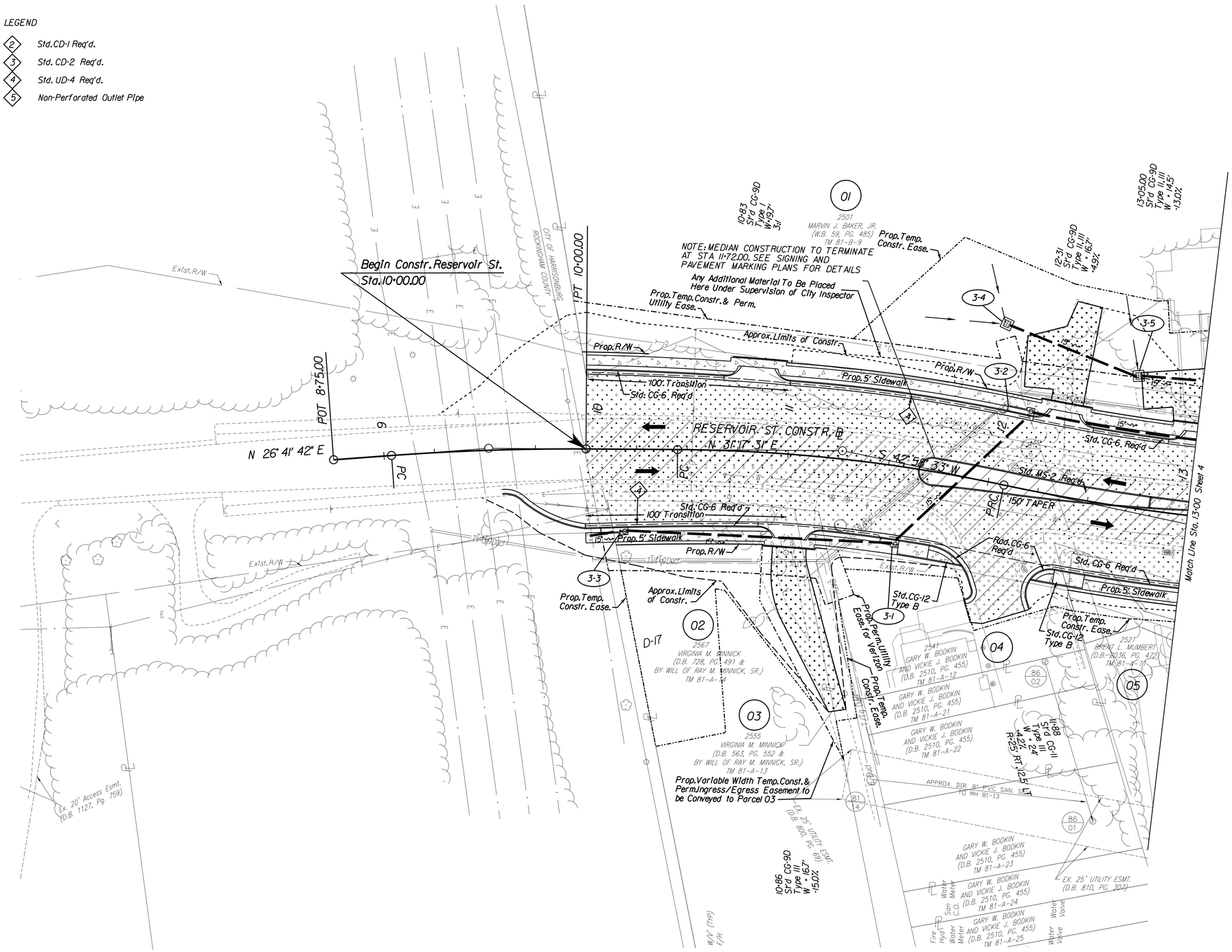
LEGEND

- (2) Std. CD-1 Req'd.
- (3) Std. CD-2 Req'd.
- (4) Std. UD-4 Req'd.
- (5) Non-Perforated Outlet Pipe



UTILITY OWNERS

WATER & SEWER
City of Harrisonburg
Attn: Jamie Fultz
2155 Beery Road
Harrisonburg, VA 22801
540-434-9959

TELEPHONE
Verizon Virginia, Inc.
Engineering Department
9401 Peabody Street
Manassas, VA 20110
703-369-9571
Repair - 1-888-663-0363

Lumos, Inc.
Attn: David Miller
56 Blue Heron Lane
Verona, VA 24482
540-383-2972

ELECTRICITY
Harrisonburg Electric Commission
Attn: Brian O'Dell
89 West Bruce Street
Harrisonburg, VA 22801
540-434-5361

GAS
Columbia Gas of Virginia, Inc.
Customer Service
Richmond VA 23236
1-888-460-4332

CABLE
Comcast Cable / Vision
Attn: Robert Crosier
160 B North Mason Street
Harrisonburg, VA 22801
434-981-7376

FIBEROPTIC COMM.
Shentel Inc.
Attn: Dave Butler
P.O. Box 459
Edinburg, VA 22824
540-984-5514

- Denotes New Pavement
- Denotes Proposed Concrete
- Denotes Resurfacing
- Denotes Demolition of Pavement

REFERENCES
(PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

Reservoir St. Profile	3A
Drainage Descriptions	2B Series
Entrance Profiles	14 Series
SPM	12 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

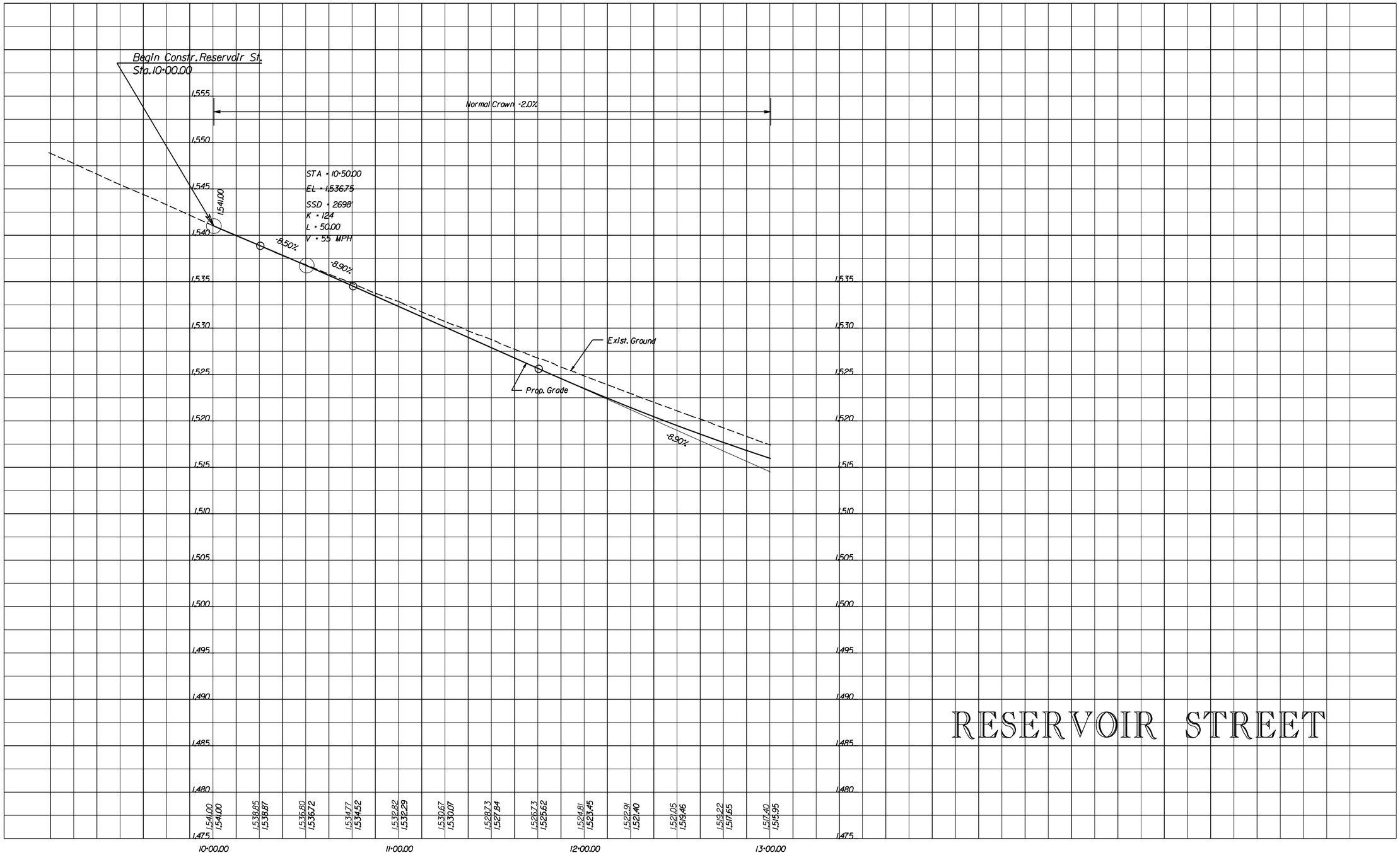
SCALE: 1" = 25'	
DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

PLAN
STA. 10+00-13+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 3



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY BRG DATE

CHECKED BY RJD DATE

DESIGN BY CMY DATE

TAX MAP

RESERVOIR STREET

PROFILE
STA. 10+00-13+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 3A

LEGEND

- 2 Std.CD-1 Req'd.
- 3 Std. CD-2 Req'd.
- 4 Std. UD-4 Req'd.
- 5 Non-Perforated Outlet Pipe

Denotes New Pavement

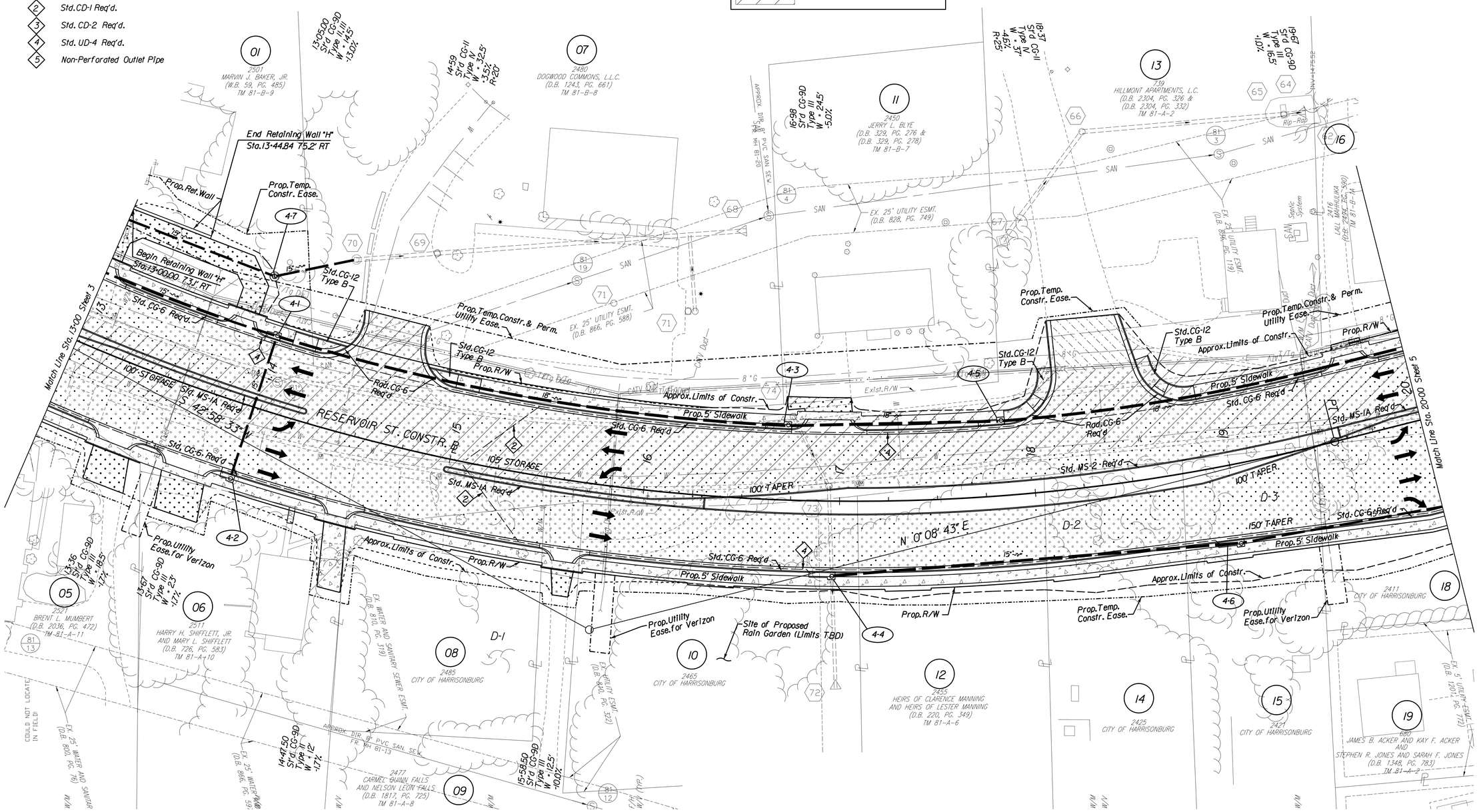
Denotes Proposed Concrete

Denotes Resurfacing

Denotes Demolition of Pavement

REFERENCES
(PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

Reservoir St. Profile	4A
Drainage Descriptions	2B Series
Entrance Profiles	14 Series
SPM	12 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

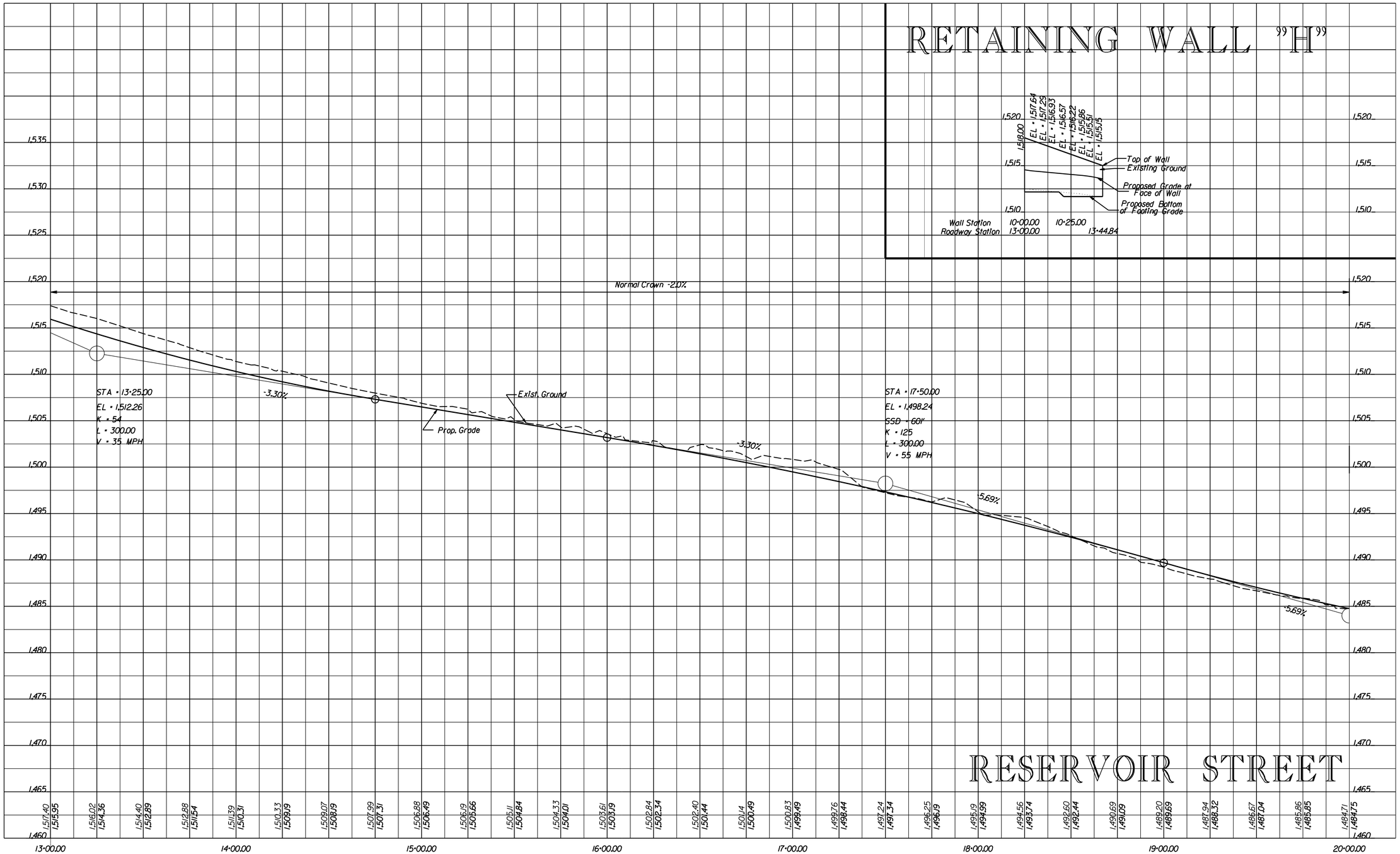
SCALE:	1" = 25'
DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

PLAN
STA. 13+00-20+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 4



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY BRG DATE

CHECKED BY RJD DATE

DESIGN BY CMY DATE

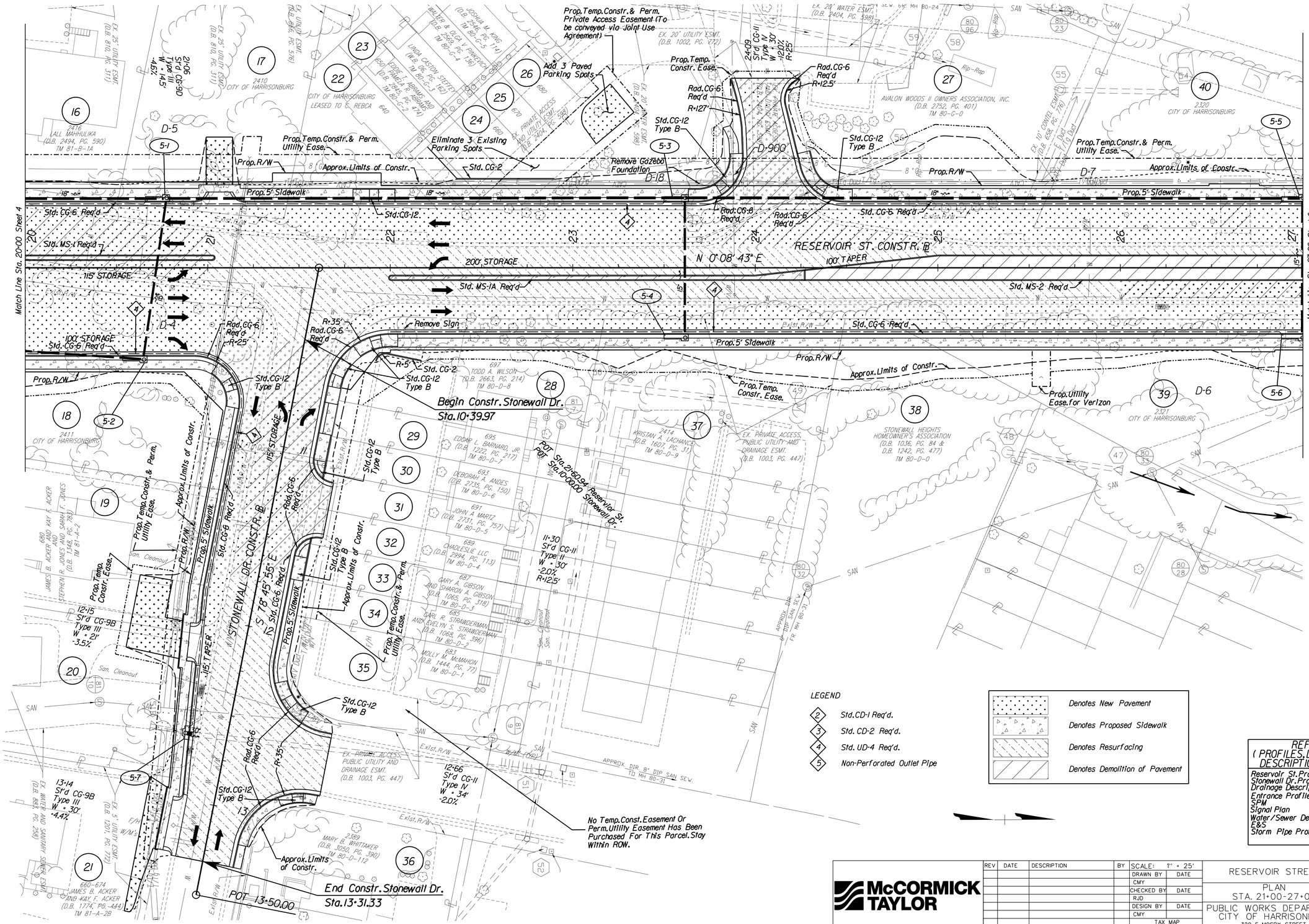
TAX MAP

RESERVOIR STREET

PROFILE
STA. 13+00-20+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 4A



LEGEND

- 2 Std. CD-1 Req'd.
- 3 Std. CD-2 Req'd.
- 4 Std. UD-4 Req'd.
- 5 Non-Perforated Outlet Pipe

- Denotes New Pavement
- Denotes Proposed Sidewalk
- Denotes Resurfacing
- Denotes Demolition of Pavement

REFERENCES
(PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

Reservoir St. Profile	5A
Stonewall Dr. Profile	5B
Drainage Descriptions	2B Series
Entrance Profiles	14 Series
SPM	12 Series
Signal Plan	13 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

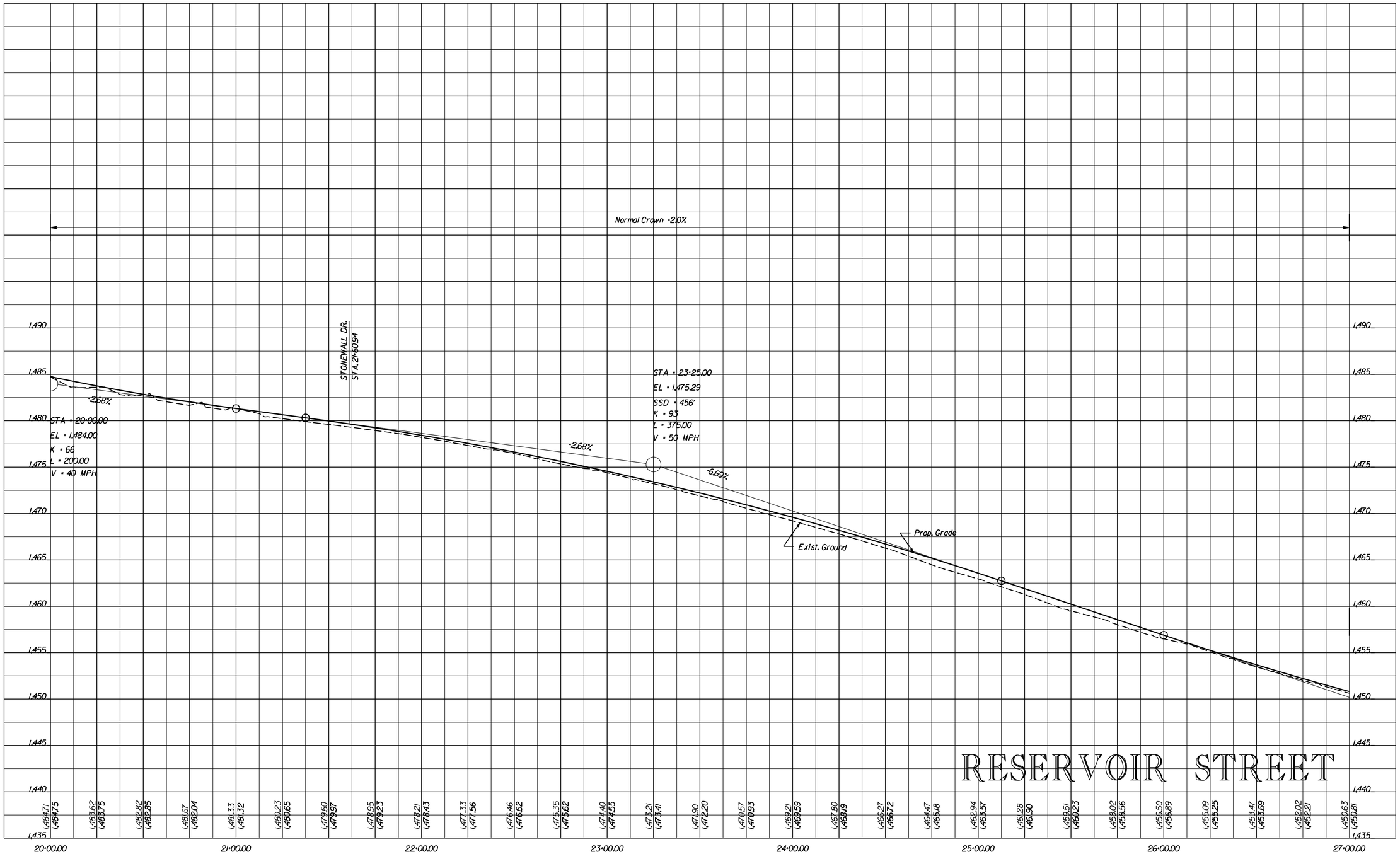
DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

PLAN
STA. 21+00-27+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY STREET
HARRISONBURG, VIRGINIA

SHEET 5



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

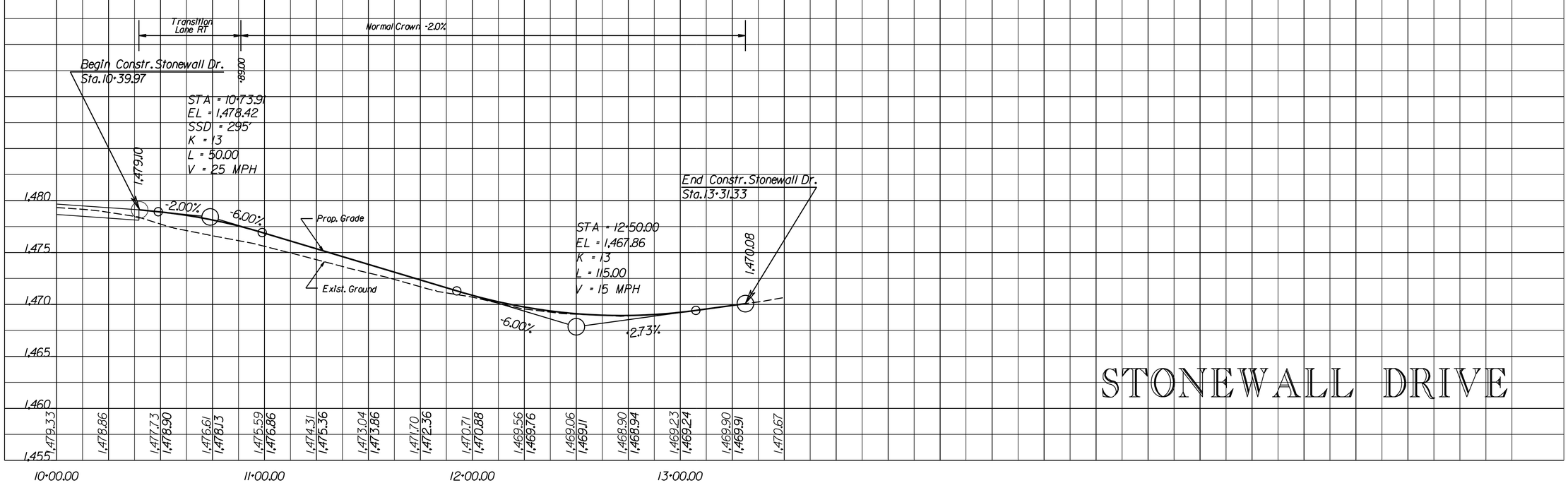
SCALE:	HORZ. 1" = 25' VERT. 1" = 5'
DRAWN BY	DATE
BRG	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

