume= 0.087 af  
Outflow = 1.20 cfs @ 12.07 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



1e.14

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Type III 24-hr Rainfall=4.50"

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Page 4

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**Reach SP4: (new node)**

Inflow = 0.85 cfs @ 12.14 hrs, Volume= 0.071 af  
Outflow = 0.85 cfs @ 12.14 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type III 24-hr Rainfall=5.40"

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Page 1

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=5.40"

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: (new node)

Tc=5.0 min CN=70 Area=5,637 sf Runoff= 0.35 cfs 0.023 af

Subcatchment 2S: (new node)

Tc=5.0 min CN=96 Area=4,506 sf Runoff= 0.54 cfs 0.040 af

Subcatchment 3S: (new node)

Tc=5.0 min CN=96 Area=12,014 sf Runoff= 1.45 cfs 0.106 af

Subcatchment 4S: (new node)

Tc=10.0 min CN=95 Area=10,058 sf Runoff= 1.03 cfs 0.087 af

Reach SP1: (new node)

Inflow= 0.35 cfs 0.023 af

Outflow= 0.35 cfs 0.023 af

Reach SP2: (new node)

Inflow= 0.54 cfs 0.040 af

Outflow= 0.54 cfs 0.040 af

Reach SP3: (new node)

Inflow= 1.45 cfs 0.106 af

Outflow= 1.45 cfs 0.106 af

Reach SP4: (new node)

Inflow= 1.03 cfs 0.087 af

Outflow= 1.03 cfs 0.087 af

Runoff Area = 0.740 ac Volume = 0.256 af Average Depth = 4.16"

1e.16

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Type III 24-hr Rainfall=5.40"

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Page 2

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**Subcatchment 1S: (new node)**

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.023 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=5.40"

Area (sf)	CN	Description
3,210	49	50-75% Grass cover, Fair, HSG A
2,427	98	Paved parking & roofs
5,637	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	30	0.0130	0.1		Sheet Flow, A to B
					Grass: Short n= 0.150 P2= 2.60"
0.1	13	0.0750	1.9		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.0	43	Total			

**Subcatchment 2S: (new node)**

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 0.040 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=5.40"

Area (sf)	CN	Description
184	49	50-75% Grass cover, Fair, HSG A
4,322	98	Paved parking & roofs
4,506	96	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 3S: (new node)**

Runoff = 1.45 cfs @ 12.07 hrs, Volume= 0.106 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=5.40"

Area (sf)	CN	Description
515	49	50-75% Grass cover, Fair, HSG A
11,499	98	Paved parking & roofs
12,014	96	Weighted Average

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Type III 24-hr Rainfall=5.40"

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Page 3

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 4S: (new node)**

Runoff = 1.03 cfs @ 12.14 hrs, Volume= 0.087 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=5.40"

Area (sf)	CN	Description
558	49	50-75% Grass cover, Fair, HSG A
9,500	98	Paved parking & roofs
10,058	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0250	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.60"
0.1	25	0.0400	4.1		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.0	125	Total			

**Reach SP1: (new node)**

Inflow = 0.35 cfs @ 12.08 hrs, Volume= 0.023 af  
Outflow = 0.35 cfs @ 12.08 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP2: (new node)**

Inflow = 0.54 cfs @ 12.07 hrs, Volume= 0.040 af  
Outflow = 0.54 cfs @ 12.07 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP3: (new node)**

Inflow = 1.45 cfs @ 12.07 hrs, Volume= 0.106 af  
Outflow = 1.45 cfs @ 12.07 hrs, Volume= 0.106 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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05439PRE

Type III 24-hr Rainfall=5.40"

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Page 4

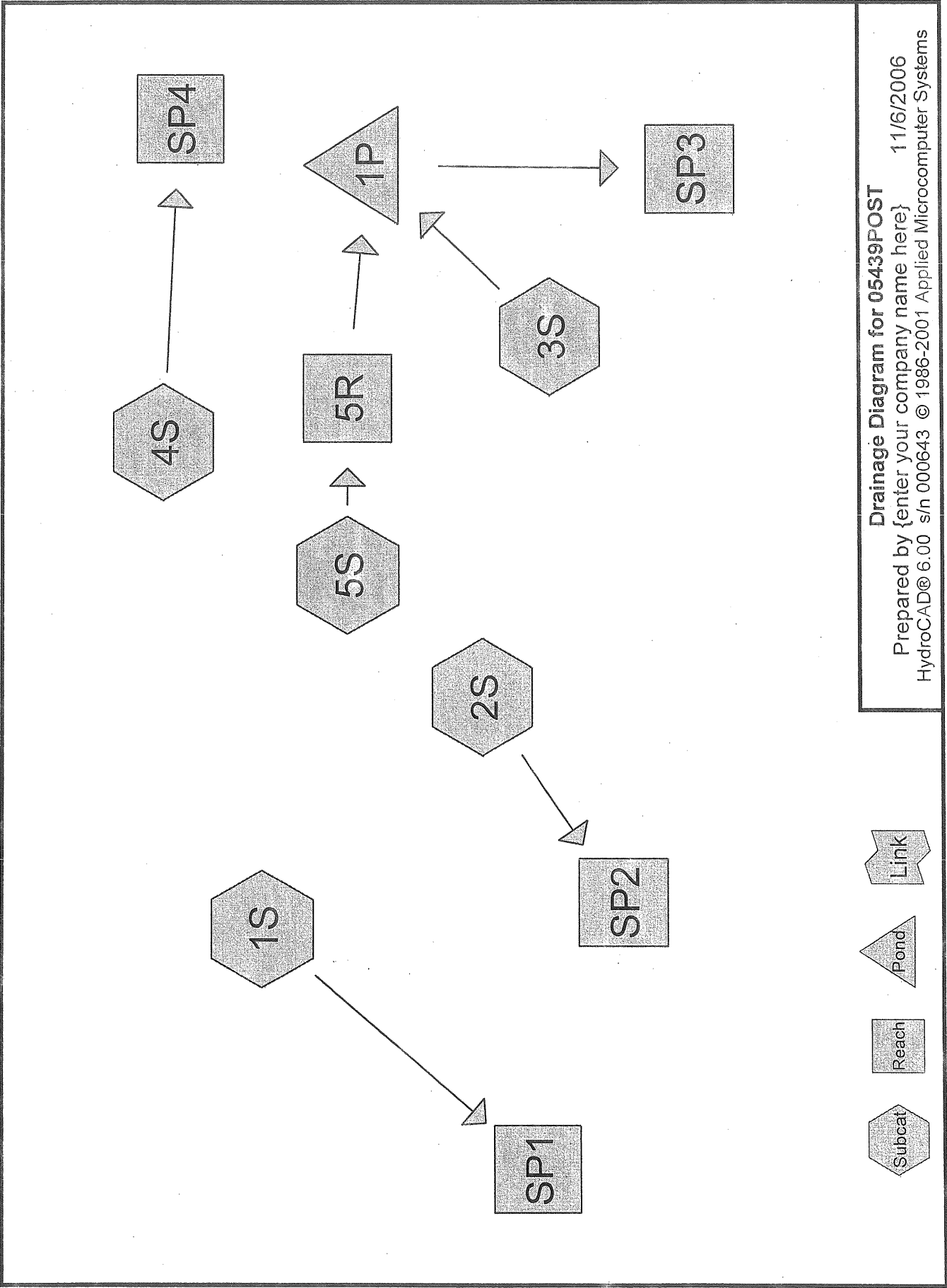
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**Reach SP4: (new node)**

Inflow = 1.03 cfs @ 12.14 hrs, Volume= 0.087 af  
Outflow = 1.03 cfs @ 12.14 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



**Drainage Diagram for 05439POST**

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1e.20

05439POST

Type III 24-hr Rainfall=2.60"

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Page 1

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=2.60"  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: (new node)

Tc=5.7 min CN=77 Area=6,090 sf Runoff= 0.12 cfs 0.009 af

Subcatchment 2S: (new node)

Tc=5.0 min CN=92 Area=4,721 sf Runoff= 0.23 cfs 0.015 af

Subcatchment 3S: (new node)

Tc=5.0 min CN=79 Area=11,355 sf Runoff= 0.27 cfs 0.018 af

Subcatchment 4S: (new node)

Tc=10.1 min CN=84 Area=5,987 sf Runoff= 0.16 cfs 0.013 af

Subcatchment 5S: (new node)

Tc=5.0 min CN=97 Area=4,064 sf Runoff= 0.23 cfs 0.017 af

Reach 5R: (new node)

Inflow= 0.23 cfs 0.017 af  
Length= 67.0' Max Vel= 3.8 fps Capacity= 3.74 cfs Outflow= 0.23 cfs 0.017 af

Reach SP1: (new node)

Inflow= 0.12 cfs 0.009 af  
Outflow= 0.12 cfs 0.009 af

Reach SP2: (new node)

Inflow= 0.23 cfs 0.015 af  
Outflow= 0.23 cfs 0.015 af

Reach SP3: (new node)

Inflow= 0.05 cfs 0.034 af  
Outflow= 0.05 cfs 0.034 af

Reach SP4: (new node)

Inflow= 0.16 cfs 0.013 af  
Outflow= 0.16 cfs 0.013 af

Pond 1P: (new node)

Peak Storage= 600 cf Inflow= 0.49 cfs 0.035 af  
Primary= 0.05 cfs 0.034 af Secondary= 0.00 cfs 0.000 af Outflow= 0.05 cfs 0.034 af

Runoff Area = 0.740 ac Volume = 0.071 af Average Depth = 1.15"



1e.21

**05439POST**

Type III 24-hr Rainfall=2.60"

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Page 2  
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**Subcatchment 1S: (new node)**

Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Rainfall=2.60"

Area (sf)	CN	Description
2,640	49	50-75% Grass cover, Fair, HSG A
3,450	98	Paved parking & roofs
6,090	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	64	0.0450	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.60"
0.0	5	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	20	0.1000	2.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.7	89	Total			

**Subcatchment 2S: (new node)**

Runoff = 0.23 cfs @ 12.07 hrs, Volume= 0.015 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Rainfall=2.60"

Area (sf)	CN	Description
541	49	50-75% Grass cover, Fair, HSG A
4,180	98	Paved parking & roofs
4,721	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 3S: (new node)**

Runoff = 0.27 cfs @ 12.09 hrs, Volume= 0.018 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Rainfall=2.60"

Area (sf)	CN	Description
4,392	49	50-75% Grass cover, Fair, HSG A
6,963	98	Paved parking & roofs
11,355	79	Weighted Average

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Type III 24-hr Rainfall=2.60"

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Page 3

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 4S: (new node)**

Runoff = 0.16 cfs @ 12.15 hrs, Volume= 0.013 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=2.60"

Area (sf)	CN	Description
1,716	49	50-75% Grass cover, Fair, HSG A
4,271	98	Paved parking & roofs
5,987	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0250	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.60"
0.0	6	0.0150	2.5		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	20	0.0450	1.5		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
10.1	126	Total			

**Subcatchment 5S: (new node)**

Runoff = 0.23 cfs @ 12.07 hrs, Volume= 0.017 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=2.60"

Area (sf)	CN	Description
54	49	50-75% Grass cover, Fair, HSG A
4,010	98	Paved parking & roofs
4,064	97	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Reach 5R: (new node)**

Inflow = 0.23 cfs @ 12.07 hrs, Volume= 0.017 af  
Outflow = 0.23 cfs @ 12.08 hrs, Volume= 0.017 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 3.8 fps, Min. Travel Time= 0.3 min  
Avg. Velocity = 1.4 fps, Avg. Travel Time= 0.8 min

1e. 23

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Type III 24-hr Rainfall=2.60"

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Page 4

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Peak Depth= 0.14'  
Capacity at bank full= 3.74 cfs  
Inlet Invert= 80.90', Outlet Invert= 79.50'  
10.0" Diameter Pipe n= 0.011 Length= 67.0' Slope= 0.0209 '/'

**Reach SP1: (new node)**

Inflow = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af  
Outflow = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP2: (new node)**

Inflow = 0.23 cfs @ 12.07 hrs, Volume= 0.015 af  
Outflow = 0.23 cfs @ 12.07 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP3: (new node)**

Inflow = 0.05 cfs @ 12.95 hrs, Volume= 0.034 af  
Outflow = 0.05 cfs @ 12.95 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP4: (new node)**

Inflow = 0.16 cfs @ 12.15 hrs, Volume= 0.013 af  
Outflow = 0.16 cfs @ 12.15 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Pond 1P: (new node)**

Inflow = 0.49 cfs @ 12.08 hrs, Volume= 0.035 af  
Outflow = 0.05 cfs @ 12.95 hrs, Volume= 0.034 af, Atten= 89%, Lag= 52.2 min  
Primary = 0.05 cfs @ 12.95 hrs, Volume= 0.034 af  
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 80.25' Storage= 600 cf  
Plug-Flow detention time= 113.7 min calculated for 0.034 af (99% of inflow)  
Storage and wetted areas determined by Prismatic sections

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Type III 24-hr Rainfall=2.60"

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Page 5

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
79.50	500	0	0
80.00	821	330	330
81.00	1,360	1,091	1,421

Primary OutFlow (Free Discharge)

- ↑2=Culvert
- ↑1=Exfiltration

Secondary OutFlow (Free Discharge)

- ↑3=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Device 2	0.00'	<b>0.003350 fpm Exfiltration over entire Surface area</b>
2	Primary	76.34'	<b>4.0" x 95.0' long Culvert</b> CMP, square edge headwall, Ke= 0.500 Outlet Invert= 75.96' S= 0.0040 '/' n= 0.011 Cc= 0.900
3	Secondary	80.50'	<b>10.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.7

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Type III 24-hr Rainfall=4.50"

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Page 1

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=4.50"  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: (new node)**

Tc=5.7 min CN=77 Area=6,090 sf Runoff= 0.36 cfs 0.024 af

**Subcatchment 2S: (new node)**

Tc=5.0 min CN=92 Area=4,721 sf Runoff= 0.44 cfs 0.031 af

**Subcatchment 3S: (new node)**

Tc=5.0 min CN=79 Area=11,355 sf Runoff= 0.73 cfs 0.048 af

**Subcatchment 4S: (new node)**

Tc=10.1 min CN=84 Area=5,987 sf Runoff= 0.39 cfs 0.030 af

**Subcatchment 5S: (new node)**

Tc=5.0 min CN=97 Area=4,064 sf Runoff= 0.41 cfs 0.030 af

**Reach 5R: (new node)**

Inflow= 0.41 cfs 0.030 af  
Length= 67.0' Max Vel= 4.5 fps Capacity= 3.74 cfs Outflow= 0.40 cfs 0.030 af

**Reach SP1: (new node)**

Inflow= 0.36 cfs 0.024 af  
Outflow= 0.36 cfs 0.024 af

**Reach SP2: (new node)**

Inflow= 0.44 cfs 0.031 af  
Outflow= 0.44 cfs 0.031 af

**Reach SP3: (new node)**

Inflow= 0.89 cfs 0.069 af  
Outflow= 0.89 cfs 0.069 af

**Reach SP4: (new node)**

Inflow= 0.39 cfs 0.030 af  
Outflow= 0.39 cfs 0.030 af

**Pond 1P: (new node)**

Peak Storage= 994 cf Inflow= 1.13 cfs 0.078 af  
Primary= 0.06 cfs 0.048 af Secondary= 0.83 cfs 0.021 af Outflow= 0.89 cfs 0.069 af

**Runoff Area = 0.740 ac Volume = 0.163 af Average Depth = 2.65"**

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Type III 24-hr Rainfall=4.50"

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Page 2  
11/6/2006

Subcatchment 1S: (new node)

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 0.024 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=4.50"

Area (sf)	CN	Description
2,640	49	50-75% Grass cover, Fair, HSG A
3,450	98	Paved parking & roofs
6,090	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	64	0.0450	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.60"
0.0	5	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	20	0.1000	2.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.7	89	Total			

Subcatchment 2S: (new node)

Runoff = 0.44 cfs @ 12.07 hrs, Volume= 0.031 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=4.50"

Area (sf)	CN	Description
541	49	50-75% Grass cover, Fair, HSG A
4,180	98	Paved parking & roofs
4,721	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: (new node)

Runoff = 0.73 cfs @ 12.08 hrs, Volume= 0.048 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=4.50"

Area (sf)	CN	Description
4,392	49	50-75% Grass cover, Fair, HSG A
6,963	98	Paved parking & roofs
11,355	79	Weighted Average

le. 27

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Type III 24-hr Rainfall=4.50"

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Page 3

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 4S: (new node)**

Runoff = 0.39 cfs @ 12.14 hrs, Volume= 0.030 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=4.50"

Area (sf)	CN	Description
1,716	49	50-75% Grass cover, Fair, HSG A
4,271	98	Paved parking & roofs
5,987	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0250	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.60"
0.0	6	0.0150	2.5		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	20	0.0450	1.5		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
10.1	126	Total			

**Subcatchment 5S: (new node)**

Runoff = 0.41 cfs @ 12.07 hrs, Volume= 0.030 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=4.50"

Area (sf)	CN	Description
54	49	50-75% Grass cover, Fair, HSG A
4,010	98	Paved parking & roofs
4,064	97	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Reach 5R: (new node)**

Inflow = 0.41 cfs @ 12.07 hrs, Volume= 0.030 af  
Outflow = 0.40 cfs @ 12.08 hrs, Volume= 0.030 af, Atten= 2%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 4.5 fps, Min. Travel Time= 0.3 min  
Avg. Velocity = 1.7 fps, Avg. Travel Time= 0.7 min



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Type III 24-hr Rainfall=4.50"

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Page 4

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Peak Depth= 0.19'  
Capacity at bank full= 3.74 cfs  
Inlet Invert= 80.90', Outlet Invert= 79.50'  
10.0" Diameter Pipe n= 0.011 Length= 67.0' Slope= 0.0209 1'

**Reach SP1: (new node)**

Inflow = 0.36 cfs @ 12.09 hrs, Volume= 0.024 af  
Outflow = 0.36 cfs @ 12.09 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP2: (new node)**

Inflow = 0.44 cfs @ 12.07 hrs, Volume= 0.031 af  
Outflow = 0.44 cfs @ 12.07 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP3: (new node)**

Inflow = 0.89 cfs @ 12.17 hrs, Volume= 0.069 af  
Outflow = 0.89 cfs @ 12.17 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP4: (new node)**

Inflow = 0.39 cfs @ 12.14 hrs, Volume= 0.030 af  
Outflow = 0.39 cfs @ 12.14 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Pond 1P: (new node)**

Inflow = 1.13 cfs @ 12.08 hrs, Volume= 0.078 af  
Outflow = 0.89 cfs @ 12.17 hrs, Volume= 0.069 af, Atten= 21%, Lag= 5.4 min  
Primary = 0.06 cfs @ 12.17 hrs, Volume= 0.048 af  
Secondary = 0.83 cfs @ 12.17 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 80.61' Storage= 994 cf  
Plug-Flow detention time= 104.4 min calculated for 0.069 af (88% of inflow)  
Storage and wetted areas determined by Prismatic sections

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Type III 24-hr Rainfall=4.50"

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Page 5

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
79.50	500	0	0
80.00	821	330	330
81.00	1,360	1,091	1,421

Primary OutFlow (Free Discharge)

↑2=Culvert

↑1=Exfiltration

Secondary OutFlow (Free Discharge)

↑3=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Device 2	0.00'	<b>0.003350 fpm Exfiltration over entire Surface area</b>
2	Primary	76.34'	<b>4.0" x 95.0' long Culvert</b> CMP, square edge headwall, Ke= 0.500 Outlet Invert= 75.96' S= 0.0040 '/' n= 0.011 Cc= 0.900
3	Secondary	80.50'	<b>10.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.7

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Type III 24-hr Rainfall=5.40"

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Page 1

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=5.40"  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: (new node)**

Tc=5.7 min CN=77 Area=6,090 sf Runoff= 0.48 cfs 0.032 af

**Subcatchment 2S: (new node)**

Tc=5.0 min CN=92 Area=4,721 sf Runoff= 0.54 cfs 0.038 af

**Subcatchment 3S: (new node)**

Tc=5.0 min CN=79 Area=11,355 sf Runoff= 0.96 cfs 0.064 af

**Subcatchment 4S: (new node)**

Tc=10.1 min CN=84 Area=5,987 sf Runoff= 0.50 cfs 0.039 af

**Subcatchment 5S: (new node)**

Tc=5.0 min CN=97 Area=4,064 sf Runoff= 0.49 cfs 0.037 af

**Reach 5R: (new node)**

Inflow= 0.49 cfs 0.037 af  
Length= 67.0' Max Vel= 4.7 fps Capacity= 3.74 cfs Outflow= 0.48 cfs 0.037 af

**Reach SP1: (new node)**

Inflow= 0.48 cfs 0.032 af  
Outflow= 0.48 cfs 0.032 af

**Reach SP2: (new node)**

Inflow= 0.54 cfs 0.038 af  
Outflow= 0.54 cfs 0.038 af

**Reach SP3: (new node)**

Inflow= 1.44 cfs 0.089 af  
Outflow= 1.44 cfs 0.089 af

**Reach SP4: (new node)**

Inflow= 0.50 cfs 0.039 af  
Outflow= 0.50 cfs 0.039 af

**Pond 1P: (new node)**

Peak Storage= 1,039 cf Inflow= 1.45 cfs 0.101 af  
Primary= 0.07 cfs 0.051 af Secondary= 1.38 cfs 0.039 af Outflow= 1.44 cfs 0.089 af

**Runoff Area = 0.740 ac Volume = 0.210 af Average Depth = 3.41"**

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Type III 24-hr Rainfall=5.40"

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Page 2

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11/6/2006

Subcatchment 1S: (new node)

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.032 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=5.40"

Area (sf)	CN	Description
2,640	49	50-75% Grass cover, Fair, HSG A
3,450	98	Paved parking & roofs
6,090	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	64	0.0450	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.60"
0.0	5	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	20	0.1000	2.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.7	89	Total			

Subcatchment 2S: (new node)

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 0.038 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=5.40"

Area (sf)	CN	Description
541	49	50-75% Grass cover, Fair, HSG A
4,180	98	Paved parking & roofs
4,721	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: (new node)

Runoff = 0.96 cfs @ 12.08 hrs, Volume= 0.064 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=5.40"

Area (sf)	CN	Description
4,392	49	50-75% Grass cover, Fair, HSG A
6,963	98	Paved parking & roofs
11,355	79	Weighted Average

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Type III 24-hr Rainfall=5.40"

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Page 3

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11/6/2006

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 4S: (new node)**

Runoff = 0.50 cfs @ 12.14 hrs, Volume= 0.039 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=5.40"

Area (sf)	CN	Description
1,716	49	50-75% Grass cover, Fair, HSG A
4,271	98	Paved parking & roofs
5,987	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0250	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.60"
0.0	6	0.0150	2.5		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	20	0.0450	1.5		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
10.1	126	Total			

**Subcatchment 5S: (new node)**

Runoff = 0.49 cfs @ 12.07 hrs, Volume= 0.037 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=5.40"

Area (sf)	CN	Description
54	49	50-75% Grass cover, Fair, HSG A
4,010	98	Paved parking & roofs
4,064	97	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Reach 5R: (new node)**

Inflow = 0.49 cfs @ 12.07 hrs, Volume= 0.037 af  
Outflow = 0.48 cfs @ 12.08 hrs, Volume= 0.037 af, Atten= 2%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 4.7 fps, Min. Travel Time= 0.2 min  
Avg. Velocity = 1.8 fps, Avg. Travel Time= 0.6 min

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Type III 24-hr Rainfall=5.40"

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Page 4

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Peak Depth= 0.20'  
Capacity at bank full= 3.74 cfs  
Inlet Invert= 80.90', Outlet Invert= 79.50'  
10.0" Diameter Pipe n= 0.011 Length= 67.0' Slope= 0.0209 '/'

**Reach SP1: (new node)**

Inflow = 0.48 cfs @ 12.09 hrs, Volume= 0.032 af  
Outflow = 0.48 cfs @ 12.09 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP2: (new node)**

Inflow = 0.54 cfs @ 12.07 hrs, Volume= 0.038 af  
Outflow = 0.54 cfs @ 12.07 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP3: (new node)**

Inflow = 1.44 cfs @ 12.12 hrs, Volume= 0.089 af  
Outflow = 1.44 cfs @ 12.12 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach SP4: (new node)**

Inflow = 0.50 cfs @ 12.14 hrs, Volume= 0.039 af  
Outflow = 0.50 cfs @ 12.14 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Pond 1P: (new node)**

Inflow = 1.45 cfs @ 12.08 hrs, Volume= 0.101 af  
Outflow = 1.44 cfs @ 12.12 hrs, Volume= 0.089 af, Atten= 0%, Lag= 2.3 min  
Primary = 0.07 cfs @ 12.12 hrs, Volume= 0.051 af  
Secondary = 1.38 cfs @ 12.12 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 80.65' Storage= 1,039 cf  
Plug-Flow detention time= 85.8 min calculated for 0.089 af (89% of inflow)  
Storage and wetted areas determined by Prismatic sections

ve. 34

05439POST

Type III 24-hr Rainfall=5.40"

Prepared by {enter your company name here}

Page 5

HydroCAD® 6.00 s/n 000643 © 1986-2001 Applied Microcomputer Systems

11/6/2006

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
79.50	500	0	0
80.00	821	330	330
81.00	1,360	1,091	1,421

Primary OutFlow (Free Discharge)

- ↑ 2=Culvert
- ↑ 1=Exfiltration

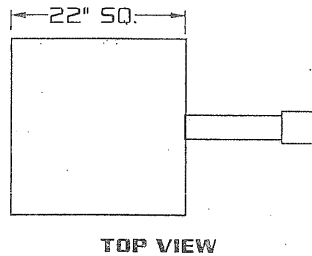
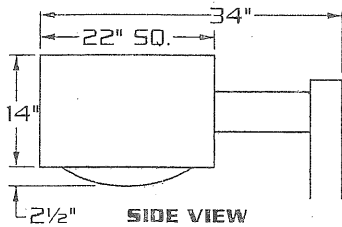
Secondary OutFlow (Free Discharge)

- ↑ 3=Broad-Crested Rectangular Weir

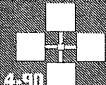
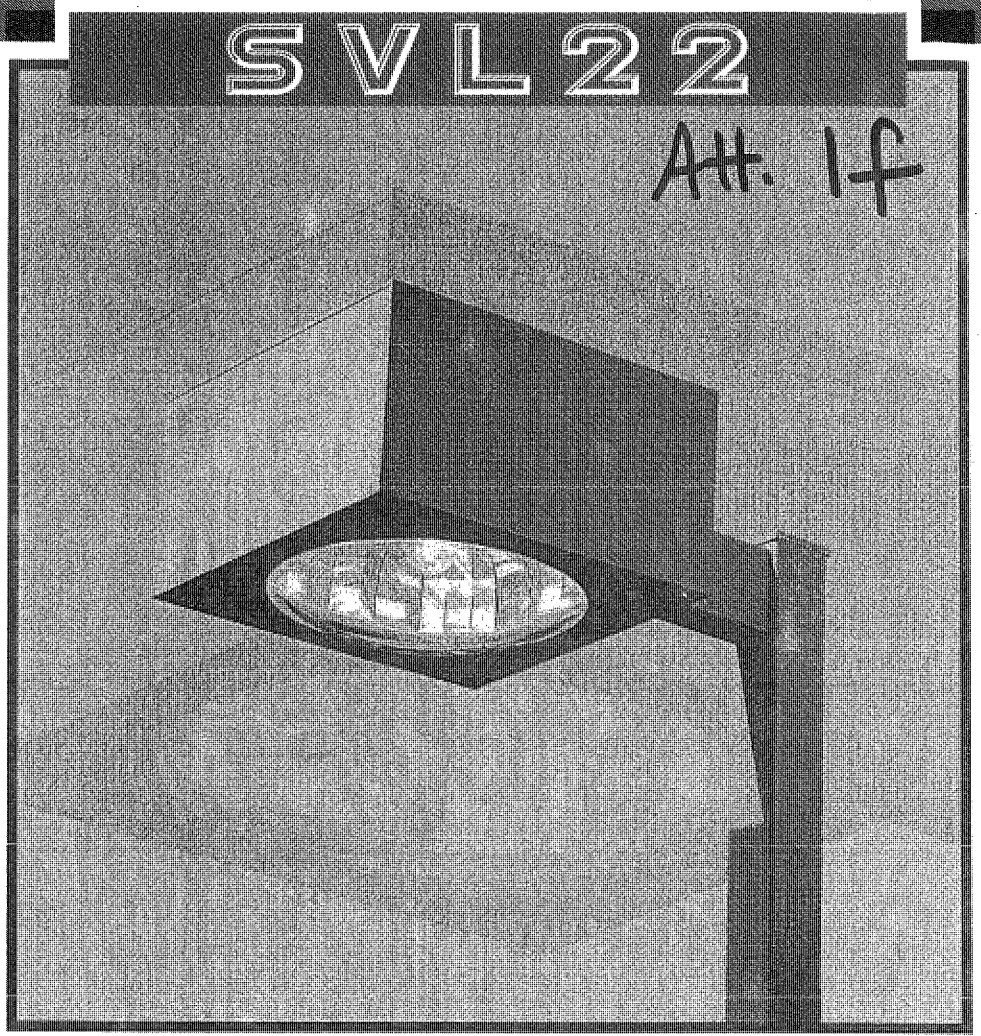
#	Routing	Invert	Outlet Devices
1	Device 2	0.00'	<b>0.003350 fpm Exfiltration over entire Surface area</b>
2	Primary	76.34'	<b>4.0" x 95.0' long Culvert</b> CMP, square edge headwall, Ke= 0.500 Outlet Invert= 75.96' S= 0.0040 '/' n= 0.011 Cc= 0.900
3	Secondary	80.50'	<b>10.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.7



[1000 WATT MAX.]



E.P.A. = 3.20



## SPECIFICATIONS

**HOUSING:** ONE PIECE DIE FORMED ALUMINUM CONSTRUCTION WITH SEPARATE BALLAST COMPARTMENT.

**LENS ASS'Y:** ONE PIECE HINGED HEAVY GAUGE DIE FORMED ALUMINUM DOOR FRAME SURROUNDS 3/16" CLEAR CONVEX GLASS LENS. GLASS IS SEALED TO DOOR WITH HIGH TEMPERATURE SILICONE SEAL. TWO CAPTIVE THUMB SCREWS DISENGAGE LENS ASSEMBLY FROM HOUSING WITHOUT THE USE OF TOOLS.

**OPTICS:** COMPUTER DESIGNED ONE PIECE SEGMENTED SPECULAR REFLECTOR COMBINES WITH CLEAR CONVEX LENS TO PRODUCE A HIGHLY EFFICIENT WIDE SYMMETRIC LIGHT DISTRIBUTION WITH OUTSTANDING UNIFORMITY.

**GASKETING:** CLOSED CELL EPDM GASKETING COMPRESSED BETWEEN DOOR AND HOUSING SEALS OPTICAL CHAMBER.

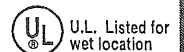
**LAMP HOLDER:** MOGUL BASE PORCELAIN.

**LAMP:** (BY OTHERS)

**BALLAST:** H.P.F./C.W.A. AUTOTRANSFORMER, -20° STARTING TEMPERATURE.

**ARM:** 3"X5"X12" LONG HEAVY WALL EXTRUDED ALUMINUM. ARM IS SECURED TO HOUSING AND TO POLE WITH STAINLESS STEEL RODS.

**FINISH:** POLYESTER POWDER COAT-STATE OF THE ART 20 PSI PRESSURE POWER WASH AT 140° TEMPERATURE INCORPORATES FOUR STEP IRON PHOSPHATE PROCESS TO CLEANSE AND PRETREAT THE METAL SURFACE FOR MAXIMUM PAINT ADHESION. ELECTROSTATICALLY APPLIED TEXTURED POLYESTER POWDER TOP COAT IS BAKED AT 400° TEMPERATURE FOR MAXIMUM HARDNESS AND EXTERIOR DURABILITY.



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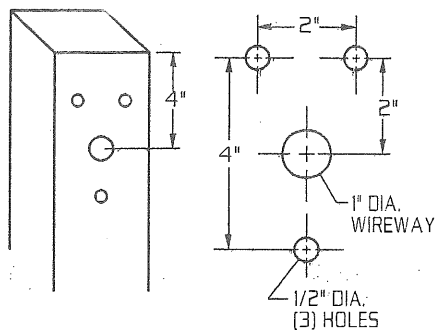
(661) 233-2000

FAX NO. (661) 233-2001

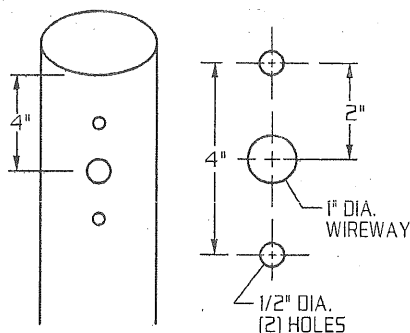
www.usaltg.com

A5-1  
REV. 10/00

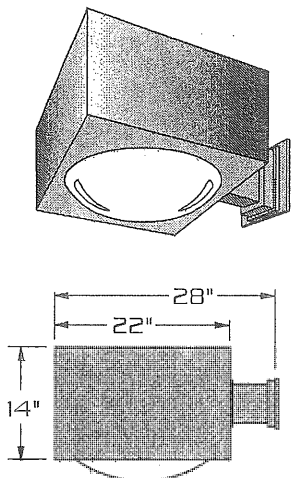
**TYPICAL SQUARE POLE TEMPLATE**



**TYPICAL ROUND POLE TEMPLATE**

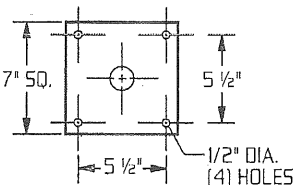


**WALL MOUNT**

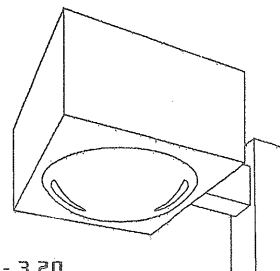


EXTRUDED ALUMINUM ARM AND CAST ALUMINUM WALL BRACKET ASSEMBLY PROVIDED WITH BUILT IN GASKETED WIRE ACCESS FOR FIXTURE/SUPPLY WIRE CONNECTION.

**WALL PLATE**



**LAMP SIZE:  
250 - 1000 WATT**



E.P.A.= 3.20

- WIDE THROW BEAM PATTERN.
- VERTICAL LAMP.
- COMPUTER DESIGNED SEGMENTED OPTICS.
- THREE OPTICAL CONFIGURATIONS.
- FLAT GLASS OPTION FOR FULL CUTOFF OPTICS.

**ORDERING INFORMATION**

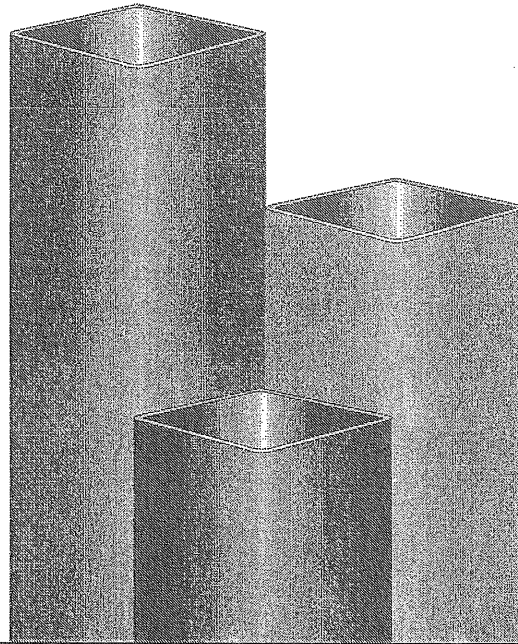
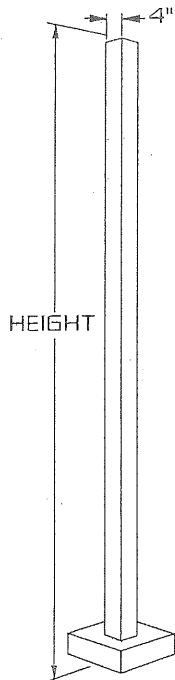
MODEL NO.:	OPTICS	WATTAGE TYPE VOLTAGE	MOUNTING	FINISH	OPTIONS
SVL22					
MODEL NO.:	OPTICS	LAMP	MOUNTING	FINISH	OPTIONS
SVL22	<input type="checkbox"/> ASYMMETRIC ASY...	<input type="checkbox"/> 1000 MH (BT37) <input type="checkbox"/> 120 <input type="checkbox"/> 1000 PSMH (BT37) <input type="checkbox"/> 208 <input type="checkbox"/> 750 PSMH (BT37) <input type="checkbox"/> 240 <input type="checkbox"/> 450 PSMH (ED37) <input type="checkbox"/> 277 <input type="checkbox"/> 400 MH (ED37) <input type="checkbox"/> 480 <input type="checkbox"/> 400 PSMH (ED37)	<input type="checkbox"/> 1 ..... STREET LIGHTING ARM MOUNT <input type="checkbox"/> ST23 ..... (TO FIT OVER 2 3/8" O.D. ARM) ADJUSTABLE KNUCKLE <input type="checkbox"/> NKLE23 ..... (TO FIT OVER 2 3/8" O.D.) <input type="checkbox"/> NKLE27 ..... (TO FIT OVER 2 7/8" O.D.)	<input type="checkbox"/> DARK BRONZE DBM <input type="checkbox"/> MEDIUM BRONZE MBM <input type="checkbox"/> BLACK BKM <input type="checkbox"/> WHITE WTM <input type="checkbox"/> SILVER SLM	<input type="checkbox"/> FLAT TEMPERED GLASS..... FG <input type="checkbox"/> CLEAR POLYCARBONATE DIFFUSER..... LEX <input type="checkbox"/> HOUSE SIDE SHIELD ..... HS <input type="checkbox"/> PHOTO CELL + VOLTAGE (EXAMPLE: PC120V)..... PC+V <input type="checkbox"/> TWIST LOCK PHOTO CELL+VOLTAGE (EXAMPLE TPC120V)..... TPC+V <input type="checkbox"/> TWIST LOCK RECEPTACLE ONLY..... TPR
	<input type="checkbox"/> TYPE IV (FORWARD THROW) IV..... <input type="checkbox"/> TYPE V V-SQ...	<input type="checkbox"/> 750 HPS (BT37) <input type="checkbox"/> 400 HPS (ED18)	WALL MOUNT <input type="checkbox"/> WM ..... SEE ACCESSORIES SECTION FOR ST23 AND NKLE DETAILS	<input type="checkbox"/> ANODIZED AZ ANODIZED HOUSING MUST HAVE PAINT FINISH COAT EXAMPLE: AZDBM SEE PAGE 3 FOR ADDITIONAL COLORS	<input type="checkbox"/> SINGLE FUSE (120V. , 277V)..... SF <input type="checkbox"/> DOUBLE FUSE (208V. , 240V)..... DF



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# SNTS 4"

1f.2



## 4" SQUARE STRAIGHT STEEL

### SPECIFICATIONS

- SHAFT:** 4" SQUARE, FABRICATED FROM HIGH GRADE STRUCTURAL STEEL TUBE. SHAFT CONFORMS TO ASTM-A-501-68 SPECIFICATIONS. MEETS OR EXCEEDS MINIMUM YIELD STRENGTH OF 46,000 P.S.I. WALL THICKNESS 11 GA. (.120 WALL) OR 7 GA. (.180 WALL) AS SPECIFIED. REINFORCED HAND HOLE IS FURNISHED WITH COVER. SHAFT IS FURNISHED WITH GROUND LUG LOCATED INSIDE POLE ON WALL OPPOSITE HAND HOLE.
- BASE PLATE:** FABRICATED FROM STRUCTURAL QUALITY HOT ROLLED STEEL. MEETS OR EXCEEDS MINIMUM YIELD STRENGTH OF 36,000 P.S.I. BASE TELESCOPES AND IS CIRCUMFERENTIALLY WELDED TO POLE SHAFT. SLOTTED BOLT HOLES PROVIDE 1" FLEXIBILITY ON EITHER SIDE OF BOLT CIRCLE CENTERLINE.
- ANCHORAGE:** [4] ANCHOR BOLTS FABRICATED FROM HOT ROLLED STEEL BAR. MINIMUM YIELD STRENGTH OF 50,000 P.S.I. BOLTS HAVE "L" BEND ON ONE END AND ARE THREADED ON THE OTHER END. BOLTS ARE FULLY GALVANIZED AND ARE FURNISHED WITH TWO NUTS AND TWO WASHERS.
- BASE COVER:** FABRICATED FROM HEAVY GAUGE QUALITY CARBON STEEL. TWO PIECE COVER CONCEALS BASE.
- FINISH:** POLYESTER POWDER COAT. THE METAL SURFACE IS PRETREATED BY SAND BLAST PROCESS FOR MAXIMUM PAINT ADHESION. ELECTROSTATICALLY APPLIED POLYESTER POWDER TOPCOAT IS BAKED AT 400° TEMPERATURE FOR MAXIMUM HARDNESS AND EXTERIOR DURABILITY.



# SNTS SERIES

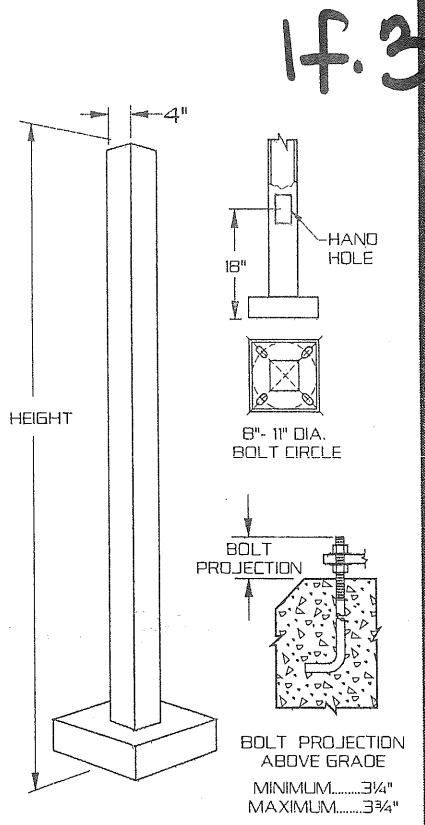
## ENGINEERING DATA

Maximum EPA - Square Feet

Catalog Number	Maximum Fixt. wgt.	100 MPH	90 MPH	80 MPH	70 MPH
SNTS 104-11	400	16.7	20.5	26.1	33.4
SNTS 124-11	400	12.2	16.1	20.4	25.8
SNTS 144-11	400	9.9	12.8	16.1	20.2
SNTS 154-11	400	8.9	11.4	14.4	17.9
SNTS 164-11	400	7.9	10.1	12.8	15.9
SNTS 184-11	400	6.2	8.2	10.1	13.8
SNTS 204-11	400	4.8	6.2	7.9	11.6
SNTS 204-7	450	8.8	11.3	14.0	17.4
SNTS 254-11	350	1.6	3.2	5.5	8.8
SNTS 254-7	450	4.3	6.1	9.1	11.2

All above design calculations are based on sustained wind forces plus additional 1.3 wind gust

(Example: Pole rated at 80 MPH withstands 104 MPH gusts)



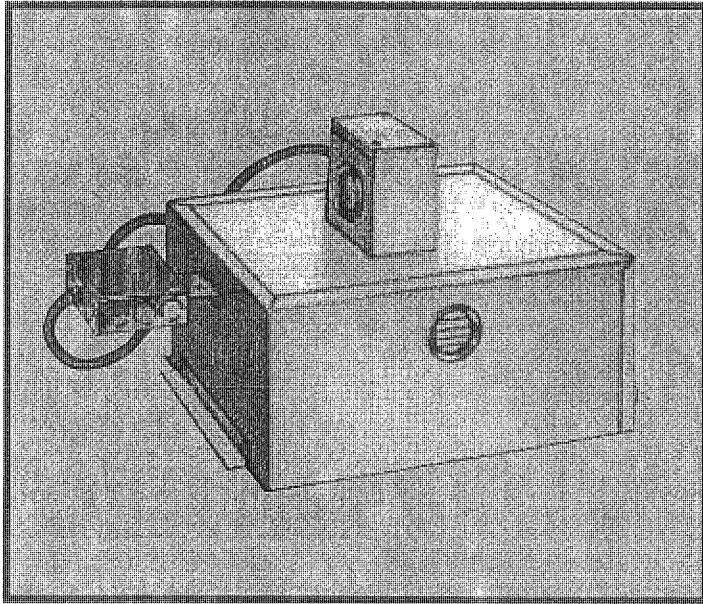
## ORDERING INFORMATION

MODEL NO. : SNTS	POLES	MOUNTING	FINISH	OPTIONS																																												
S N T S	<table border="1"> <thead> <tr> <th>POLE HEIGHT</th> <th>WALL THICKNESS</th> <th>BOLT CIRCLE</th> <th>ANCHORAGE</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> 104-11</td> <td>10'</td> <td>11</td> <td>9" 3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 124-11</td> <td>12'</td> <td>11</td> <td>9" 3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 144-11</td> <td>14'</td> <td>11</td> <td>9" 3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 154-11</td> <td>15'</td> <td>11</td> <td>9" 3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 164-11</td> <td>16'</td> <td>11</td> <td>9" 3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 184-11</td> <td>18'</td> <td>11</td> <td>9" 3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 204-11</td> <td>20'</td> <td>11</td> <td>10" 3/4"X24"X3"</td> </tr> <tr> <td><input type="checkbox"/> 204-7</td> <td>20'</td> <td>7</td> <td>11" 3/4"X30"X3"</td> </tr> <tr> <td><input type="checkbox"/> 254-11</td> <td>25'</td> <td>11</td> <td>11" 3/4"X24"X3"</td> </tr> <tr> <td><input type="checkbox"/> 254-7</td> <td>25'</td> <td>7</td> <td>11" 3/4"X30"X3"</td> </tr> </tbody> </table>	POLE HEIGHT	WALL THICKNESS	BOLT CIRCLE	ANCHORAGE	<input type="checkbox"/> 104-11	10'	11	9" 3/4"X18"X3"	<input type="checkbox"/> 124-11	12'	11	9" 3/4"X18"X3"	<input type="checkbox"/> 144-11	14'	11	9" 3/4"X18"X3"	<input type="checkbox"/> 154-11	15'	11	9" 3/4"X18"X3"	<input type="checkbox"/> 164-11	16'	11	9" 3/4"X18"X3"	<input type="checkbox"/> 184-11	18'	11	9" 3/4"X18"X3"	<input type="checkbox"/> 204-11	20'	11	10" 3/4"X24"X3"	<input type="checkbox"/> 204-7	20'	7	11" 3/4"X30"X3"	<input type="checkbox"/> 254-11	25'	11	11" 3/4"X24"X3"	<input type="checkbox"/> 254-7	25'	7	11" 3/4"X30"X3"	<input type="checkbox"/> 2 3/8"X4" TENON PT23 <input type="checkbox"/> 2 7/8"X4" TENON PT27 <input type="checkbox"/> OTHER TENON MT _____  <b>DRILL MOUNT</b> <input type="checkbox"/> 1..... <input type="checkbox"/> 2-180..... <input type="checkbox"/> 2-90..... <input type="checkbox"/> 3-90..... <input type="checkbox"/> 4-90..... <input type="checkbox"/> 3-120.....  3-120 REQUIRES PT27 AND T3120 ADAPTER	<input type="checkbox"/> DARK BRONZE DBM <input type="checkbox"/> MEDIUM BRONZE MBM <input type="checkbox"/> BLACK BKM <input type="checkbox"/> WHITE WTM <input type="checkbox"/> SILVER SLM  <b>OPTION:</b> <input type="checkbox"/> PRIME PAINT PP <input type="checkbox"/> GALVANIZED GLV <input type="checkbox"/> THERMOSET POLYESTER POWDER PDR  SEE PAGE 3 FOR ADDITIONAL COLORS	<input type="checkbox"/> DUPLEX RECEPTACLE DUP <input type="checkbox"/> GFI RECEPTACLE GFI <input type="checkbox"/> 3 WAY ADAPTER T3120  <input type="checkbox"/> 1/2" COUPLING CPLN1/2 <input type="checkbox"/> 3/4" COUPLING CPLN3/4 <input type="checkbox"/> 2" COUPLING CPLN2 (SPECIFY COUPLING LOCATION)  SEE ACCESSORIES SECTION FOR OTHER OPTIONS.
	POLE HEIGHT	WALL THICKNESS	BOLT CIRCLE	ANCHORAGE																																												
	<input type="checkbox"/> 104-11	10'	11	9" 3/4"X18"X3"																																												
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	<input type="checkbox"/> 204-7	20'	7	11" 3/4"X30"X3"																																												
<input type="checkbox"/> 254-11	25'	11	11" 3/4"X24"X3"																																													
<input type="checkbox"/> 254-7	25'	7	11" 3/4"X30"X3"																																													



14.4

# 851/852/8614 SERIES



The 851/852 Series is a universal mount recessed fixture that requires no framing and is perfect for new construction or retrofit in any type of ceiling material. It features a removable top for easy installation and maintenance, and is available with a vented cover-up to hide previously existing fixture openings in retrofit applications. Aluminum housing and door frame provide specification grade quality and longevity in a competitively priced and in-stock luminaire.

The 8614 Series offers the same features in a smaller housing for narrow soffits. Like its 851 Series counterpart, it requires no framing and is perfect for new construction or retrofit in any type of ceiling material.

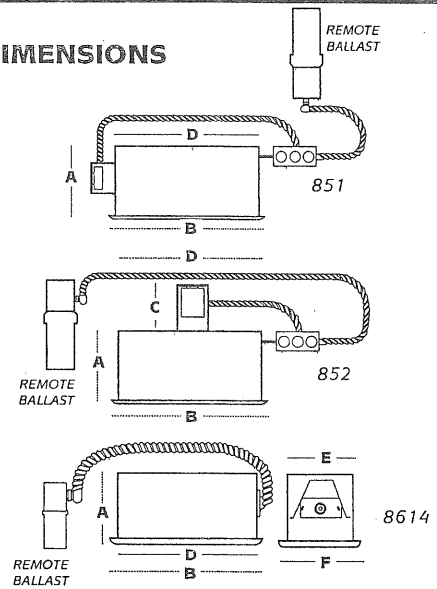


## Fixture Specifications

### FEATURES

- One-piece, corrosion resistant aluminum door frame with retainer cable
- Weatherproof powder-coat finish
- Aluminum housing
- UL listed, suitable for damp locations
- Available vented cover-up
- Mounting hardware included
- Vertical lamp has 60% longer lamp life (852 Series)
- Lamp included
- Pre-wired junction box (14GA, CRS)
- Removable outlet box and socket assembly (852 Series)

### DIMENSIONS



	A	B	C	D	E	F
<b>851</b>	6.0"	14.5"	-	13.0"	-	-
<b>852</b>	6.0"	14.5"	4.0"	13.0"	-	-
<b>8614</b>	6.0"	14.5"	-	13.0"	6.5"	8.0"

### ORDERING INFORMATION

#### SAMPLE CATALOG NUMBER

**8XXX XX XXXXXX XX XX XX XXX**

Series Mounting Wattage/Source Lens Application Finish Voltage

SERIES	
<b>852</b>	Vertical Lamp
<b>851</b>	Horizontal Lamp
<b>8614</b>	Horizontal Lamp

MOUNTING	
<b>WW</b>	Wall Wash
<b>DL</b>	Downlight
<b>SM</b>	Surface Mount (not avail. for 8614)

WATTAGE/SOURCE <sup>1</sup>	
<b>100MH</b>	100 watt metal halide
<b>175MH</b>	175 watt metal halide
<b>250MH</b>	250 watt metal halide (surface only)
<b>100HPS</b>	100 watt high pressure sodium
<b>150HPS</b>	150 watt high pressure sodium
<b>250HPS</b>	250 watt high pressure sodium (surface only)

LENS	
<b>FP</b>	Flat temp. Prismatic
<b>DO</b>	Drop Opal (851/852 only)

APPLICATION	
<b>OW</b>	Plywood, Drywall, Plaster
<b>AL</b>	Aluminum

FINISH <sup>2</sup>	
<b>WH</b>	White
<b>AD</b>	Almond
<b>DB</b>	Dark Bronze

VOLTAGE	
<b>120</b>	120 Volt
<b>277</b>	277 Volt

<sup>1</sup> Consult factory for other lamp wattage/source options.  
<sup>2</sup> Consult factory for other finishes.