PROFILE
STA. 20+00-27+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
5A



STONEWALL DRIVE

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

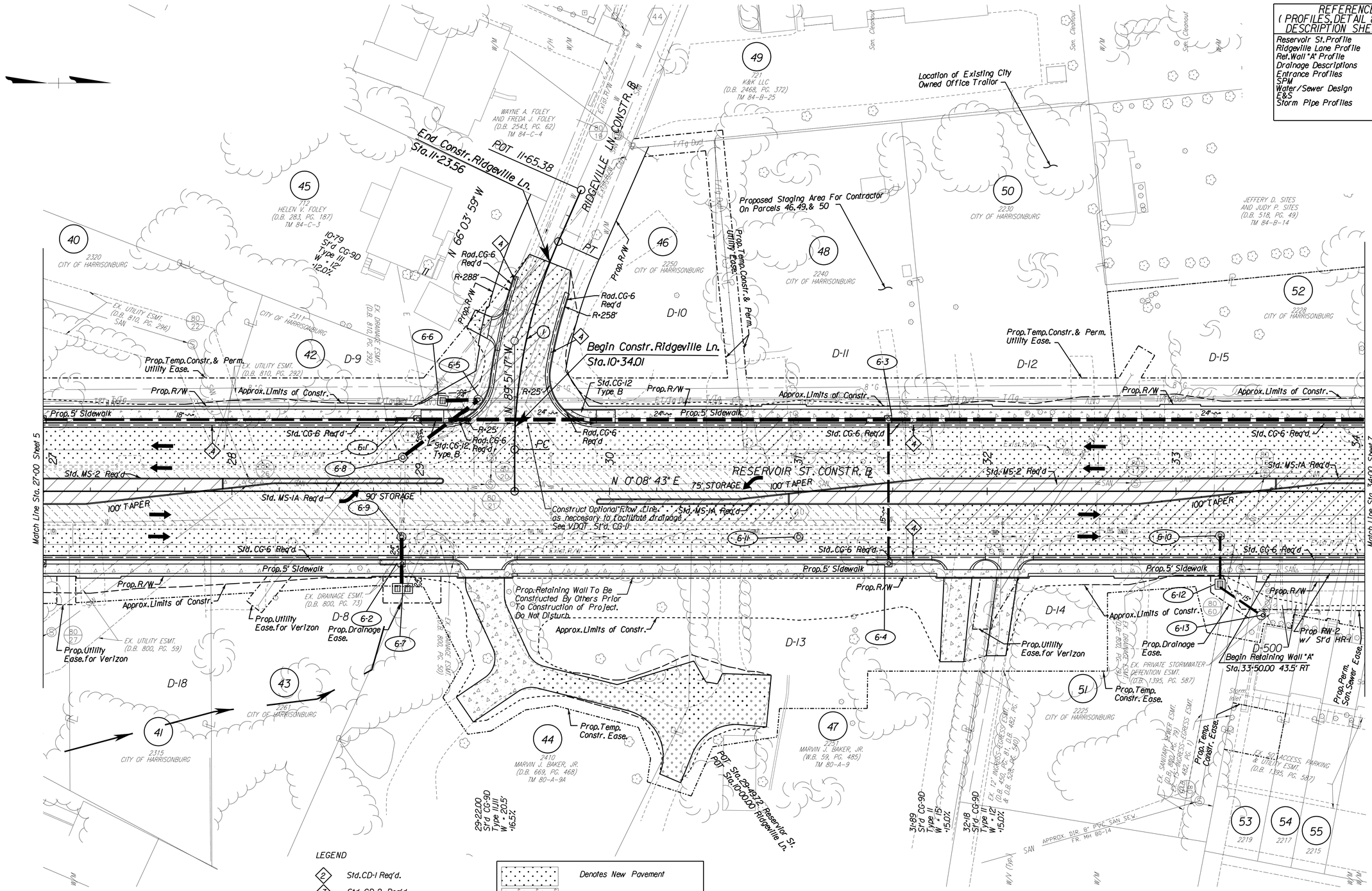
TAX MAP

RESERVOIR STREET

STONEWALL DR. PROFILE

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 5B



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

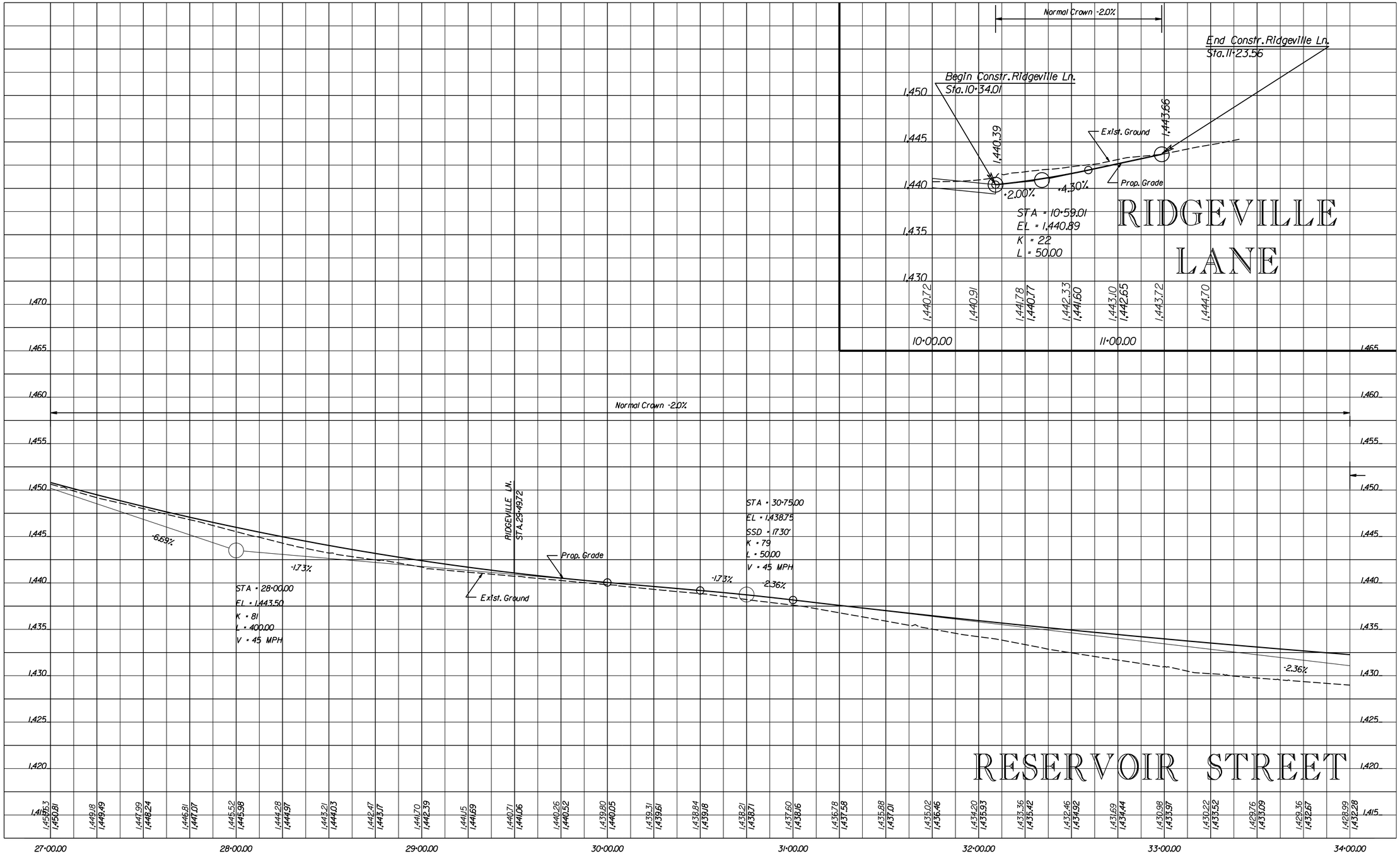
TAX MAP

RESERVOIR STREET

PLAN
STA. 27+00-34+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 6



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

TAX MAP

RESERVOIR STREET

PROFILE
STA. 27+00-34+00

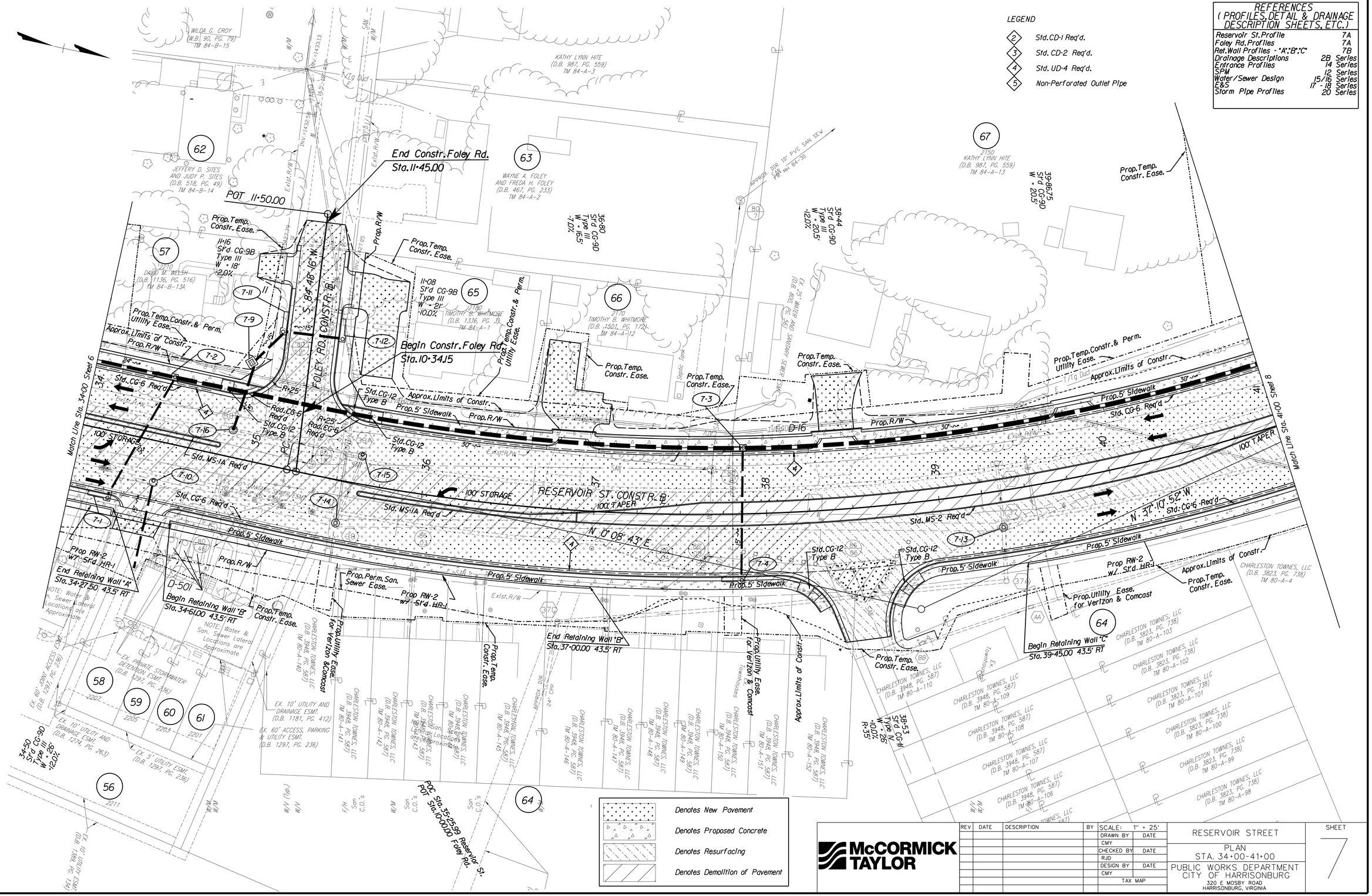
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
6A

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	7A
Foley Rd. Profiles	7A
Ret. Wall Profiles - "A", "B", "C"	7B
Drainage Descriptions	2B Series
Entrance Profiles	14 Series
SPM	12 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series

LEGEND

- 2 Std. CD-1 Req'd.
- 3 Std. CD-2 Req'd.
- 4 Std. UD-4 Req'd.
- 5 Non-Perforated Outlet Pipe



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

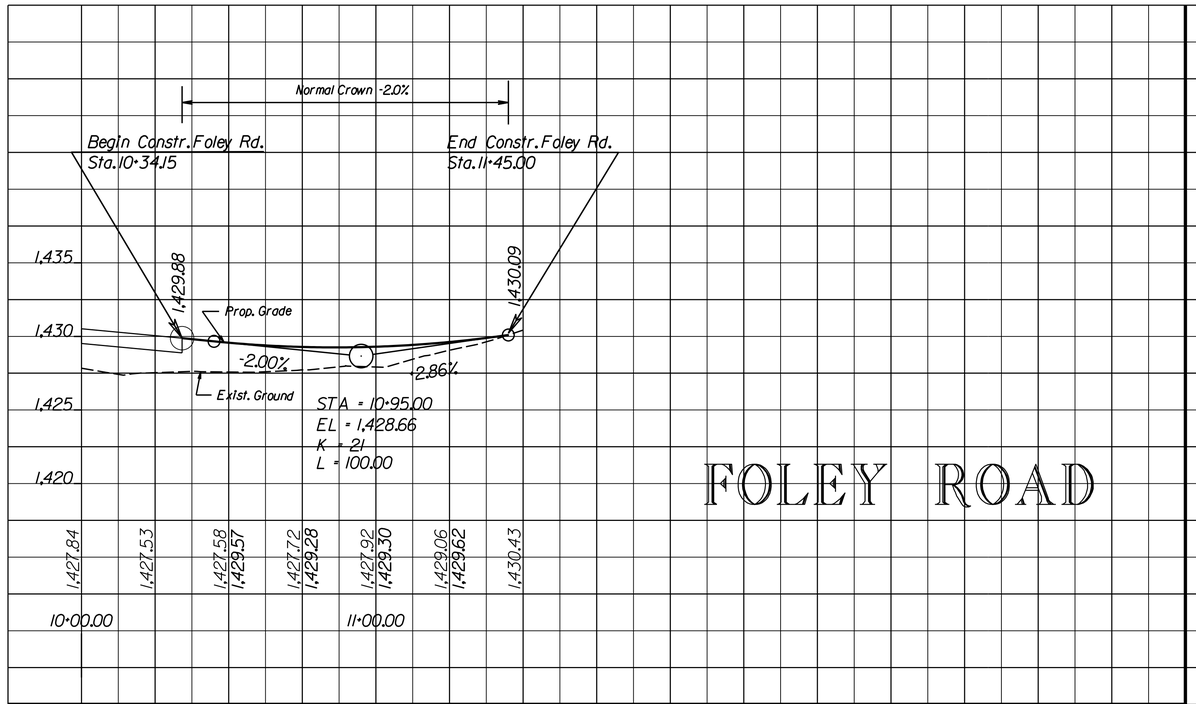
RESERVOIR STREET

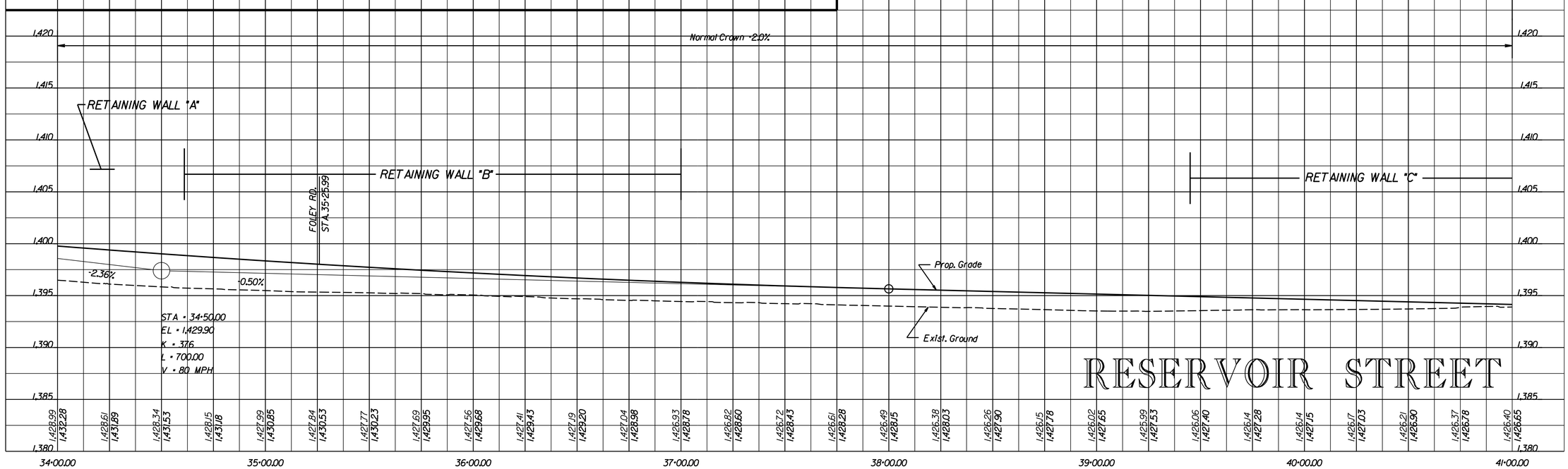
PLAN

STA. 34+00-41+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 7





McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

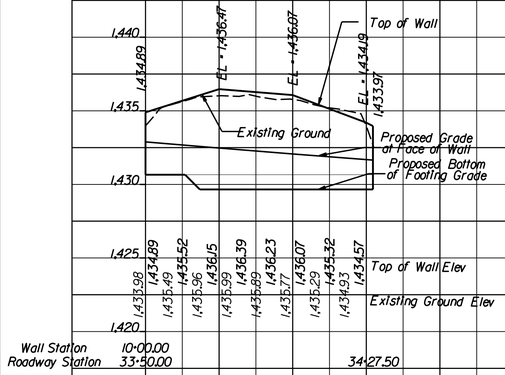
DRAWN BY	DATE
BRG	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

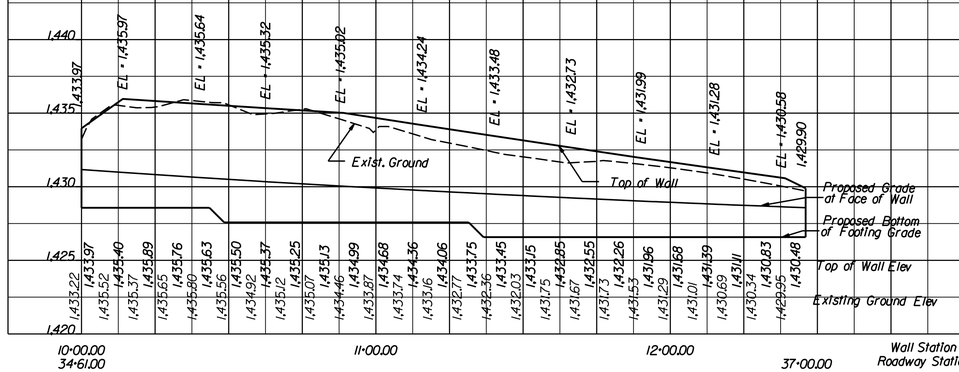
PROFILE
STA. 34+00-41+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY STREET
HARRISONBURG, VIRGINIA

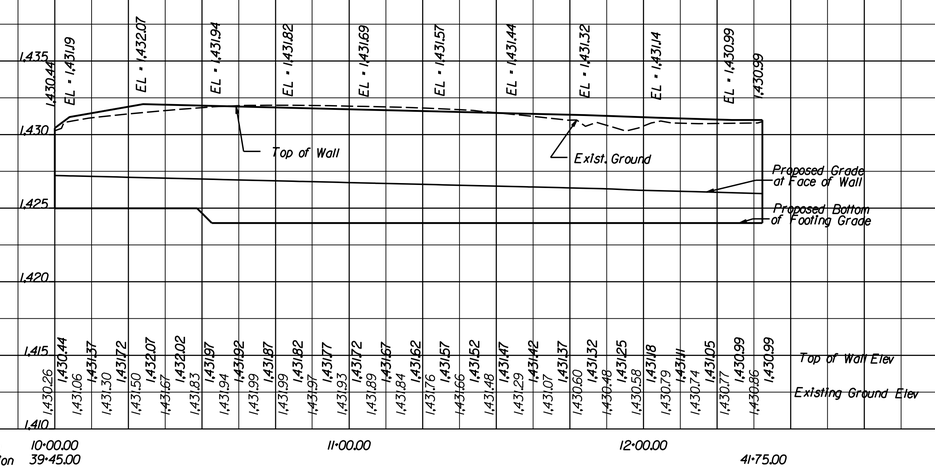
SHEET 7A



RETAINING WALL "A"



RETAINING WALL "B"



RETAINING WALL "C"

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

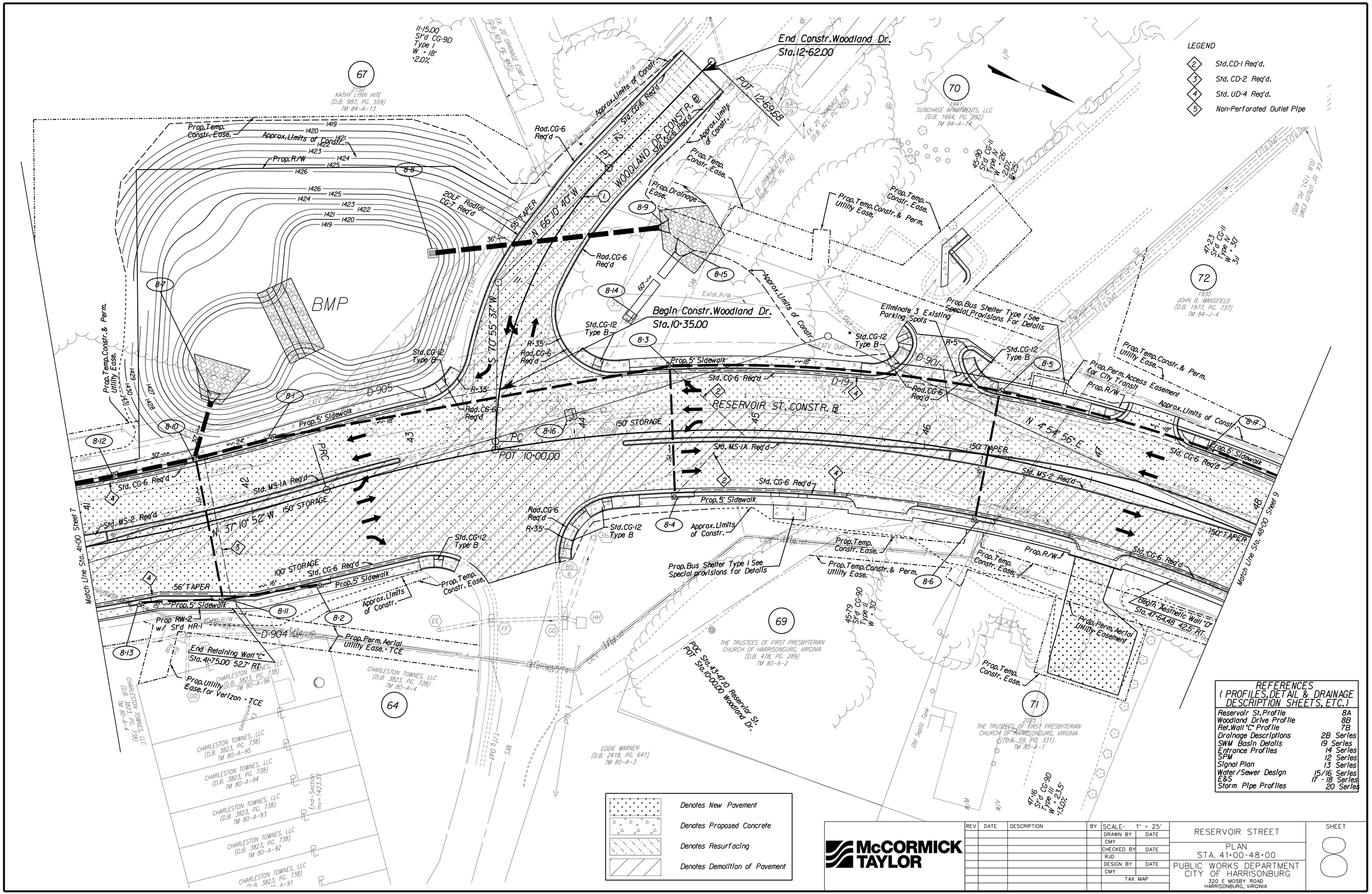
DRAWN BY	DATE
BRG	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

RETAINING WALL PROFILES

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY STREET
HARRISONBURG, VIRGINIA

SHEET 7B



REFERENCES
(PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

Reservoir St. Profile	8A
Woodland Drive Profile	8B
Ret. Wall "C" Profile	7B
Drainage Descriptions	2B Series
SWM Basin Details	19 Series
Entrance Profiles	14 Series
SPM	12 Series
Signal Plan	13 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

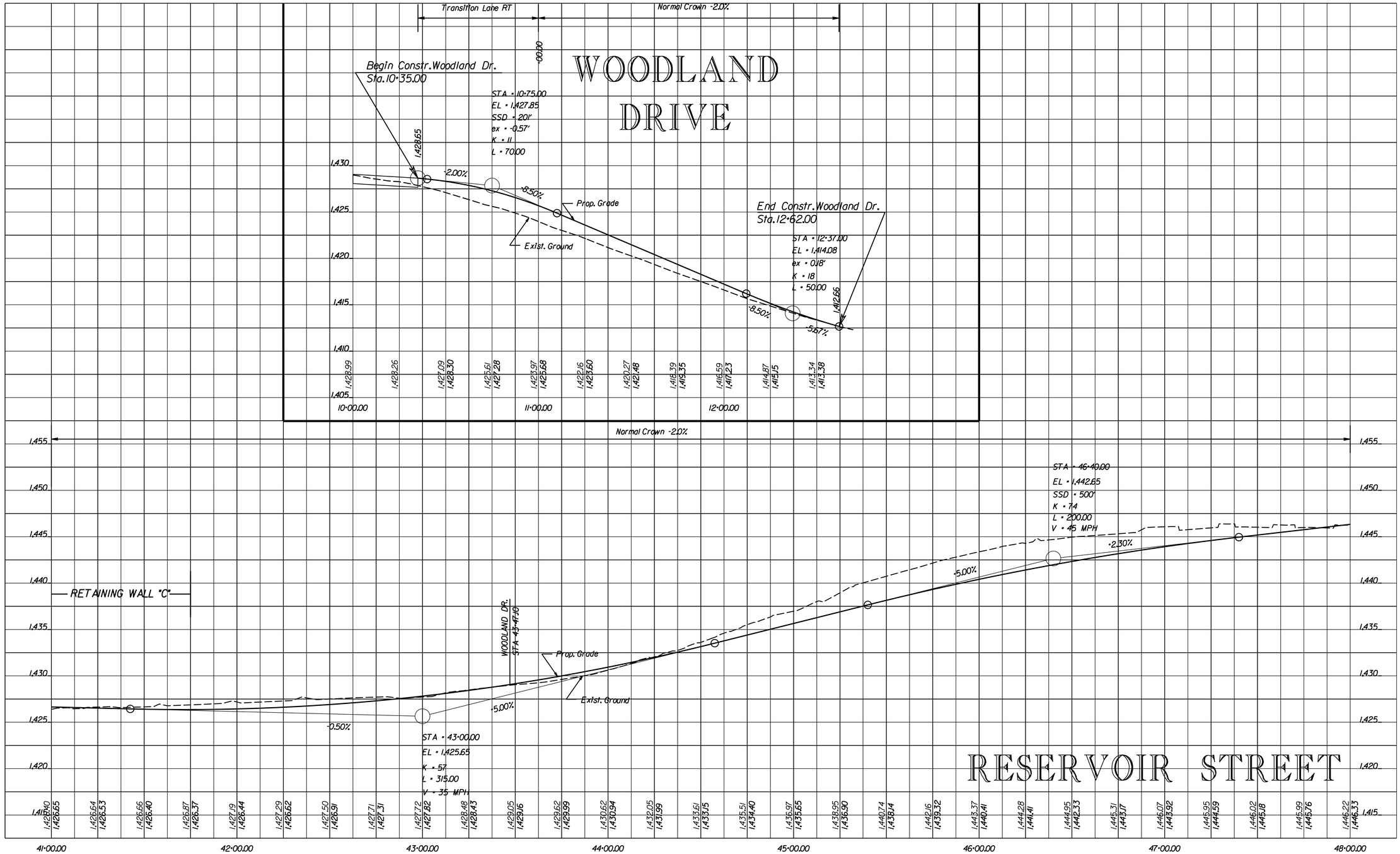
SCALE:	1" = 25'
DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