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**DESCRIPTION**

The STN Series is a functional and multi-purpose medium duty strip family that incorporates premium performance and construction durability. The performance and application versatility of this series can be increased by incorporating symmetrical or asymmetrical reflectors. The STN Series can be installed using various mounting methods and numerous options and accessories are available.

**APPLICATION**

The STN Series can be the illumination solution in commercial, industrial, retail and residential applications. Fixtures can be used in storage/utility areas, coves, display cases, shops, task and general area lighting.

**SPECIFICATION FEATURES**

**A...Construction**

Channel die formed code gauge prime cold rolled steel. Deep V-Groove for tong hanger. Numerous KO's for ease of installation. Die formed channel connector, sleeve type, assures straight rows and continuity of ground through set screws. Lampholder mounting brackets easily installed with snap-in action. Channel/wireway cover secured with quarter-turn fasteners.

**B...Electrical\***

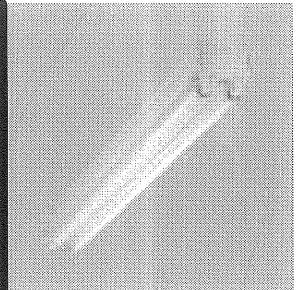
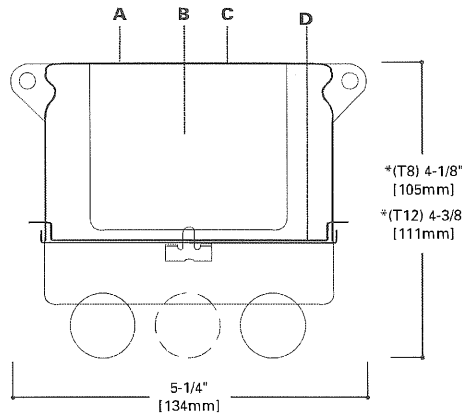
Ballasts are CBM/ETL Class "P" and are positively secured by mounting bolts. Spring loaded lampholders. UL/CUL listed. Suitable for damp locations.

**C...Finish**

Multistage, iron phosphate pre-treatment ensures maximum bonding and rust inhibitor. Lighting grade, baked white enamel finish.

**D...Channel/Wireway Cover**

Die formed heavy gauge steel. Tight fit for ease of maintenance. Easily removed without use of tools.

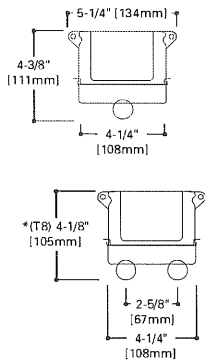


**STN148HO**  
172HO, 196HO  
248HO, 272HO  
296HO, 148T8HO  
248T8HO, 172T8HO  
272T8HO  
296T8HO

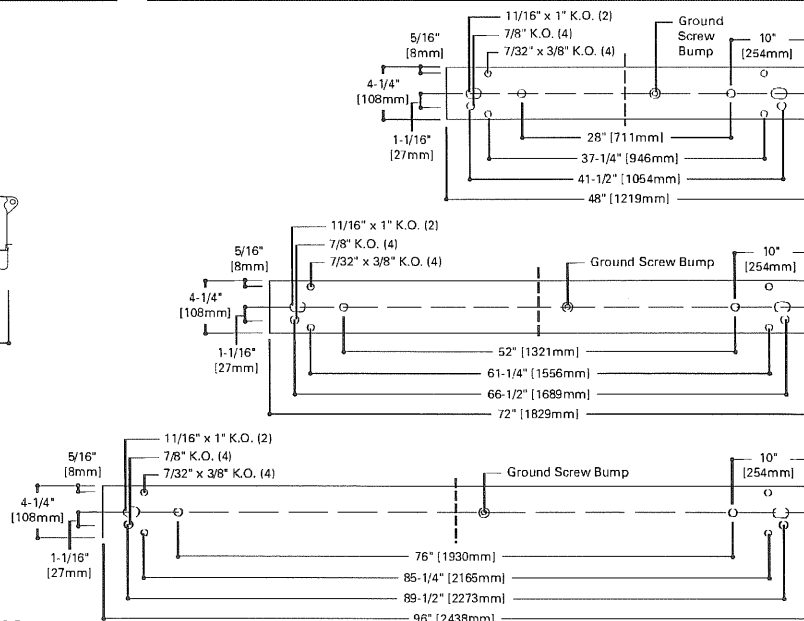
- 4', 6' OR 8' STRIP  
1 LAMP
- 4', 6' OR 8' STRIP  
2 LAMP
- HIGH OUTPUT  
800 MA

Medium-Duty Striplight

**LAMP CONFIGURATIONS**



**MOUNTING DATA**



**ENERGY DATA**

Input Watts:  
**EB Ballast & STD Lamps**  
248T8HO (99), 272T8HO (147)  
272HO (169), 296HO (208)  
296T8HO (160)

**ES Ballast & STD Lamps**  
272HO (200), 296HO (237)

**STD Ballast & STD Lamps**  
148HO (82)  
172HO (120), 196HO (145)  
248HO (145), 272HO (220)  
296HO (257)

Luminaire Efficacy Rating  
**LER = FS-60**  
Catalog Number: STN-296HO

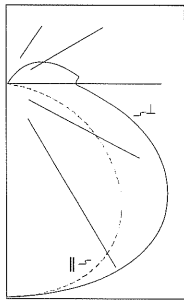
Yearly Cost of 1000 lumens,  
3000 hrs at .08 KWH = \$4.00

\*Reference the lamp/ballast data in the Technical Section for specific lamp/ballast requirements.



ADF020717  
(Supersedes ADF991971)

PHOTOMETRICS



**STN-296HO**  
Standard Ballast  
F96T12/CW/HO/WM  
Lamps  
8000 Lumens

Spacing criterion:  
(H) 1.3 x mounting  
height, (L) 1.6 x  
mounting height  
Efficiency 88.6%  
Test Report:  
STN296HO.IES

LER = FS-60

Yearly Cost of 1000  
lumens, 3000 hrs at  
.08 KWH = \$4.00

Coefficients of Utilization

rc	Effective floor cavity reflectance																	
	80%			70%			50%			30%			10%			0%		
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
<b>RCR</b>																		
0	101	101	101	101	97	97	97	97	89	89	89	82	82	82	75	75	75	72
1	90	85	80	76	86	81	77	73	74	71	69	68	65	63	62	60	58	55
2	81	72	65	59	77	69	63	57	63	58	54	58	54	50	53	49	46	43
3	73	63	54	48	69	60	52	47	55	49	44	50	45	41	46	42	38	35
4	66	55	46	40	63	52	45	39	48	41	36	44	38	34	40	36	32	29
5	61	48	40	34	57	46	39	33	43	36	31	39	33	29	36	31	27	25
6	56	43	35	29	53	41	34	28	38	31	27	35	29	25	32	27	23	21
7	51	39	31	25	49	37	30	24	34	28	23	32	26	22	29	24	21	18
8	48	35	27	22	45	34	27	22	31	25	20	29	23	19	27	22	18	16
9	44	32	25	20	42	31	24	19	29	23	18	27	21	17	25	20	16	14
10	41	30	22	18	40	28	22	17	26	20	16	25	19	15	23	18	15	13

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	2236	14.0	15.8
0-40	3820	23.9	27.0
0-60	7503	46.9	53.0
0-90	11508	71.9	81.2
90-180	2662	16.6	18.8
0-180	14169	88.6	100.0

Candela

Angle	Along H	45°	Across L
0	2702	2702	2702
10	2674	2682	2769
20	2532	2667	2831
30	2300	2603	2859
40	1991	2486	2825
50	1606	2283	2701
60	1159	2005	2436
70	674	1622	2023
80	228	1154	1564
90	0	749	1155
100	0	757	1221
110	0	628	1047
120	0	489	858
130	0	362	650
140	0	213	453
150	0	103	260
160	0	20	94
170	0	0	0
180	0	0	0

ORDERING INFORMATION

SAMPLE NUMBER: STN-296HO-120V-EB81-U

<p>Blank=4' Length 8T=8' Length</p> <p>STN=Series</p>	<p>Number of Lamps 1 or 2 lamps (Not Included)</p> <p>Wattage (Length) 48HO=60W T12 (48") HO 48T8HO=44W T8 (48") HO 72HO=85W T12 (72") HO 72T8HO=65W T8 (72") HO 96=59W T8 (96") SL 96HO=95/110W T12 (96") HO 96T8HO=86W T8 (96") HO</p> <p>Voltage <sup>(1)</sup> 120V=120 Volt 277V=277 Volt 347V=347 Volt UNV=Universal Voltage 120-277<sup>(2)</sup></p> <p>Options GL=Single Element Fuse GM=Double Element Fuse Emergency=EM Installed</p>	<p>Ballast Type <sup>(1)</sup> LE3=T12 Magnetic Energy Saving LEOC8=T8 Magnetic Energy Saving EB8 =T8 Electronic Instant Start. Total Harmonic Distortion &lt; 20% No. of Ballast 1, 2 or 3 EB8_/PLUS=T8 Electronic Instant Start. High Ballast Factor &gt;1.13. Total Harmonic Distortion &lt; 20% No. of Ballast 1, 2 or 3 ER8 =T8 Electronic Program Rapid Start. Total Harmonic Distortion &lt; 10% No. of Ballast 1, 2 or 3 TEB8 =T8 Electronic Instant Start. Total Harmonic Distortion &lt; 10% No. of Ballast 1, 2 or 3 EB2 =T12 Electronic Rapid Start. No. of Ballast 1 or 2 DLS=Digital Lighting System Dimming</p>	<p>Options RIF1=Radio Interference Suppressor 6-3/18 SJT-C&amp;P-515P=Cord &amp; Plug (120V) 6-3/18 SJT-C&amp;P-L715P= Cord &amp; Plug (277V) PI/CP=Plug-In Option L715P=Cord &amp; Plug (277V) TILW=Tandem In-Line Wiring Option (Consult TILW Option Catalog Page) (See options &amp; accessories)</p>	<p>Packaging U=Unit Pack 4B=4 Bulk</p>
---	--	--	--	--

NOTES: <sup>(1)</sup>Products also available in non-US voltages and frequencies for international markets. <sup>(2)</sup>Not available when specifying emergencies, voltage must be specific. <sup>(3)</sup>For SilverLining reflector add SR in Catalog Number. Example: STN/SS-SR-SYM-6

Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.

ACCESSORIES

- (Order Separately)
- A1B=Spacer
  - GRP-STN=Gripper Hanger (Use 2 Per Fixture)
  - AYC=Chain/Set=36" Chain Hanger (Use 1 Set Per Fixture)
  - SCF=Fixed Stem Set (Specify Length)
  - SCS=Swivel Stem Set (Specify Length)
  - ATG-4=Tong Hanger (Use 2 Per Fixture)
  - DI2=Long Connector
  - STN/SS-ASY-3<sup>(3)</sup>=3" Asymmetric Reflector (Specify 2', 3', or 4')
  - STN/SS-ASY-REV-3<sup>(3)</sup>=3" Asymmetric Reverse Reflector (Specify 2', 3', or 4')
  - STN/SS-SYM-6<sup>(3)</sup>=6" Symmetric Reflector (Specify 2', 3', or 4')
  - STN/SS-ASY-6<sup>(3)</sup>=6" Asymmetric Reflector (Specify 2', 3', or 4')
  - IC-4FT-REFL<sup>(3)</sup>=12" Symmetric Reflector
  - WG/SS-4FT=Wire Guard

(Additional Accessories Available. See Options and Accessories Section.)

SHIPPING INFORMATION

Catalog No.	Wt.
STN-148HO <sup>1</sup>	15 LBS.
STN-172HO <sup>1</sup>	21 LBS.
STN-196HO <sup>1</sup>	24 LBS.
STN-248HO <sup>1</sup>	15 LBS.
STN-272HO <sup>1</sup>	21 LBS.
STN-296HO	24 LBS.

1f. 7



## FEATURES & SPECIFICATIONS

**INTENDED USE** — For building- and wall-mounted applications.

**CONSTRUCTION** — Rugged, die-cast, single-piece aluminum housing. Die-cast door frame has a 1/8" thick tempered glass lens. Door frame is fully gasketed with one-piece solid silicone.

**FINISH** — Standard finish is new textured dark bronze (DBBT) corrosion-resistant polyester powder finish, with other architectural colors available.

**OPTICAL SYSTEM** — Segmented reflectors for superior uniformity and control. Reflectors are interchangeable. Three full cutoff downlight distributions available: FT (forward throw), MD (medium throw) and WT (wide throw). Six uplight distributions available: FTU (forward throw, 10% up), MDU (medium throw, 10% up), WTU (wide throw, 10% up) and MDU5 (up/down medium throw, 50% up 50% down), WTUP (pencil beam) and WTUC (column beam).

**ELECTRICAL SYSTEM** — 50W-150W utilizes a high reactance, high power factor ballast. 35S utilizes a reactance high power factor ballast. 175W utilizes a constant-wattage auto transformer ballast. Quick disconnect plug easily disconnects reflector from ballast. Ballasts are copper-wound and 100% factory-tested. Porcelain, medium-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 660W, 600V 4KV pulse rated.

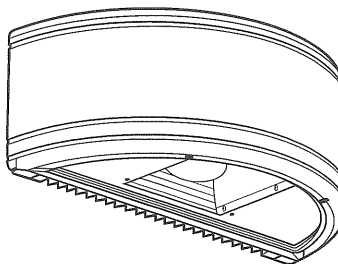
**INSTALLATION** — Universal mounting mechanism with integral mounting support allows fixture to hinge down. Bubble level provides correct alignment with every installation.

**LISTING** — UL Listed (standard). CSA Certified (see Options). Suitable for wet locations (damp location listed in lens-up orientation). WLU option offers wet location listing in up orientation (see Options). IP65 rated.

Catalog Number	
Notes	Type

### Decorative Wall-Mounted Lighting

# WSR



**METAL HALIDE**  
50W-175W  
**HIGH PRESSURE SODIUM**  
35W-150W

#### Specifications

Length: 18.0 (45.7)  
Depth: 9.0 (22.8)  
Overall Height: 7.25 (18.4)  
Max. Weight: 30 lbs (13.6 kg)

All dimensions are inches (centimeters) unless otherwise specified.

## ORDERING INFORMATION

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line.

Example: **WSR 175M FT 120 SF LPI DNAT**

WSR										
Series	Wattage/source	Distribution		Voltage	Options					
<b>WSR</b>	<u>High pressure sodium</u>	<u>Downlight distributions</u>		<b>120</b>	<u>Shipped installed in fixture</u>		<u>Shipped separately</u>			
	<b>35S<sup>1</sup></b>	<b>FT</b>	Forward throw	<b>208<sup>5</sup></b>	<b>SF</b>	Single fuse (120, 277, 347V, n/a TB)	<b>WSBBW</b>	Surface-mounted back box		
	<b>50S</b>	<b>MD</b>	Medium throw (coated lamp std.)	<b>240<sup>5</sup></b>	<b>DF</b>	Double fuse (208, 240V, n/a TB or TBV)	<b>UT5</b>	Uptilt 5 degrees		
	<b>70S</b>	<b>WT</b>	Wide throw	<b>277</b>	<b>EC</b>	Emergency circuit (25W max 120V, incandescent lamp included) <sup>8</sup>	<b>WSRWG</b>	Wire guard <sup>2</sup>		
	<b>100S</b>	<u>Up/down distributions</u>		<b>347</b>	<b>DC12</b>	Emergency circuit 12 volt (35W lamp included std.) <sup>9</sup>	<b>WSRVG</b>	Vandal guard <sup>2</sup>		
	<b>150S</b>	<b>FTU</b>	Forward throw with 10% uplight	<b>TB<sup>6</sup></b>	<b>2DC12</b>	Emergency circuit 12 volt (2, 35W lamps included) <sup>9</sup>	<u>Architectural colors<sup>13</sup></u>			
	<u>Metal halide</u>	<b>MDU</b>	Medium throw with 10% uplight (coated lamp std.)	<b>TBV<sup>7</sup></b>	<b>DC2012</b>	Emergency circuit 12 volt (20W lamp included) <sup>9</sup>	<u>Standard textured colors</u>			
	<b>50M</b>	<b>WTU</b>	Wide throw with 10% uplight	<b>Uplight Color Options<sup>4</sup></b>	<b>DC2012</b>	Emergency circuit 12 volt (2, 20W lamps included) <sup>9</sup>	<b>DBBT</b>	Dark bronze (std.)		
	<b>70M</b>	<b>MDU5</b>	Up/down medium throw with 50% uplight & 50% downlight (coated lamp std.)	<b>BLUE</b>	Blue	<b>QRS</b>	Quartz restrike system (100W max 120V, quartz lamp not included) <sup>10</sup>	<b>DSST</b>	Sandstone	
	<b>100M</b>	<b>WTUP</b>	Pencil beam <sup>2,3</sup>	<b>RED</b>	Red	<b>CR</b>	Enhanced corrosion resistance	<b>DNAT</b>	Natural aluminum	
	<b>150M</b>	<b>WTUC</b>	Column beam <sup>2,3</sup>	<b>YEL</b>	Yellow	<b>CRT</b>	Non-stick protective coating (black only)	<b>DWHG</b>	White	
	<b>175M</b>					<b>PE</b>	Photoelectric cell-button type (n/a TB/TBV) <sup>2</sup>	<b>DBLB</b>	Black	
						<b>WLU</b>	Wet location door for up orientation	<u>Optional textured colors</u>		
					<b>IBS</b>	Internal backlight shield <sup>11</sup>	<b>DBNH</b>	Bronze		
					<b>DFL</b>	Diffusing lens	<b>DSPD</b>	Dark gray		
					<b>LPI</b>	Lamp included (std.)	<b>DSPJ</b>	Light gray		
					<b>L/LP</b>	Less lamp	<b>DSPE</b>	Green		
					<b>CSA</b>	CSA Certified	<b>DSPG</b>	Dark red		
					<b>UCS</b>	Uplight component shield <sup>12</sup>	<b>DSPF</b>	Rust		
							<b>DSPH</b>	Red		
							<u>Striping</u>			
							<b>SDBB</b>	Dark bronze		
							<b>SDWH</b>	White		
							<b>SDBL</b>	Black		
							<b>SDNA</b>	Natural aluminum		
							<b>SDTG</b>	Tennis green		
							<b>SDBR</b>	Bright red		
							<b>SDBUA</b>	Dark blue		
							<b>SDGYM</b>	Gray		
							<b>SDYLB</b>	Yellow		

**NOTES:**

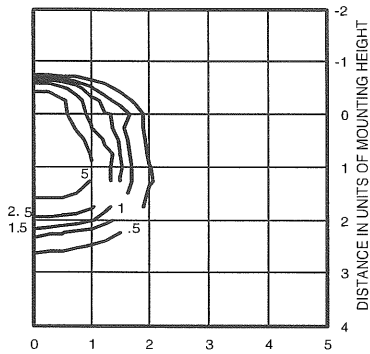
- 120V only.
- Must be ordered with fixture; cannot be field installed.
- Available with WT (wide throw) distribution only.
- Available with WTUC and WTUP only.
- Consult factory for availability in Canada.
- Optional multi-tap ballast (120, 208, 240, 277V); (120, 277, 347V in Canada).
- Optional penta-tap ballast (120, 208, 240, 277, 480V; not available in Canada). 175W metal halide only.
- Not available with QRS.
- Not available with SF, DF or QRS.
- Not available with EC.
- Not available with medium throw (MD) distribution.
- Used with FTU and WTU distributions to conceal internal electrical components.
- Additional architectural colors available; see www.lithonia.com for more information.



# WSR Metal Halide, High Pressure Sodium Building Mounted

**WSR 175M FT** TEST NO: LTL11336

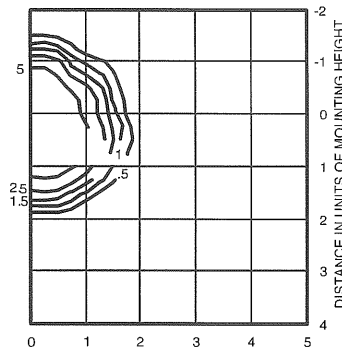
ISOILLUMINANCE PLOT (Footcandle)



175W metal halide lamp, horizontal lamp orientation  
Footcandle values based on 12' mounting height, 12800 rated lumens.  
Luminaire Efficiency: 52.9%

**WSR 175M MD** TEST NO: LTL11335

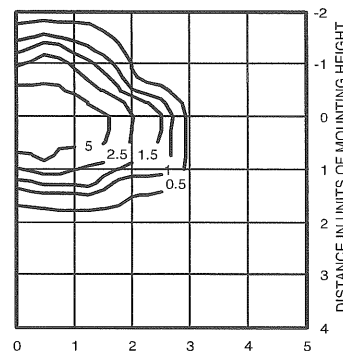
ISOILLUMINANCE PLOT (Footcandle)



175W metal halide lamp, horizontal lamp orientation  
Footcandle values based on 12' mounting height, 11080 rated lumens.  
Luminaire Efficiency: 60.2%

**WSR 175M WT** TEST NO: LTL11337

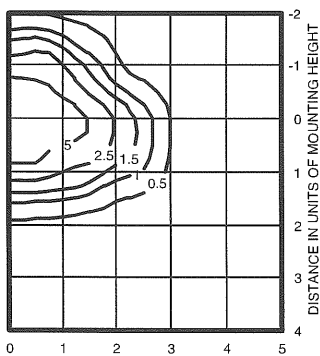
ISOILLUMINANCE PLOT (Footcandle)



175W metal halide lamp, horizontal lamp orientation  
Footcandle values based on 12' mounting height, 12800 rated lumens.  
Luminaire Efficiency: 62.4%

**WSR 175M WTU** TEST NO: LTL11312

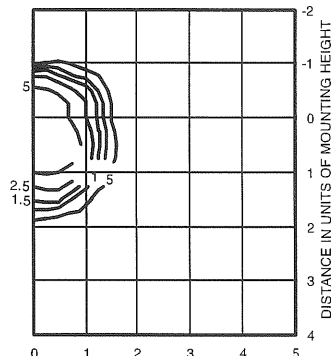
ISOILLUMINANCE PLOT (Footcandle)



175W metal halide lamp, horizontal lamp orientation  
Footcandle values based on 12' mounting height, 12800 rated lumens.  
Luminaire Efficiency: 69.7%

**WSR 175M MDU5** TEST NO: LTL11310

ISOILLUMINANCE PLOT (Footcandle)



175W metal halide lamp, horizontal lamp orientation  
Footcandle values based on 12' mounting height, 11080 rated lumens.  
Luminaire Efficiency: 77.1%

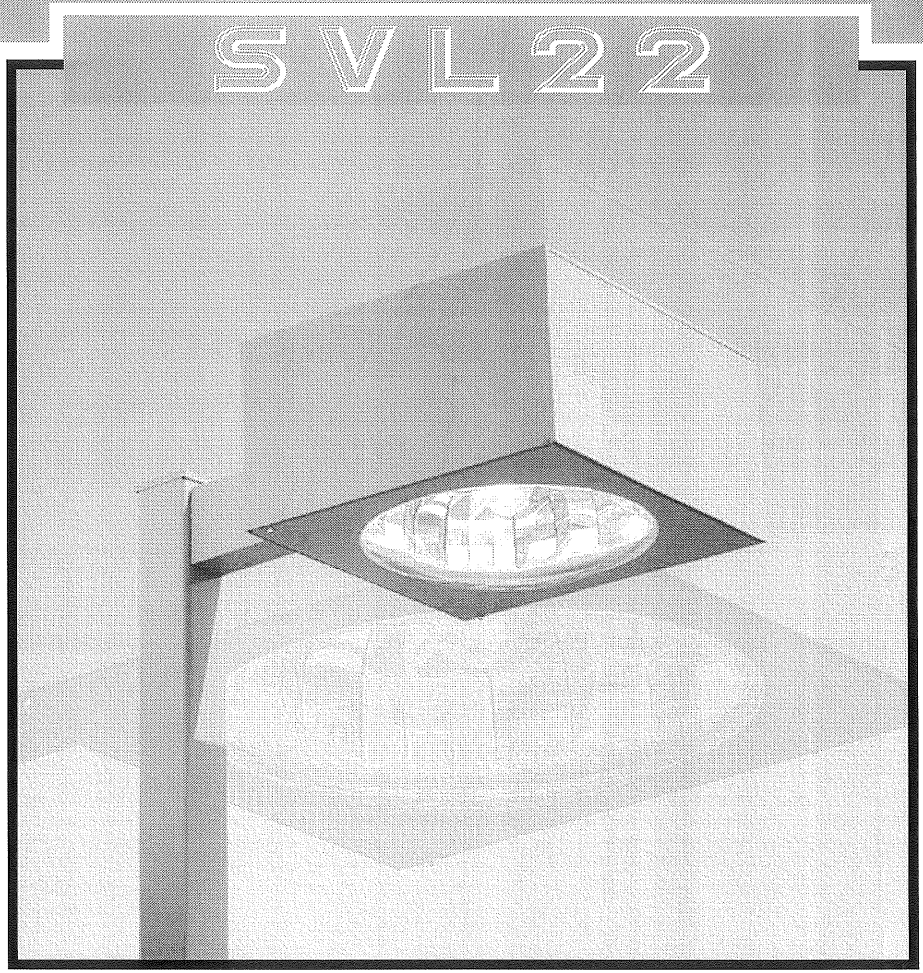
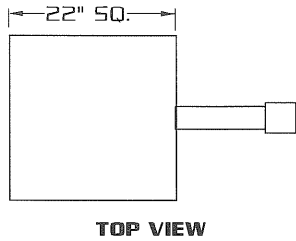
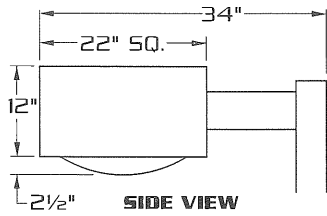
Lamp	Initial Lumens	Mounting Height			
		10'	12'	14'	16'
<b>Metal Halide</b>					
50W MH	3,900	0.43	0.30	0.22	0.17
70W MH	5,500	0.62	0.43	0.31	0.24
100W MH	8,500	0.95	0.66	0.48	0.37
150W MH	12,500	1.41	0.98	0.72	0.55
175W MH	12,800	1.44	1.0	0.73	0.56
<b>High Pressure Sodium</b>					
35W HPS	2,250	0.26	0.18	0.13	0.10
50W HPS	4,000	0.45	0.31	0.23	0.17
70W HPS	6,400	0.72	0.50	0.37	0.28
100W HPS	9,500	1.07	0.74	0.54	0.41
150W HPS	16,000	1.80	1.25	0.91	0.70



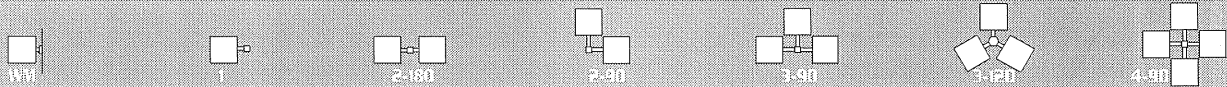
**Lithonia Lighting**  
Outdoor Lighting  
One Lithonia Way, Conyers, GA 30012  
Phone: 770-922-9000 Fax: 770-918-1209  
www.lithonia.com

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(400 WATT MAX.)