PLAN
STA. 41+00-48+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
8



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

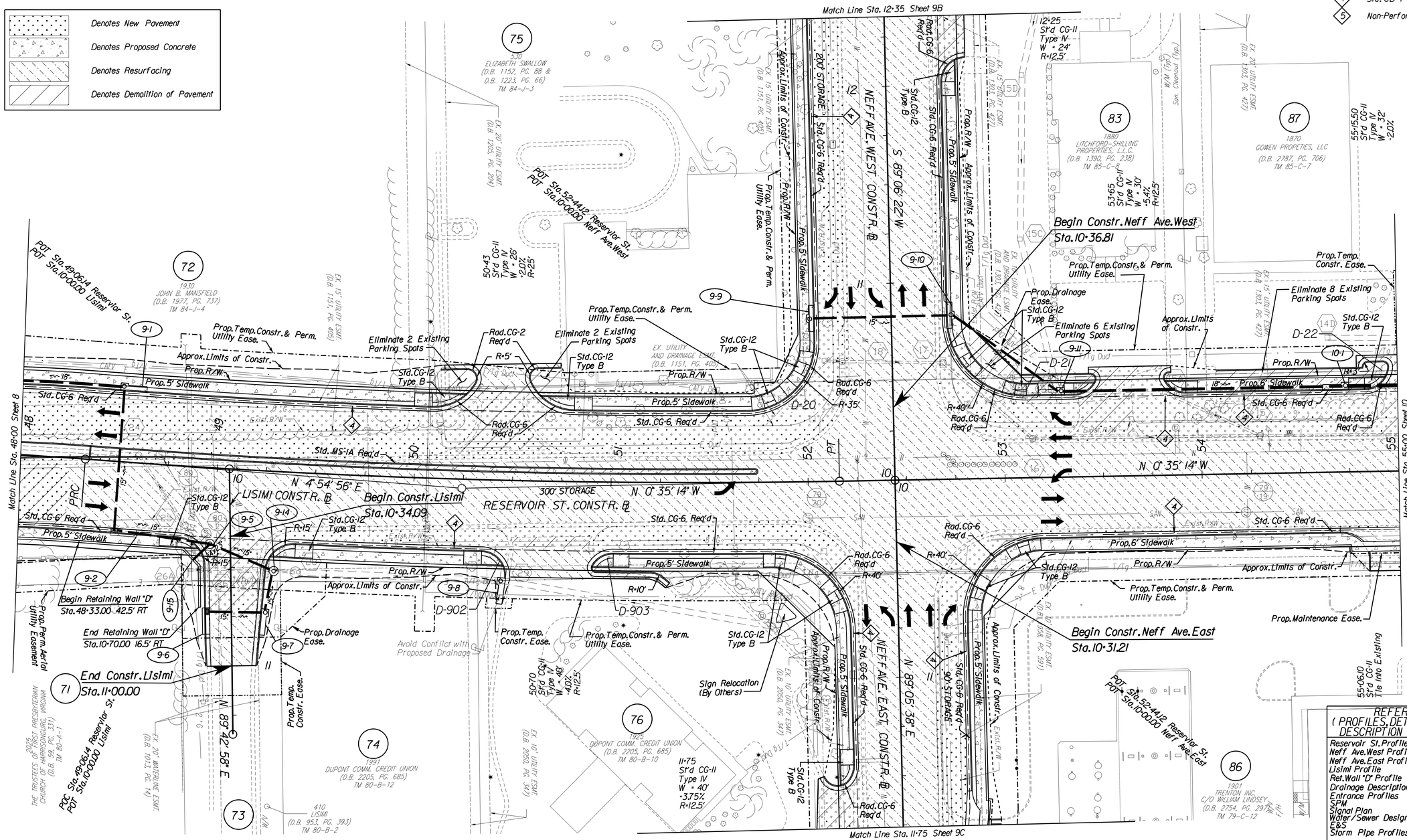
SCALE:	HORZ. 1" = 25' VERT. 1" = 5'
DRAWN BY	DATE
BRG	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

PROFILE
STA. 41+00-48+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
8A



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

Reservoir St. Profile	9A
Neff Ave. West Profile	9D
Neff Ave. East Profile	9E
Lisimi Profile	9A
Ret. Wall "D" Profile	9A
Drainage Descriptions	2B Series
Entrance Profiles	14 Series
SPM	12 Series
Signal Plan	13 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

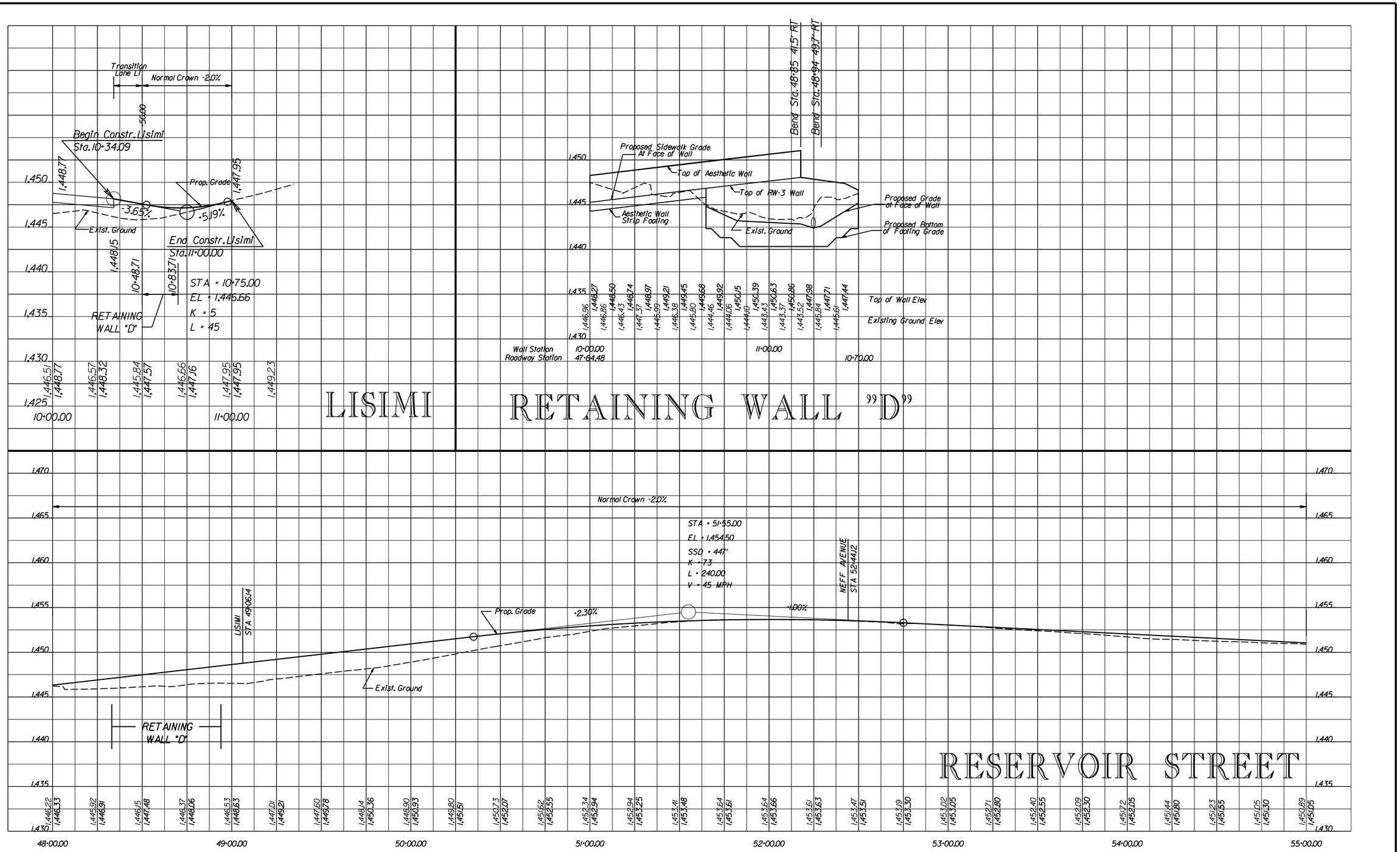
TAX MAP

RESERVOIR STREET

PLAN
STA. 48+00-55+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 9



LISIMI RETAINING WALL "D"

RESERVOIR STREET

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

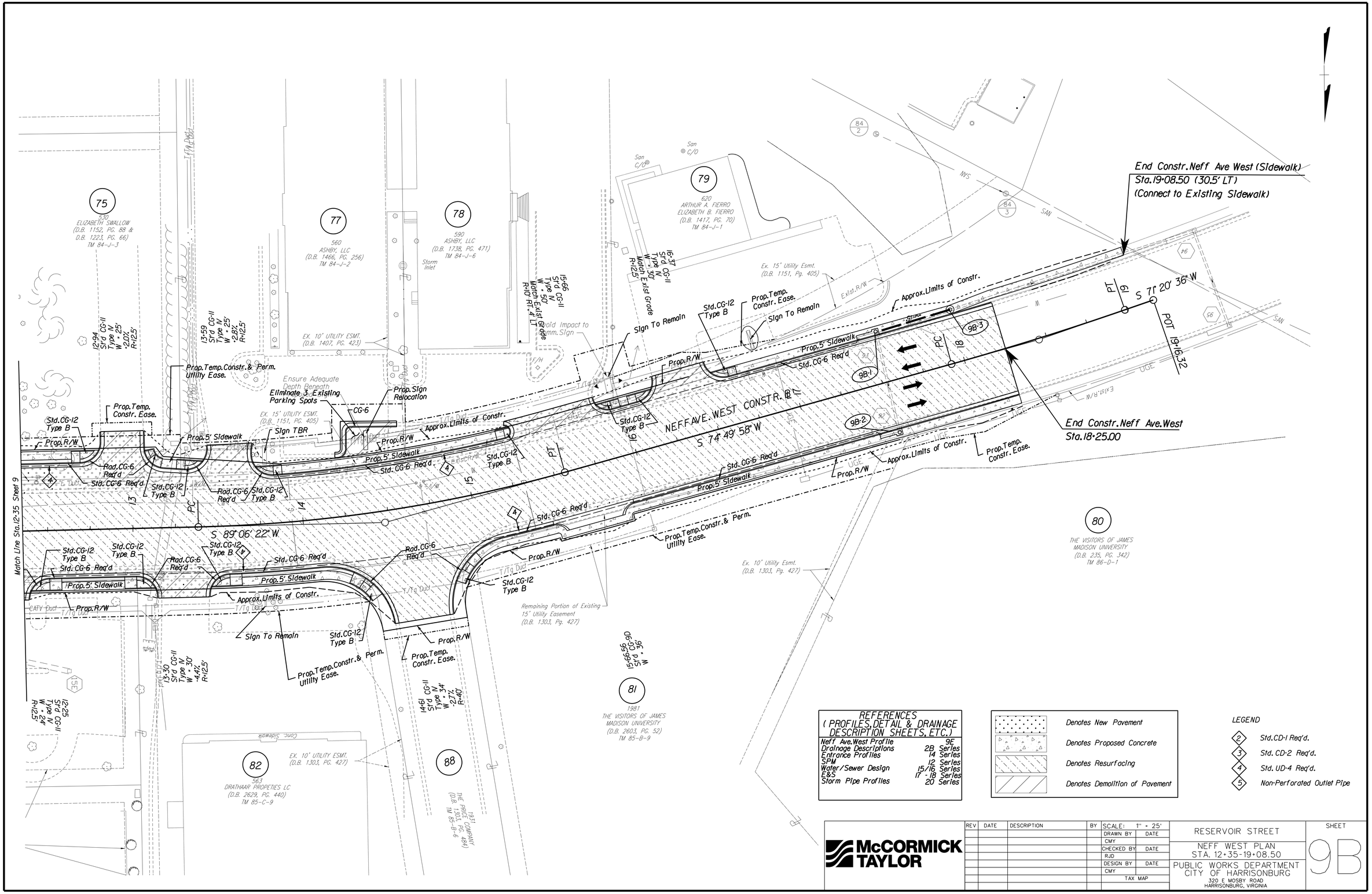
SCALE:	HORZ. 1" = 25' VERT. 1" = 5'
DRAWN BY	DATE
BRG	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

PROFILE
STA. 48+00-55+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 9A


End Constr.Neff Ave West (Sidewalk)
Sta.19+08.50 (30.5' LT)
(Connect to Existing Sidewalk)
End Constr.Neff Ave.West
Sta.18+25.00
NEFF AVE. WEST CONSTR. ℄
S 71° 20' 36" W
S 74° 49' 58" W
S 89° 06' 22" W
POT 19+16.32
Approx.Limits of Constr.
Prop.5' Sidewalk
Std.CG-6 Req'd
Prop.R/W
Prop.Temp. Constr. Ease.
Prop.Temp.Constr.& Perm. Utility Ease.
Sign To Remain
Std.CG-12 Type B
Rad.CG-6 Req'd
Prop.Sign Relocation
Eliminate 3 Existing Parking Spots
Ensure Adequate Depth Beneath
Sign TBR
Avoid Impact to Comm. Sign
Match Line Sta.12+35 Sheet 9
75
539
ELIZABETH SWALLOW
(D.B. 1152, PG. 88 & D.B. 1223, PG. 66)
TM 84-J-3
77
560
ASHBY, LLC
(D.B. 1466, PG. 256)
TM 84-J-2
78
590
ASHBY, LLC
(D.B. 1738, PG. 471)
TM 84-J-6
79
620
ARTHUR A. FIERRO
ELIZABETH B. FIERRO
(D.B. 1417, PG. 70)
TM 84-J-1
80
THE VISITORS OF JAMES MADISON UNIVERSITY
(D.B. 235, PG. 342)
TM 86-D-1
81
1981
THE VISITORS OF JAMES MADISON UNIVERSITY
(D.B. 2603, PG. 52)
TM 85-B-9
82
563
DRATHAAR PROPETIES LC
(D.B. 2629, PG. 440)
TM 85-C-9
88
1931
THE PRICE COMPANY
(D.B. 1303, PG. 434)
TM 85-B-6
Ex. 15' Utility Esmt. (D.B. 1151, Pg. 405)
Ex. 10' UTILITY ESMT. (D.B. 1407, PG. 423)
Ex. 10' Utility Esmt. (D.B. 1303, Pg. 427)
Remaining Portion of Existing 15' Utility Easement (D.B. 1303, Pg. 427)
Storm Inlet
Exist.R/W
Conc. Sidewalk
REFERENCES
(PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)
Neff Ave.West Profile 9E
Drainage Descriptions 2B Series
Entrance Profiles 14 Series
SPM 12 Series
Water/Sewer Design 15/16 Series
E&S 17 - 18 Series
Storm Pipe Profiles 20 Series
Denotes New Pavement
Denotes Proposed Concrete
Denotes Resurfacing
Denotes Demolition of Pavement
LEGEND
2 Std.CD-1 Req'd.
3 Std. CD-2 Req'd.
4 Std. UD-4 Req'd.
5 Non-Perforated Outlet Pipe
McCORMICK TAYLOR
REV DATE DESCRIPTION BY
SCALE: 1" = 25'
DRAWN BY DATE
CMY
CHECKED BY DATE
RJD
DESIGN BY DATE
CMY
TAX MAP
RESERVOIR STREET
NEFF WEST PLAN
STA. 12+35-19+08.50
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA
SHEET
9B

Match Line Sta. 11+75 Sheet 9

11+75
St'd CG-11
Type IV
W = 40'
•3.75%
R=12.5'

Rad.CG-6
Req'd

Std.CG-12
Type B

Prop.R/W

Prop.5' Sidewalk

Std.CG-6 Req'd

Approx.Limits of Constr.
Prop.Temp.Constr.& Perm.
Utility Ease.

EX. 20' WATERLINE ESMT.
(D.B. 1013, PG. 14)

EX. 10' UTILITY AND
DRAINAGE ESMT.
(D.B. 2613, PG. 768)

EX. 20' INGR. ESMT.
(D.B. 2613, PG. 768)

EX. 10' CITY OF HARRISONBURG
ELECTRIC ESMT.
(D.B. 1046, PG. 150)

84
420
DAVID A. RAO
AND MARSHA L. GARST
(D.B. 2614, PG. 266)
TM 80-B-3

13+25
St'd CG-11
Type IV
W = 30'
•10.3%
R=15' RT. 17.5' LT

Ensure LUMOS Line Has
No Conflict With Prop.
Fire Hydrant

Storm Inlet

Storm Grate

73
LISIMI
(D.B. 953, PG. 393)
TM 80-B-2

EX. 20' SANITARY SEWER ESMT.
(D.B. 1013, PG. 14)

Drain

N 89° 05' 38" E

NEFF AVE. EAST CONSTR. ℄

12

13

14

PC

PT

N 82° 32' 48" E

POT 14+85.76

End Constr. Neff Ave. East
Sta. 14+68.66

Rad.CG-6 Req'd

Std.CG-6 Req'd

Prop.5' Sidewalk

Prop.R/W

Approx.Limits of Constr.
Prop.Temp.Constr.& Perm.
Utility Ease.

Std.CG-12
Type B

Rad.CG-6
Req'd

Prop.R/W

Prop.5' Sidewalk

Prop.R/W

Approx.Limits of Constr.
Prop.Temp.Constr.& Perm.
Utility Ease.

Std.CG-12
Type B

Prop.5' Sidewalk

Sidewalk to Extend 96'
From this Point

Split Rail Fence
(2 Rail)

T/Tg Duct

EX. 20' UTILITY ESMT.
(D.B. 920, PG. 73)

85
1967
ANCHORAGE INVESTMENTS, LLC
(D.B. 1696, PG. 155)
TM 79-C-6

EX. 10' UTILITY AND
DRAINAGE ESMT.
(D.B. 1550, PG. 693)

LEGEND

2 Std.CD-1 Req'd.

3 Std. CD-2 Req'd.

4 Std. UD-4 Req'd.

5 Non-Perforated Outlet Pipe

Denotes New Pavement

Denotes Proposed Concrete

Denotes Resurfacing

Denotes Demolition of Pavement

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Neff Ave. East Profile	9D
Drainage Descriptions	2B Series
Entrance Profiles	14 Series
SPM	12 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

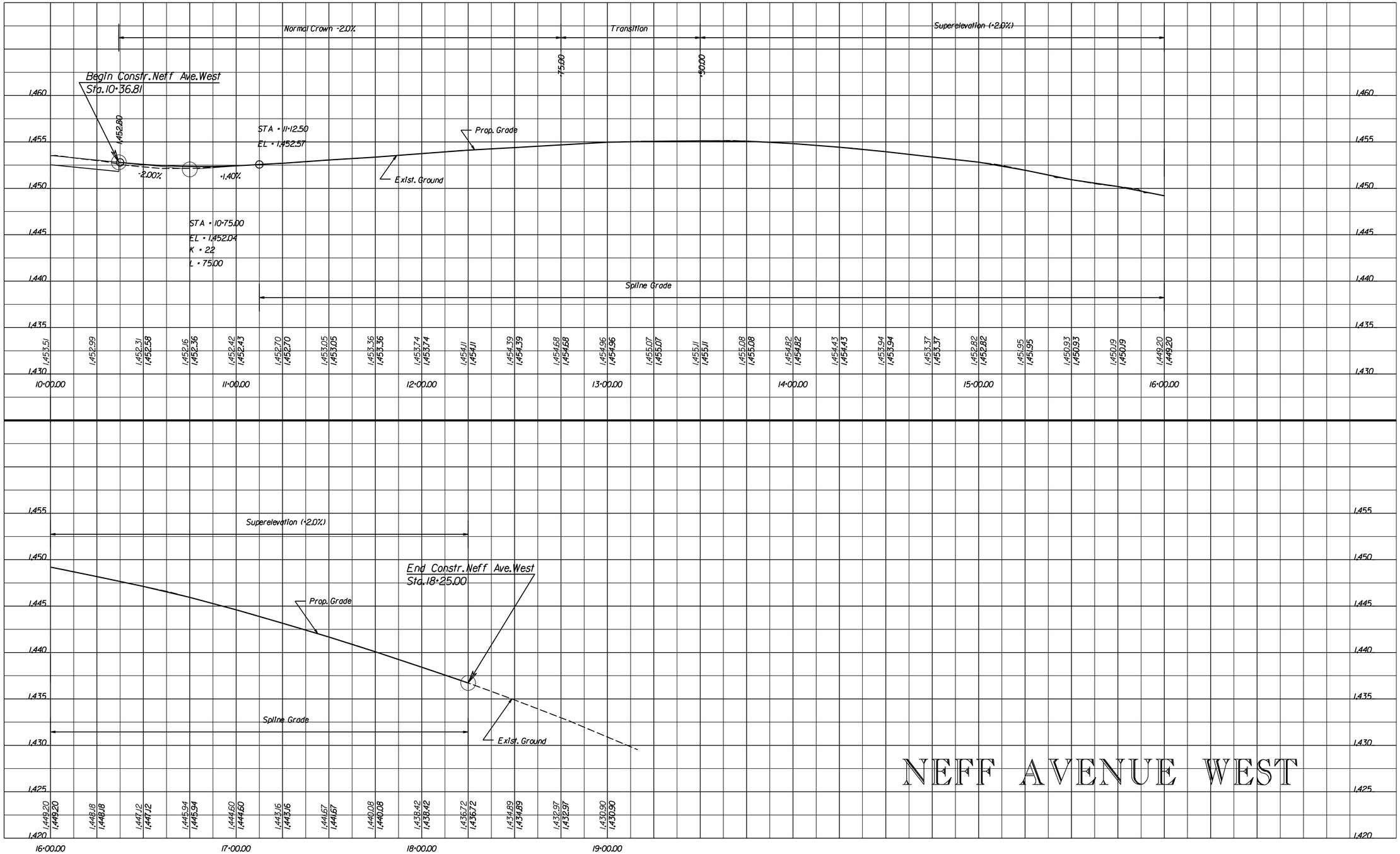
TAX MAP

RESERVOIR STREET

NEFF EAST PLAN
STA. 11+75-14+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
9C



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY: BRG — DATE

CHECKED BY: RJD — DATE

DESIGN BY: CMY — DATE

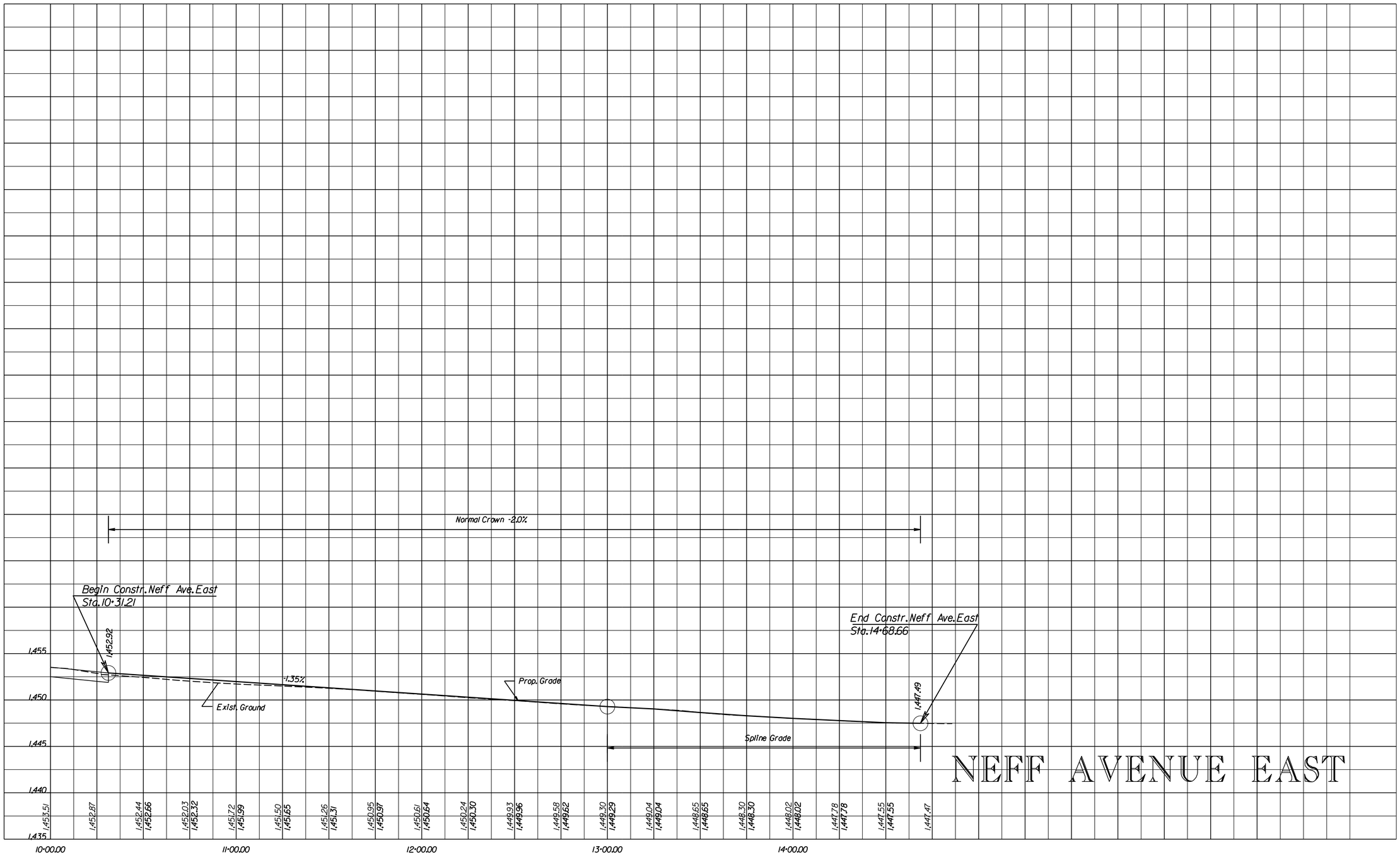
TAX MAP

RESERVOIR STREET

NEFF AVE. WEST PROFILE

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 9D



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY BRG DATE

CHECKED BY RJD DATE

DESIGN BY CMY DATE

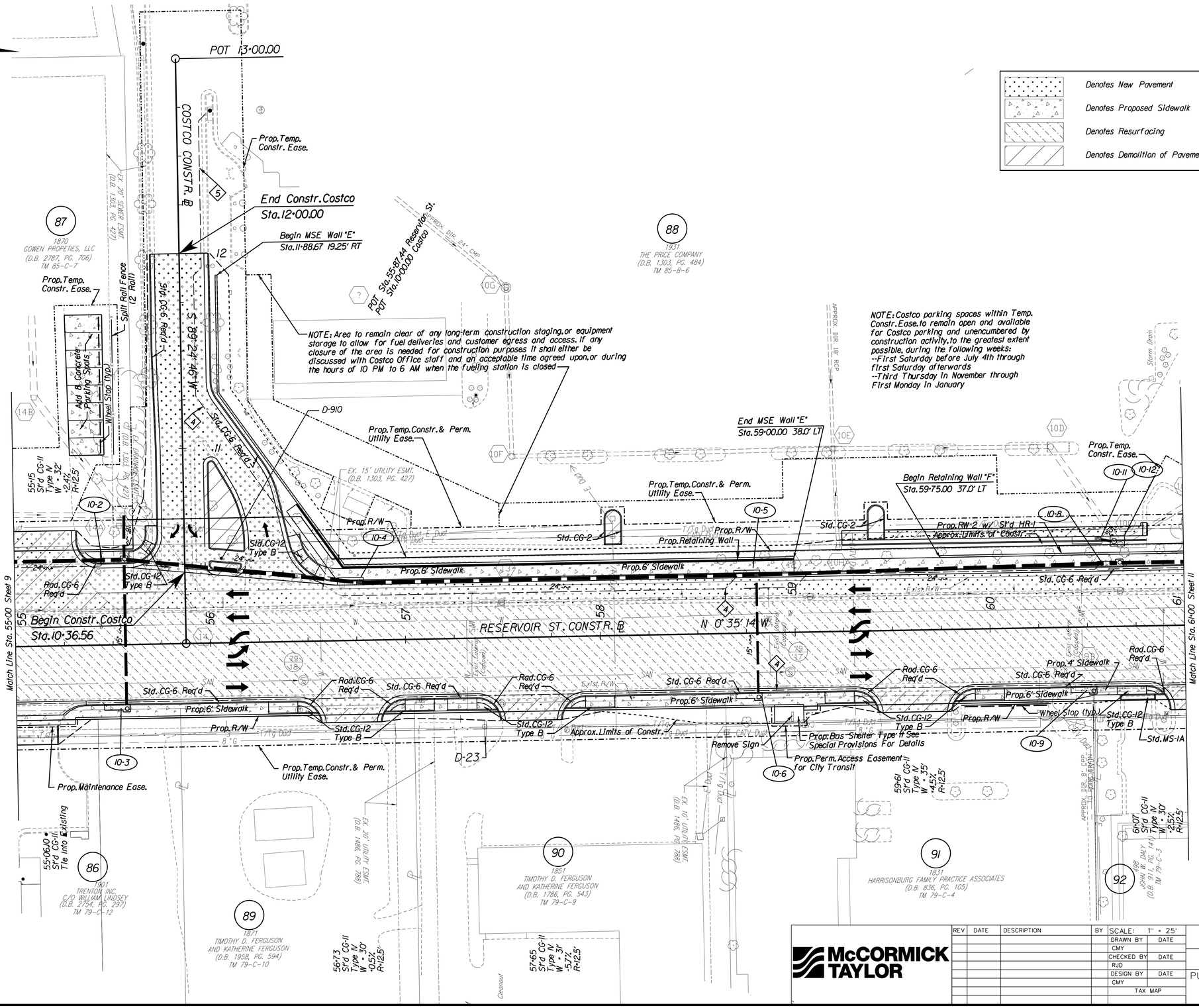
TAX MAP

RESERVOIR STREET

CONNECTION PROFILES

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 9E



LEGEND

- Denotes New Pavement
- Denotes Proposed Sidewalk
- Denotes Resurfacing
- Denotes Demolition of Pavement
- 2 Std.CD-1 Req'd.
- 3 Std. CD-2 Req'd.
- 4 Std. UD-4 Req'd.
- 5 Non-Perforated Outlet Pipe

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	10A
Ret. Wall "F" Profile	10B
Ret. Wall "E" Profile	2C3
Drainage Descriptions	2B Series
Entrance Profiles	14 Series
SPM	12 Series
Signal Plan	13 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

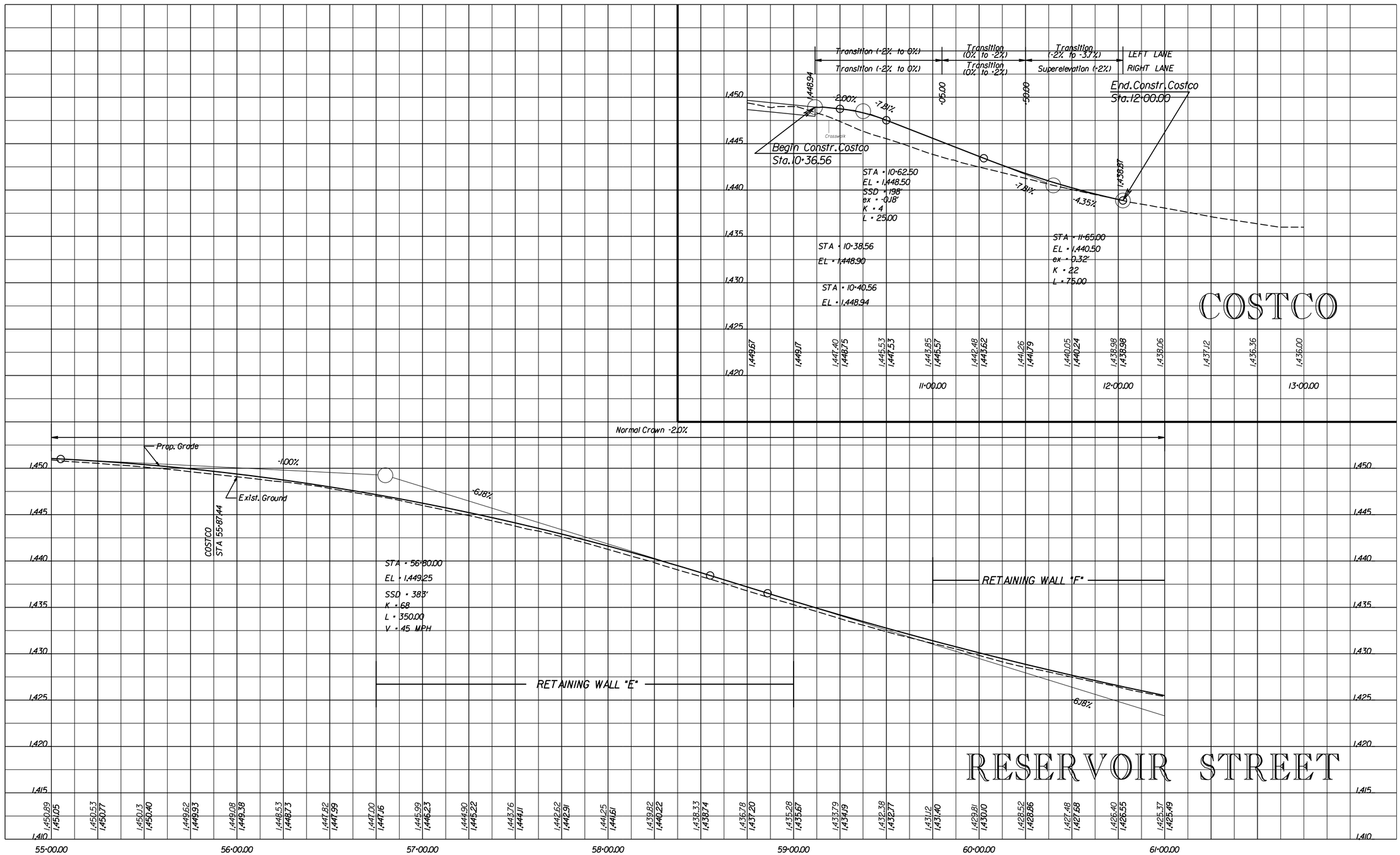
SCALE: 1" = 25'	
DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

PLAN
STA. 55+00-61+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 10



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'	
DRAWN BY	DATE
BRG	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

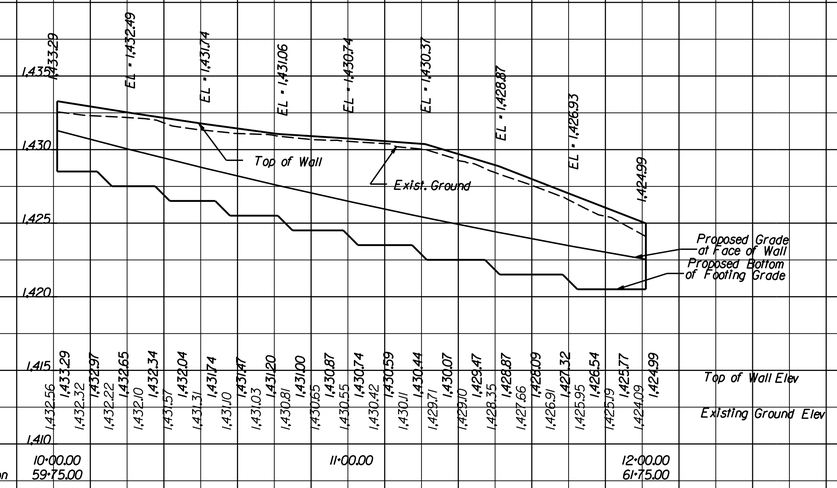
RESERVOIR STREET

PROFILE
STA. 55+00-61+00

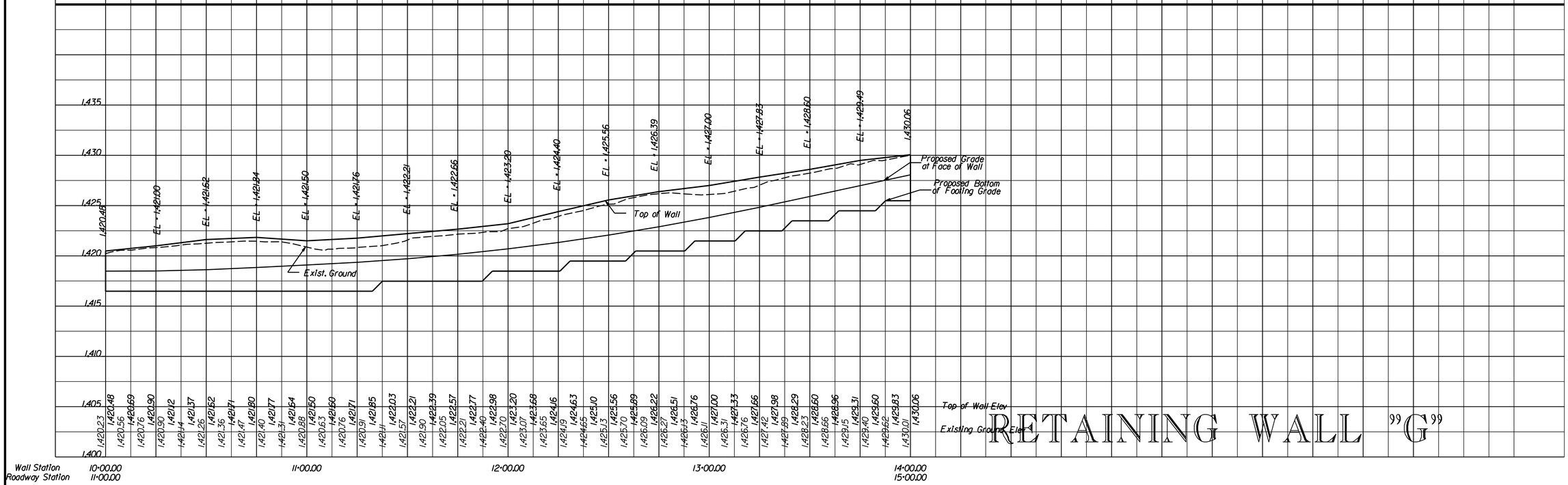
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
10A

RETAINING WALL "F"



RETAINING WALL "G"



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

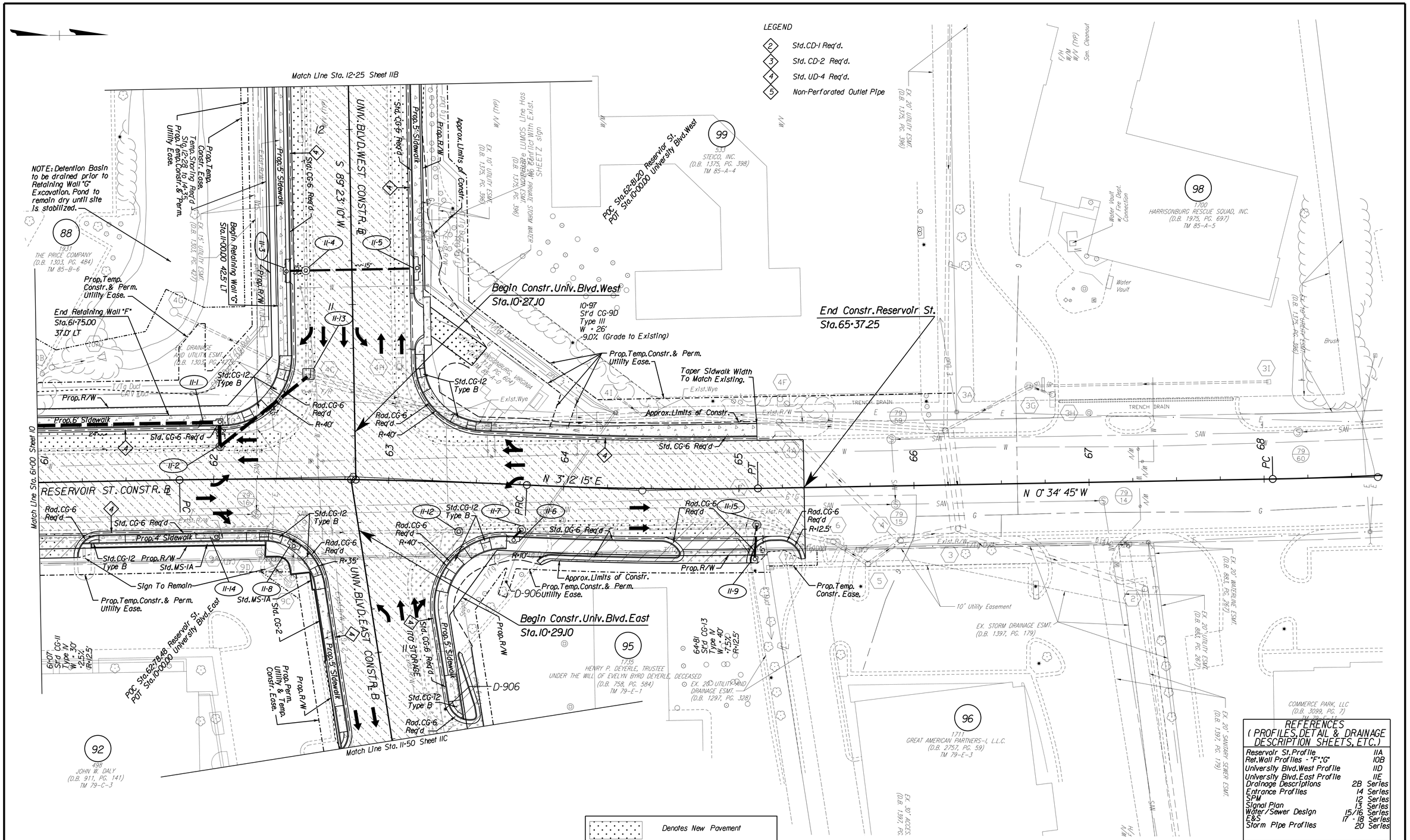
DRAWN BY	DATE
BRG	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

RETAINING WALL "F" & "G" PROFILES

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY STREET
HARRISONBURG, VIRGINIA

SHEET 10B



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	11A
Ret. Wall Profiles - "F" & "G"	10B
University Blvd. West Profile	11D
University Blvd. East Profile	11E
Drainage Descriptions	2B Series
Entrance Profiles	14 Series
SPM	12 Series
Signal Plan	13 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

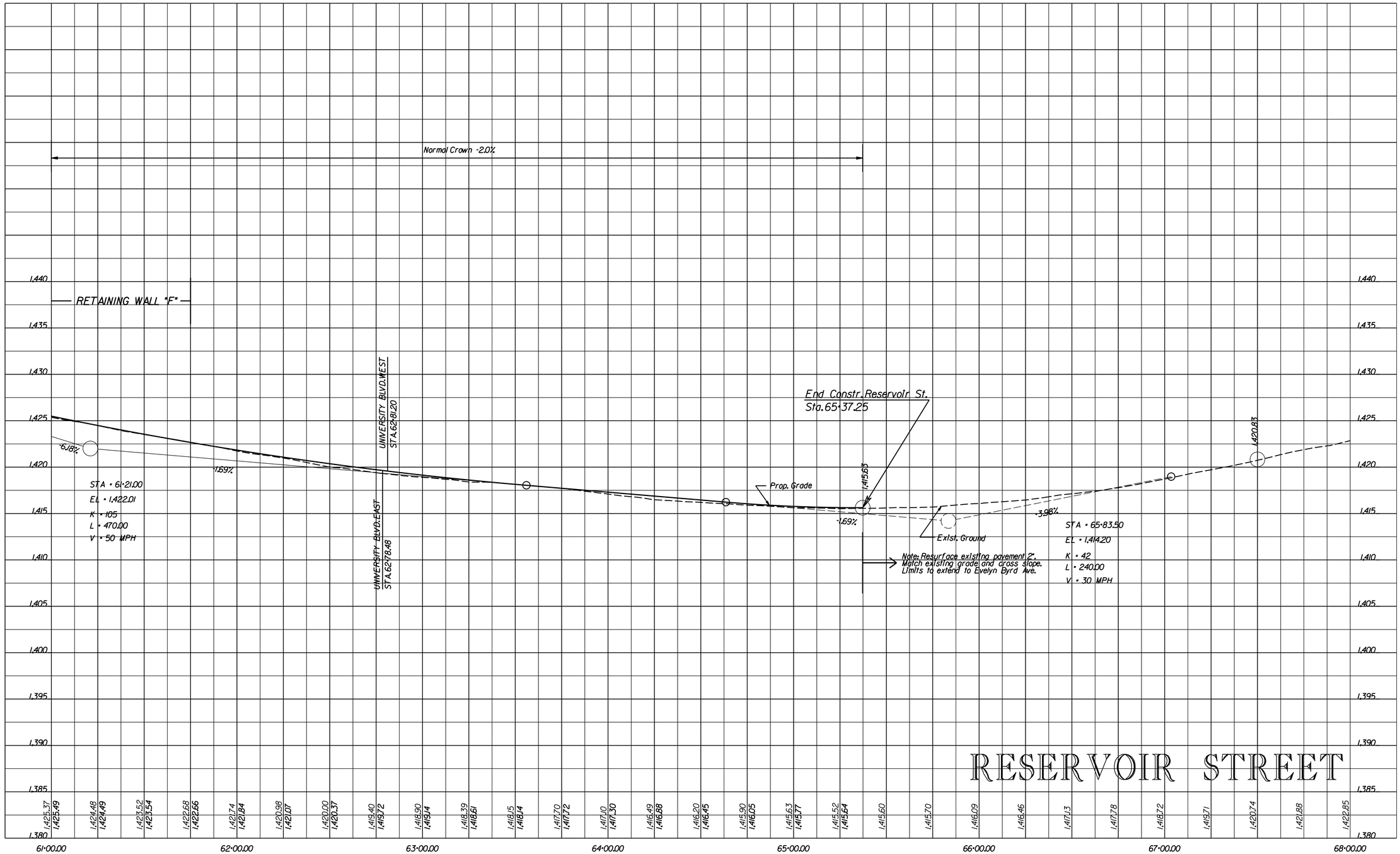
RESERVOIR STREET

PLAN

STA. 61+00-65+37.25

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 11



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY BRG DATE

CHECKED BY RJD DATE

DESIGN BY CMY DATE

TAX MAP

RESERVOIR STREET

PROFILE
STA. 61+00-65+37.25

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 11A

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
University Blvd.West Profile	11D
Ret.Wall "G" Profile	10B
Drainage Descriptions	2B Series
Entrance Profiles	14 Series
SPM	12 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series

NOTE: Costco parking spaces within Temp. Constr. Ease. to remain open and available for Costco parking and unencumbered by construction activity, to the greatest extent possible, during the following weeks:
- First Saturday before July 4th through first Saturday afterwards
- Third Thursday in November through First Monday in January

Match Line Sta. 12+25 Sheet 11

88
1931
THE PRICE COMPANY
(D.B. 1303, PG. 484)
TM 85-B-6

103
DANIEL A. NEWBERRY
"UNIVERSITY PLAZA CONDOMINIUM"
(D.B. 1826, PG. 380)
TM 85-B-4

102
597
THE VISITORS OF JAMES MADISON UNIVERSITY
(D.B. 2448, PG. 402)
TM 85-A-8

THE VISITORS OF JAMES MADISON UNIVERSITY
(D.B. 2448, PG. 402)
TM 85-A-2

99
533
STEICO, INC.
(D.B. 1375, PG. 398)
TM 85-A-4

100
563
AGQ, LLC
(D.B. 3041, PG. 184)
TM 85-A-6

101
593
SOPHIA BELL MARTIN, LLC
(D.B. 2703, PG. 387)
TM 85-A-7

Prop. Temp. Constr. Ease.
Prop. RW-2 Req'd
Prop. R/W
Prop. Temp. Constr. & Perm. Utility Ease.
Temp. Shoring Req'd Sta. 12+28 to 14+35
End Retaining Wall "G" Sta. 15+00.00 42.5' LT
Approx. Limits of Constr.
Prop. 5' Sidewalk
Std. CG-6 Req'd
Std. CG-12 Type B
Rad. CG-6 Req'd
R=30'
R=5'
UNIV. BLVD. WEST CONSTR. ℄
S 89° 23' 10" W
N 76° 04' 31" W
POT 19+27.89
PC
PT
160' TAPER
110' TAPER
T2 STORAGE
Std. CG-2 Req'd
Prop. Perm. Drainage Easement and Temp. Const. Easement
Ex. 20' SEWER ESMT. (D.B. 1303, PG. 427)
Ex. 15' UTILITY ESMT. (D.B. 1303, PG. 427)
Ex. 10' Utility Esmt. D.B. 1303, Pg. 427
Ensure LUMOS Line Has No Conflict With Prop. Drainage
Ex. Drainage and Utility Esmt. D.B. 1303, Pg. 427
Ex. 15' Utility Esmt. D.B. 1303, Pg. 427
Ex. 20' Waterline Esmt. D.B. 1339, Pg. 40
Ex. Access Esmt. D.B. 1533, Pg. 747
12" Capped PVC Storm Structure (No Access)
Sign To Remain Do Not Disturb
EX. 20' PRIVATE STORM WATER DETENTION ESMT. (D.B. 1375, PG. 396)
Possible Underground Storm Management Detention Facility
EX. 30' ACCESS AND PUBLIC UTILITY ESMT. (D.B. 1375, PG. 396)
End Constr. Univ. Blvd. West Sta. 18+79.89
12+71 Std CG-11 Type N W=4' =1.61' R=12.5'
14+14 Std CG-11 Type N W=26' =8.01' R=12.5'
16+57 Std CG-11 Type N W=30' =1.01' R=12.5'

LEGEND
- 2 Std. CD-1 Req'd.
- 3 Std. CD-2 Req'd.
- 4 Std. UD-4 Req'd.
- 5 Non-Perforated Outlet Pipe

Denotes New Pavement
Denotes Proposed Concrete
Denotes Resurfacing
Denotes Demolition of Pavement

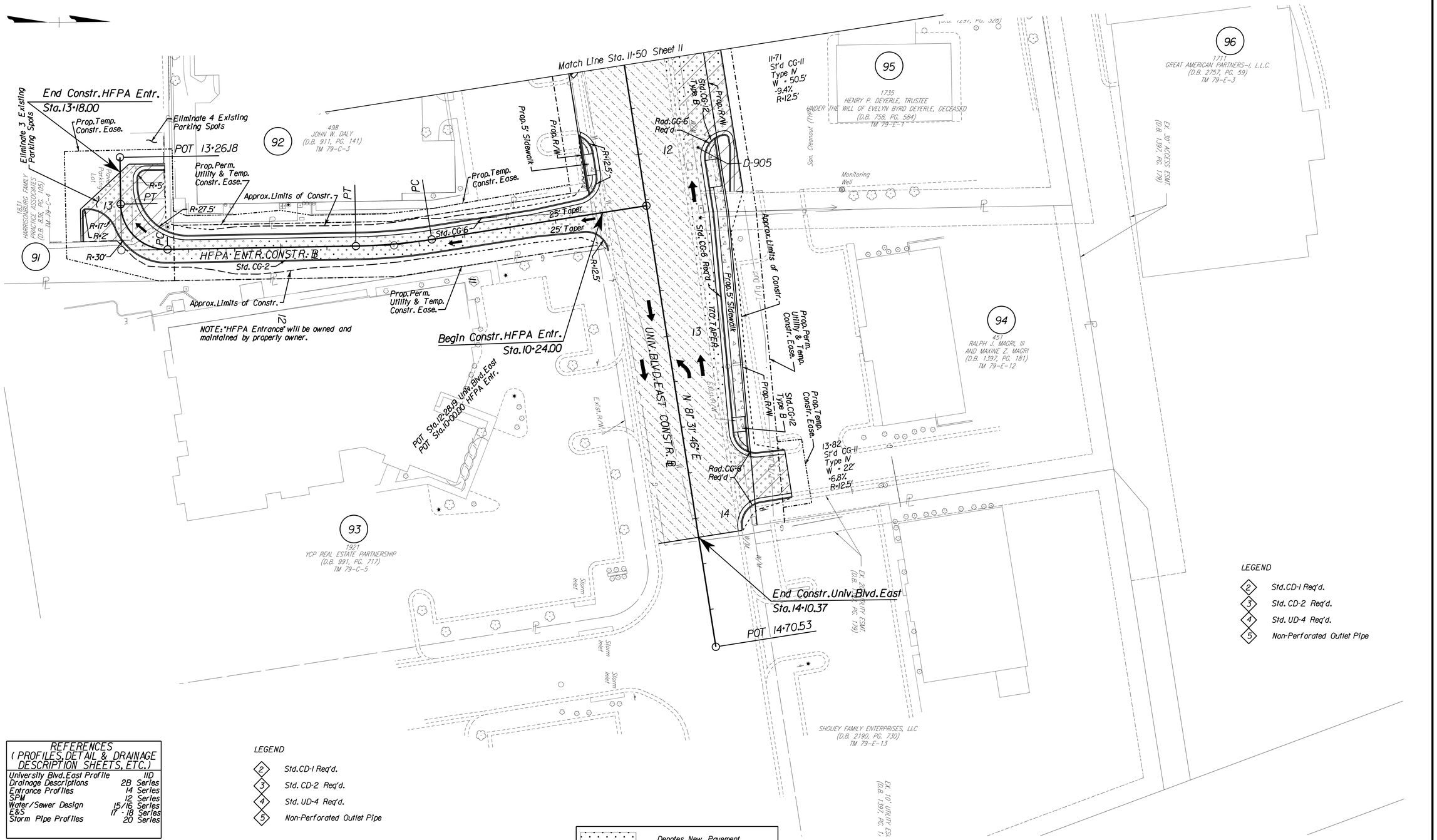
McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'
DRAWN BY | DATE
CMY
CHECKED BY | DATE
RJD
DESIGN BY | DATE
CMY
TAX MAP

UNIVERSITY BLVD. WEST
PLAN
STA. 12+25-18+75
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 11B