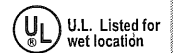


E.P.A. = 2.83



### SPECIFICATIONS

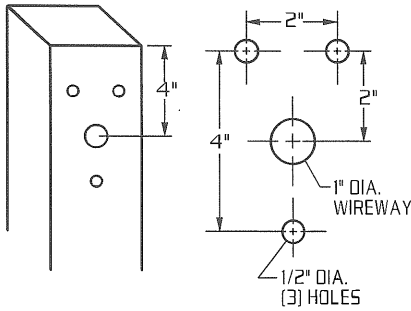
- HOUSING:** ONE PIECE DIE FORMED ALUMINUM CONSTRUCTION WITH SEPARATE BALLAST COMPARTMENT.
- LENS ASSY:** ONE PIECE HINGED HEAVY GAUGE DIE FORMED ALUMINUM DOOR FRAME SURROUNDS 3/16" CLEAR CONVEX GLASS LENS. GLASS IS SEALED TO DOOR WITH HIGH TEMPERATURE SILICONE SEAL. TWO CAPTIVE THUMB SCREWS DISENGAGE LENS ASSEMBLY FROM HOUSING WITHOUT THE USE OF TOOLS.
- OPTICS:** COMPUTER DESIGNED ONE PIECE SEGMENTED SPECULAR REFLECTOR COMBINES WITH CLEAR CONVEX LENS TO PRODUCE A HIGHLY EFFICIENT WIDE SYMMETRIC LIGHT DISTRIBUTION WITH OUTSTANDING UNIFORMITY.
- GASKETING:** CLOSED CELL EPDM GASKETING COMPRESSED BETWEEN DOOR AND HOUSING SEALS OPTICAL CHAMBER.
- LAMP HOLDER:** MOGUL BASE PORCELAIN.
- LAMP:** (BY OTHERS)
- BALLAST:** H.P.F./C.W.A. AUTOTRANSFORMER, -20° STARTING TEMPERATURE.
- ARM:** 3"x5"x12" LONG HEAVY WALL EXTRUDED ALUMINUM. ARM IS SECURED TO HOUSING AND TO POLE WITH STAINLESS STEEL ROOFS.
- FINISH:** POLYESTER POWDER COAT-STATE OF THE ART 20 PSI PRESSURE POWER WASH AT 140° TEMPERATURE INCORPORATES FOUR STEP IRON PHOSPHATE PROCESS TO CLEANSE AND PRETREAT THE METAL SURFACE FOR MAXIMUM PAINT ADHESION. ELECTROSTATICALLY APPLIED TEXTURED POLYESTER POWDER TOP COAT IS BAKED AT 400° TEMPERATURE FOR MAXIMUM HARDNESS AND EXTERIOR DURABILITY.



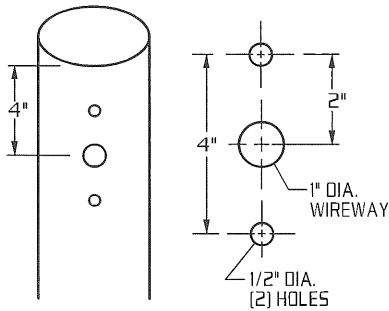
7900 CLYDEBURN AVENUE, SUN VALLEY, CA 91322  
 (818) 707-3001 (824) 275-1120  
 FAX NO. (818) 707-4893  
 www.usalgtg.com

1f.10

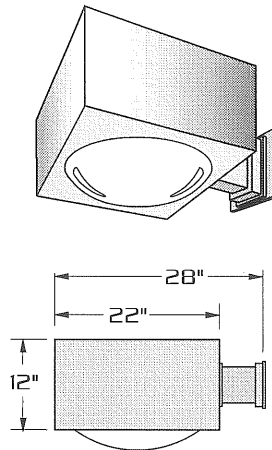
**TYPICAL SQUARE POLE TEMPLATE**



**TYPICAL ROUND POLE TEMPLATE**

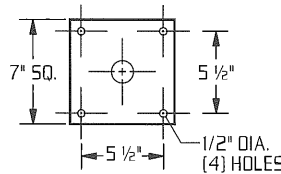


**WALL MOUNT**

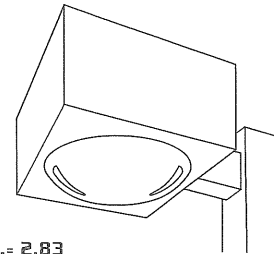


EXTRUDED ALUMINUM ARM AND CAST ALUMINUM WALL BRACKET ASSEMBLY PROVIDED WITH BUILT IN GASKETED WIRE ACCESS FOR FIXTURE/SUPPLY WIRE CONNECTION.

**WALL PLATE**



**LAMP SIZE:  
250 - 400 WATT**



E.P.A. = 2.83

**WIDE SYMMETRIC BEAM PATTERN.**

**VERTICAL LAMP.**

**COMPUTER DESIGNED SEGMENTED OPTICS.**

**THREE OPTICAL CONFIGURATIONS.**

**ORDERING INFORMATION**

MODEL NO. : SVL22	OPTICS	WATTAGE TYPE VOLTAGE	MOUNTING	FINISH	OPTIONS
<b>MODEL NO. :</b> <b>SVL22</b>	<b>OPTICS</b>	<b>LAMP</b>	<b>MOUNTING</b>	<b>FINISH</b>	<b>OPTIONS</b>
<b>S V L 2 2</b>	<input type="checkbox"/> ASYMMETRIC ASY...	<input type="checkbox"/> 400 <input type="checkbox"/> HPS <input type="checkbox"/> 120	<input type="checkbox"/> 1 .....	<input type="checkbox"/> DARK BRONZE DBM	<input type="checkbox"/> CLEAR POLYCARBONATE DIFFUSER ..... LEX
	<input type="checkbox"/> TYPE IV (FORWARD THROW) IV..... (HORIZONTAL LAMP)	<input type="checkbox"/> 250 <input type="checkbox"/> MH <input type="checkbox"/> 208	<input type="checkbox"/> STREET LIGHTING ARM MOUNT <input type="checkbox"/> ST23..... (TO FIT OVER 2 3/8" O.D. ARM)	<input type="checkbox"/> MEDIUM BRONZE MBM	<input type="checkbox"/> HOUSE SIDE SHIELD ..... HS
	<input type="checkbox"/> TYPE V V-SQ...	<input type="checkbox"/> MV <input type="checkbox"/> 240	<input type="checkbox"/> ADJUSTABLE KNUCKLE <input type="checkbox"/> NKLE23..... (TO FIT OVER 2 3/8" O.D.)	<input type="checkbox"/> BLACK BKM	<input type="checkbox"/> PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) ..... PC+V
		<input type="checkbox"/> 480	<input type="checkbox"/> WALL MOUNT <input type="checkbox"/> WM.....	<input type="checkbox"/> WHITE WTM	<input type="checkbox"/> TWIST LOCK PHOTO CELL+VOLTAGE (EXAMPLE TPC120V) ..... TPC+V
		<input type="checkbox"/> MT	<input type="checkbox"/> NKLE27..... (TO FIT OVER 2 7/8" O.D.)	<input type="checkbox"/> SILVER SLM	<input type="checkbox"/> TWIST LOCK RECEPTACLE ONLY. .... TPR
			SEE ACCESSORIES SECTION FOR ST23 AND NKLE DETAILS	<b>OPTION:</b> <input type="checkbox"/> ANODIZED AZ ANODIZED HOUSING MUST HAVE PAINT FINISH COAT EXAMPLE: AZDBM	<input type="checkbox"/> SINGLE FUSE (120V. , 277V) ..... SF
				SEE PAGE 3 FOR ADDITIONAL COLORS	<input type="checkbox"/> DOUBLE FUSE (208V. , 240V) ..... DF

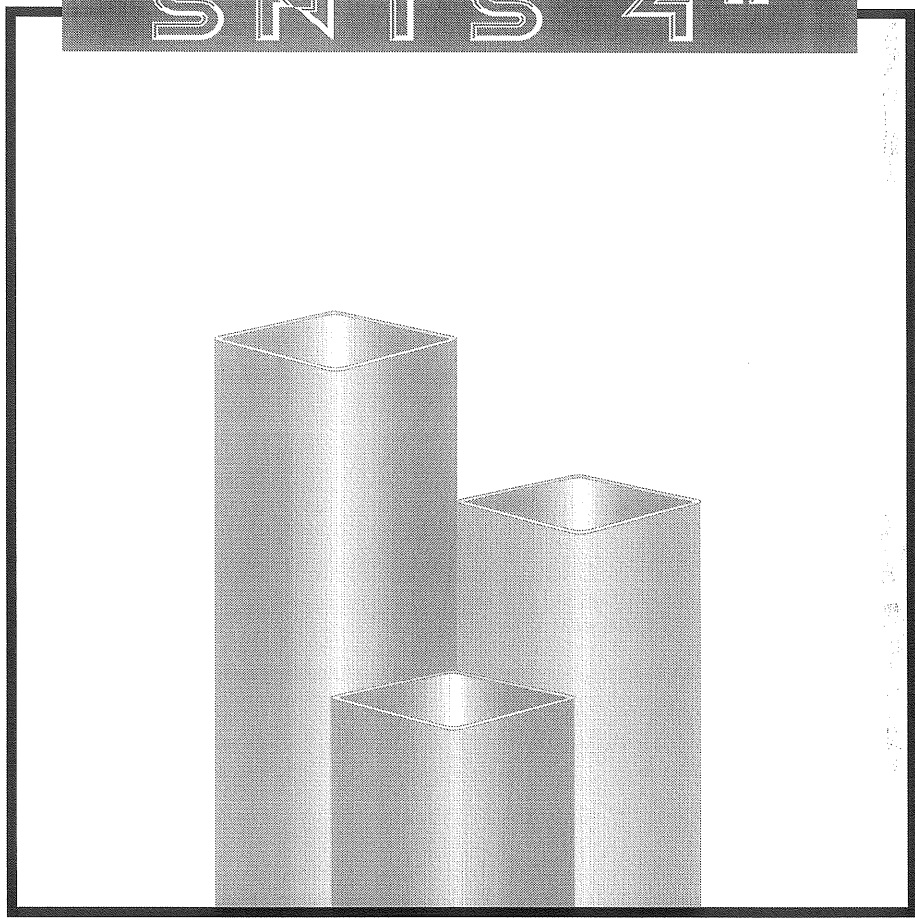
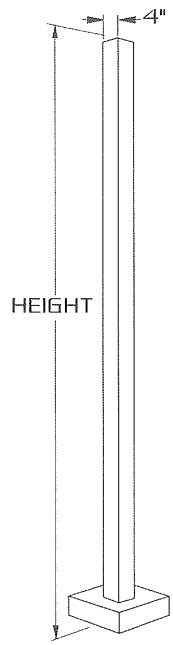


2800 CLYBOURN AVENUE, SAN VALLEY, CA 94532  
 (916) 787-2331 (916) 787-4541  
 FAX NO. (916) 787-6541  
 www.usalighting.com



1f.11

# SNTS 4"



## 4" SQUARE STRAIGHT STEEL

### SPECIFICATIONS

- SHAFT:** 4" SQUARE, FABRICATED FROM HIGH GRADE STRUCTURAL STEEL TUBE. SHAFT CONFORMS TO ASTM-A-501-68 SPECIFICATIONS. MEETS OR EXCEEDS MINIMUM YIELD STRENGTH OF 46,000 P.S.I. WALL THICKNESS 11 GA. (.120 WALL) OR 7 GA. (.180 WALL) AS SPECIFIED. REINFORCED HANO HOLE IS FURNISHED WITH COVER. SHAFT IS FURNISHED WITH GROUND LUG LOCATED INSIDE POLE ON WALL OPPOSITE HANO HOLE.
- BASE PLATE:** FABRICATED FROM STRUCTURAL QUALITY HOT ROLLED STEEL. MEETS OR EXCEEDS MINIMUM YIELD STRENGTH OF 36,000 P.S.I. BASE TELESCOPES AND IS CIRCUMFERENTIALLY WELDED TO POLE SHAFT. SLOTTED BOLT HOLES PROVIDE 1" FLEXIBILITY ON EITHER SIDE OF BOLT CIRCLE CENTERLINE.
- ANCHORAGE:** (4) ANCHOR BOLTS FABRICATED FROM HOT ROLLED STEEL BAR. MINIMUM YIELD STRENGTH OF 50,000 P.S.I. BOLTS HAVE "L" BEND ON ONE END AND ARE THREADED ON THE OTHER END. BOLTS ARE FULLY GALVANIZED AND ARE FURNISHED WITH TWO NUTS AND TWO WASHERS.
- BASE COVER:** FABRICATED FROM HEAVY GAUGE QUALITY CARBON STEEL. TWO PIECE COVER CONCEALS BASE.
- FINISH:** POLYESTER POWDER COAT. THE METAL SURFACE IS PRETREATED BY SAND BLAST PROCESS FOR MAXIMUM PAINT ADHESION. ELECTROSTATICALLY APPLIED POLYESTER POWDER TOPCOAT IS BAKED AT 400° TEMPERATURE FOR MAXIMUM HARNNESS AND EXTERIOR DURABILITY.



660 WEST AVENUE G. PALMDALE, CA. 93551  
 (661) 233-2000  
 FAX NO. (661) 233-2001  
 www.usaltg.com

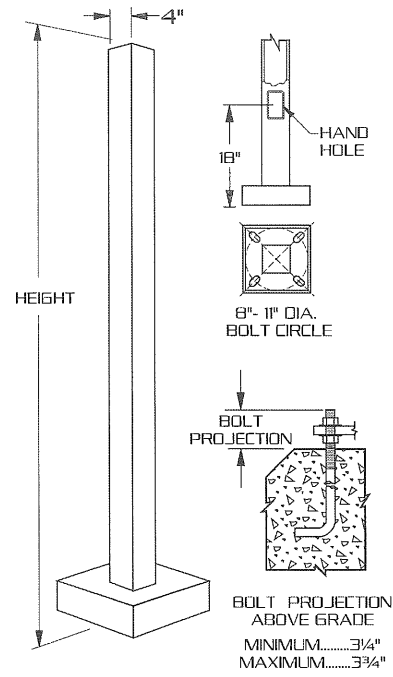
F1-1  
 REV. 5.02

# SNTS SERIES

## ENGINEERING DATA Maximum EPA - Square Feet

Catalog Number	Maximum Fixt. wgt.	100 MPH	90 MPH	80 MPH	70 MPH
SNTS 104-11	400	16.7	20.5	26.1	33.4
SNTS 124-11	400	12.2	16.1	20.4	25.8
SNTS 144-11	400	9.9	12.8	16.1	20.2
SNTS 154-11	400	8.9	11.4	14.4	17.9
SNTS 164-11	400	7.9	10.1	12.8	15.9
SNTS 184-11	400	6.2	8.2	10.1	13.8
SNTS 204-11	400	4.8	6.2	7.9	11.6
SNTS 204-7	450	8.8	11.3	14.0	17.4
SNTS 254-11	350	1.6	3.2	5.5	8.8
SNTS 254-7	450	4.3	6.1	9.1	11.2

All above design calculations are based on sustained wind forces plus additional 1.3 wind gust  
(Example: Pole rated at 80 MPH withstands 104 MPH gusts)



### ORDERING INFORMATION

MODEL NO. : SNTS	POLES	MOUNTING	FINISH	OPTIONS																																												
<b>S N T S</b>	<table border="1"> <thead> <tr> <th>POLE HEIGHT</th> <th>WALL THICKNESS</th> <th>BOLT CIRCLE</th> <th>ANCHORAGE</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> 104-11</td> <td>10'</td> <td>11</td> <td>3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 124-11</td> <td>12'</td> <td>11</td> <td>3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 144-11</td> <td>14'</td> <td>11</td> <td>3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 154-11</td> <td>15'</td> <td>11</td> <td>3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 164-11</td> <td>16'</td> <td>11</td> <td>3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 184-11</td> <td>18'</td> <td>11</td> <td>3/4"X18"X3"</td> </tr> <tr> <td><input type="checkbox"/> 204-11</td> <td>20'</td> <td>11</td> <td>3/4"X24"X3"</td> </tr> <tr> <td><input type="checkbox"/> 204-7</td> <td>20'</td> <td>7</td> <td>3/4"X30"X3"</td> </tr> <tr> <td><input type="checkbox"/> 254-11</td> <td>25'</td> <td>11</td> <td>3/4"X24"X3"</td> </tr> <tr> <td><input type="checkbox"/> 254-7</td> <td>25'</td> <td>7</td> <td>3/4"X30"X3"</td> </tr> </tbody> </table>	POLE HEIGHT	WALL THICKNESS	BOLT CIRCLE	ANCHORAGE	<input type="checkbox"/> 104-11	10'	11	3/4"X18"X3"	<input type="checkbox"/> 124-11	12'	11	3/4"X18"X3"	<input type="checkbox"/> 144-11	14'	11	3/4"X18"X3"	<input type="checkbox"/> 154-11	15'	11	3/4"X18"X3"	<input type="checkbox"/> 164-11	16'	11	3/4"X18"X3"	<input type="checkbox"/> 184-11	18'	11	3/4"X18"X3"	<input type="checkbox"/> 204-11	20'	11	3/4"X24"X3"	<input type="checkbox"/> 204-7	20'	7	3/4"X30"X3"	<input type="checkbox"/> 254-11	25'	11	3/4"X24"X3"	<input type="checkbox"/> 254-7	25'	7	3/4"X30"X3"	<input type="checkbox"/> 2 3/8"X4" TENON <b>PT23</b> <input type="checkbox"/> 2 7/8"X4" TENON <b>PT27</b> <input type="checkbox"/> OTHER TENON MT _____ <b>DRILL MOUNT</b> <input type="checkbox"/> 1..... <input type="checkbox"/> 2-180..... <input type="checkbox"/> 2-90..... <input type="checkbox"/> 3-90..... <input type="checkbox"/> 4-90..... <input type="checkbox"/> 3-120..... <b>3-120 REQUIRES PT27 AND T3120 ADAPTER</b>	<input type="checkbox"/> DARK BRONZE <b>DBM</b> <input type="checkbox"/> MEDIUM BRONZE <b>MBM</b> <input type="checkbox"/> BLACK <b>BKM</b> <input type="checkbox"/> WHITE <b>WTM</b> <input type="checkbox"/> SILVER <b>SLM</b> <b>OPTION:</b> <input type="checkbox"/> PRIME PAINT <b>PP</b> <input type="checkbox"/> GALVANIZED <b>GLV</b> <input type="checkbox"/> THERMOSET POLYESTER POWDER <b>PDR</b> SEE PAGE 3 FOR ADDITIONAL COLORS	<input type="checkbox"/> DUPLEX RECEPTACLE <b>DUP</b> <input type="checkbox"/> GFI RECEPTACLE <b>GFI</b> <input type="checkbox"/> 3 WAY ADAPTER <b>T3120</b>  <input type="checkbox"/> 1/2" COUPLING <b>CPLN1/2</b> <input type="checkbox"/> 3/4" COUPLING <b>CPLN3/4</b> <input type="checkbox"/> 2" COUPLING <b>CPLN2</b> (SPECIFY COUPLING LOCATION) SEE ACCESSORIES SECTION FOR OTHER OPTIONS.
POLE HEIGHT	WALL THICKNESS	BOLT CIRCLE	ANCHORAGE																																													
<input type="checkbox"/> 104-11	10'	11	3/4"X18"X3"																																													
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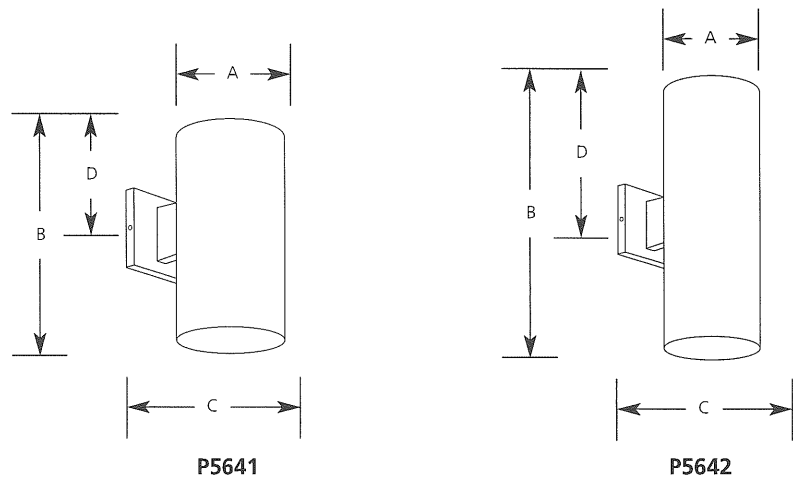
Incandescent

6" Cylinders  
Wall

Outdoor

	Type			
	-20	-30	-31	-82
P5641	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5642	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Catalog No.	Finish				Lamping	Dimensions (Inches)			
	Bronze	White	Black	Gray		A	B	C	D
P5641	-20	-30	-31	-82	1-250w QPAR38, 150w BR40	6	12	8-7/8	4-1/2
P5642	-20	-30	-31	-82	2-250w QPAR38	6	18	8-7/8	8



**Specifications:**

General

- Extruded aluminum .125 wall thickness one piece cylinder
- Cast aluminum wall bracket
- P5641 - Down lighting
- P5642 - Up/Down lighting. P8798-31 top cover lens recommended when unit is used outdoors
- Interior finish matches exterior finish

Mounting

- Covers any outlet box
- Cast mounting bracket is 4-1/2" square
- Outlet box mounting bracket supplied permitting attachment of unit to wall with one almost invisible set screw

Electrical

- Medium base porcelain socket with nickel plated brass screw shell

Accessories

- P8798-31 Top lens cover for P5642 fixture

Options

- Bronze finish - specify "20" suffix
- White finish - specify "30" suffix
- Black finish - specify "31" suffix
- Metallic Gray finish - specify "82" suffix

Labeling

- UL-CUL wet location listed (5642 only with top cover lens)

Permalink memo for summary of

brandpartners

brandpartners  
10 Main Street Rochester, NH 03039  
Phone: 603.335.1400 Fax: 603.335.6542

CLIENT/PROJECT  
UNIVERSITY CREDIT UNION  
PORTLAND, ME

INFORMATION  
Pak:  
Issue Date: 8/20/08  
Drawn By: KTW  
Checked By: BU  
Revision:

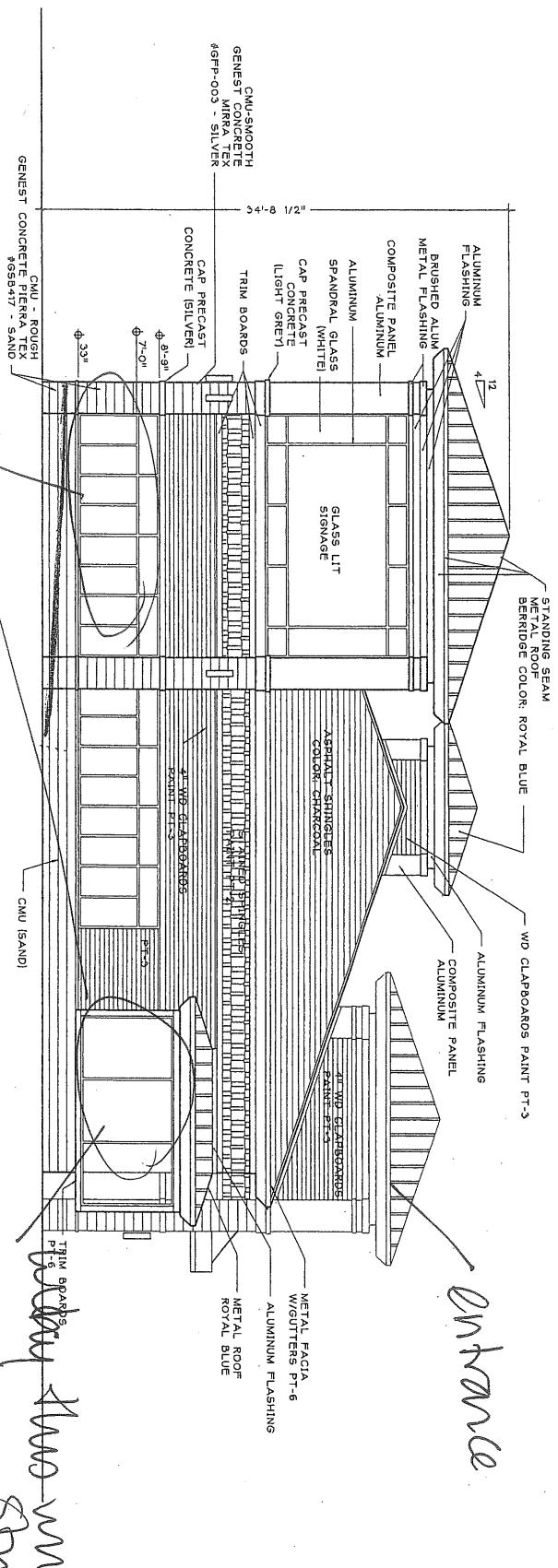
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TITLE  
EXTERIOR ELEVATIONS

SCALE  
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**A2.1**



Need work on

read glass?