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
University Blvd. East Profile	11D
Drainage Descriptions	2B Series
Entrance Profiles	14 Series
SPM	12 Series
Water/Sewer Design	15/16 Series
E&S	17 - 18 Series
Storm Pipe Profiles	20 Series

LEGEND

- 2 Std. CD-1 Req'd.
- 3 Std. CD-2 Req'd.
- 4 Std. UD-4 Req'd.
- 5 Non-Perforated Outlet Pipe

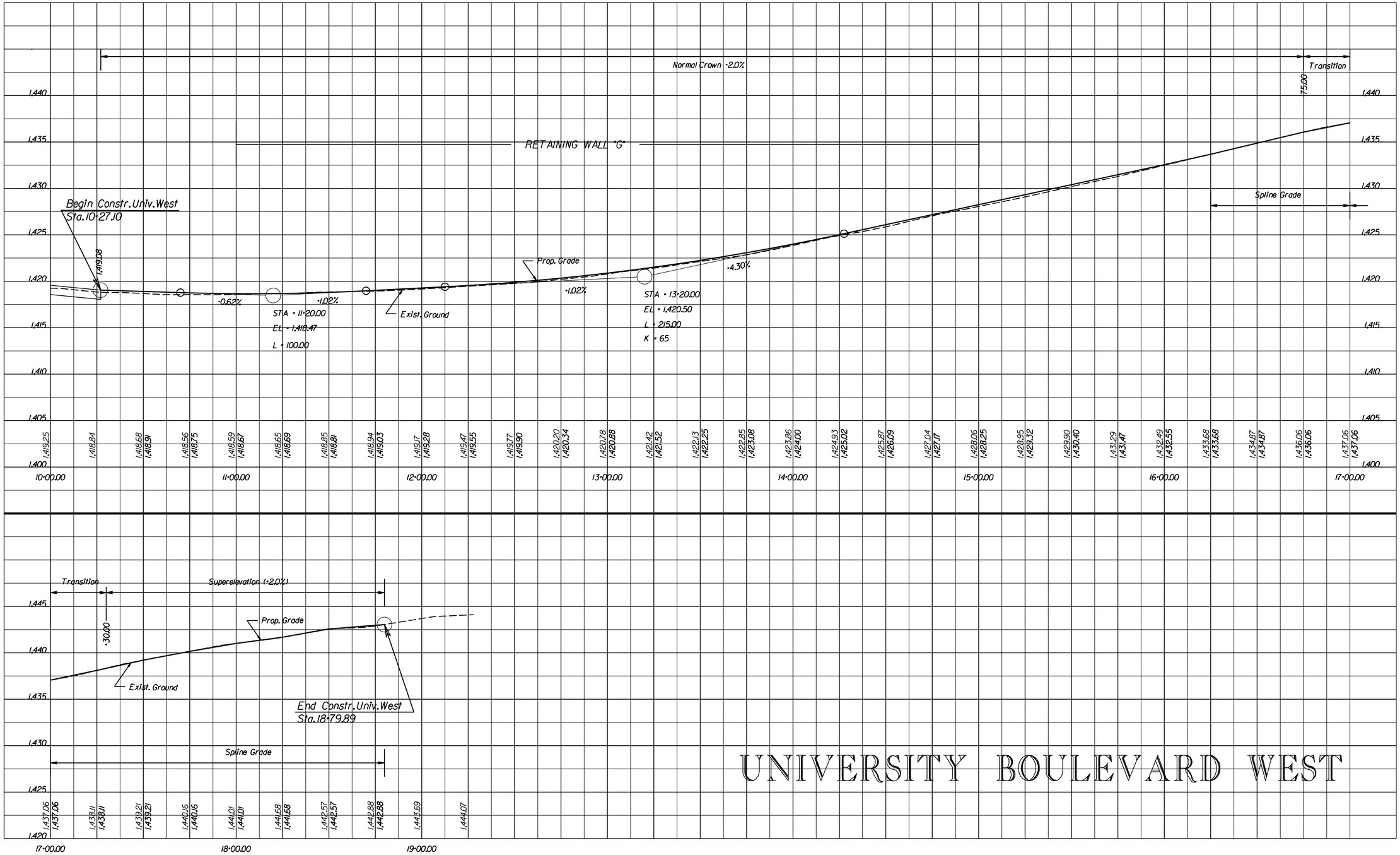
McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'
DRAWN BY CMY DATE
CHECKED BY RJD DATE
DESIGN BY CMY DATE
TAX MAP

UNIVERSITY BOULEVARD EAST
PLAN
STA. 11+50-14+10.37
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 11C



UNIVERSITY BOULEVARD WEST

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY BRG DATE

CHECKED BY RJD DATE

DESIGN BY CMY DATE

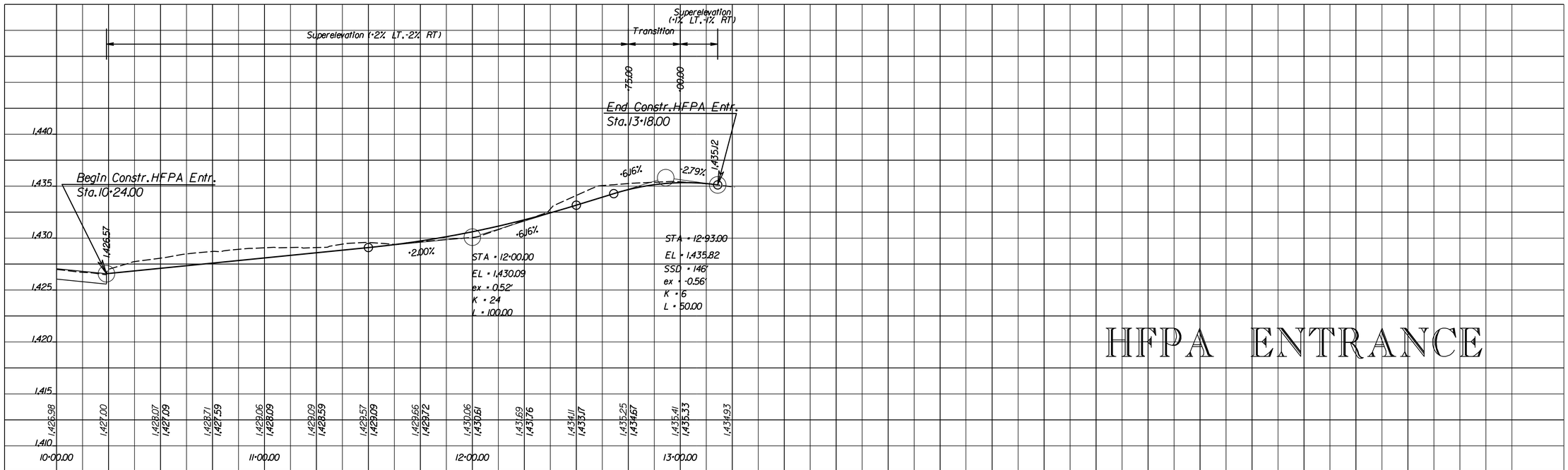
TAX MAP

RESERVOIR STREET

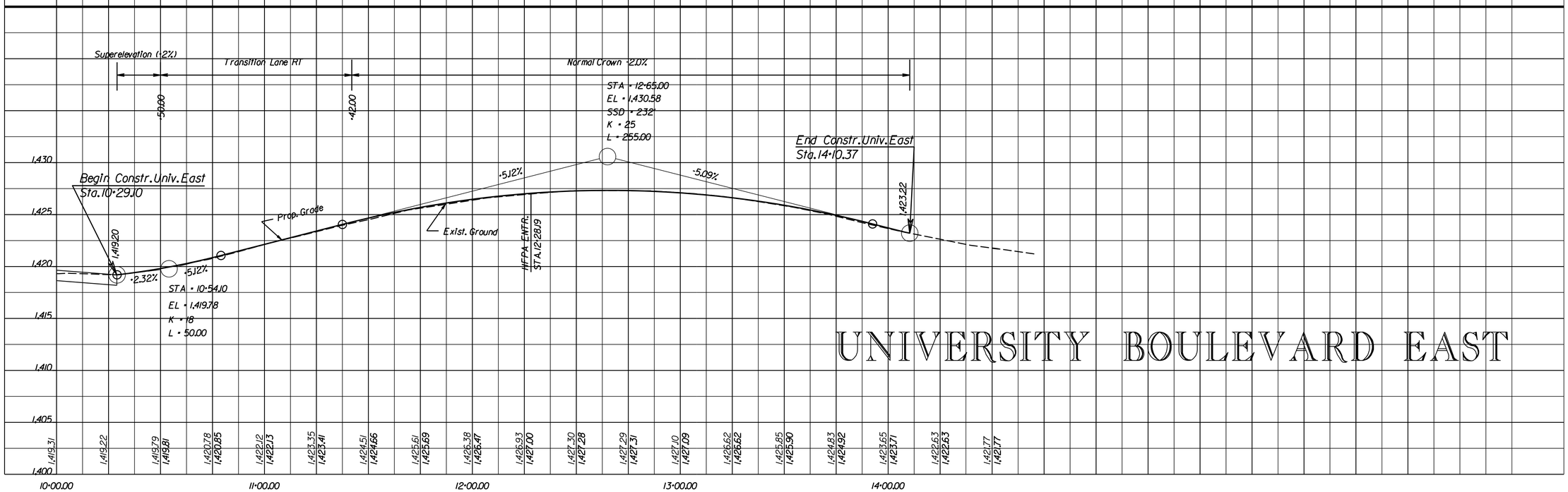
UNIVERSITY BLVD. PROFILE

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 11D



HFPA ENTRANCE



UNIVERSITY BOULEVARD EAST

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

TAX MAP

RESERVOIR STREET

UNIVERSIT BLVD. PROFILE

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 11E

SIGNING AND PAVEMENT MARKING QUANTITIES

	OM-3	R1-1	R2-1	R3-7L	R3-7R	R3-9cP	R3-17	R3-17b	R4-4	R4-7	R5-1	R10-7	W3-5	W4-2R	W16-2aP	Post	Remove Sign	Reloc. Sign Struct.	Yellow Delineator (36")	4" White	6" White
	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF	EA	EA	EA	EA	LF	LF
Sheet 012(3)	6		5			5	5			5			9			5	1		2	471	62
Sheet 012(4)			5				5	2.5	7.5	10				9	2	6		1		341	975
Sheet 012(5)			5				15			10						6	3	7		575	1633
Sheet 012(6)										10						2		3		210	1338
Sheet 012(7)		9										10				3		1		180	1530
Sheet 012(8)			10				10		7.5	10						7		4		426	989
Sheet 012(9)							15	2.5		5					2	4	1	2		1134	1220
Sheet 012(9B)				9			5	2.5	7.5						2	3		1		59	981
Sheet 012(9C)			5													1	3			54	
Sheet 012(10)			10									5				3	4	3		152	
Sheet 012(11)																		3		1213	
Sheet 012(11B)					9											1		3		368	20
Sheet 012(11C)				18							12.5					4				93	
TOTAL	**6**	**9**	**40**	**27**	**9**	**5**	**55**	**7.5**	**22.5**	**50**	**12.5**	**15**	**9**	**9**	**6**	**45**	**12**	**28**	**2**	**5276**	**8748**

	24" White	4" White Dash	4" Yellow Dash	4" White Mini-Skip	6" White Mini-Skip	4" Yellow	Biker Symb. w/ Arrow	Left/Thru Arrow	Right/Thru Arrow	Left Arrow	Right Arrow	Merge Arrow	Erad
	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	SF
Sheet 012(3)		20		44		675	1						
Sheet 012(4)		240		34	94		3			3		2	
Sheet 012(5)	318	240		64			8			5	3		
Sheet 012(6)	66	340		56			3			3			
Sheet 012(7)	72	330		46			5			3			
Sheet 012(8)	661	280		124	72		5	3		4	4		814
Sheet 012(9)	637	310		34	12	840	4			6	4		
Sheet 012(9B)		320			96	1180	2			1	1		
Sheet 012(9C)		60	60	58		460				2			
Sheet 012(10)	15	300	190	178		1479				7	1		
Sheet 012(11)	607	350		98		1814			3	7	1		814
Sheet 012(11B)	24	440		132		1176				5	3		
Sheet 012(11C)		160				514				2			
TOTAL	**2400**	**3390**	**250**	**868**	**274**	**8138**	**31**	**3**	**3**	**48**	**17**	**2**	**1628**

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: NTS
DRAWN BY BRG DATE
CHECKED BY CMY DATE
DESIGN BY JSS DATE
TAX MAP

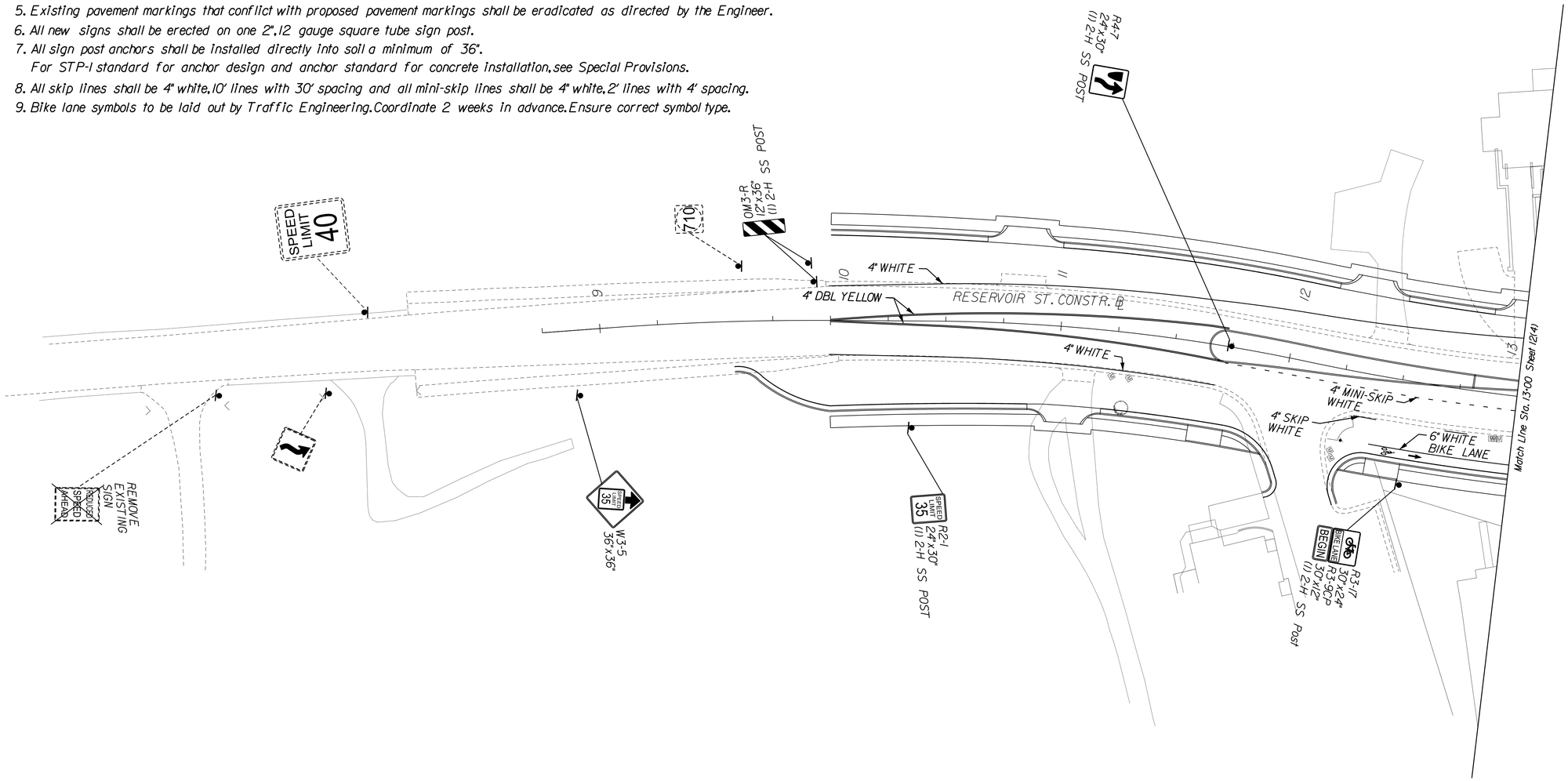
RESERVOIR STREET
SIGNING/PAVEMENT MARKING
STA. 10+00-13+00
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 12

GENERAL NOTES

1. Sign locations are to be staked by the Contractor and approved by the Engineer prior to installation.
2. Unless otherwise approved by the Engineer, existing traffic signs which are to be removed shall remain in place until the new sign post and critical sign message are in place.
3. Unless otherwise indicated on the plans, all breakaway sign posts shall be located within 25 feet of the sign's current field location or as directed by the Engineer.
4. Pavement striping markings shall be Type A, Class I. Pavement markings for arrows, stop bars, crosswalks, bike lane symbols, and white mini-skip lines (6", 4") shall be Type B, Class I, Preformed.
5. Existing pavement markings that conflict with proposed pavement markings shall be eradicated as directed by the Engineer.
6. All new signs shall be erected on one 2", 12 gauge square tube sign post.
7. All sign post anchors shall be installed directly into soil a minimum of 36". For STP-1 standard for anchor design and anchor standard for concrete installation, see Special Provisions.
8. All skip lines shall be 4" white, 10' lines with 30' spacing and all mini-skip lines shall be 4" white, 2' lines with 4' spacing.
9. Bike lane symbols to be laid out by Traffic Engineering. Coordinate 2 weeks in advance. Ensure correct symbol type.

SIGNING AND PAVEMENT MARKING PLAN



LEGEND:

STOP — EXISTING SIGN

STOP — PROPOSED SIGN

SIGN POST

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	

TAX MAP

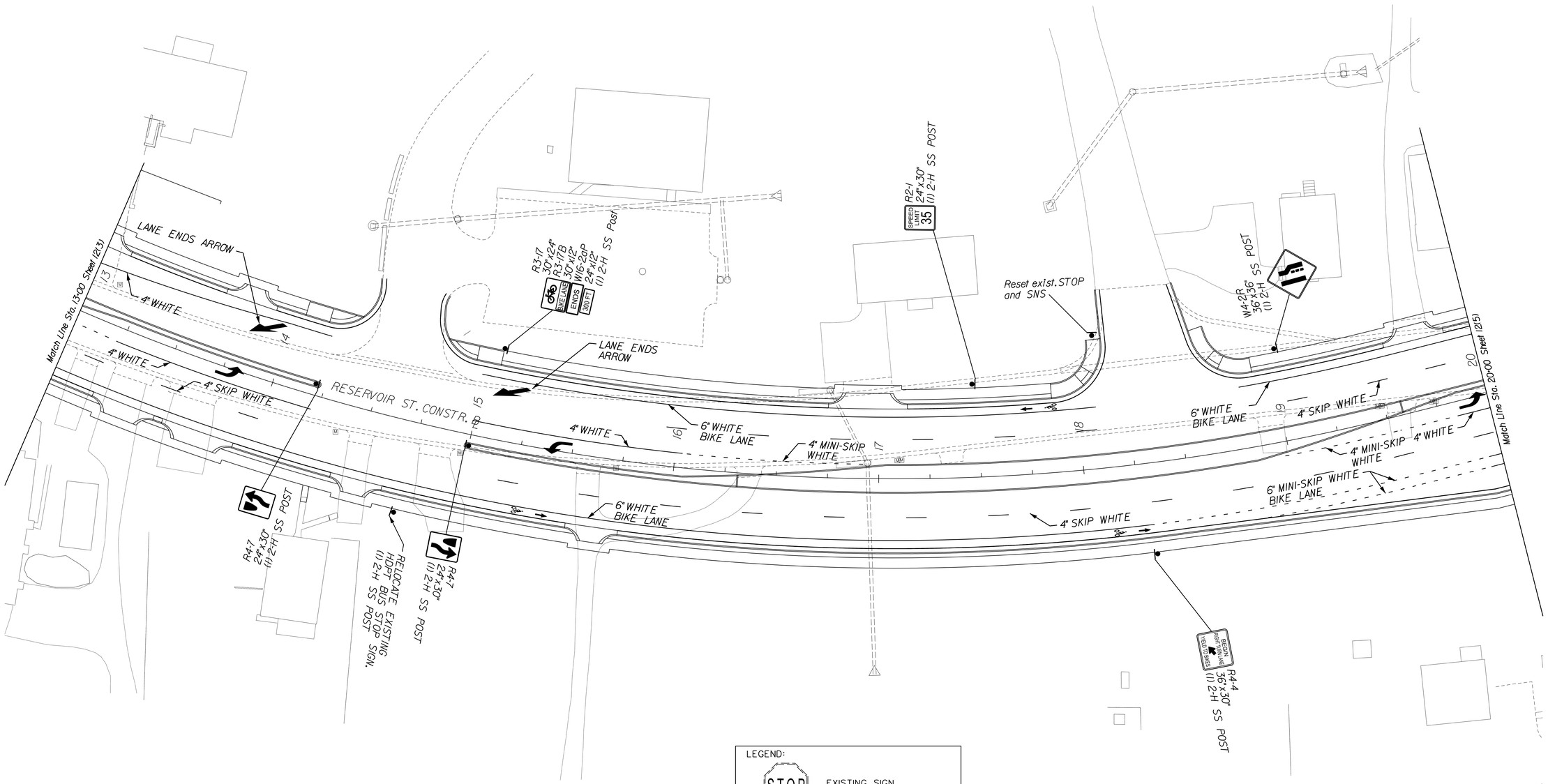
RESERVOIR STREET

SIGNING/PAVEMENT MARKING
STA. 10+00-13+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 12(3)

SIGNING AND PAVEMENT MARKING PLAN



LEGEND:

STOP — EXISTING SIGN

STOP — PROPOSED SIGN

SIGN POST

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	

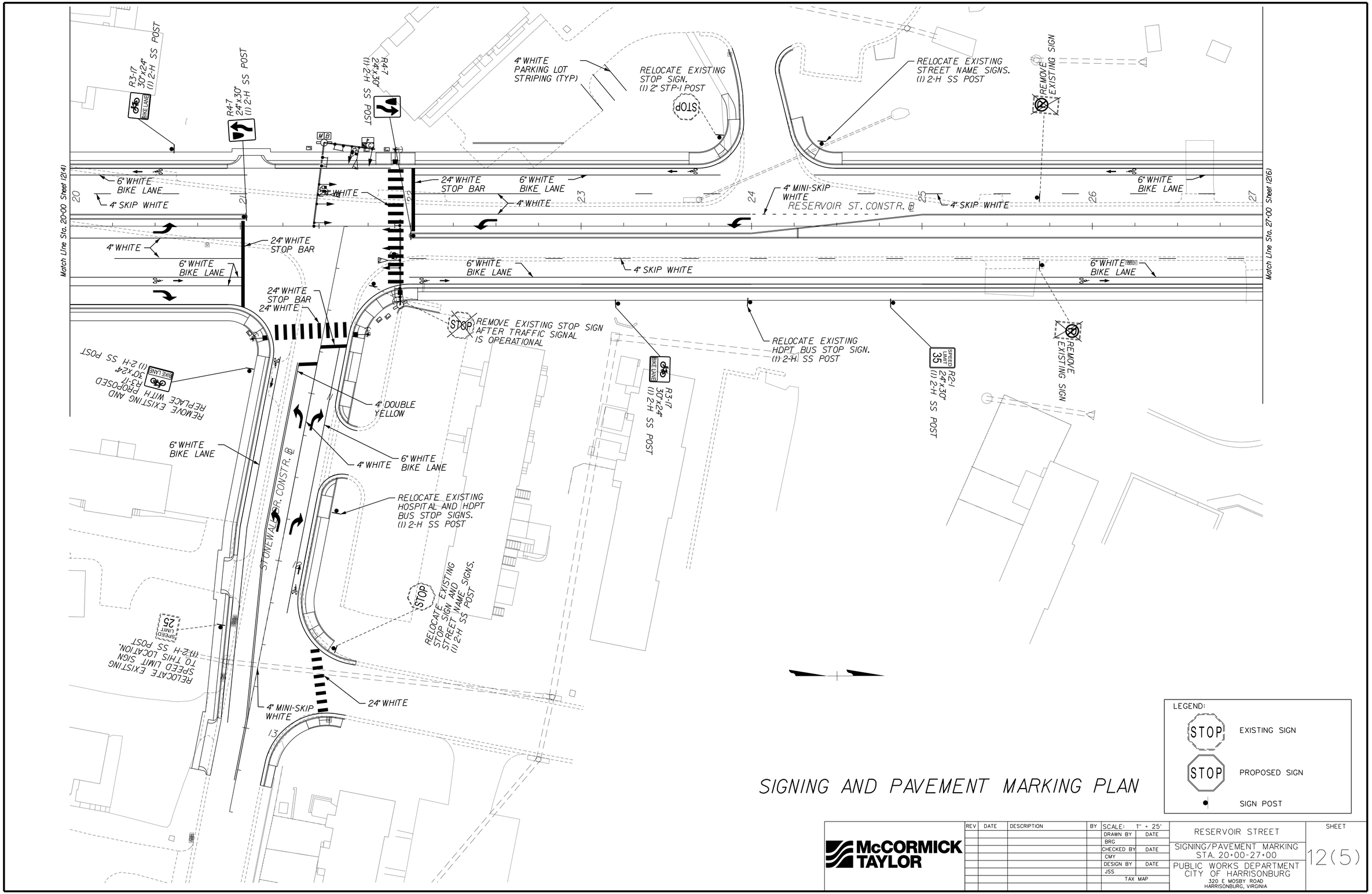
TAX MAP

RESERVOIR STREET

SIGNING/PAVEMENT MARKING
STA. 13+00-20+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 12(4)



SIGNING AND PAVEMENT MARKING PLAN

LEGEND:

- STOP — EXISTING SIGN
- STOP — PROPOSED SIGN
- ● — SIGN POST

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	

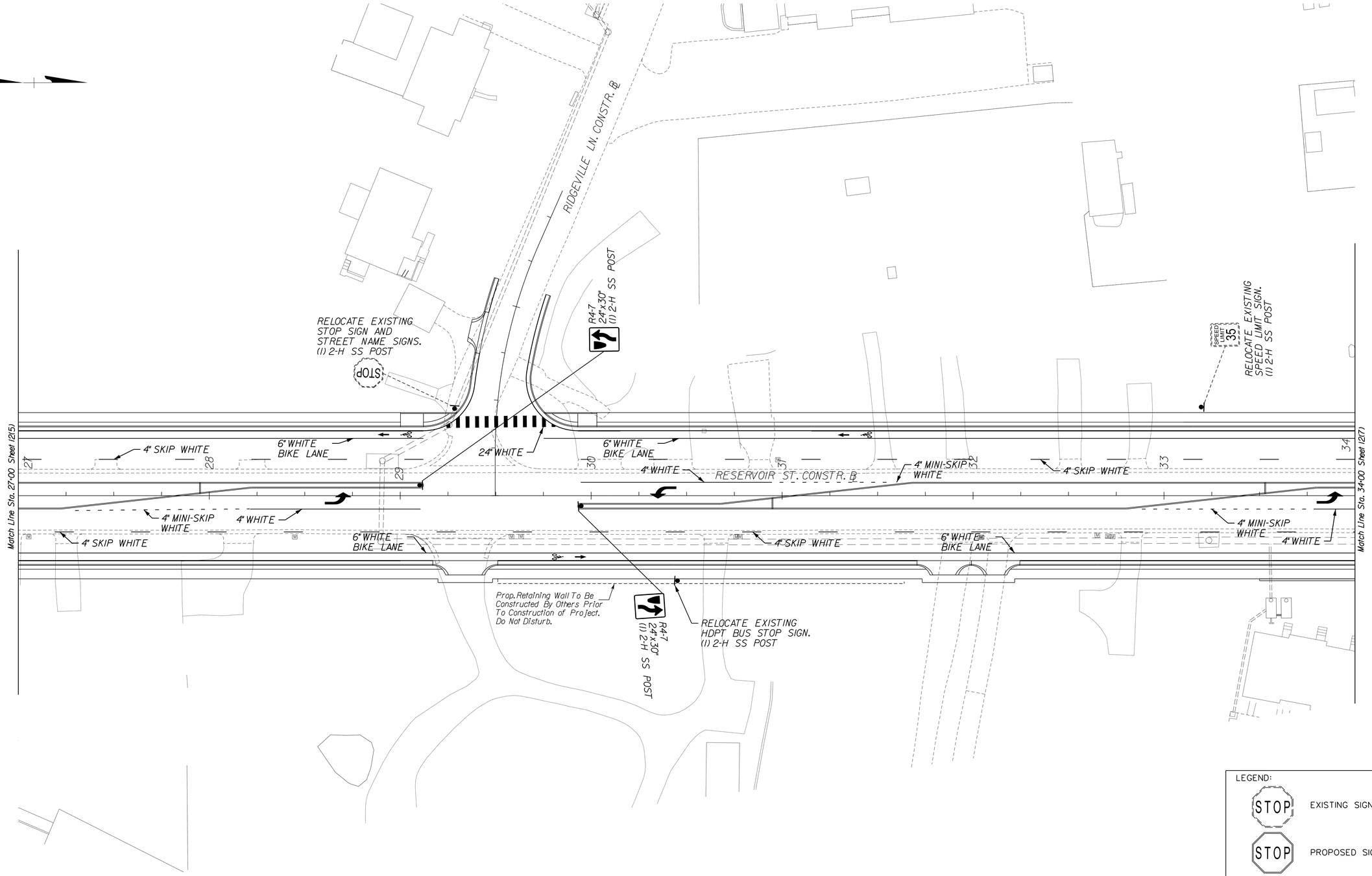
TAX MAP

RESERVOIR STREET

SIGNING/PAVEMENT MARKING
STA. 20+00-27+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 12(5)