2. ok  
8. need to better work from the back  
highlight for street view

1. needs standard
2. ok?
3. enhance to steel
4. need windows on west/Twp
5. need detail scale?
6. signage need more info

32  
better two windows?  
8 in

**brandpartners**

BrandPartners  
 10 Nash Street Rochester, NH 03339  
 Phone: 603.335.1400 Fax: 603.335.4542

CLIENT/PROJECT  
**UNIVERSITY CREDIT UNION  
 PORTLAND, ME**

**INFORMATION**

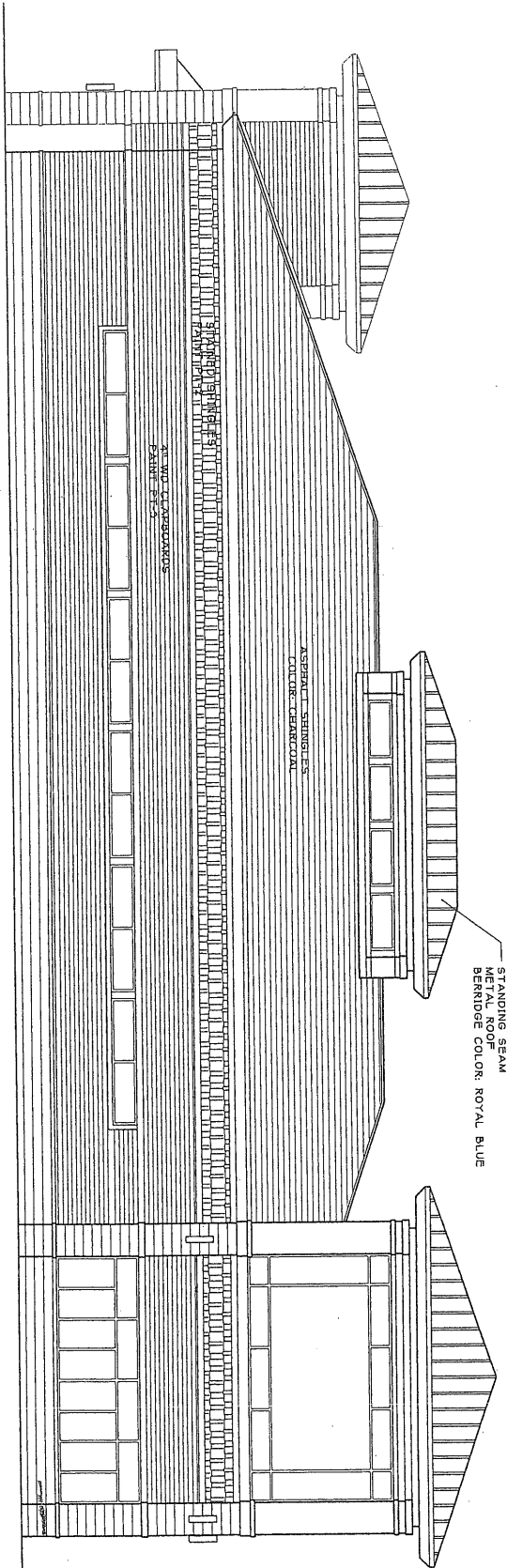
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 Drawn By: KTD  
 Checked By: RJ  
 Revision:  
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**TITLE**  
**EXTERIOR ELEVATIONS**

SCALE  
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**A2.2**



1 WEST ELEVATION — TAFT AVE.  
 A2.2 1/8" = 1'-0"



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CLIENT/PROJECT  
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**INFORMATION**

Path:  
 Issue Date: 8/20/05  
 Drawn By: KTD  
 Checked By: RJ  
 Revision:

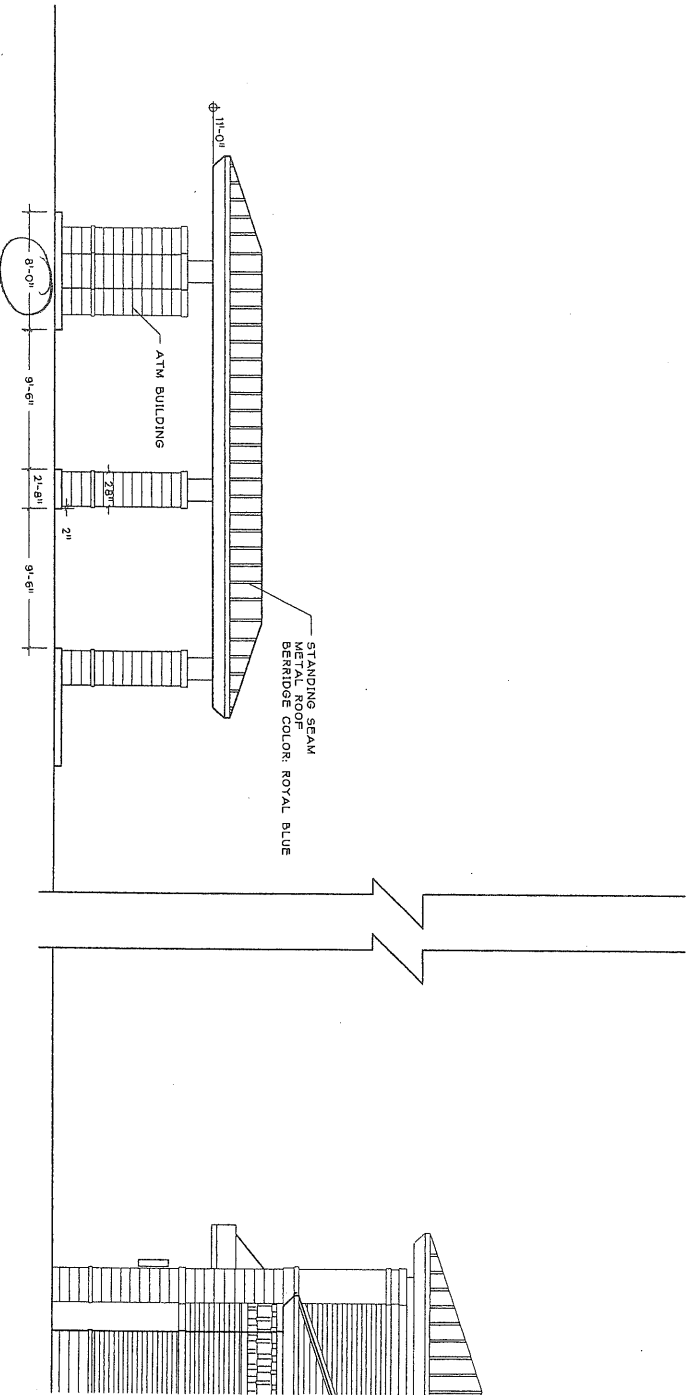
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TITLE  
**EXTERIOR ELEVATIONS**

SCALE  
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**A2.3**



1 WEST ELEVATION - TAFT AVE. DRIVE THRU  
 A2.3 1/8"=1'-0"

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 UNIVERSITY CREDIT UNION  
 PORTLAND, ME

## INFORMATION

Plot:  
 Issue Date: 8/30/05  
 Drawn By: KTJ  
 Checked By: BJ  
 Revisor:

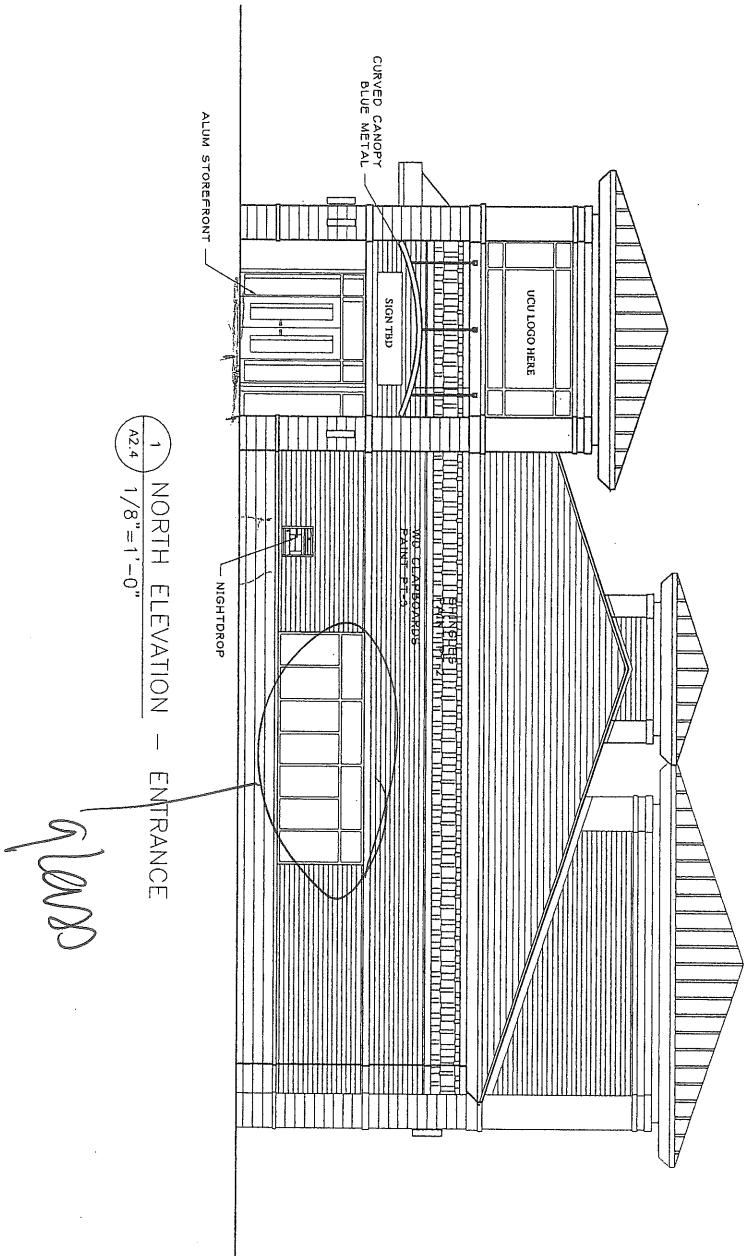
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TITLE  
 EXTERIOR ELEVATIONS

SCALE  
 AS NOTED

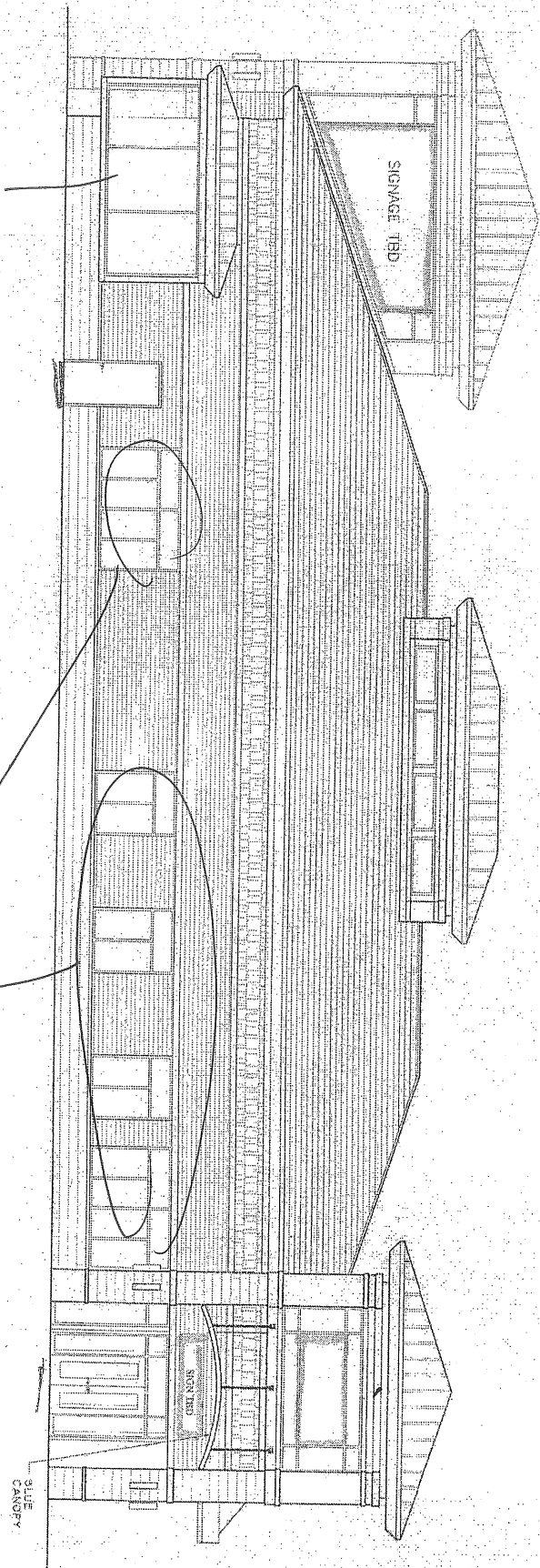
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# A2.4



1 NORTH ELEVATION - ENTRANCE  
 1/8" = 1'-0"

*Handwritten signature*



1 EAST ELEVATION - 1/8" = 1'-0" - ENTRANCE

**brand**  
architects

brand architects  
19 Allen Street, Portland, ME 04103  
PHONE: (207) 333-7400 FAX: (207) 333-4847

CLIENT/PROJECT  
**UNIVERSITY CREDIT UNION  
PORTLAND, ME**

**DESCRIPTION**

Project:  
Design:  
Drawn By: MTL  
Checked By: BU  
Reviewed:

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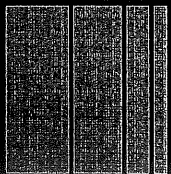
**TITLE**

**EXTERIOR ELEVATIONS**

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**A2.15**



November 6, 2006  
05439

Ms. Barbara Barhydt  
Senior Planner, Planning Department  
City of Portland  
389 Congress Street  
Portland, Maine 04101

Proposed University Credit Union, 1071 Brighton Avenue  
Minor Site Plan and Conditional Use Applications

Dear Ms. Barhydt:

University Credit Union is seeking to construct a new credit union facility at 1071 Brighton Avenue on the site of the former Burger King Restaurant. The site is located in the B2 zone and is approximately .74 acres in size with frontage and access along both Brighton Avenue and Taft Avenue. The site is owned by University Credit Union and a deed has been included with the application materials.

The new facility will consist of a 5,541 s.f. building with offices and customer banking areas, a three-lane drive-up with two banking lanes and one ATM lane and 19 parking spaces, with two handicap spaces. The drive-through lanes will accommodate 12 vehicles. The building was sited at the corner of the parcel adjacent to Brighton and Taft Avenues to create the streetscape that is envisioned for this section for Brighton Avenue.

The access to the site will be from Brighton and Taft Avenues. The Brighton Avenue access will be right-in only and no exiting movement. Two curb cuts onto Taft Avenue are proposed, one of which will be a full movement, entering and exiting, and the other will be just exiting associated with the drive thru facility.

The credit union building will require Minor Site Plan review but the drive-thru will require a Conditional Use Permit from the Planning Board under Section 14-183 (a) 4. because the parcel with the drive-thru is within 100 feet of a residential zone.

We have included in this submission executed applications for Minor Site Plan review and Conditional Use Permit along with a check for \$ 700.00 for the application and review fees. In addition, we understand that we will need to hold a Neighborhood Meeting before the Planning Board Public Meeting.

Supporting materials included with the application include the Site Plan package with a Boundary Survey, Site Plan, Grading and Utility Plan, Landscape Plan, Site Lighting Plan and Detail Sheets. A Traffic Assessment, prepared by Tom Errico of Wilbur Smith Associates, is attached and concludes that the proposed use will not result in increased traffic in the vicinity of the project and, therefore, no Traffic Movement Permit is needed and a Traffic Study is also not necessary.

Ms. Barhydt

November 6, 2006

A Stormwater Assessment of the proposed site has been prepared and compares the changes in land cover to determine the quantity of storm water that needs to be treated. The assessment provides the calculations of the stormwater quantity and the modeling of the treatment method. The proposed Site Plan will result in a reduction in the amount of impervious surface on the site. Some treatment will be required because of the changes in surfaces on the site and the treatment will be accomplished by an underdrain filter along the northern boundary of the site.

Details of the proposed site lighting have been attached as well, which show the type and style of site lighting proposed for the parking lot and drive-thru area. The parking lot lighting will have house side shields to minimize light spillage onto the adjacent retail site. The parking lot lights will be mounted on 20 tall poles and will be 350 watt, metal halide lights.

The drive-thru facility is located remotely from the building to allow for better circulation for customers to the building and to segregate the drive-thru traffic from the walk-in traffic. The facility will be screened from the adjoining property by landscaping along the northerly property line.

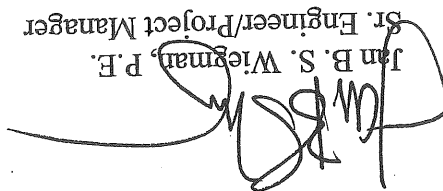
Architectural elevations of the building have been included in the submission materials. The building will have large display windows along Brighton Avenue and at the corners of the building. The entrance of the building is internal to the site and is oriented towards the customer parking area. Because of security concerns, only one entrance is planned for the facility.

Please review the materials and let us know if there are any further questions that we need to be addressed.

Sincerely,

SEBAGO TECHNICS, INC.

Jan B. S. Wiegman, P.E.  
Sr. Engineer/Project Manager



JBSW:jbsw/kn

Encl.

cc: Eric Levesque (Brand Partners)



brandpaniers

Brandpaniers  
10 Main Street, Portland, ME 04108  
Phone: 800.335.7400 Fax: 800.335.4647

CLIENT/PROJECT  
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PORTLAND, ME**

INFORMATION

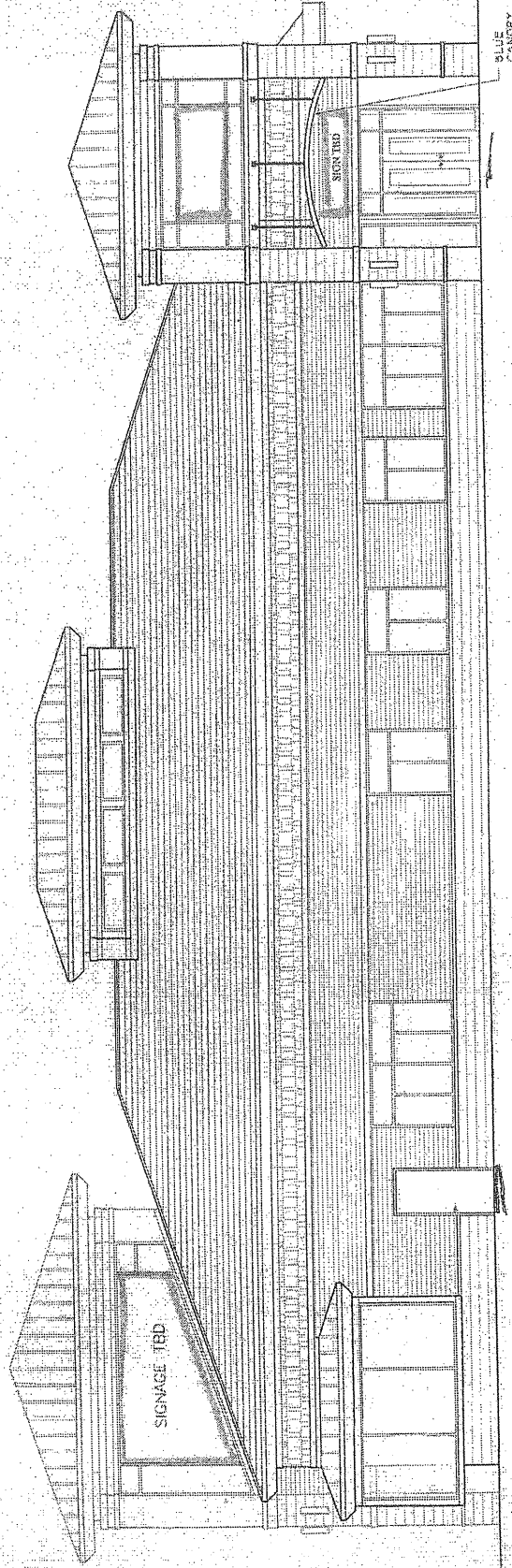
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Checked By: DJ  
Revised:  
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TITLE  
**EXTERIOR ELEVATIONS**

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**A2.5**



1 EAST ELEVATION -- ENTRANCE  
A2.5 1/8"=1'-0"

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10 Main Street Rochester, NH 03099  
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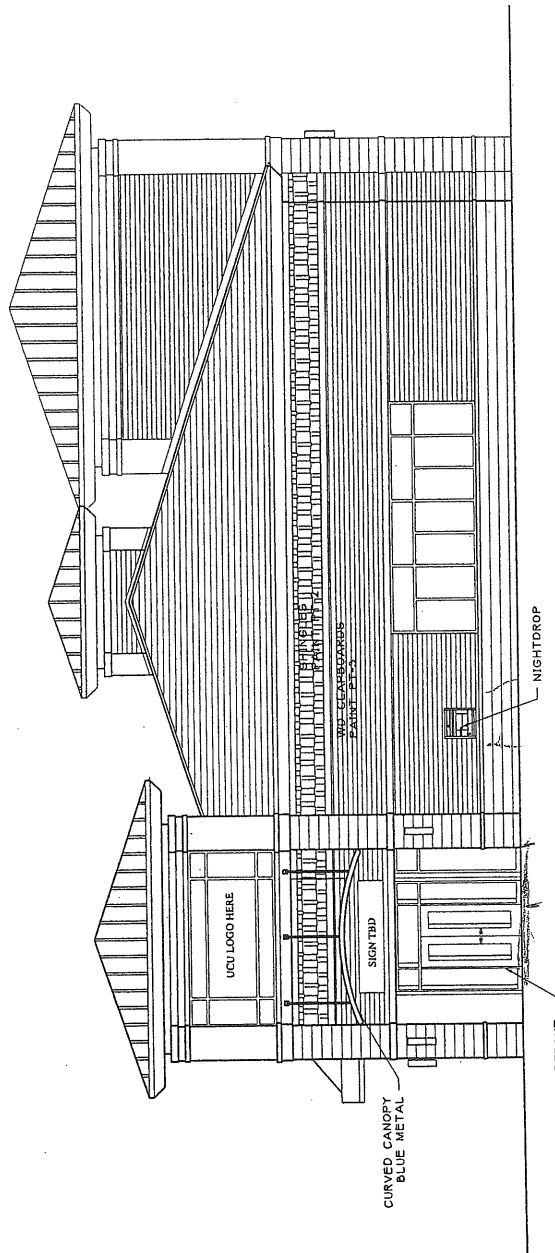
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Checked By: BJ  
Revision:  
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**A2.4**



1 NORTH ELEVATION - ENTRANCE  
A2.4 1/8"=1'-0"

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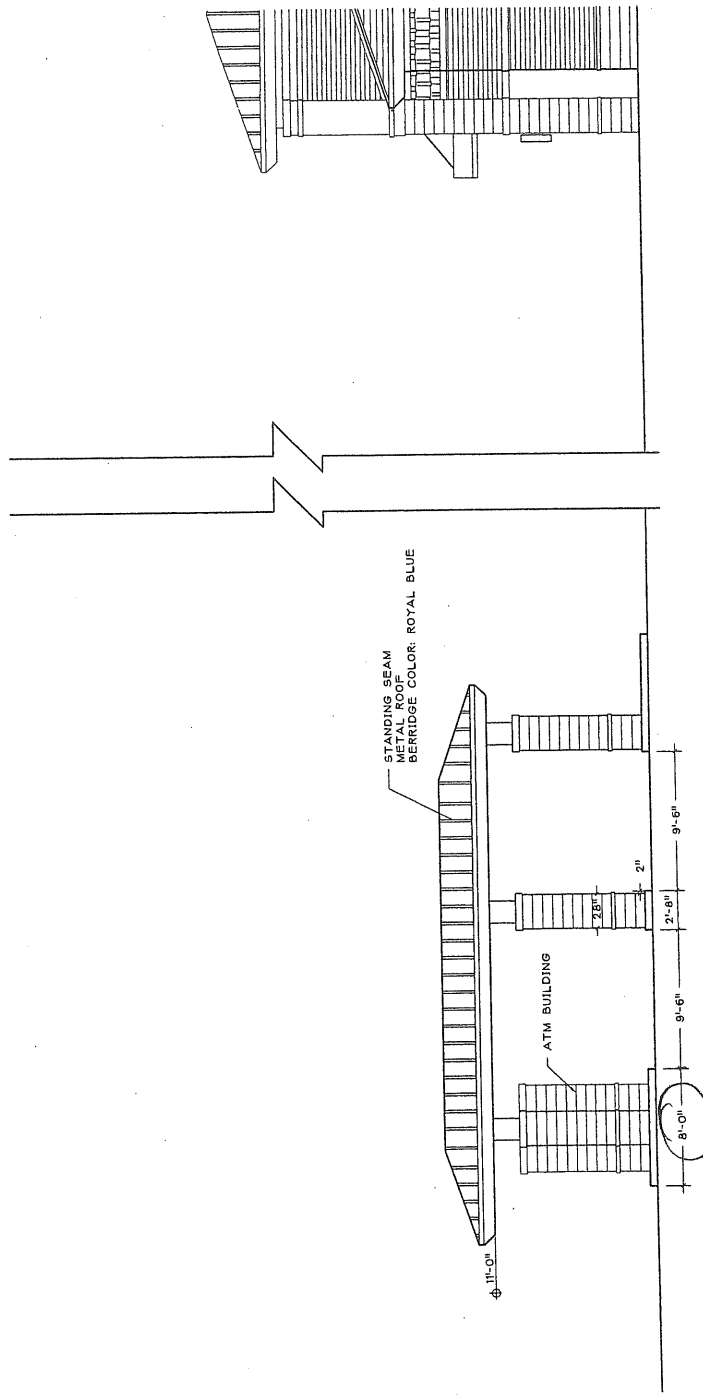
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Issue Date: 8/30/05  
Drawn By: KTJ  
Checked By: BJ  
Revision:  
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TITLE  
**EXTERIOR ELEVATIONS**

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**A2.3**



1 WEST ELEVATION - TAFT AVE. DRIVE THRU  
A2.3 1/8"=1'-0"



**brandpartners**

BrandPartners  
70 Main Street Rochester, NH 03859  
Phone: 603.335.1400 Fax: 603.335.4542

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**INFORMATION**

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Issue Date: 8/20/06  
Drawn By: KTJ  
Checked By: BJ  
Revision:

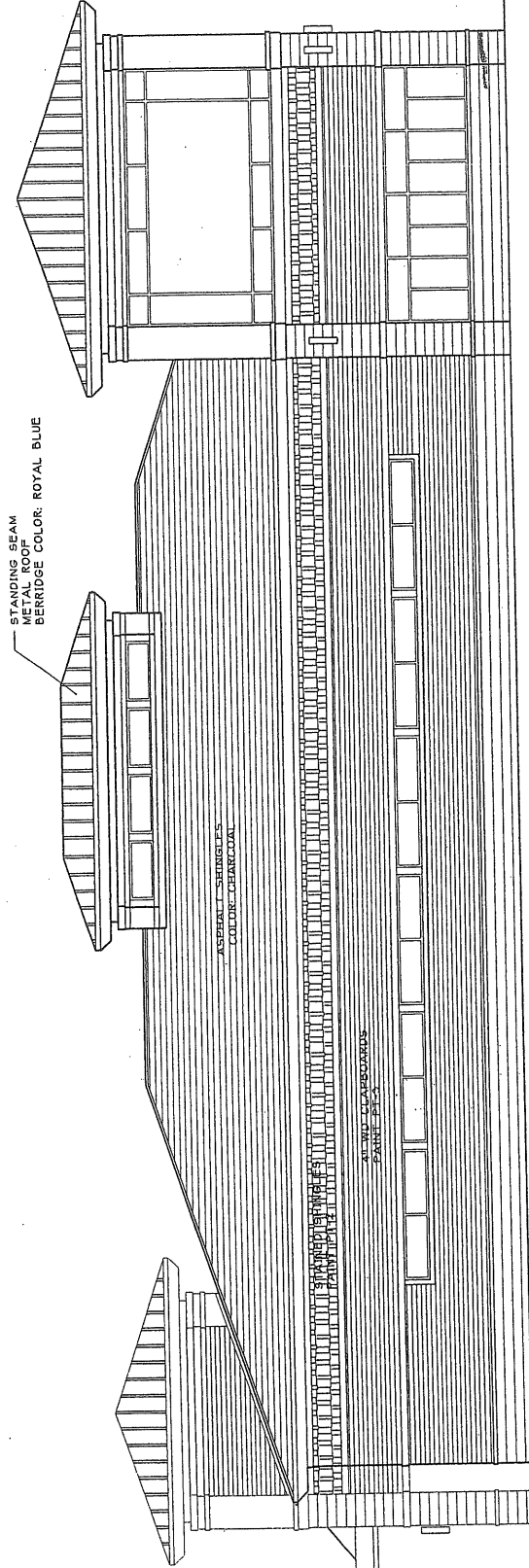
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TITLE  
**EXTERIOR ELEVATIONS**

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**A2.2**



1 WEST ELEVATION - TAFT AVE.

A2.2 1/8" = 1'-0"

**University Credit Union  
Exterior Signage Package March 2007  
Changes to Submittal Book  
For Portland, Maine Planning Board  
Approval Meeting March 27, 2007**

**SUMMARY OF UPDATES:**

Page one using the Site Plan as a key. See the specific elevation pages for details.