SIGNING AND PAVEMENT MARKING PLAN

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	

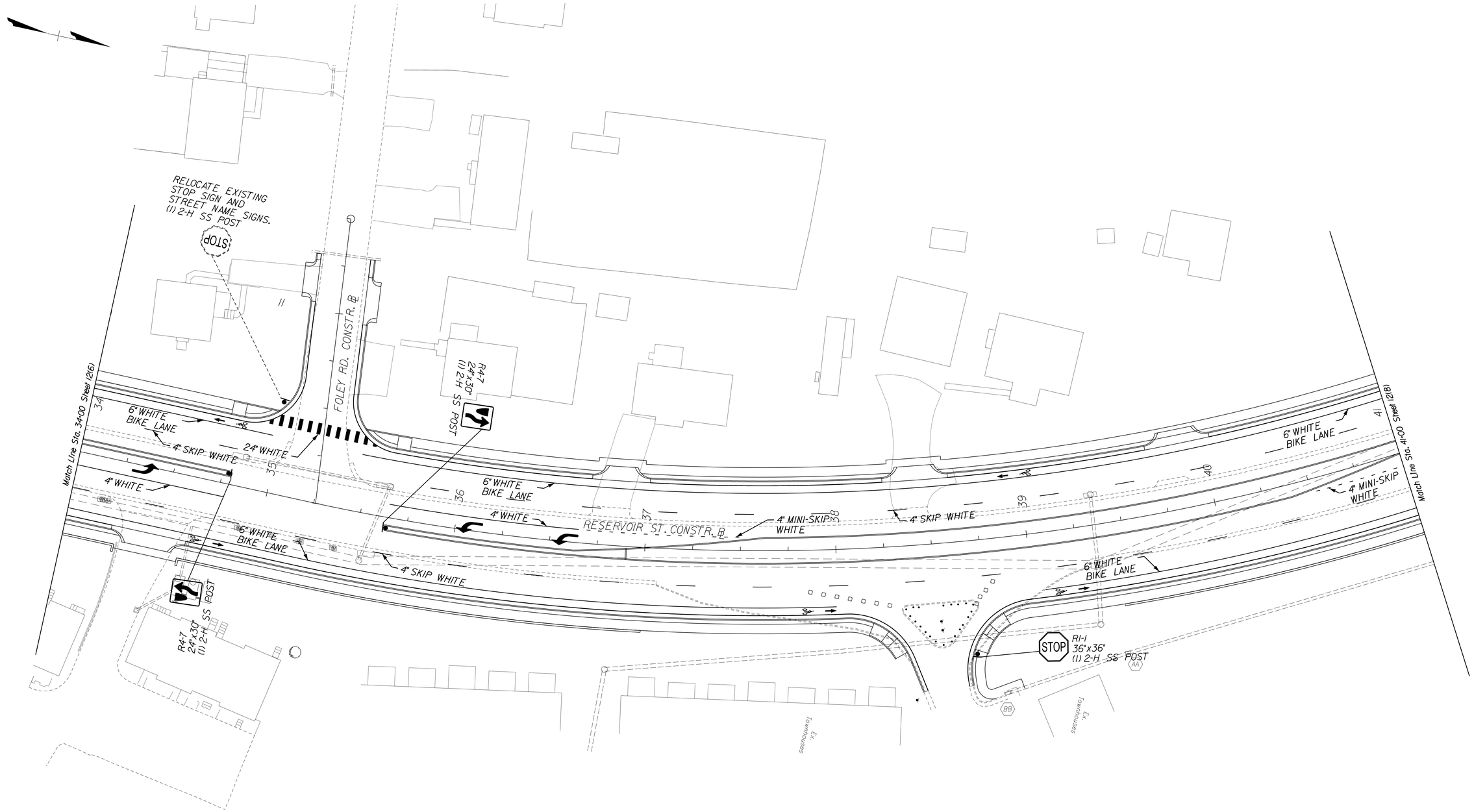
TAX MAP

RESERVOIR STREET

SIGNING/PAVEMENT MARKING
STA. 27+00-34+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
12(6)



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STOP — PROPOSED SIGN

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SIGNING AND PAVEMENT MARKING PLAN

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	

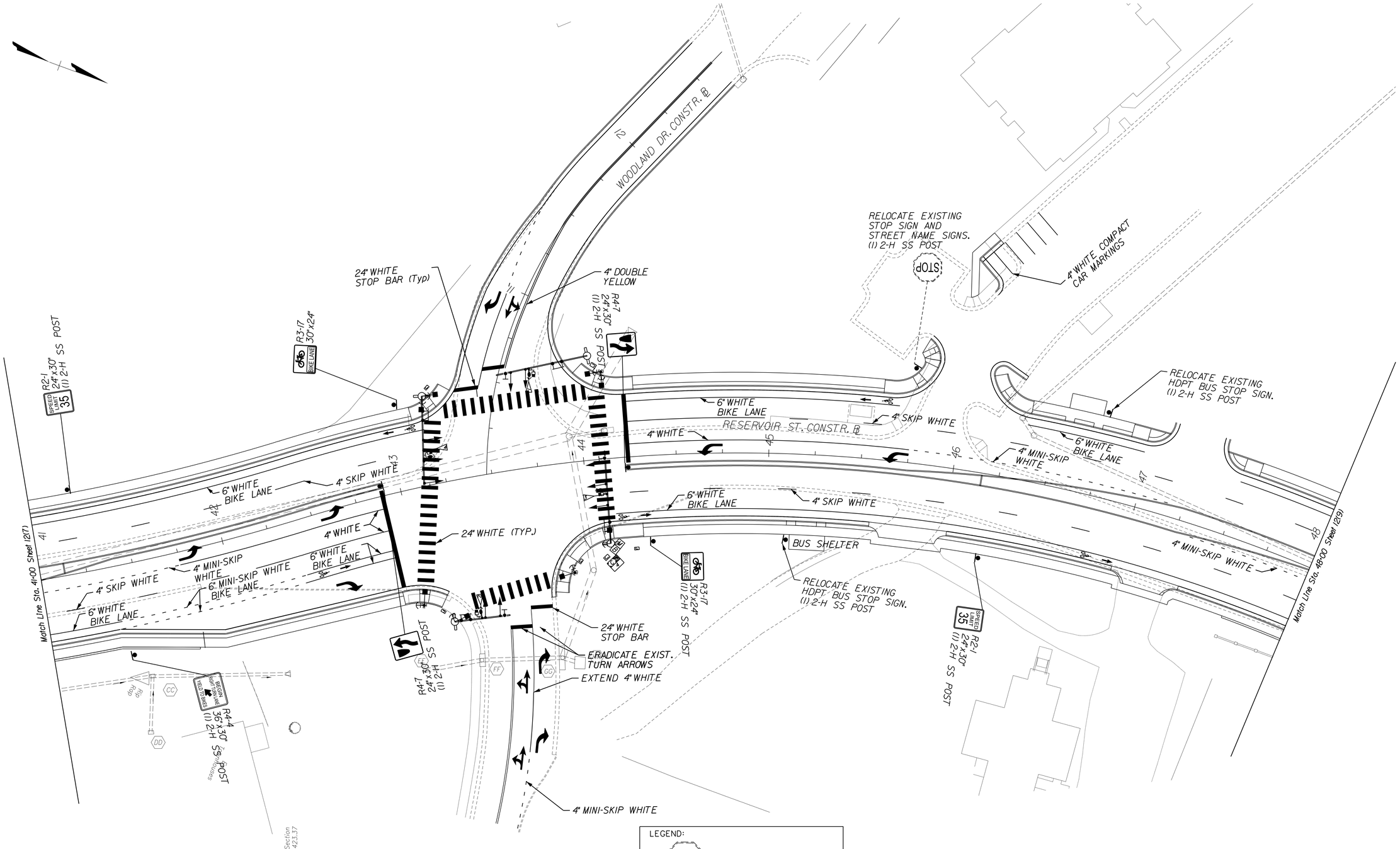
TAX MAP

RESERVOIR STREET

SIGNING/PAVEMENT MARKING
STA. 34+00-41+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 12(7)



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SIGNING AND PAVEMENT MARKING PLAN

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'	
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CMY	
DESIGN BY	DATE
JSS	
TAX MAP	

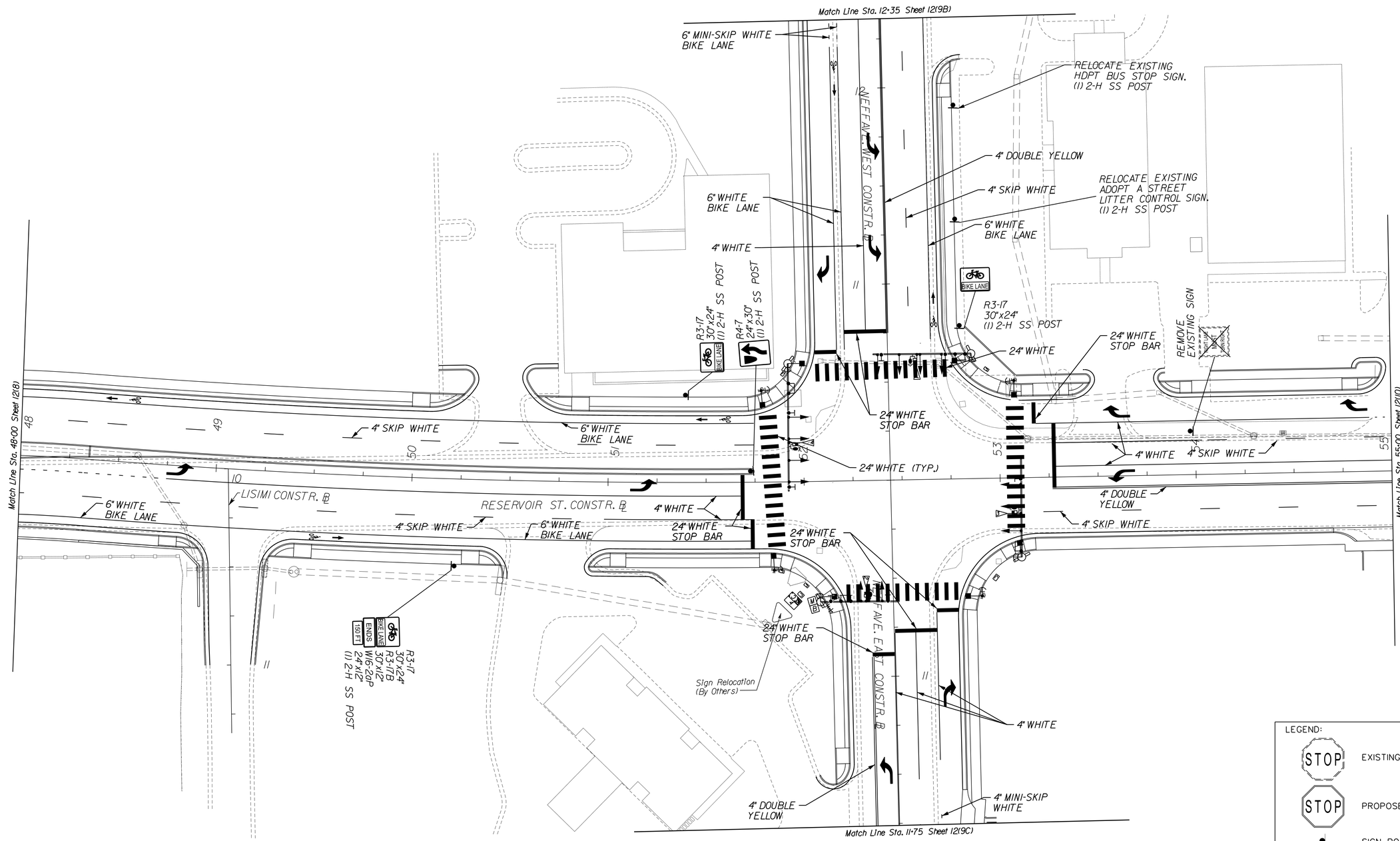
RESERVOIR STREET

SIGNING/PAVEMENT MARKING STA. 41+00-48+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 12(8)

SIGNING AND PAVEMENT MARKING PLAN



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McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

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CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	

TAX MAP

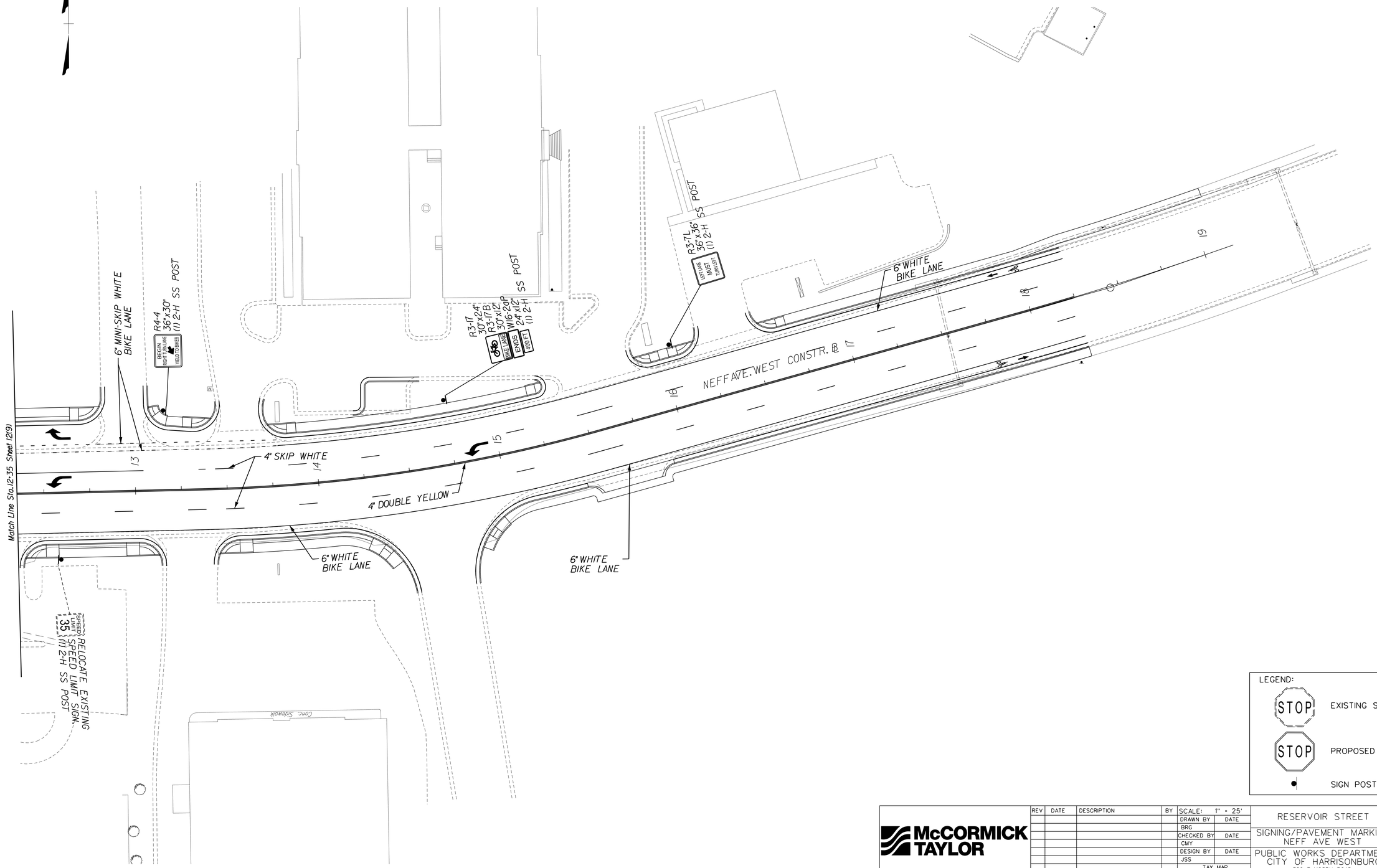
RESERVOIR STREET

SIGNING/PAVEMENT MARKING
STA. 48+00-55+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 12(9)

SIGNING AND PAVEMENT MARKING PLAN



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SIGN POST

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

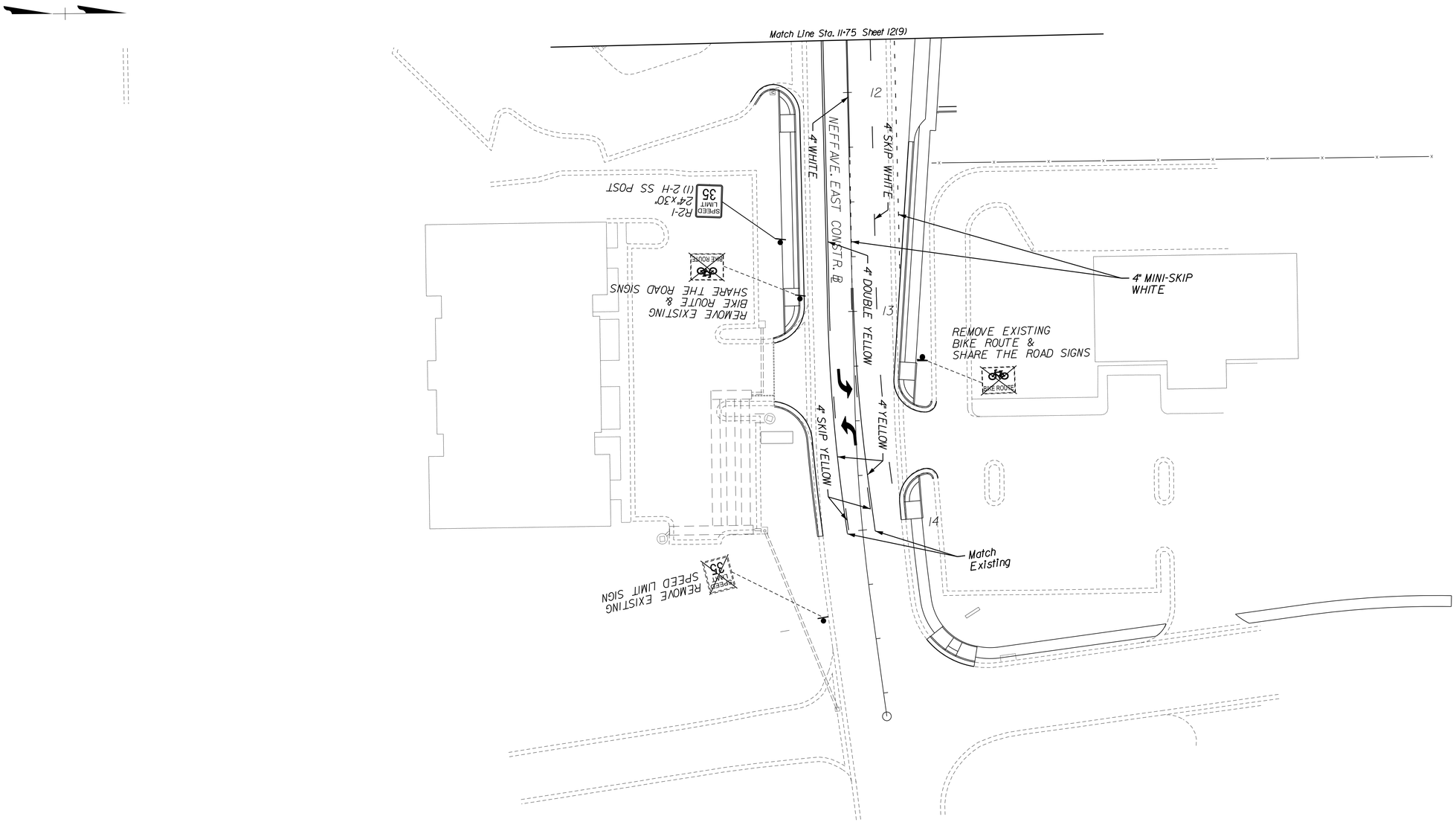
SCALE: 1" = 25'	
DRAWN BY	DATE
BRG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	
TAX MAP	

RESERVOIR STREET

SIGNING/PAVEMENT MARKING
NEFF AVE WEST

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
12(9B)



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SIGN POST

SIGNING AND PAVEMENT MARKING PLAN

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

TAX MAP

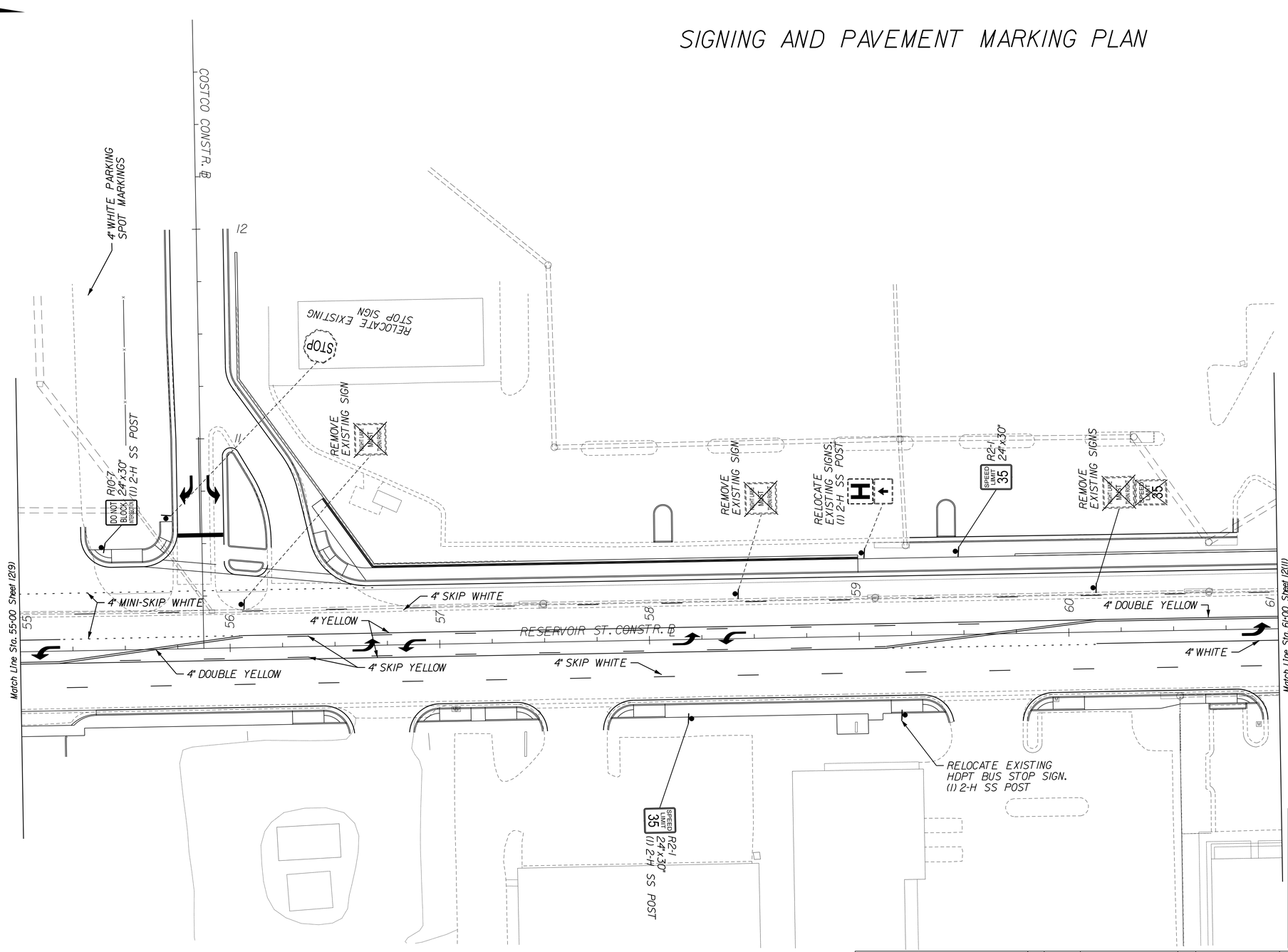
RESERVOIR STREET

SIGNING/PAVEMENT MARKING
NEFF AVE EAST

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 12(9C)

SIGNING AND PAVEMENT MARKING PLAN



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- STOP — PROPOSED SIGN
- SIGN POST

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	

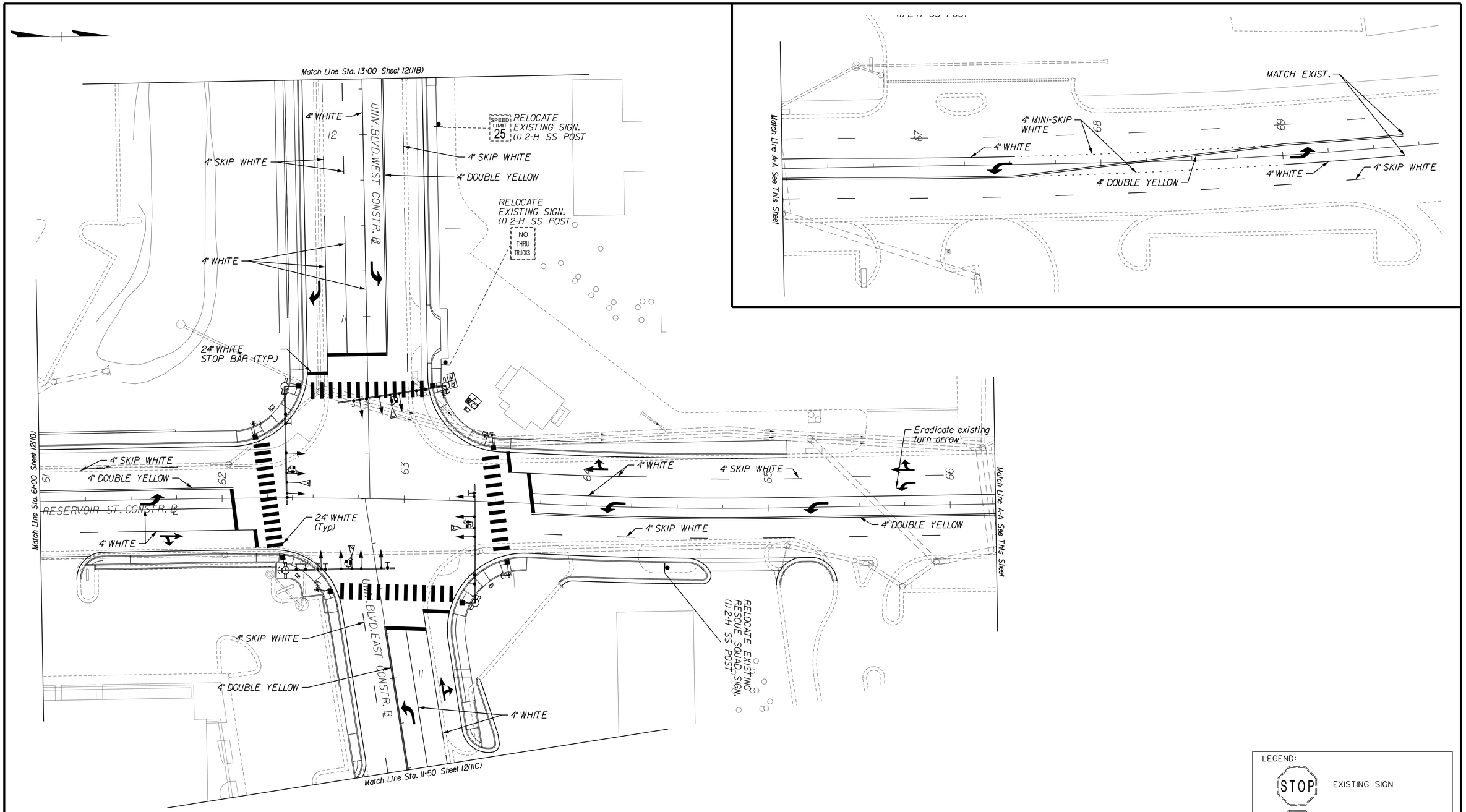
TAX MAP

RESERVOIR STREET

SIGNING/PAVEMENT MARKING
STA. 55+00-61+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
12(10)



SIGNING AND PAVEMENT MARKING PLAN

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	

TAX MAP

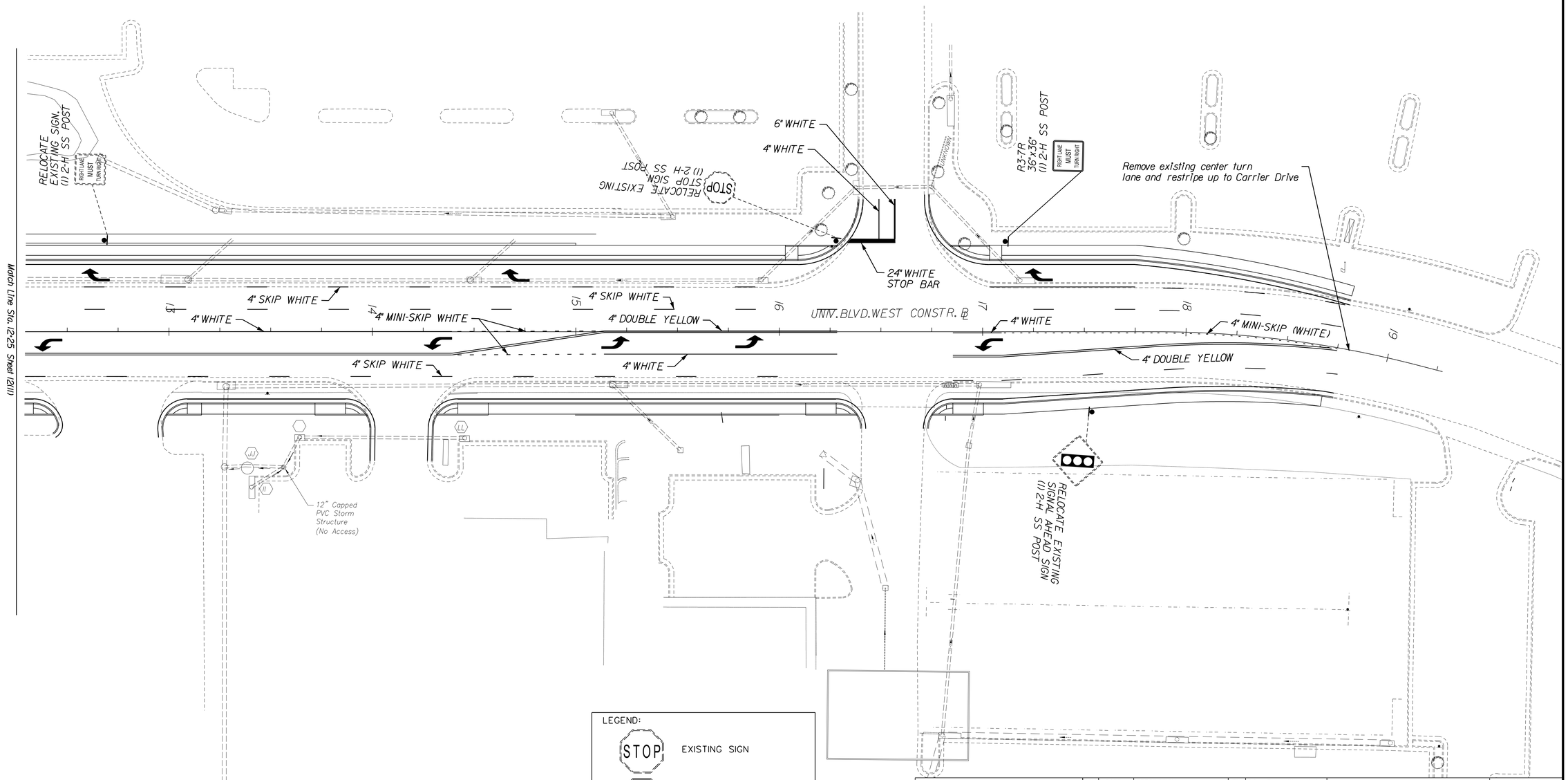
RESERVOIR STREET

SIGNING/PAVEMENT MARKING
STA. 61+00-66+54.32

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
12(11)

SIGNING AND PAVEMENT MARKING PLAN



LEGEND:

STOP EXISTING SIGN

STOP PROPOSED SIGN

SIGN POST

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	

TAX MAP

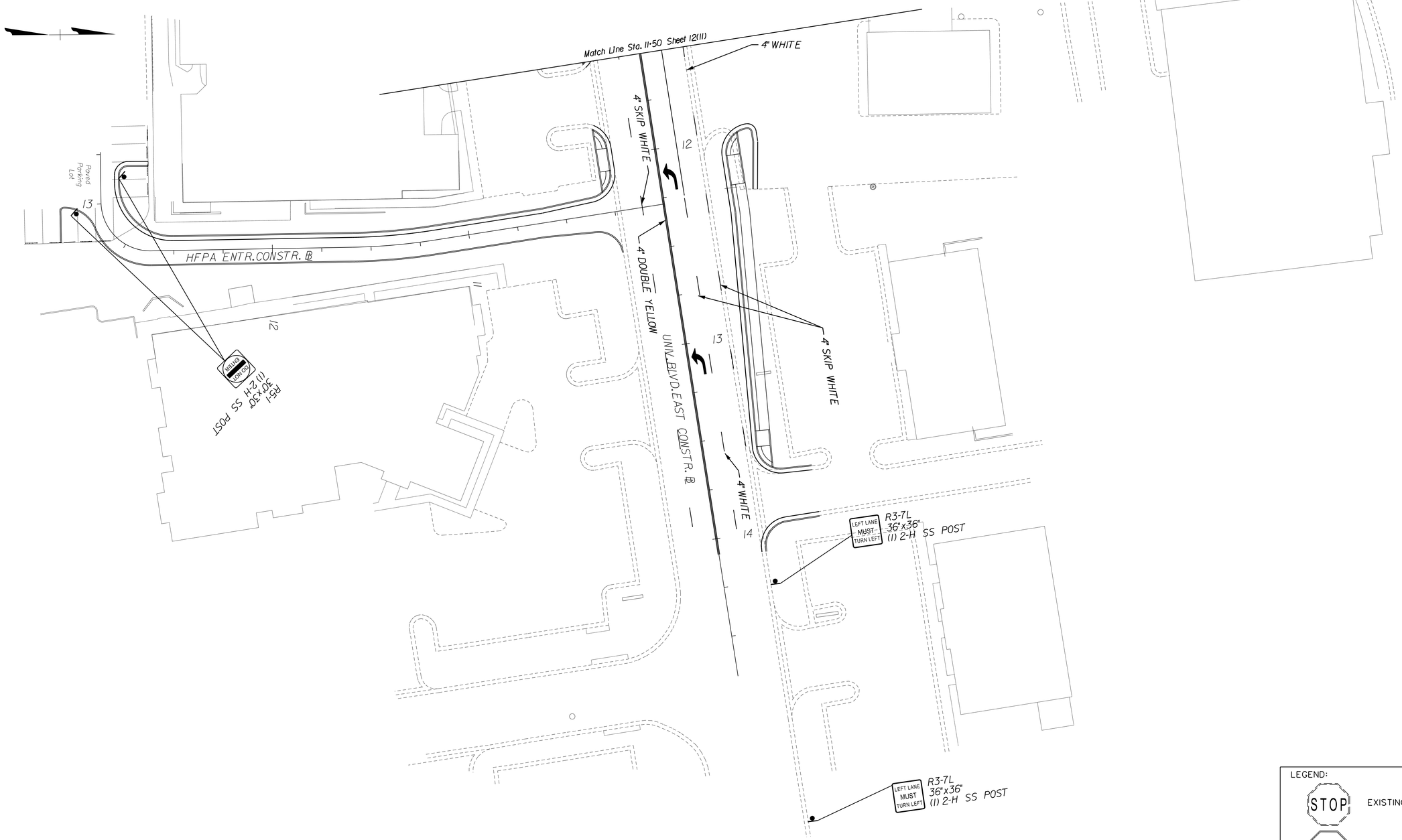
RESERVOIR STREET

SIGNING/PAVEMENT MARKING UNIVERSITY BLVD WEST

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 12(11B)

SIGNING AND PAVEMENT MARKING PLAN



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SIGN POST

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
BRG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
JSS	

TAX MAP

RESERVOIR STREET

SIGNING/PAVEMENT MARKING
UNIVERSITY BLVD EAST

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET

12(11C)

TRAFFIC SIGNAL GENERAL NOTES

1. Multiple conduits between proposed conduits and existing utilities may exist. The contractor is cautioned that the location of all existing underground utilities should be considered approximate; this plan does not guarantee the existence or nonexistence of underground utilities. The Contractor shall be responsible for the definite location of each utility involved within the area of his excavation for work under this contract. The Contractor shall call MISS UTILITY (1-800-552-7001) 48 hours before beginning work. Where conflicts occur, the Contractor shall contact the Engineer prior to beginning work.

2. All signal heads (McCain or equivalent) shall be mounted in accordance with VDOT SM-3 and all signal heads shall include louvered aluminum backplates. All traffic signal heads shall be 12" and include visors. Signal heads shall be wired/installed as per City Special Provisions [sheet 13(2)].

3. All damages to existing structures, facilities, pavement, grassed areas, etc., shall be restored to existing condition by the Contractor at his expense.

4. All street signs shall be LED lighted street signs capable of nighttime illumination to be controlled by individual photocell on/off switches. Signs are to be powered by AWG #4 Conductor cables running from the signs to the controller cabinet. City of Harrisonburg Traffic Division at (540) 434-5928 needs to approve proofs prior to ordering. Refer to Special provisions for specs [sheet 13(2)].

5. Pole locations shall be installed within 6' of the point as shown on the plan. Contractor shall stake and field verify with "MISS UTILITY OF VIRGINIA" the pole location before ordering poles and arms. THE CITY PROJECT MANAGER OR HIS/HER DESIGNEE SHALL APPROVE STAKED POLE LOCATIONS. Foundation for signal pole shall be 4" above grade maximum, not 2' shown in PF-8 Standard. State factory inspection of poles not required.

6. The contractor shall furnish to the City shop drawings and calculations for all poles and foundations. Quantities shown on this tabulation sheet are approximate; payment will be made based on the actual quantity as determined by the shop drawings and calculations.

7. Provide an Uninterruptible Power Supply (UPS) power backup system as specified in the City signal specifications. Install with batteries. UPS system shall be installed in a separate bolt-on enclosure attached to the signal cabinet. Refer to Special Provisions for additional details [sheet 13(2)].

8. Reuse the existing radio communication equipment at all of the existing signal installations. Take care to avoid damage to existing equipment during relocation. If equipment is damaged the contractor shall repair or replace the equipment at no extra cost to the City. The contractor is to reinstall the existing radio at each intersection at the location indicated on the plans. They will need to coordinate with the City on the antenna alignment.

9. Radio communication to each signal shall be maintained throughout construction. Contractor is to coordinate with the Public Works department for appropriate placement and alignment of radio antennas during setup of temporary signals.

10. Contractor shall ensure integrity of cabling for signal heads throughout the duration of construction.

11. The contractor shall verify the elevation of all underground utilities to be crossed prior to trenching, jacking or boring conduits. The contractor shall hand dig when crossing water lines, gas lines and sewer force mains.

12. All U-bolts, nuts, and washers shall be stainless steel. All plate material shall be galvanized.

13. Conduits entering junction boxes shall not extend over 3" maximum or under 2" minimum and shall be fitted with bell ends or bushings.

14. The proposed pole foundations shall be permanently marked to indicate the locations of all conduits cast in the foundation, and the foundation's specifications.

15. Conduit quantities are inclusive of all requirements, not above and beyond the minimum requirements. Additional payment will not be provided for open trenching if/where required for road crossings. All conduit runs shall include pull rope.

16. The only holes in the mast arm shall be the final location of the signal heads. Slack cable shall be used to relocate the heads during construction.

17. Conduit and Junction Boxes shown in the plan may be shifted in location to accommodate field conditions. All equipment shall be placed within the right-of-way.

18. Controller and cabinet to be supplied by the City. Contact Traffic Engineering to coordinate installation (540-434-5928). Refer to Special provisions for specs [sheet 13(2)]

19. The City of Harrisonburg will provide the signal timings for the controllers. The Contractor shall contact the City Office of Traffic Engineering (540-434-5928) at least two weeks in advance of requiring those timings.

20. Pedestrian push buttons shall be per VDOT specifications and shall be fully ADA compliant in size and location. Push buttons shall be included with an Accessible Pedestrian Signal. Push buttons shall be 2" diameter, vandal resistant, with tone, braille text, and LED verification (Polara EN2-EZ Communicator Navigator) Push buttons shall be programmed to use audible tones. Test to ensure that volume automatically adjusts to ambient noise conditions. Ensure that button placement is parallel to the associated crosswalk and the tactile arrow points in the direction of the crossing.

21. Top of pole foundations shall be flush with the adjacent sidewalk. Pedestrian push buttons shall be fully accessible from the adjacent sidewalk.

22. Included in this bid item is the removal of all existing signal equipment indicated on the plans. All existing equipment that is in usable condition shall be returned to the City Signal Shop. Removal of existing mast arms and controllers shall include removing the existing foundations to a minimum of two feet below final grade.

23. All pole foundations shall be designed for maximum mast arm length and load.

24. The method of measurement for this bid item shall be Lump Sum. The basis of payment shall include installation of span wire, conductor cable, conduit, signal heads, vehicle detection, and relocation of control cabinet. Any necessary incidental equipment, fittings, tools, and labor to complete the work is included in the Lump Sum price. Span wire shall be a minimum of ½". Detection shall be installed and maintained on all phases during all stages of construction. All adjustments required to the temporary signal equipment regarding lane changes or shifts in traffic shall be included in the Lump Sum. Maintenance of Traffic shall be done according to the VA Work Area Protection Manual (latest edition). Any damage is the responsibility of the contractor.

25. Camera locations shall be adjusted in the field. Use extender arms as necessary to allow the camera to be structurally located at the proper elevation as per the manufacturer's recommendations and to provide the operations shown at the project intersections. The detection system supplier shall perform all video detection setup and coordinate with the City. See Special Provisions for additional details [sheet 13(2)].

26. The contractor is responsible for providing as-built plans upon completion of work.

27. Provide Opticom emergency preemption devices for all approaches as shown on the plans. Confirmation lights to be included with this bid item. This item includes the testing and adjusting of the system as necessary to ensure that the emergency preemption detectors adequately detect and preempt the signal timings. The opticoms shall be configured with City opticom channel configurations. See Special Provisions for additional details [sheet 13(2)].

28. Contractor shall refer to the permanent plans for conduits and cable size and numbers.

29. PTZ camera and associated equipment in cabinet at existing Reservoir Street and University Boulevard shall be reinstalled by contractor using existing cable.

30. Existing emergency preemption equipment at Neff Avenue shall be reinstalled by the contractor using new wiring for Opticom detectors and confirmation lights. Return existing system at University Blvd. to Public Works.

31. The following signals shall have a copper-to-fiber media converter that meets or exceeds NEMA TS-2 standards (RUGGEDCOM RMC40 or equivalent with two fiber ports):
    a. Stonewall Drive
    b. Lucy Drive
    c. Neff Avenue

32. Use SMB-1 assembly for mounting on pedestrian pedestal. Use SMB-3 assembly when mounting on signal upright.

33. Conduit schedule includes conduit specified in PF-8 standard, CF-1 standard, PF-2 standard, and SE-3 Type B standard.

TRAFFIC SIGNAL QUANTITIES

NOTES		36		31	32	32	37	20		2	2	2	2	2	2		6						5	5,6	25	25					8,40		11,15	11,15	11,15	11,15	11,15	11,15		18,19	18,38	18
SHEET NO.	INTERSECTION	ELECTRICAL SERVICE SE-3 TYPE B	ELECTRICAL SERVICE GROUNDING ELECTRODES 10FT	COPPER-TO-FIBER MEDIA CONVERTER	PEDESTRIAN SIGNAL HANGER ASSEMBLY SMB-1	PEDESTRIAN SIGNAL HANGER ASSEMBLY SMB-3	PEDESTRIAN SIGNAL HEAD SP-8	ACCESSIBLE PEDESTRIAN ACTUATION PA-2 WITH ACCESSIBLE PED BUTTON	TRAFFIC SIGNAL HANGER ASSEMBLY SM-3	SIGNAL HEAD SECTION 12" LED RED	SIGNAL HEAD SECTION 12" LED RED ARROW	SIGNAL HEAD SECTION 12" LED GREEN	SIGNAL HEAD SECTION 12" LED GREEN ARROW	SIGNAL HEAD SECTION 12" LED YELLOW	SIGNAL HEAD SECTION 12" LED YELLOW ARROW	PEDESTAL POLE PF-2 8'	CONCRETE FOUNDATION PF-2	20' MP-1 SIGNAL POLE WITH MAST ARM 30'	20' MP-1 SIGNAL POLE WITH MAST ARM 40'	20' MP-1 SIGNAL POLE WITH MAST ARM 50'	20' MP-1 SIGNAL POLE WITH MAST ARM 60'	20' MP-1 SIGNAL POLE MAST ARM 65'	20' MP-1 SIGNAL POLE WITH TWO MAST ARMS 30' AND 50'	CONCRETE FOUNDATION FOR SIGNAL POLE PF-8	4-WAY VIDEO DETECTION SYSTEM WITH VIEWCOM	3-WAY VIDEO DETECTION SYSTEM WITH VIEWCOM	VIDEO DETECTOR CABLE (5 CONDUCTOR SIAMESE CABLE)	8/1 CONDUCTOR CABLE	14/2 SHIELDED CONDUCTOR CABLE	14/4 CONDUCTOR CABLE	CAT5E ETHERNET CABLE, OUTDOOR GRADE FOR RADIO	EMERGENCY VEHICLE PREEMPTION DETECTOR CABLE	1" CONDUIT (SCHEDULE 80 PVC)	2" CONDUIT (SCHEDULE 80 PVC)	3" CONDUIT (SCHEDULE 80 PVC)	1" HDPE (DIRECTIONAL BORE)	2" HDPE (DIRECTIONAL BORE)	3" HDPE (DIRECTIONAL BORE)	TRENCH EXCAVATION ECI-1	CONTROLLER WITH CABINET SUPPLIED BY THE CITY	CONTROLLER CABINET FOUNDATION CF-1	INSTALLATION OF CONTROLLER WITH CABINET
	UNIT	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	CY	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	LF
13(2)	RESERVOIR ST & STONEWALL DR	1	2	1	3	1	4	4	8	7	1	7	3	7	3	3	3			1			1	20		1	424	210	484	3375		484	71	179	100	274	648	200	89	1	1	1
13(3)	RESERVOIR ST & LUCY DR	1	2	1	4	4	8	8	10	10		10	2	10	2	3	3	1		3				40	1		776	339	721	5646		721	74	206	84	275	825	550	139	1	1	1
13(4)	RESERVOIR ST & NEFF AVE	1	2	1	4	4	8	8	13	13		13	6	13	6	4	4		1	2		1		40	1		769	213	769	8298	52	769	100	214	100	307	921	614	126	1	1	1
13(6)	RESERVOIR ST & UNIVERSITY BLVD	1	2		4	4	8	8	13	13		13	5	13	5	4	4				2	2		40	1		854	477	790	7893	59	790	90	214	116	282	846	564	100	1	1	1
13(8)	SIGNAL INTERCONNECTIVITY FIBER																																	5898					2949			
TOTALS		4	8	3	15	13	28	28	44	43	1	43	16	43	16	14	14	1	1	6	2	3	1	140	3	1	2823	1239	2764	25212	111	2764	335	6711	400	1138	3240	1928	3403	4	4	4

NOTES		35,39	35	35	7	7	7			4	27	27,30		9,24	22,29	8,30	41	34	42
SHEET NO.	INTERSECTION	JUNCTION BOX JB-S1	JUNCTION BOX JB-S2	JUNCTION BOX JB-S3	UNINTERRUPTIBLE POWER SUPPLY	UNINTERRUPTIBLE POWER SUPPLY BATTERY	UNINTERRUPTIBLE POWER SUPPLY CABINET	SIGN PANEL - FURNISH AND INSTALL	OVERHEAD SIGN HANGER ASSEMBLY SMD-2	LED LIGHTED STREET NAME SIGNS	EMERGENCY PREEMPTION 3-WAY	EMERGENCY PREEMPTION 4-WAY	TEST BORE	TEMPORARY SIGNALIZATION	REMOVE EXISTING SIGNAL EQUIPMENT	RELOCATE EXISTING SIGNAL EQUIPMENT	24 STRAND FIBER OPTIC CABLE	#8 BONDED GROUND	FIBER SWITCHES
	UNIT	EA	EA	EA	EA	EA	EA	SF	EA	EA	EA	EA	EA	LS	LS	LS	LF	LF	EA
13(2)	RESERVOIR ST & STONEWALL DR	1	2	2	1	6	1	47	8	3	1		2				139	423	1
13(3)	RESERVOIR ST & LUCY DR	1	2	3	1	6	1	99	12	4		1	4				37	489	1
13(4)	RESERVOIR ST & NEFF AVE	1	3	2	1	6	1	98.5	15	4			4				12	513	1
13(6)	RESERVOIR ST & UNIVERSITY BLVD	1	3	2	1	6	1	113	15	4		1	4					457	
13(8)	SIGNAL INTERCONNECTIVITY FIBER	6															2989		
TOTALS		10	11	9	4	24	4	357.5	50	15	1	2	14	1	1	1	3177	1882	3

34. #8 bonded ground cable shall connect to all signal and pedestrian poles.

35. Junction boxes shall have 8" concrete collar, not 12" specified by VDOT. See Special Provisions for details [sheet 13(2)].

36. Electrical service shall be 110 VAC. Electrical service shall be STD. SE-3 Type B 120 Volt single phase with 100 AMP meter base and circuit breaker box, containing 1 single pole 60 AMP breaker and 1 single pole 20 AMP breaker mounted on the signal pole. Contractor shall install meter supplied by Harrisonburg Electric Commission. Contractor shall pick-up meter at Harrisonburg Electric Commission. (Contact Brian O'Dell (540) 434-5361). Contractor shall obtain an "Electric Permit" form the City of Harrisonburg Community Development Building Inspection before performing any electrical work.

37. Pedestrian signal heads shall meet City Special provisions [sheet 13(2)], which includes wiring detail.

38. Installation of the signal devices shall be incidental to the installation of the controller cabinet foundation CF-1.

39. Signal interconnectivity conduit shall be installed in the sidewalk from Stonewall Drive to Neff Avenue and shall include (2)2" conduits. Signal interconnectivity junction boxes (JB-S1) shall be installed every 400 feet of conduit in the sidewalk. Interconnectivity conduit shall be installed simultaneously with drainage trunk line installation. See interconnectivity plan and signal plans.

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

DRAWN BY GG DATE
CHECKED BY CMY DATE
DESIGN BY GG DATE
TAX MAP

RESERVOIR STREET
TRAFFIC SIGNAL PLAN
GENERAL NOTES
& TABULATION OF QUANTITIES
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
13(1)

TRAFFIC SIGNAL SPECIAL PROVISIONS

Ethernet and Fiber Optics

40. Ethernet cable shall be Quabbin 5710 Datamax Extreme Cat5E cable or equivalent.

41. Fiber optic cable shall be 24 strand single mode,with 9/125 um core/cladding,1310 nm wavelength,LC connectors,and breakaway connectors.

42. Fiber Switches shall be EthrWAN EX71602-OVB or equivalent with 6 Ethernet ports and 2 fiber optic Gigabit Ethernet SFP slots. Compatible power supply and SFP modules (EtherWAN EX-1250TSP-MB4L-A or equivalent) shall be included.

Control Cabinet

43. The control cabinet shall be an Econolite model Plug & Go P44 Type I enclosure as per City of Harrisonburg specifications. The control cabinet will be supplied by the City of Harrisonburg.

Components

44. Traffic controller shall be an Econolite model ASC/3-2100,with Ethernet and Data Key capability as per the City of Harrisonburg contract with the manufacturer. The controller will be supplied the City of Harrisonburg.

45. Malfunction management Unit (MMU) shall be Reno A&E model MMU-1600GE,with Ethernet capability.

46. UPS backup battery shall be a Tesco Controls model 22000,1000-watt,6 battery system.

47. 100-Amp A/C power service shall be permitted and inspected by the contractor through the Community Development Department (540) 432 -7700. Contractor is responsible for installing power service,which shall be brought through a 100-Amp service disconnect.Midwest Electric Products,Inc.Model M101CP6 or equivalent.

48. Traffcon video detection system using a model VIP3D.2 cards shall be used for vehicle detection. This system shall include VIP cards (1 for every 4 phases in use at the intersection),cameras (1 for every intersection approach),wires,and a Trafficon ViewCom E Max card for remote management.

49. Global Traffic Technologies (GTT) Opticom Infrared Emergency Preemption System shall be used. This system shall include Model 764 Multimode Phase Selector,Model 768 Auxiliary Interface Panel,Model 721 Detector (one for each approach),and Model 575 Confirmation Light Kit (one for each approach). Opticom equipment,including wiring,will be supplied by the City of Harrisonburg.

Mast Arms

50. Mast arm poles and arms shall meet Virginia Department of Transportation standard PF-8 and have VDOT regional contract galvanized eight (8) bolt design.

51. Mast arm (or strain poles,if applicable) shall be designed in accordance with 1994 AASHTO Standard Specifications for Structured Supports for Highway Signs, Luminaries,and Traffic Signals.