1. B-3 directional sign is larger and now has University Credit Union Logo 'UCU'. Area of sign face is now 10 sq. ft. per side.
2. B-1 on building now has a brushed metal interior lit rather than blue acrylic interior lit (lighting is directed back to building rather than forward thru colored acrylic).
3. b-1 and b-2 signs on building are now shown with the logo on a blue field rather than just the logo only.
4. B-2 on Taft Ave the material has changed from masonry to a similar material of the other ground and directional signs. Area of sign face reduced from 27 sq. ft. per side to 18 sq. ft. per side.

A2.1

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AS NOTED

SCALE

EXTERIOR ELEVATIONS

TITLE

9.

8.

7.

6.

5.

4. 4-4-07

3. 3-16-07

2. 3-2-07

1. 10-2-06

Revision:

Checked By: BJ

Drawn By: DMH

Issue Date: 02-13-07

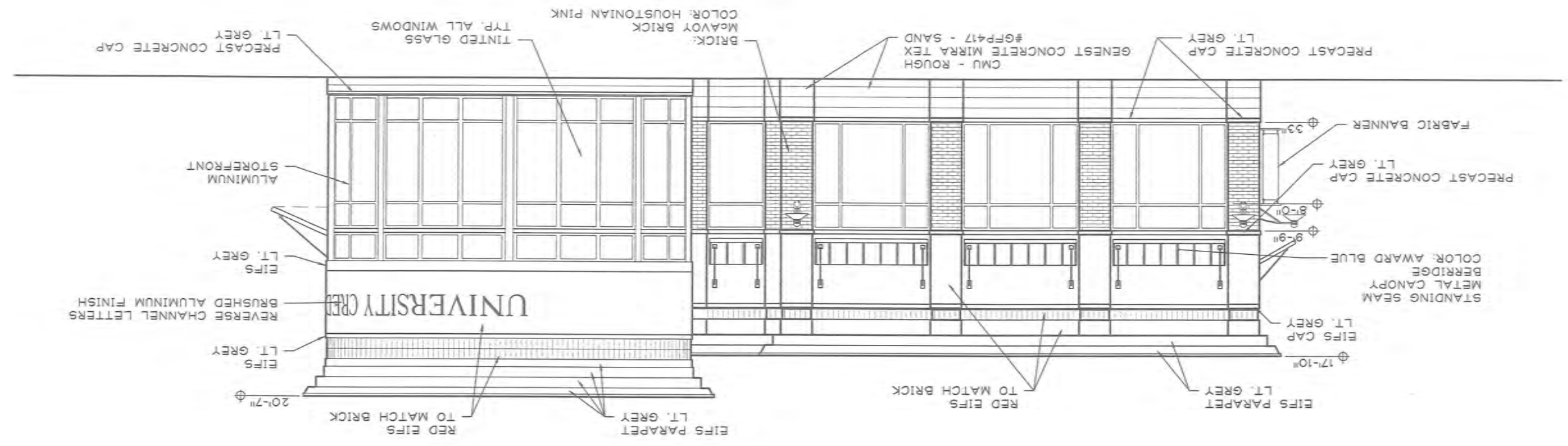
Path:

INFORMATION

APPROVED MAR 27 2007

CITY OF PORTLAND  
APPROVED SITE PLAN  
Subject to Dept. Conditions  
Date of Approval:

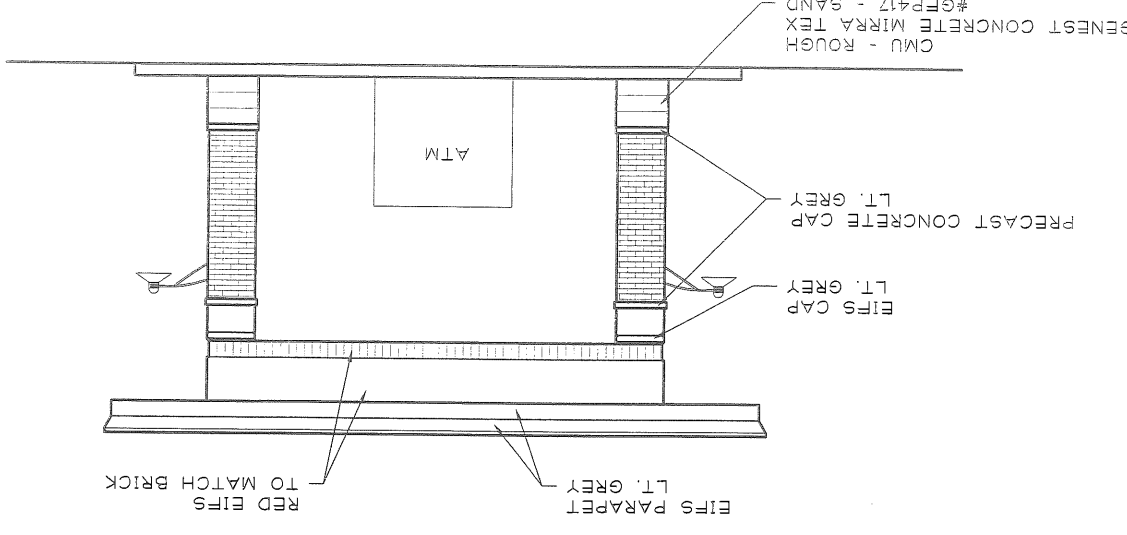
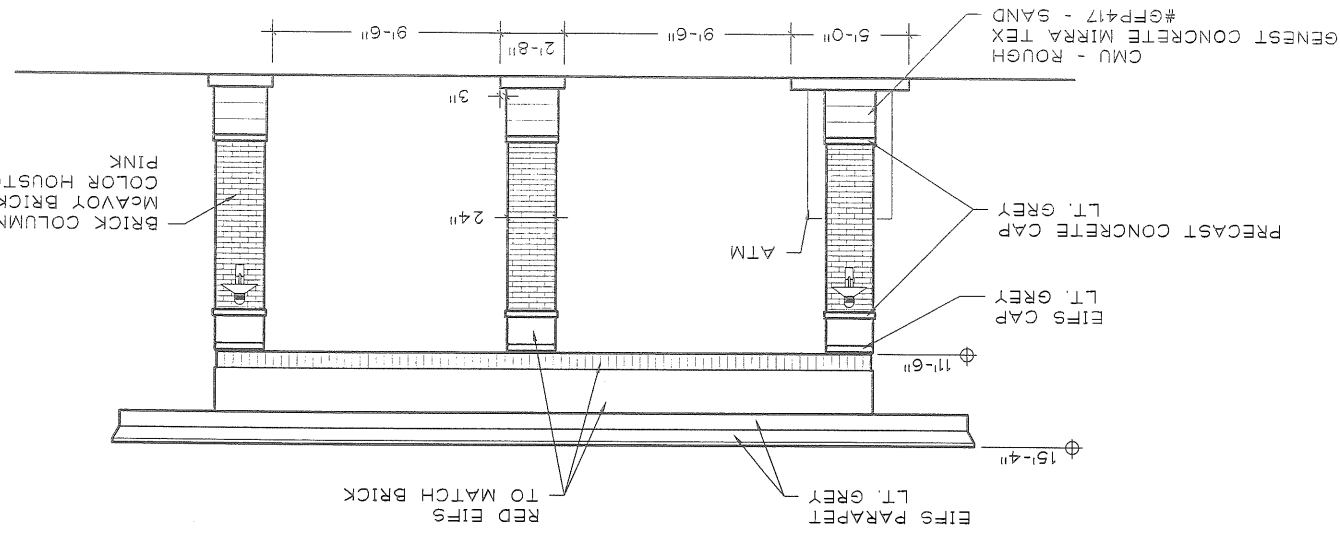
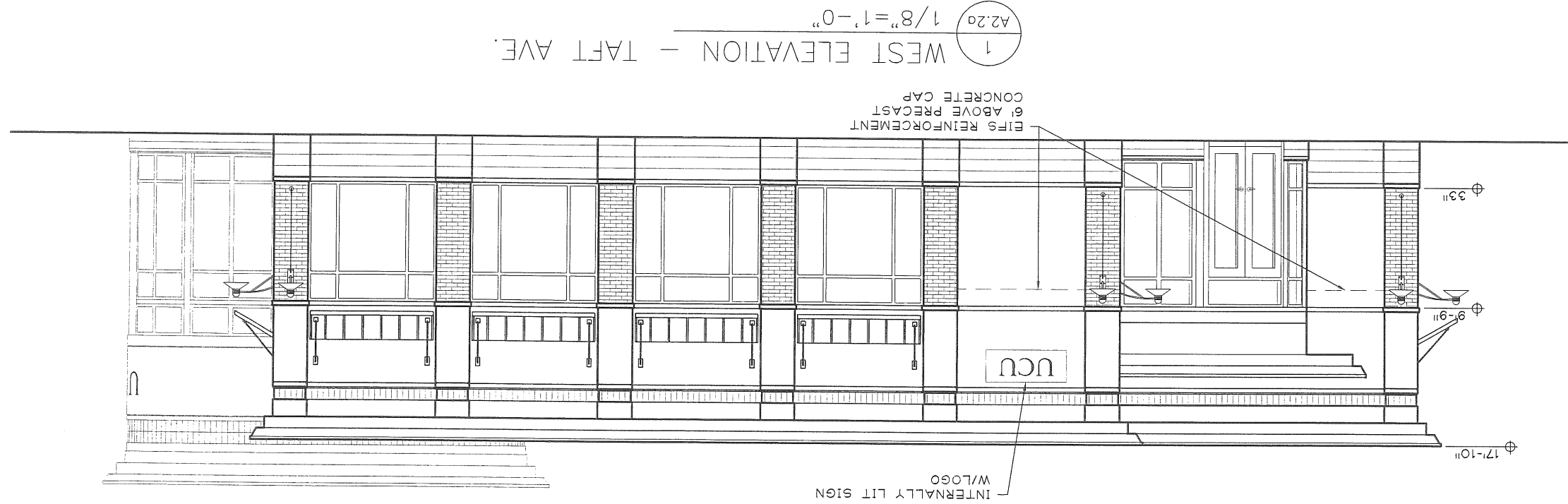
1 SOUTH ELEVATION - BRIGHTON AVE  
A2.1 1/8"=1'-0"



CLIENT/PROJECT  
UNIVERSITY CREDIT UNION  
PORTLAND, ME

BrandPartners  
10 Main Street Rochester, NH 03839  
Phone: 603.335.1400 Fax 603.335.4542

brandpartners



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SCALE  
AS NOTED

EXTERIOR ELEVATIONS

TITLE

9.

8.

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6.

5.

4.

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2. 4-4-07

1. 3-16-07 KTJ

Revision:

Checked By: BJ

Drawn By: DMH

Issue Date: 02-13-07

Path:

INFORMATION

PORTLAND, ME

UNIVERSITY CREDIT UNION

CLIENT/PROJECT

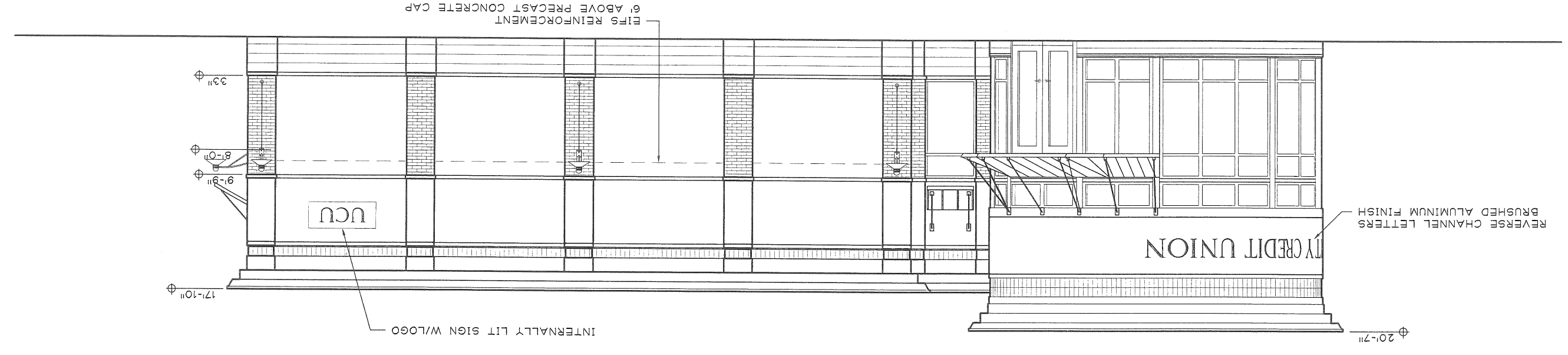
Phone: 603.335.1400 Fax 603.335.4542

10 Main Street Rochester, NH 03839

BrandPartners

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1 EAST ELEVATION  
A2.3  
1/8"=1'-0"



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AS NOTED

SCALE

**EXTERIOR ELEVATIONS**

TITLE

9.

8.

7.

6.

5.

4.

3. 4-4-07

2. 3-16-07

1. 3-2-07

Revision:

Checked By: BJ

Drawn By: DMH

Issue Date: 02-13-07

Path:

INFORMATION

**PORTLAND, ME**

**UNIVERSITY CREDIT UNION**

CLIENT/PROJECT

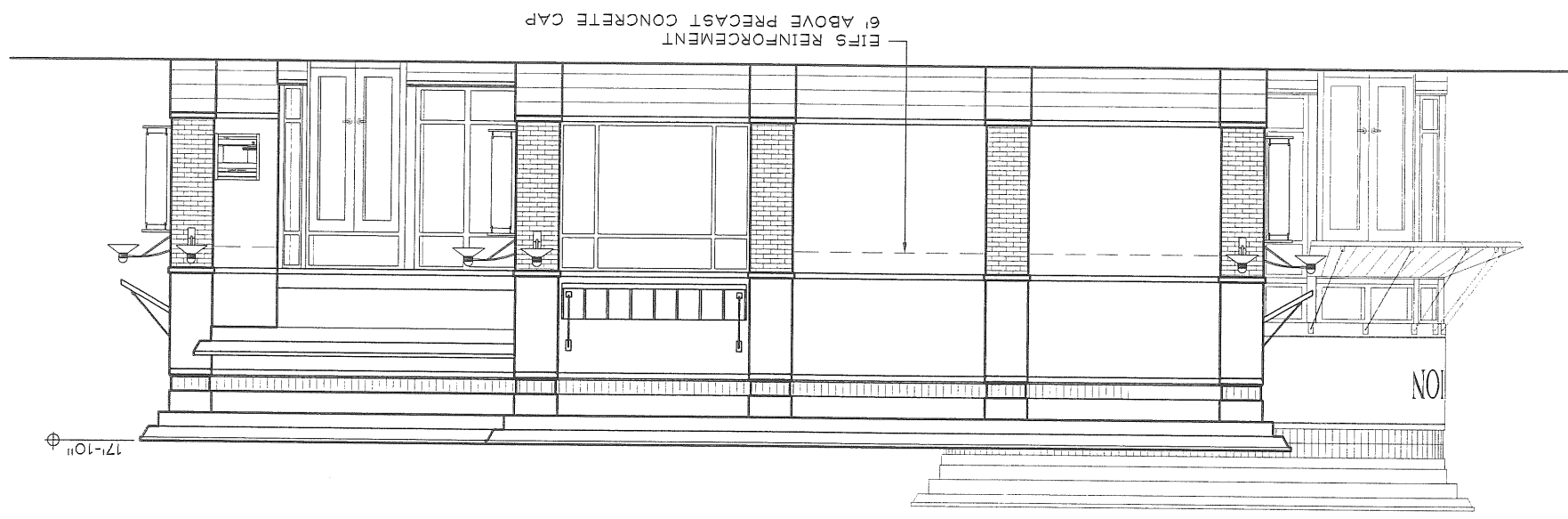
Phone: 603.335.1400 Fax 603.335.4542

10 Main Street Rochester, NH 03839

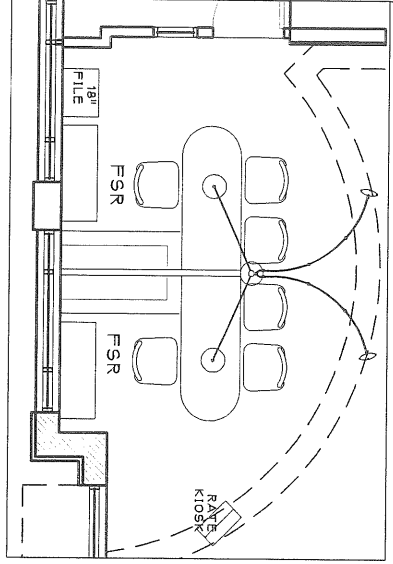
BrandPartners

**brandpartners**

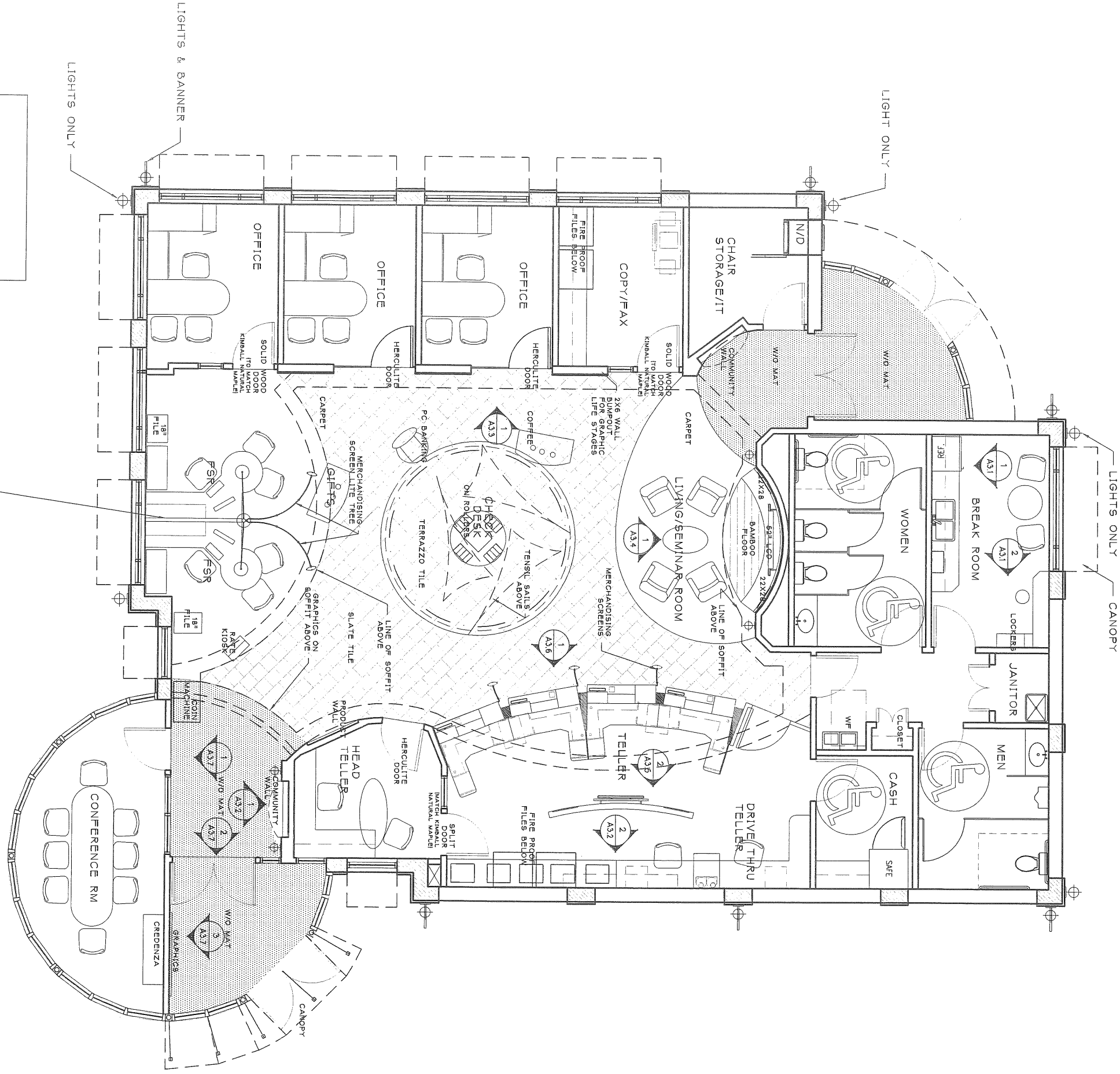
**1** NORTH ELEVATION - ENTRANCE  
 A2.4 1/8"=1'-0"



**1** OPTIONAL FSR FURNITURE  
 A1.1 Scale: 1/8"=1'-0"



3464 SF

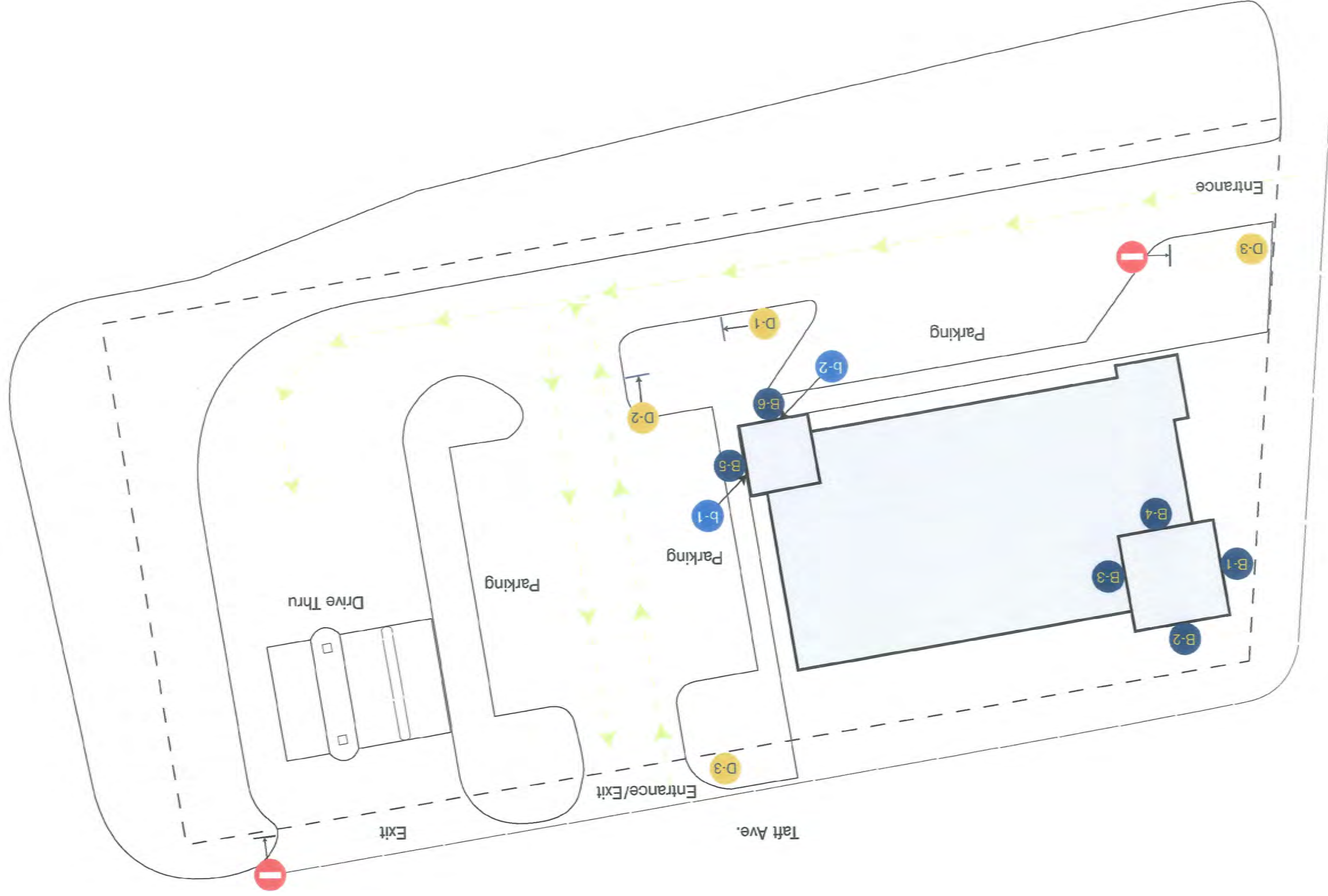




UNIVERSITY CREDIT UNION  
EXTERIOR SIGNAGE PACKAGE  
JANUARY 2007

**brandpartners**





- EXTERIOR SIGN KEY**
- Branding Primary
  - Branding Secondary
  - Directional Signage
  - "Do Not Enter" Sign
  - Traffic Flow

Brighton Ave.

Taft Ave.

Entrance

Parking

Parking

Parking

Drive Thru

Entrance/Exit

Exit

D-3

D-1

b-2

B-6

B-5

b-1

B-4

B-3

B-1

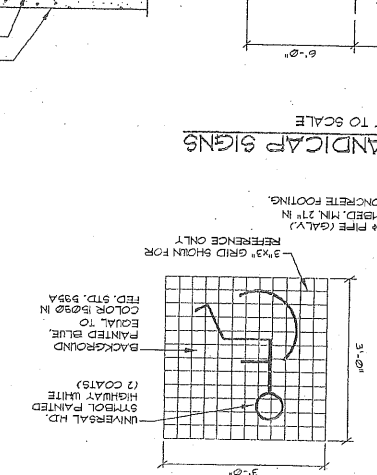
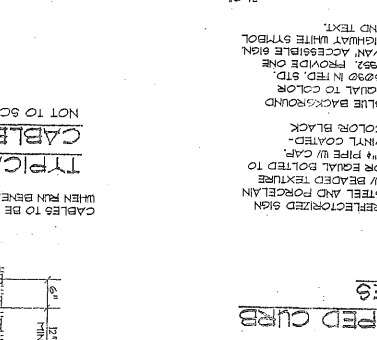
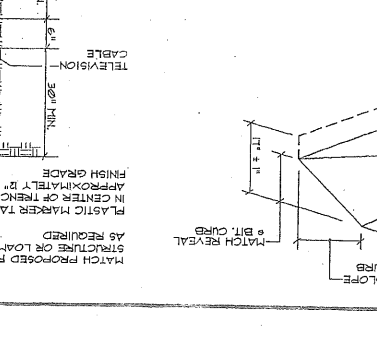
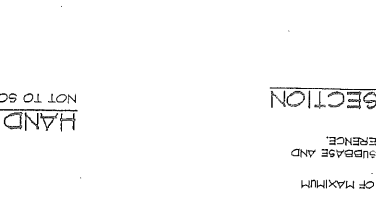
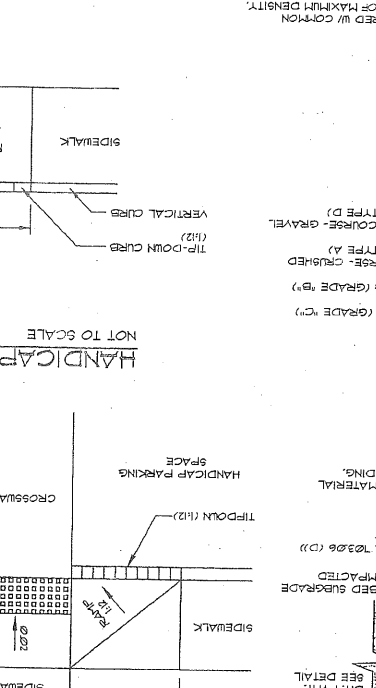
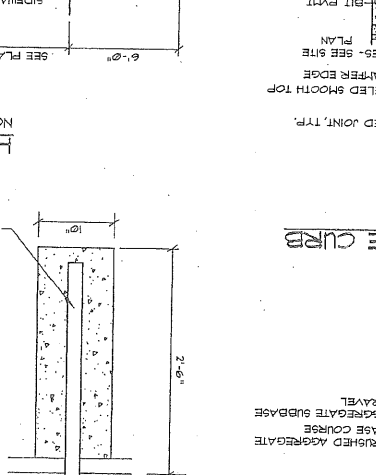
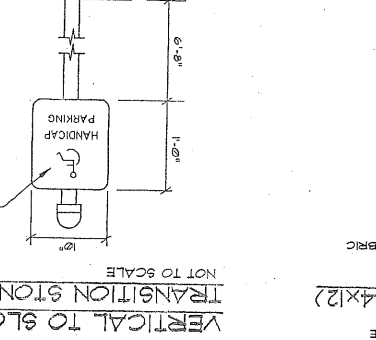
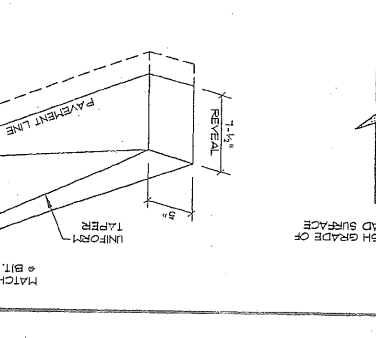
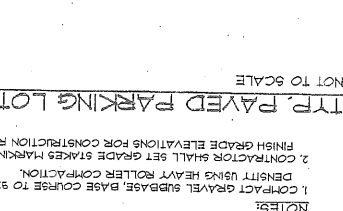
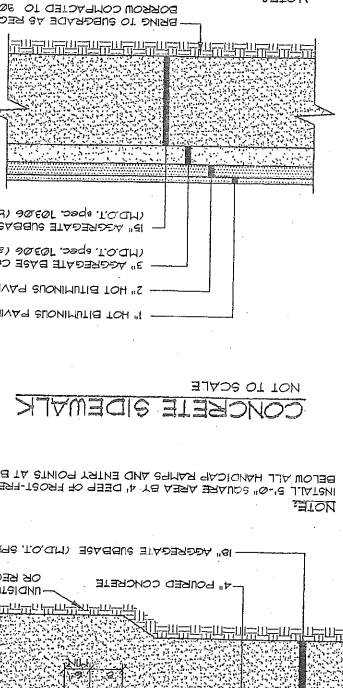
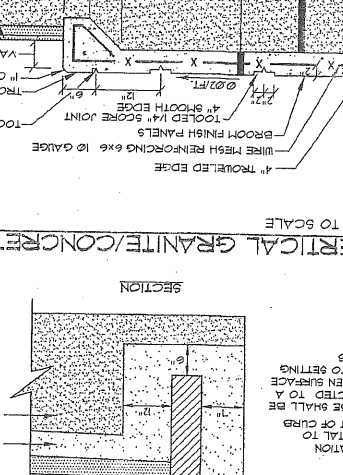
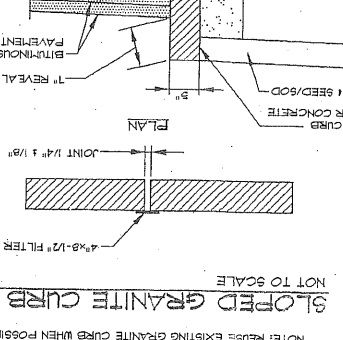
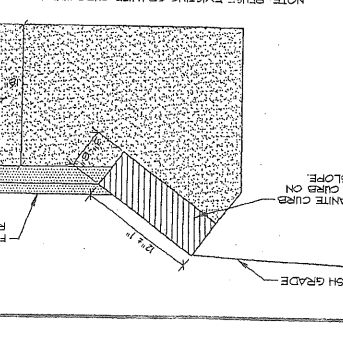
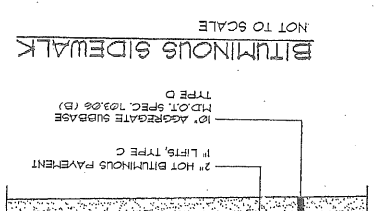
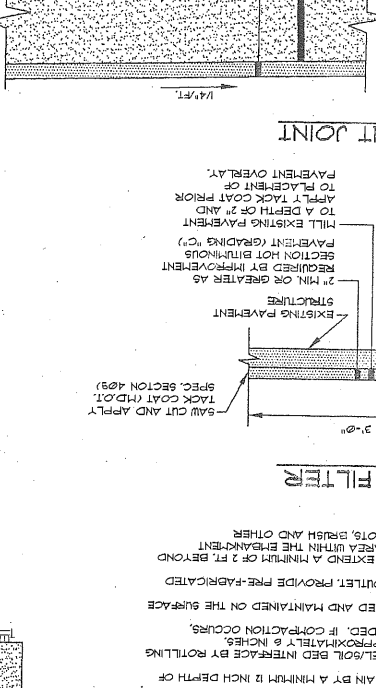
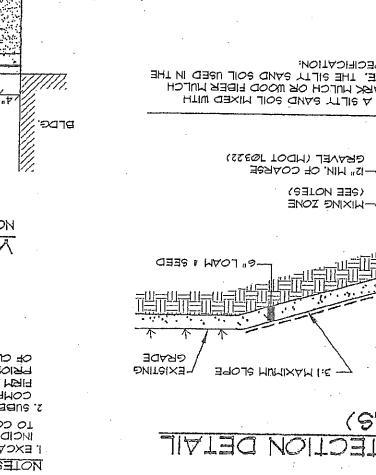
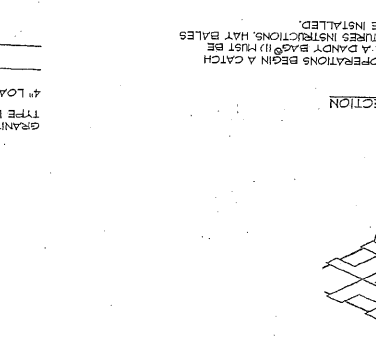
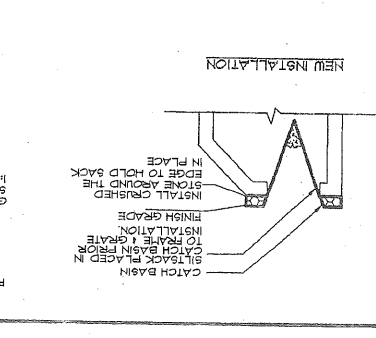
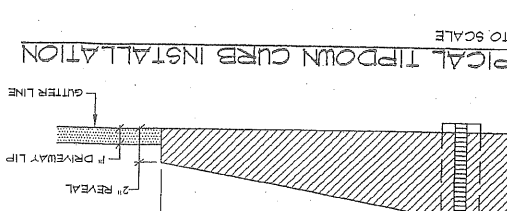
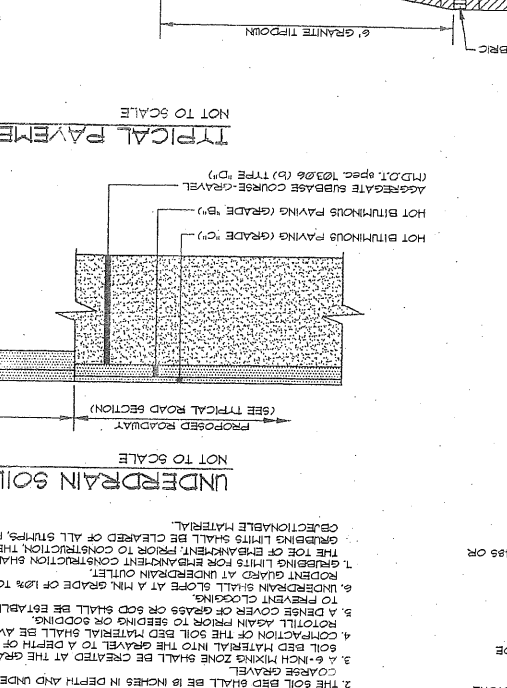
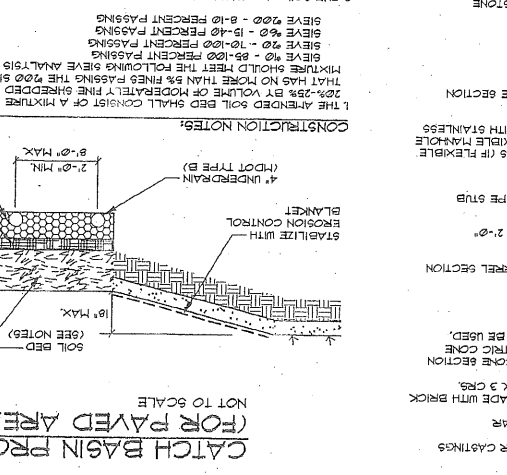
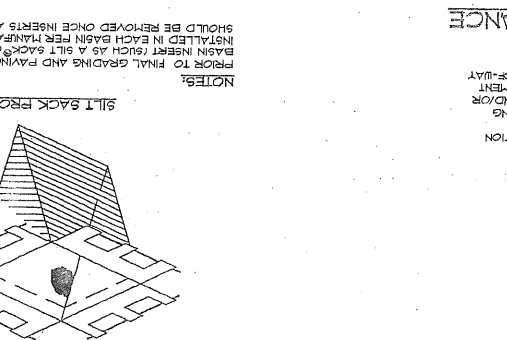
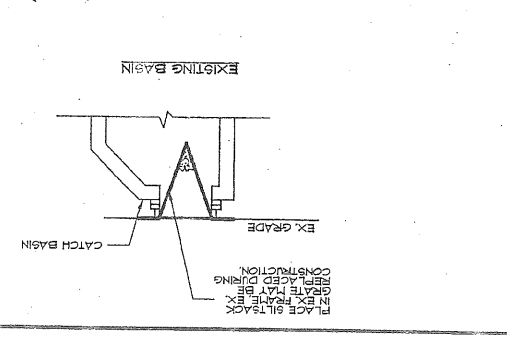
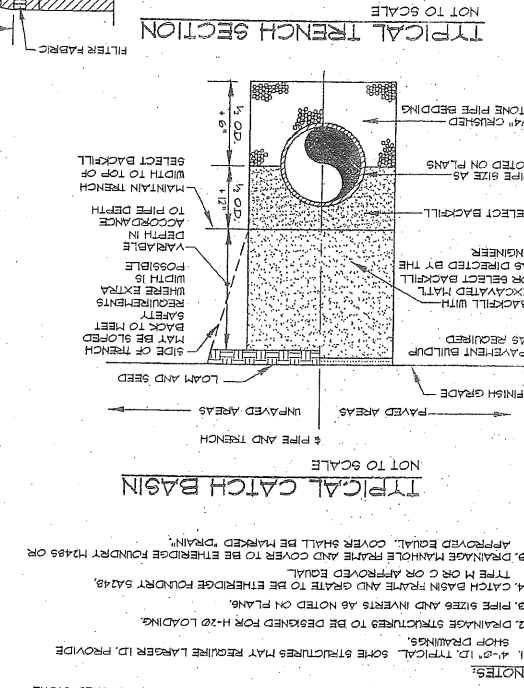
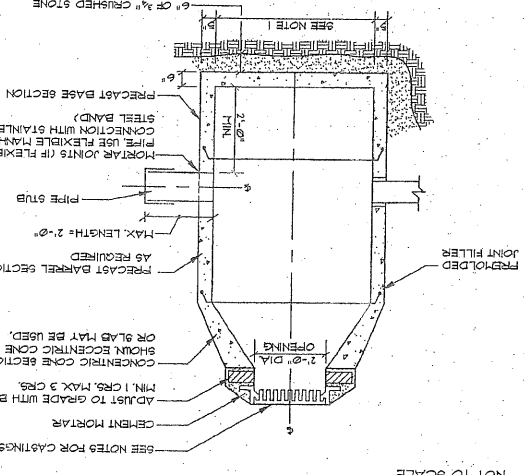
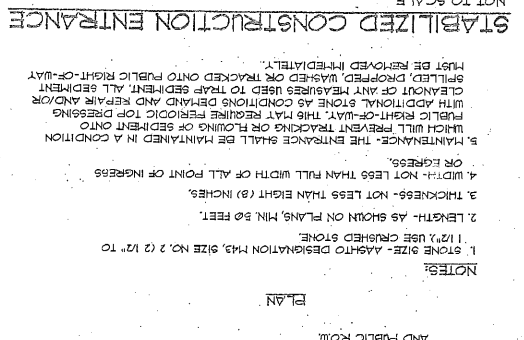
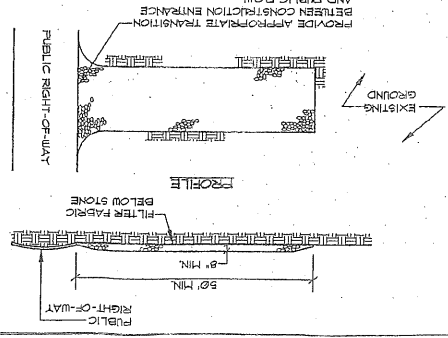
B-2

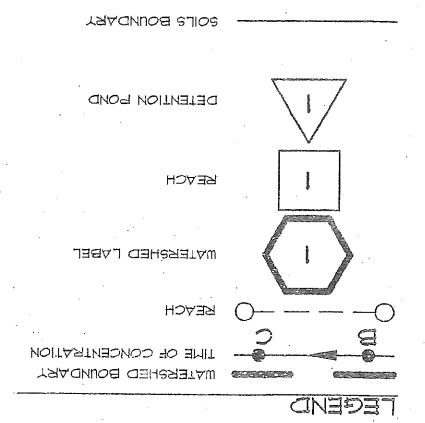
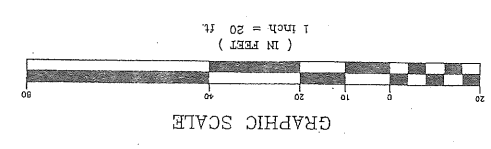
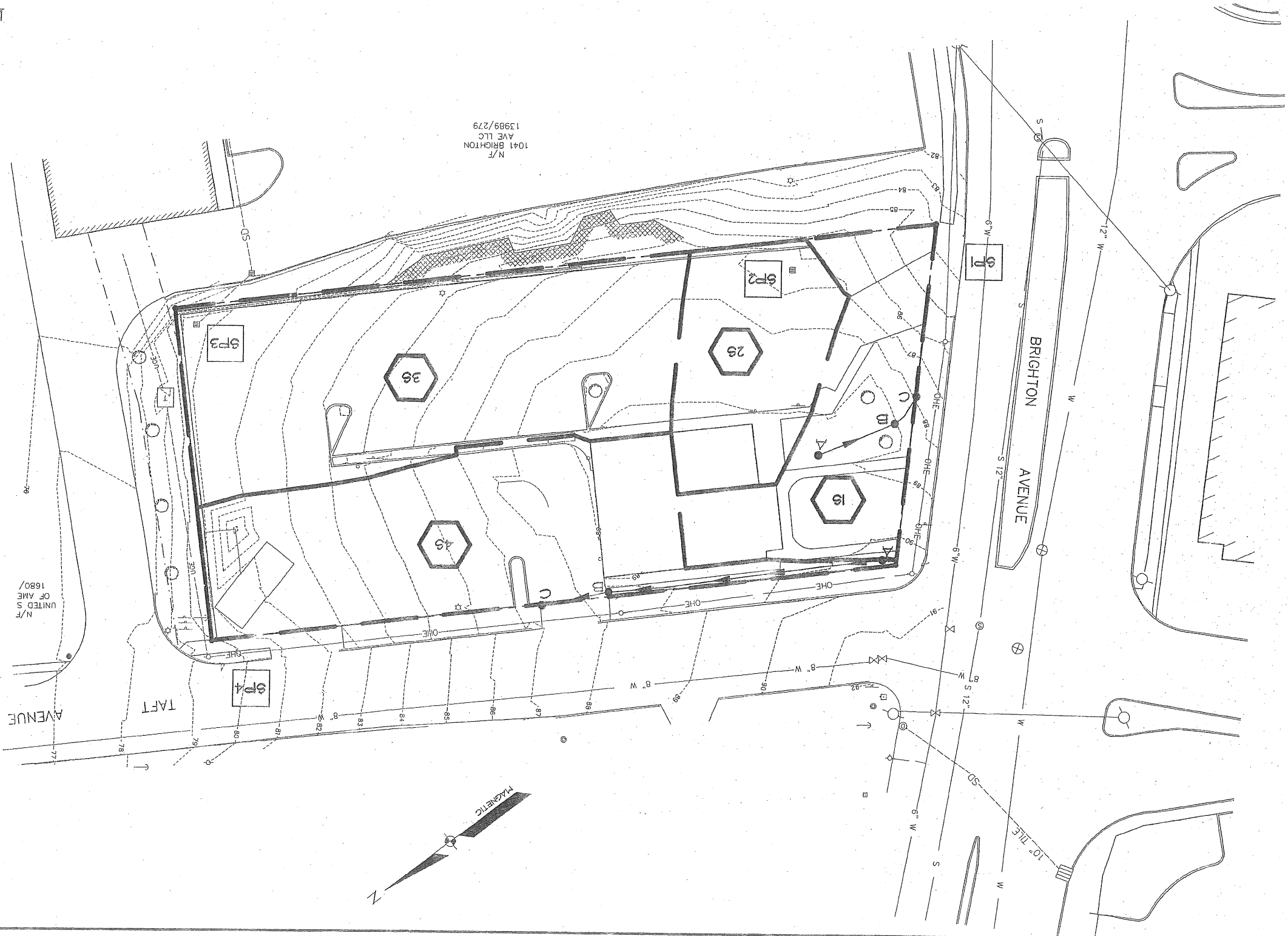
D-2

D-3









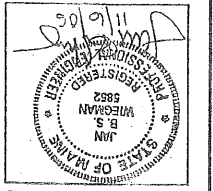
PRE-DEVELOPMENT STORMWATER PLAN  
 OF:  
 UNIVERSITY CREDIT UNION PROPERTY  
 1071 BRIGHTON AVENUE  
 FORTLAND, MAINE  
 FOR:  
 UNIVERSITY CREDIT UNION  
 RANGELY ROAD, UNIVERSITY OF MAINE  
 ORONO, MAINE 04469-5779

**Sebago Technics**  
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 Fortland, Maine 04439  
 Tel: (207) 856-0277

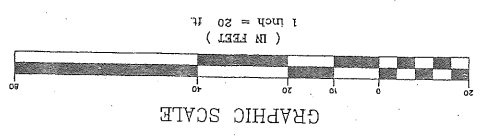
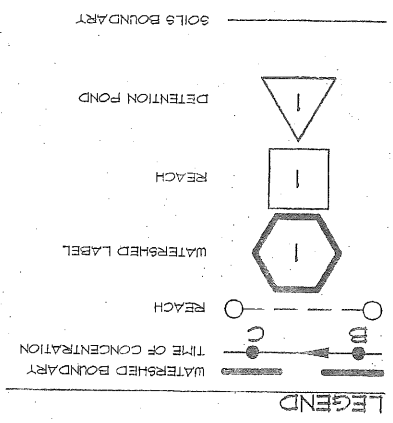
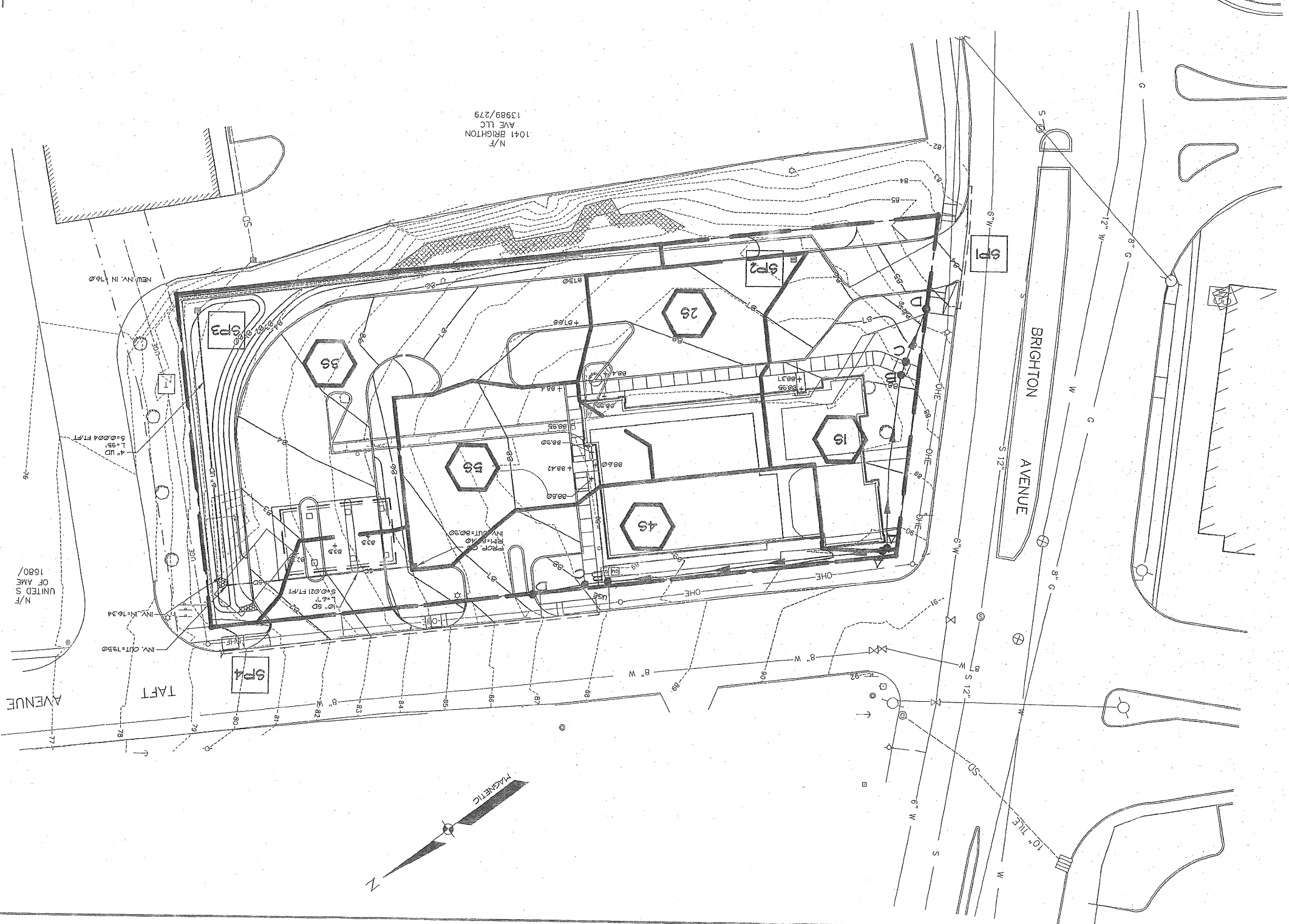
PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRWN
05439	ELEC.	DAM	JBSW	MJC

REV.	BY:	DATE:	STATUS:
A	DAM	11-06-06	ISSUED FOR MUNICIPAL REVIEW

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21



POST-DEVELOPMENT STORMWATER PLAN  
 OF: UNIVERSITY CREDIT UNION PROPERTY  
 1071 BRIGHTON AVENUE  
 PORTLAND, MAINE  
 FOR: UNIVERSITY CREDIT UNION  
 RANGELY ROAD, UNIVERSITY OF MAINE  
 ORONO, MAINE 04469-5779

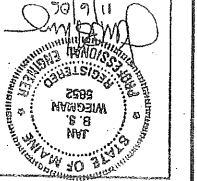
DATE: 11-3-06  
 SCALE: 1" = 20'

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 One Deering Street  
 Westbrook, Me. 04098-1339  
 Tel (207) 588-0277

PROJECT NO. | FIELD BOOK | DESIGN | CHECK | DRAWN  
 05439 | ELEC. | DAM | JBSW | MJC

REV.	BY:	DATE:	STATUS:
A	DAM	11-06-06	ISSUED FOR MUNICIPAL REVIEW

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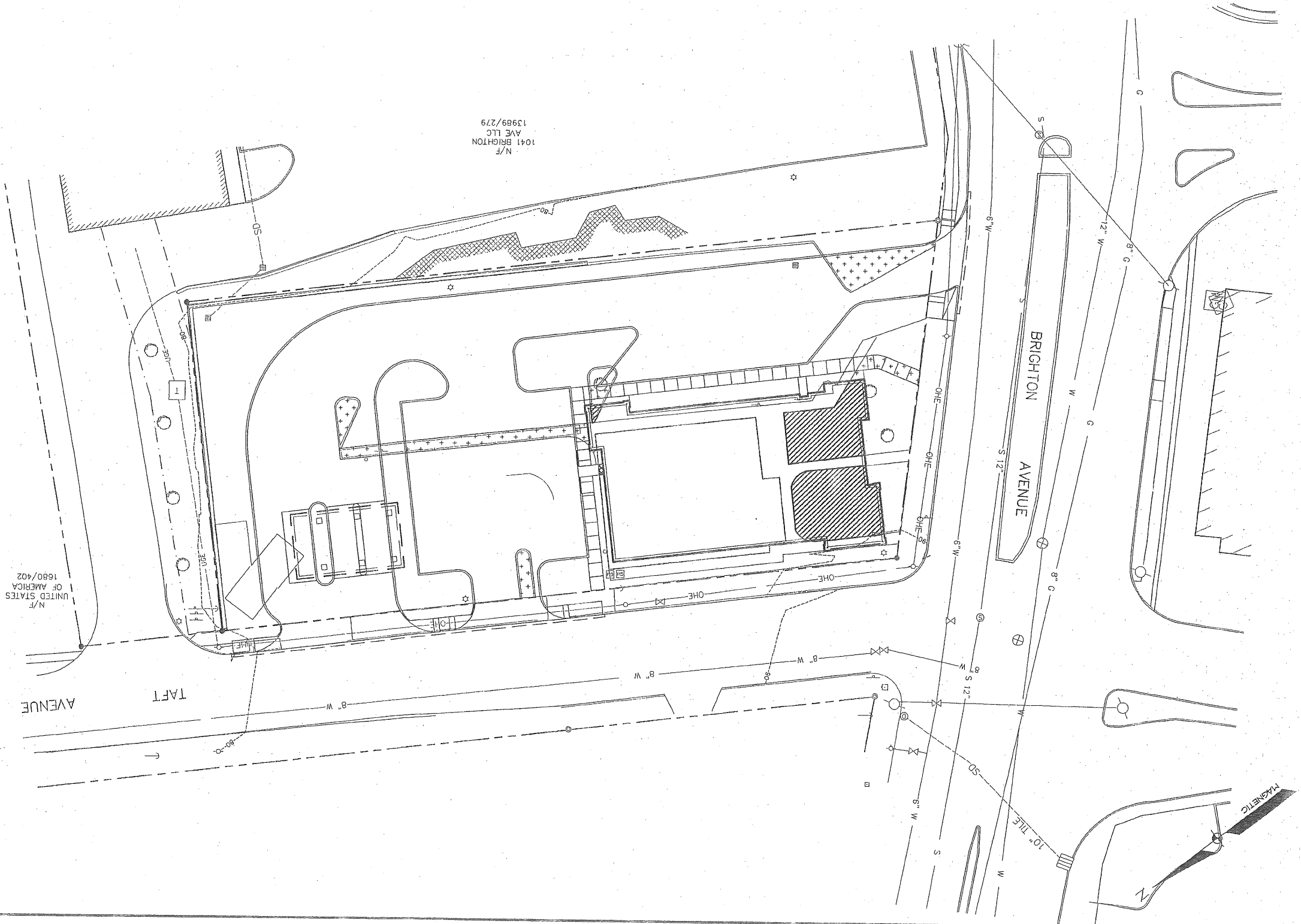
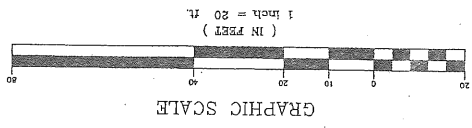


25

EXISTING	DESCRIPTION	PROPOSED
---	BOUNDARY LINE/ROSL	---
---	SETBACK	---
---	FASEBT	---
---	IRON PIPE/RCP	---
---	BENCH-MARK	---
---	BUILDING	---
---	EDGE PAVEMENT	---
---	PAVEMENT PAINT	---
---	CURBLINE	---
---	CONTOURS	---
---	DECIDUOUS TREE	---
---	GAS	---
---	WATER	---
---	SEWER MH	---
---	SEWER	---
---	CATCH BASIN	---
---	OVERHEAD	---
---	ELEC. & TEL.	---
---	UNDERGROUND	---
---	ELEC. & TEL.	---
---	UTILITY POLE	---
---	TRANSFER PAD	---

REDEVELOPMENT AREAS  
REQUIRING TREATMENT

- LANDSCAPED TO BUILDING - 146 SF.
- LANDSCAPED TO PAVEMENT - 100 SF.
- BUILDING TO PAVEMENT - 1 SF.



STORMWATER REDEVELOPMENT SUMMARY  
OF:  
UNIVERSITY CREDIT UNION PROPERTY  
1071 BRIGHTON AVENUE  
PORTLAND, MAINE  
FOR:  
UNIVERSITY CREDIT UNION  
415 FOREST AVENUE  
PORTLAND, MAINE 04101

**Sebago Technics**  
Engineering Expertise You Can Build On  
One Oxford Street  
Westbrook, Me 04095-1339  
Tel (207) 856-0277

PROJECT NO:	FIELD BOOK:	DESIGN:	CHKD:	DRAWN:
05439	ELEC.		DAW	MJC

REV.	BY:	DATE:	STATUS:
A	DAW	11-03-06	ISSUED FOR CITY REVIEW

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22



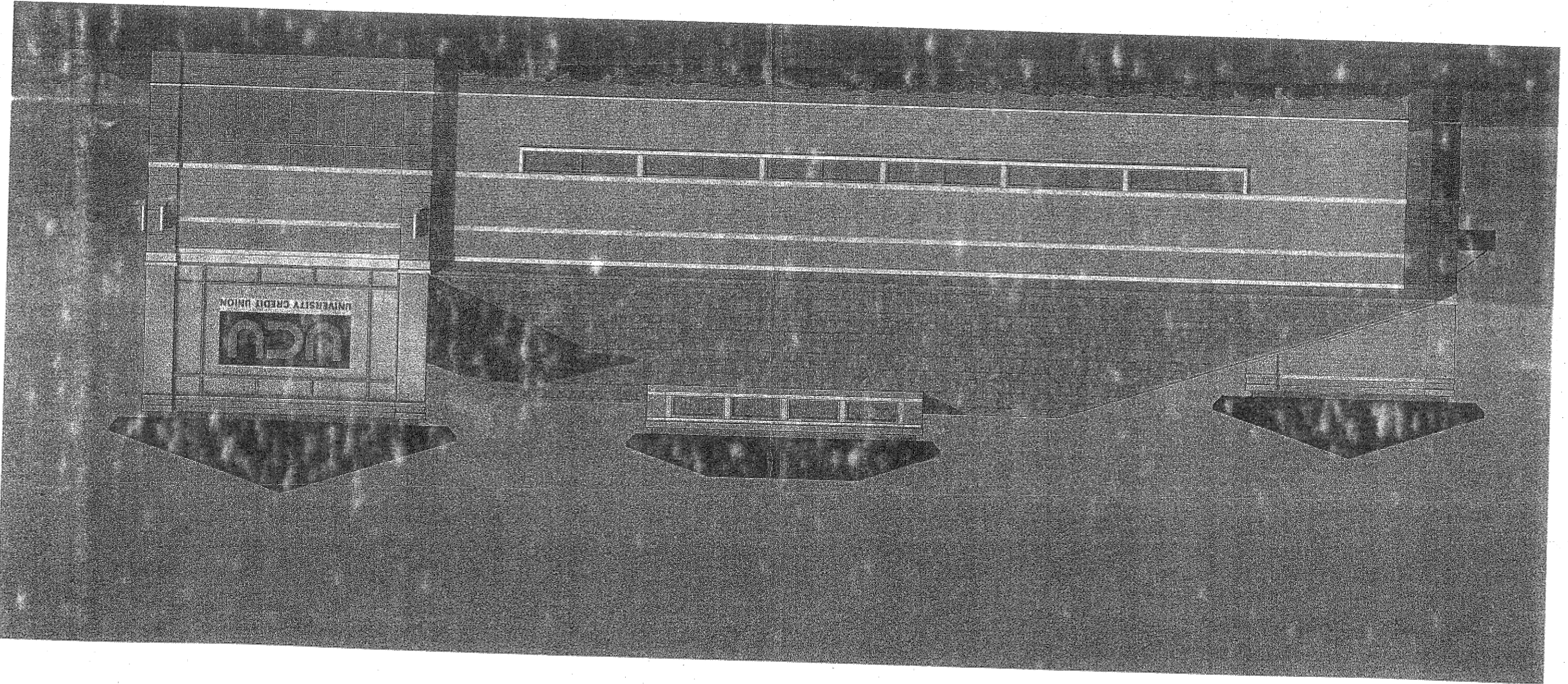
10 Main Street, Rochester, NH 03609 Ph: 603.335.1400 Fx: 603.335.4542  
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University Credit Union  
Taft Avenue

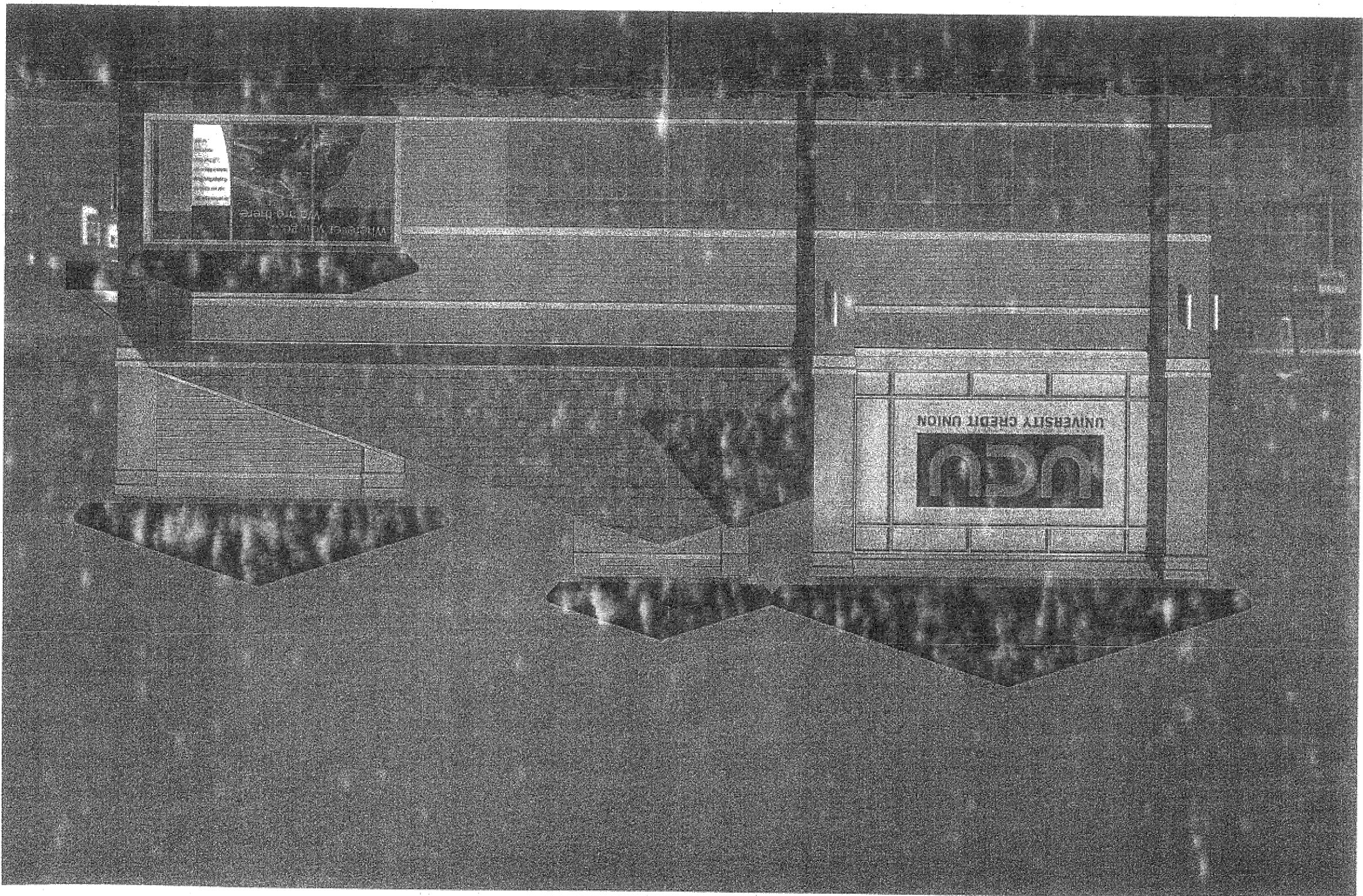
West Elevation, option A  
not to scale

9.06.06

UCU\_4452\_elevs\_9\_06.indd







am



**INFORMATION**

Path:

Issue Date: 8/23/05

Drawn By: KTJ/UT

Checked By: BJ

Revision:

1. 8-24-05

2.

3.

4.

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6.

7.

8.

9.

TITLE

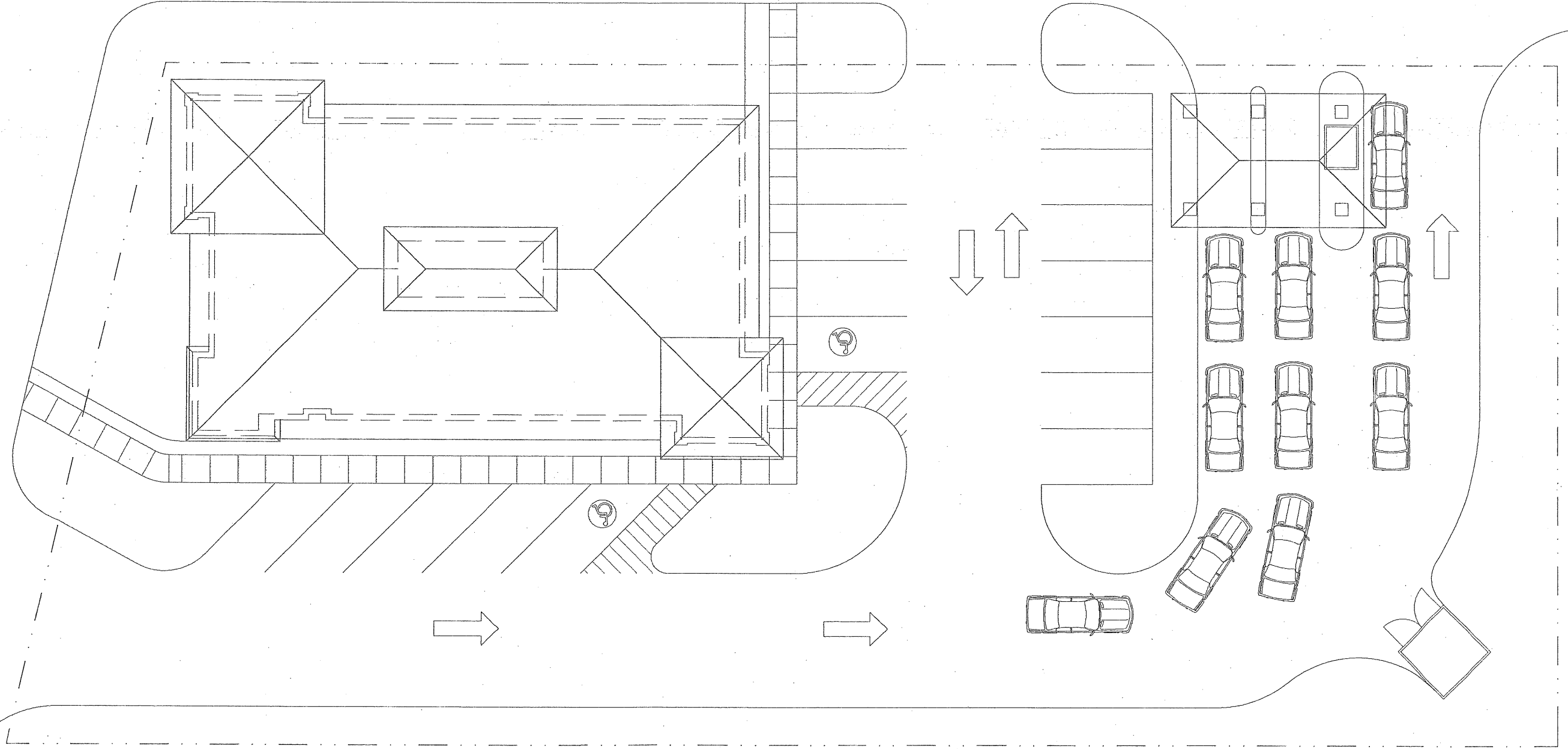
**SITE PLAN**

SCALE

1:20

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**S1.1**



25

BrandPartners

10 Main Street Rochester, NH 03839

Phone: 603.335.1400 Fax 603.335.4542

CLIENT/PROJECT

UNIVERSITY CREDIT UNION

PORTLAND, ME

INFORMATION

Path:

Issue Date: 8/30/08

Drawn By: KTJ

Checked By: BJ

Revision:

1.

2.

3.

4.

5.

6.

7.

8.

9.

TITLE

EXTERIOR ELEVATIONS

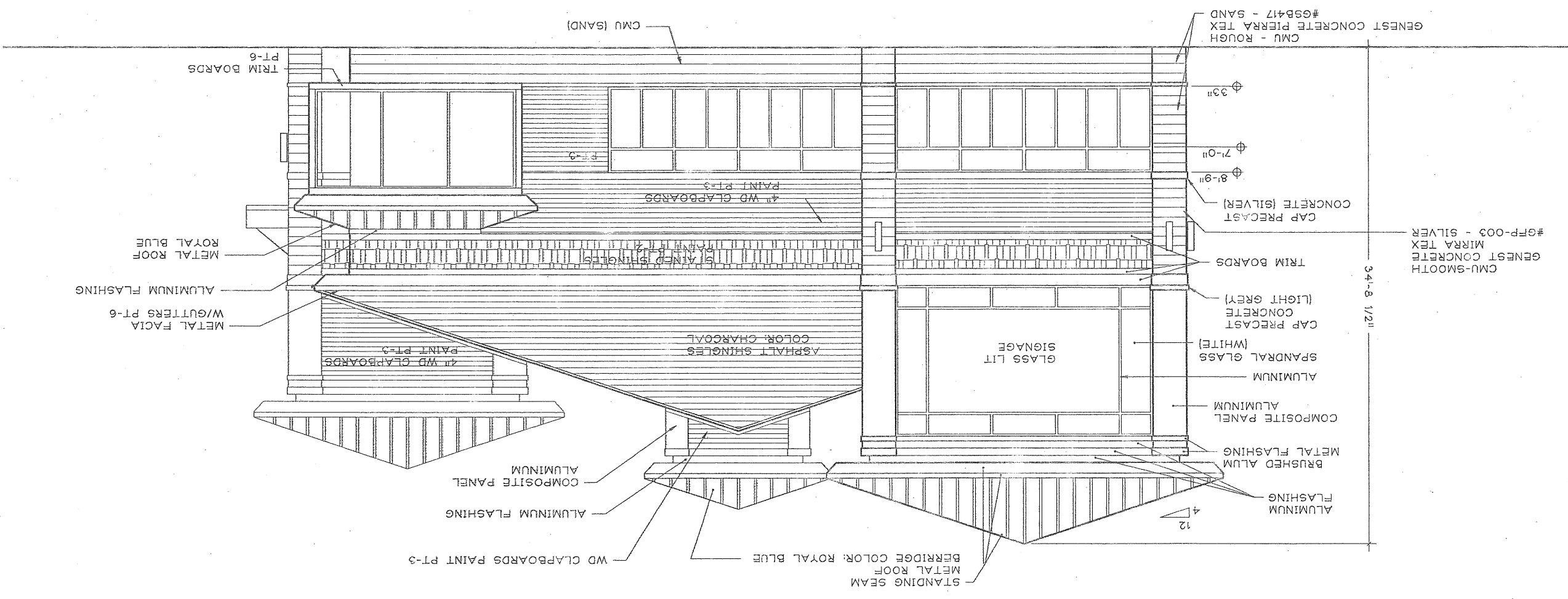
SCALE

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**A2.1**

1 SOUTH ELEVATION - BRIGHTON AVE  
 1/8"=1'-0"



34'-8 1/2"

CMU-SMOOTH  
 GENEST CONCRETE  
 MIRRA TEX  
 #GFP-003 - SILVER

CMU - ROUGH  
 GENEST CONCRETE PIERRA TEX  
 #GSB417 - SAND

CAP PRECAST  
 CONCRETE (SILVER)

TRIM BOARDS

CAP PRECAST  
 CONCRETE  
 (LIGHT GREY)

ALUMINUM

COMPOSITE PANEL  
 ALUMINUM

BRUSHED ALUM  
 FLASHING

ALUMINUM  
 FLASHING

ALUMINUM  
 FLASHING

ALUMINUM  
 FLASHING

ALUMINUM  
 FLASHING

ALUMINUM  
 FLASHING

ALUMINUM  
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ALUMINUM  
 FLASHING

ALUMINUM  
 FLASHING

ALUMINUM  
 FLASHING

ALUMINUM  
 FLASHING

ALUMINUM  
 FLASHING

2p

**brandpartners**

BrandPartners  
10 Main Street Rochester, NH 03639  
Phone: 603.336.1400 Fax 603.336.4542

CLIENT/PROJECT  
**UNIVERSITY CREDIT UNION  
PORTLAND, ME**

**INFORMATION**

Path:  
Issue Date: 8/30/06  
Drawn By: KTJ  
Checked By: BJ

Revision:

9  
8  
7  
6  
5  
4  
3  
2  
1

TITLE

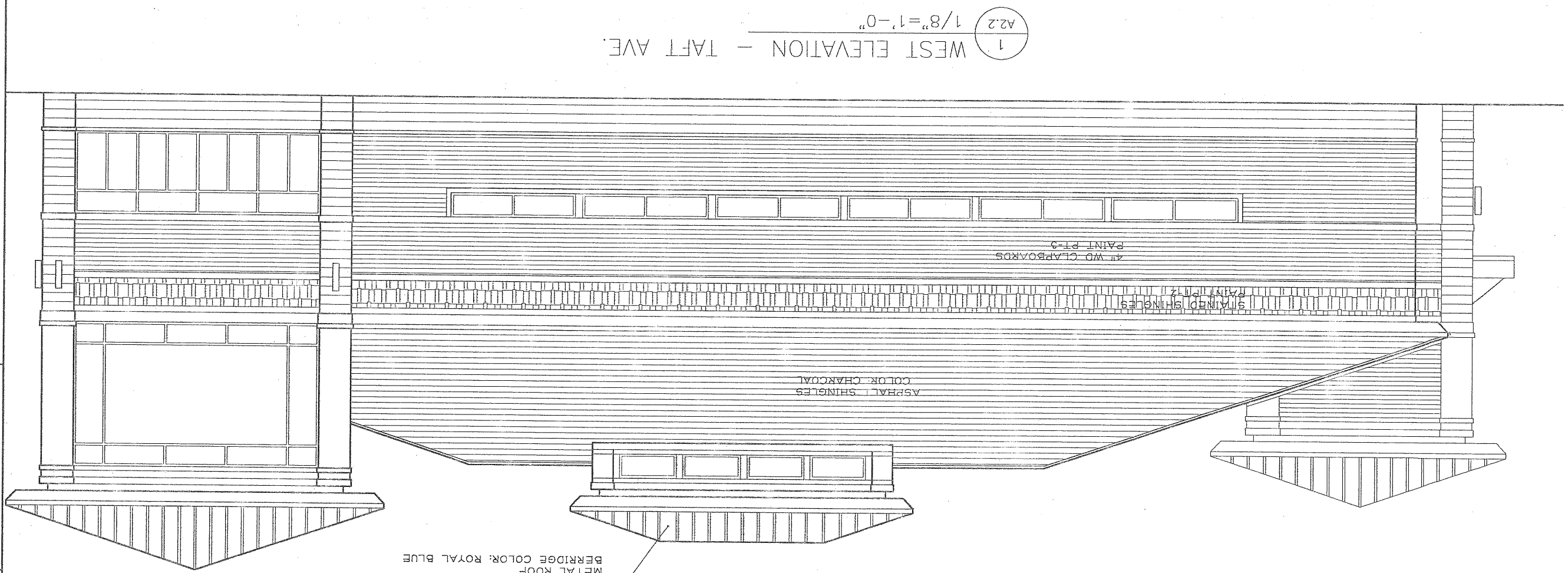
**EXTERIOR ELEVATIONS**

SCALE

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**A2.2**



1 WEST ELEVATION - TAFT AVE  
A2.2 1/8"=1'-0"

STANDING SEAM  
METAL ROOF  
BERRIDGE COLOR: ROYAL BLUE

ASPHALT SHINGLES  
COLOR: CHARCOAL

4" WD CLAPBOARDS  
PAINT PT-3

STANDING SHINGLES  
PAINT PT-2