52. Mast arms shall be designed to a minimum 90 mph wind load capacity.

Signal heads

53. Signal heads shall be manufactured by Peek Traffic,Inc.,McCain,Inc.,or equivalent.

54. All signal heads shall have 12 inch Red,Amber and Green VDOT approved LED inserts.

55. Signal indications shall be Leotek Electronics Corp.,Model ILG-P3.12" Incandescent Look LED modules.

56. Signal heads shall be wired according to the following schema:
    Red Wire - Red output
    Black Wire - Yellow output
    Green Wire - Green output
    White Wire - Neutral
    For 5-sections,a second 14/4C cable is run and shall use the following wiring schema:
    Black Wire (from 2nd 14/4C) - Yellow Arrow
    Green Wire (from 2nd 14/4C) - Green Arrow
    White Wire (from 2nd 14/4C) - Neutral

LED Lighted Street Signs

57. LED lighted street signs shall be manufactured by Transportation Control Systems,Inc., model 'Brite Lite'. Please contact Public Works Department for street name verification and approval of sign design. LED lighted street signs shall be manufactured by Transportation Control Systems,Inc.model 'Brite Lite'. Please contact Public Works Department for street name verification and approval of sign design.

Pedestrian Signals

58. Pedestrian signal housing shall be 16" aluminum and be Federal yellow color.

59. Pedestrian signal heads shall be wired according to the following schema:
    Green Wire - Walk output
    Red Wire - Don't Walk output
    White Wire - Neutral

60. Pedestrian signals shall meet VDOT standard SP-8,be 16" wide,and be Leotek Electronics Corp.,Model No.TSL-PED-16-CIL-PI or exact equivalent.

Conduits and Junction Boxes

61. All conduit shall be schedule 80 PVC pipe.

62. All junction boxes shall be constructed of Armorcast Products Company 20K rated polymer concrete cover with polymer concrete ring or APPROVED equivalent.

63. Armorcast Products Company model W/FRP skirt #JB-S3 shall be used at control box and model #JB-S2 used at all other locations (unless noted on plan) or APPROVED equivalent.

64. Covers shall have the text 'TRAFFIC' stamped on top.

65. All conduits shall run under and turned up into junction box. Conduits shall not be drilled into the side of junction box.

66. All junction box collars shall be marked to show the number and direction of conduits,similar to the PF-8 foundation markings.

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

DRAWN BY	DATE
GG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
GG	
TAX MAP	

RESERVOIR STREET

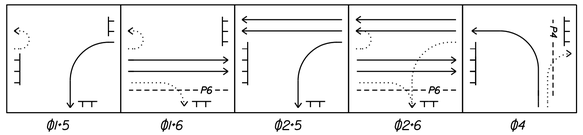
TRAFFIC SIGNAL PLAN
SPECIAL PROVISIONS

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
13(2)

STONEWALL DRIVE TRAFFIC SIGNAL

PHASING DIAGRAM



COLOR SEQUENCE CHART

PHASE / SIGNAL	Φ1·5 R/W	Φ1·6 R/W	Φ2·5 R/W	Φ2·6 R/W	Φ4 R/W	FLASH
1	R/~~G~~	~~R~~/G	R	G	R	Y
2	R	R	G	G	R	Y
4	R	R	R	R	G	R
4A	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	~~R~~
5	R/~~G~~	R	~~R~~/G	G	R	Y
6	R	G	R	G	R	Y
P4	DW	DW	DW	DW	W	BLANK
P6	DW	W	DW	W	DW	BLANK

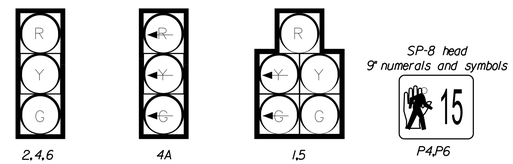
IMAGE SENSING UNITS

1 DETECTS PHASE 4

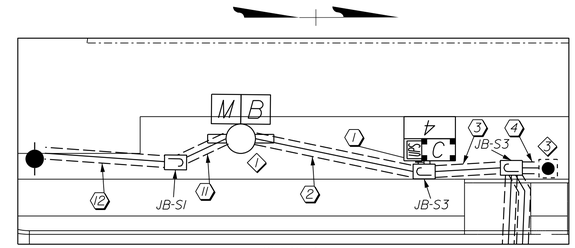
2 DETECTS PHASE 1 AND 6

3 DETECTS PHASE 2 AND 5

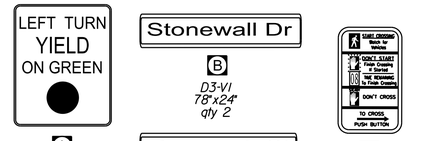
SIGNAL HEADS



ALL VEHICULAR SIGNAL HEADS SHALL BE 12" LED AND SHALL HAVE BACKPLATES AND TUNNEL VISORS



DETAIL A
SCALE: 1"=10'



A R10-12 30"X36" qty 2

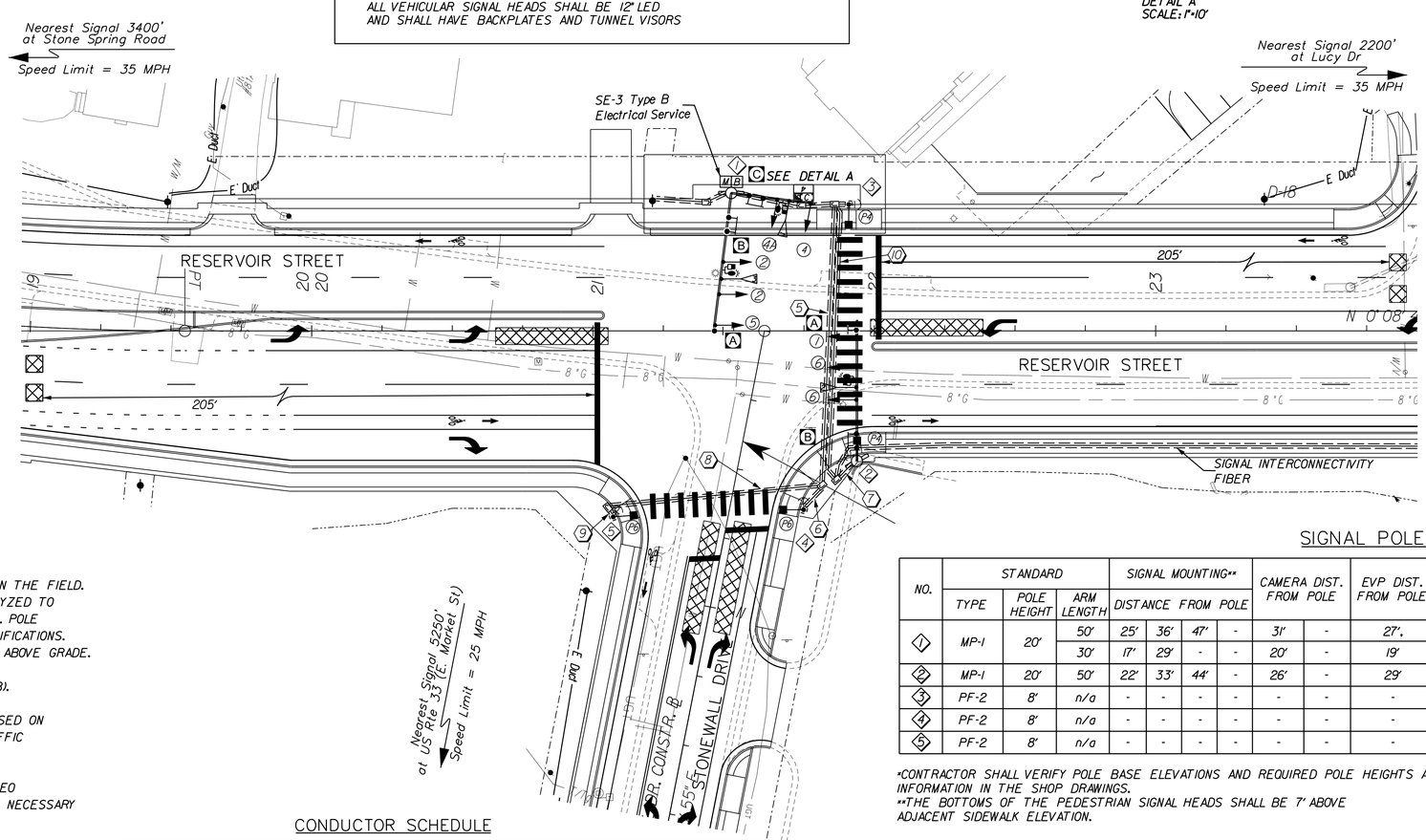
B D3-V1 78"x24" qty 2

C D3-V1 78"x24" qty 1

D R10-3e 9"X15" Incidental to APS pay item

L.E.D. STREET NAME SIGN NOTES

1) ALL STREET NAME TEXT IS TO BE COMPOSED OF 8" CLEARVIEW 2-W FONT UNLESS NOTED OTHERWISE.



LEGEND

- Proposed signal pole and identifier
- Proposed pedestrian pole and identifier
- Existing strain pole
- Proposed signal head
- Existing signal head
- Mast arm-mounted sign
- Post-mounted sign
- Sign identifier
- Proposed junction box - JB-S2 unless noted
- Controller cabinet
- Uninterruptible Power Supply
- Proposed conduit and identifier
- Breaker box
- Meter box
- Proposed video detector
- Proposed pedestrian signal head
- Proposed pedestrian push button
- Proposed overhead sign
- Proposed directional antenna mast
- Proposed video detection zone
- Proposed opticom and flashing beacon

GENERAL NOTES

1) POLE FOUNDATION LOCATIONS SHALL BE STAKED IN THE FIELD. SOIL BORINGS AT THESE LOCATIONS SHALL BE ANALYZED TO DETERMINE THE APPROPRIATE FOUNDATION DESIGN. POLE FOUNDATION TO BE DESIGNED TO MEET PF-8 SPECIFICATIONS. REFER TO NOTE 5 [SHEET 13(1)] ABOUT DISTANCE ABOVE GRADE.

2) PROVIDE NEW ELECTRICAL SERVICE (SE-3,TYPE B).

3) THE ELECTRICAL POWER SHALL BE SUPPLIED BASED ON AGREEMENT BETWEEN CITY OF HARRISONBURG TRAFFIC ENGINEERING AND THE POWER COMPANY.

4) TRANSVERSE SPACING OF SIGNAL HEADS AND VIDEO DETECTORS SHALL BE VERIFIED AND ADJUSTED AS NECESSARY IN THE FIELD.

5) ALL JUNCTION BOXES SHALL BE JB-S2 UNLESS OTHERWISE INDICATED.

6) GROUND RODS SHALL BE INSTALLED IN JUNCTION BOXES SO AS TO BE READILY-ACCESSIBLE FOR FUTURE INSPECTIONS.

7) ALL JUNCTION BOX COLLARS SHALL BE MARKED TO SHOW THE NUMBER AND DIRECTIONS OF CONDUITS,SIMILAR TO THE PF-8 FOUNDATION MARKINGS.

8) ALL PEDESTRIAN SIGNALS SHALL BE INSTALLED WITH ACCESSIBLE PEDESTRIAN SIGNAL EQUIPMENT.

9) SEE SHEET 13(9) FOR PROPOSED SIGNAL INTERCONNECTIVITY FIBER GLOBAL ALIGNMENT.

10) CONDUIT RUNS 5 AND 10 SHALL BE INSTALLED SIMULTANEOUSLY.

CONDUCTOR SCHEDULE

CONDUIT		RUN NO. 1	2	3	4	5	6	7	8	9	10	11	12
SIZE		(3) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 1"	(1) 2"
TYPE		ECI-1	ECI-1	ECI-1	ECI-1	BORED	ECI-1	ECI-1	BORED	ECI-1	BORED	ECI-1	ECI-1
AWG 8	IC	3	3									3	3
AWG 14	2C(S)	3	2	1				1			1		
	4C	21	8	13	2	4	2	7	2	2	7		
VIDEO DET.CABLE**		3	2	1				1			1		
EMERG.PREEMP.CABLE		3	2	1				1			1		
FIBER OPTIC CABLE		1		1							1		
#8 BONDED GROUND		1	1	1	1	1	1	1	1	1	1	1	1

** 5 CONDUCTOR SIAMESE CABLE
CONDUIT SCHEDULE INCLUDES CONDUIT SPECIFIED IN PF-8 STANDARD,CF-1 STANDARD, PF-2 STANDARD AND SE-3 TYPE B STANDARD.

SIGNAL POLE LEGEND

NO.	STANDARD TYPE	STANDARD POLE HEIGHT	STANDARD ARM LENGTH	SIGNAL MOUNTING** DISTANCE FROM POLE				CAMERA DIST. FROM POLE		EVP DIST. FROM POLE	TRAFFIC SIGN MOUNTING DISTANCE FROM POLE				POLE LOCATION* STA	OFFSET	ANGLE	ANGLE BETWEEN ARMS
1	MP-1	20'	50'	25'	36'	47'	-	31'	-	27'.	11'	49'	-	-	21+49.1	49.0' LT	83°	90°
			30'	17'	29'	-	-	20'	-	19'	9'	-	-	-			7°	
2	MP-1	20'	50'	22'	33'	44'	-	26'	-	29'	6'	47'	-	-	21+93.8	46.3' RT	90°	n/a
3	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	21+90.9	44.9' LT	n/a	n/a
4	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	10+59.7	25.9' LT	n/a	n/a
5	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	21+07.2	66.1' RT	n/a	n/a

*CONTRACTOR SHALL VERIFY POLE BASE ELEVATIONS AND REQUIRED POLE HEIGHTS AND PROVIDE THAT INFORMATION IN THE SHOP DRAWINGS.
**THE BOTTOMS OF THE PEDESTRIAN SIGNAL HEADS SHALL BE 7' ABOVE ADJACENT SIDEWALK ELEVATION.

WIRING NOTES

1) ALL VEHICULAR SIGNAL HEADS SHALL BE POWERED BY #14/4C CABLE. TWO #14/4C CABLES SHALL BE RUN TO SIGNAL HEADS WITH GREATER THAN 4 SECTIONS.

2) ALL PEDESTRIAN SIGNAL HEADS SHALL BE POWERED BY #14/4C CABLE.

3) ALL PEDESTRIAN PUSH BUTTONS SHALL BE POWERED BY #14/4C CABLE.

4) ALL EMERGENCY VEHICLE PREEMPTORS SHALL BE WIRED WITH EMERGENCY VEHICLE PREEMPTION DETECTOR CABLE AND #14/2C SHIELDED CABLE (FOR THE CONFIRMATION BEACON)

5) ALL LED-LIGHTED STREET NAME SIGNS SHALL BE POWERED BY #14/4C CABLE.

SCALE 0 25' 50'

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

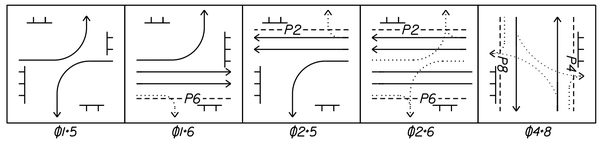
SCALE: 1" = 25'
DRAWN BY GG DATE
CHECKED BY CMY DATE
DESIGN BY GG DATE
TAX MAP

RESERVOIR STREET
STONEWALL DRIVE SIGNAL PLAN
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY STREET
HARRISONBURG, VIRGINIA

SHEET 13(3)

LUCY DRIVE/WOODLAND DRIVE TRAFFIC SIGNAL

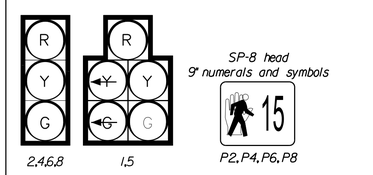
PHASING DIAGRAM



COLOR SEQUENCE CHART

PHASE / SIGNAL	Ø1·5 R/W	Ø1·6 R/W	Ø2·5 R/W	Ø2·6 R/W	Ø4·8 R/W	FLASH
1	R/G	G/G	R	G	R	Y
2	R	R	G	G	R	Y
4	R	R	R	R	G	R
5	R/G	R	G/G	G	R	Y
6	R	G	R	G	R	Y
8	R	R	R	R	G	R
P2	DW	DW	W	W	DW	BLANK
P4	DW	DW	DW	DW	W	BLANK
P6	DW	W	DW	W	DW	BLANK
P8	DW	DW	DW	DW	W	BLANK

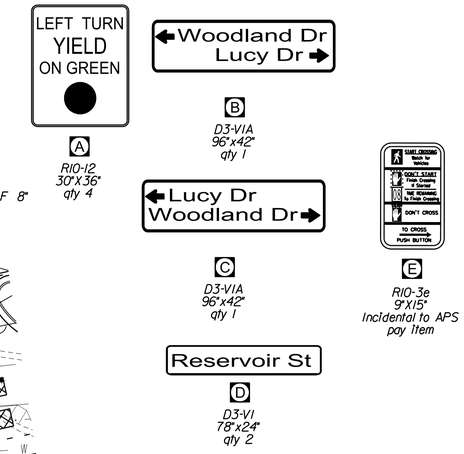
SIGNAL HEADS



All vehicular indications shall be 12" LED indications
Backplates and tunnel visors required on all vehicular heads

L.E.D. STREET NAME SIGN NOTES

1) ALL STREET NAME TEXT IS TO BE COMPOSED OF 8" CLEARVIEW 2-W FONT UNLESS NOTED OTHERWISE.



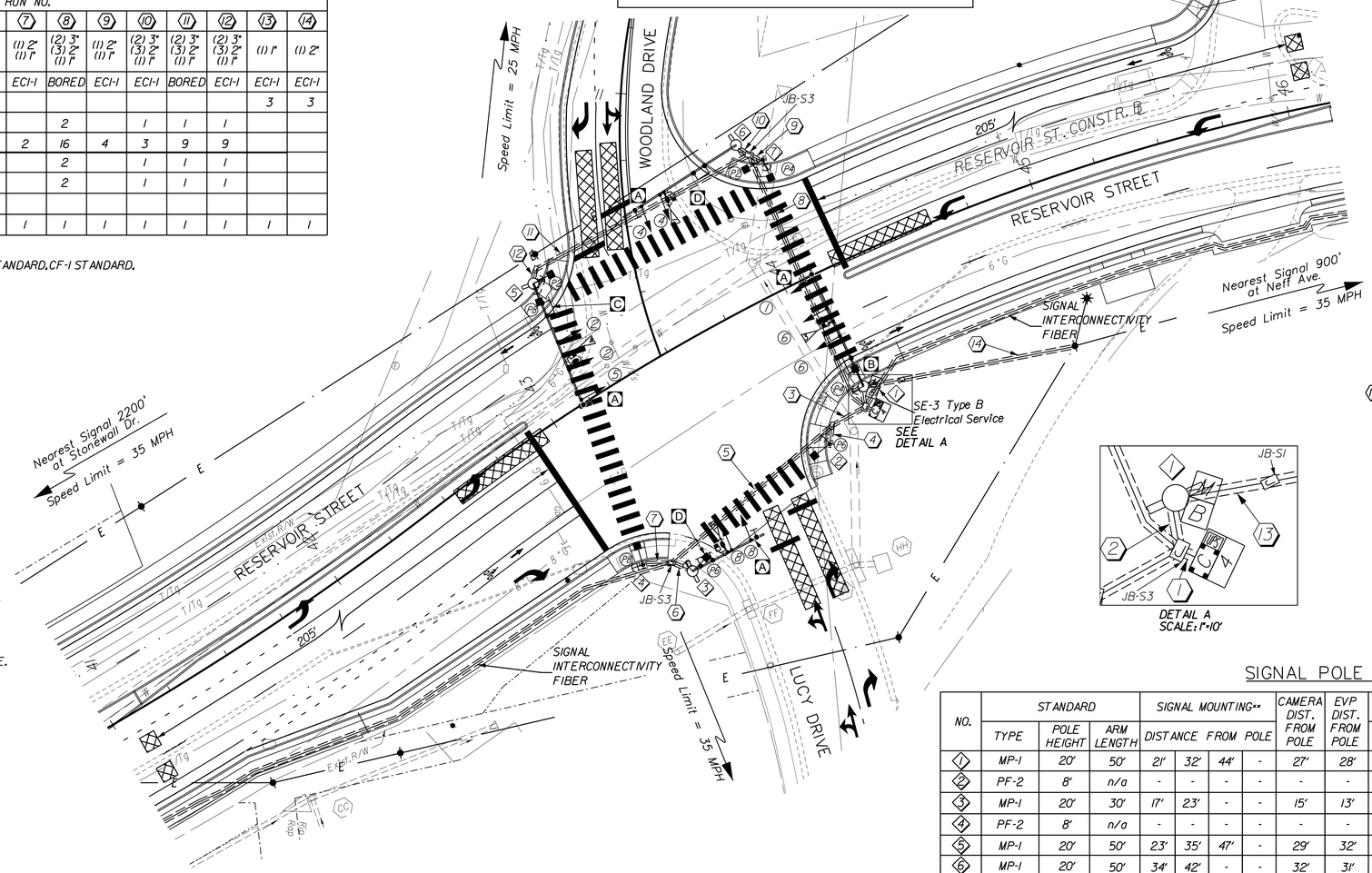
CONDUCTOR SCHEDULE

		RUN NO.													
CONDUIT		1	2	3	4	5	6	7	8	9	10	11	12	13	14
SIZE		(3) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 1"	(1) 2"
TYPE		ECI-1	ECI-1	ECI-1	ECI-1	BORED	ECI-1	ECI-1	BORED	ECI-1	ECI-1	BORED	ECI-1	ECI-1	ECI-1
AWG 8	IC	3	3											3	3
AWG 14	2C(S)	4	1	1		1	1		2		1	1	1		
	4C	32	7	9	2	7	5	2	16	4	3	9	9		
VIDEO DET	CABLE**	4	1	1		1	1		2		1	1	1		
EMERG.PREEMP.	CABLE	4	1	1		1	1		2		1	1	1		
FIBER OPTIC CABLE		1			1		1								
*8 BONDED GROUND		1	1	1	1	1	1	1	1	1	1	1	1	1	1

** 5 CONDUCTOR SIAMESE CABLE
CONDUIT SCHEDULE INCLUDES CONDUIT SPECIFIED IN PF-8 STANDARD, CF-1 STANDARD, PF-2 STANDARD AND SE-3 TYAPE B STANDARD.

IMAGE SENSING UNITS

- 1 DETECTS PHASES 4
- 2 DETECTS PHASES 8
- 3 DETECTS PHASE 1·6
- 4 DETECTS PHASES 2·5



DETAIL A
SCALE: 1"=10'

LEGEND

- Proposed signal pole and identifier
- Proposed pedestrian pole and identifier
- Existing strain pole
- Proposed signal head
- Existing signal head
- Mast arm-mounted sign
- Post-mounted sign
- Sign identifier
- Proposed junction box - JB-S2 unless noted
- Controller cabinet
- Uninterruptible Power Supply
- Proposed conduit and identifier
- Breaker box
- Meter box
- Proposed video detector
- Proposed pedestrian signal head
- Proposed pedestrian push button
- Proposed overhead sign
- Proposed directional antenna mast
- Proposed video detection zone
- Proposed opticom and flashing beacon

GENERAL NOTES

1) POLE FOUNDATION LOCATIONS SHALL BE STAKED IN THE FIELD. SOIL BORINGS AT THESE LOCATIONS SHALL BE ANALYZED TO DETERMINE THE APPROPRIATE FOUNDATION DESIGN. POLE FOUNDATION TO BE DESIGNED TO MEET PF-8 SPECIFICATIONS. REFER TO NOTE 5 [SHEET 13(1)] ABOUT DISTANCE ABOVE GRADE.

2) PROVIDE NEW ELECTRICAL SERVICE (SE-3,TYPE B).

3) THE ELECTRICAL POWER SHALL BE SUPPLIED BASED ON AGREEMENT BETWEEN CITY OF HARRISONBURG TRAFFIC ENGINEERING AND THE POWER COMPANY.

4) TRANSVERSE SPACING OF SIGNAL HEADS AND VIDEO DETECTORS SHALL BE VERIFIED AND ADJUSTED AS NECESSARY IN THE FIELD.

5) ALL JUNCTION BOXES SHALL BE JB-S2 UNLESS OTHERWISE INDICATED.

6) GROUND RODS SHALL BE INSTALLED IN JUNCTION BOXES SO AS TO BE READILY-ACCESSIBLE FOR FUTURE INSPECTIONS.

7) ALL JUNCTION BOX COLLARS SHALL BE MARKED TO SHOW THE NUMBER AND DIRECTIONS OF CONDUITS, SIMILAR TO THE PF-8 FOUNDATION MARKINGS.

8) ALL PEDESTRIAN SIGNALS SHALL BE INSTALLED WITH ACCESSIBLE PEDESTRIAN SIGNAL EQUIPMENT.

WIRING NOTES

1) ALL VEHICULAR SIGNAL HEADS SHALL BE POWERED BY #14/4C CABLE. TWO #14/4C CABLES SHALL BE RUN TO SIGNAL HEADS WITH GREATER THAN 4 SECTIONS.

2) ALL PEDESTRIAN SIGNAL HEADS SHALL BE POWERED BY #14/4C CABLE.

3) ALL PEDESTRIAN PUSH BUTTONS SHALL BE POWERED BY #14/4C CABLE.

4) ALL EMERGENCY VEHICLE PREEMPTORS SHALL BE WIRED WITH EMERGENCY VEHICLE PREEMPTION DETECTOR CABLE AND #14/2C SHIELDED CABLE (FOR THE CONFIRMATION BEACON)

5) ALL LED-LIGHTED STREET NAME SIGNS SHALL BE POWERED BY #14/4C CABLE.

SIGNAL POLE LEGEND

NO.	STANDARD			SIGNAL MOUNTING**				CAMERA DIST. FROM POLE	EVP DIST. FROM POLE	TRAFFIC SIGN MOUNTING				POLE LOCATION*		
	TYPE	POLE HEIGHT	ARM LENGTH	DISTANCE FROM POLE						DISTANCE FROM POLE				STA	OFFSET	ANGLE
1	MP-1	20'	50'	21'	32'	44'	-	27'	28'	9'	46'	-	-	44+10.5	45.7 RT	90°
2	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	43+89.3	57.4' RT	n/a
3	MP-1	20'	30'	17'	23'	-	-	15'	13'	6'	25'	-	-	43+13.6	74.8' RT	0°
4	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	42+98.1	62.6 RT	n/a
5	MP-1	20'	50'	23'	35'	47'	-	29'	32'	10'	49'	-	-	10+36.5	38.2 LT	180°
6	MP-1	20'	50'	34'	42'	-	-	32'	31'	17'	45'	-	-	10+79.6	43.4' RT	64°
7	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	44+13.3	46.9' LT	n/a

*CONTRACTOR SHALL VERIFY POLE BASE ELEVATIONS AND REQUIRED POLE HEIGHTS AND PROVIDE THAT INFORMATION IN THE SHOP DRAWINGS.
**THE BOTTOMS OF THE PEDESTRIAN SIGNAL HEADS SHALL BE 7' ABOVE ADJACENT SIDEWALK ELEVATION.

SCALE 0 25' 50'

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

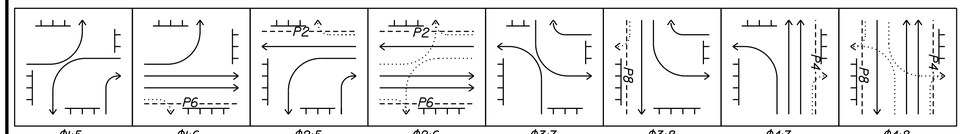
SCALE: 1" = 25'
DRAWN BY: GG — DATE
CHECKED BY: CMY — DATE
DESIGN BY: GG — DATE
TAX MAP

RESERVOIR STREET
LUCY DR/WOODLAND DR SIGNAL PLAN
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 13(4)

NEFF AVENUE TRAFFIC SIGNAL

PHASING DIAGRAM

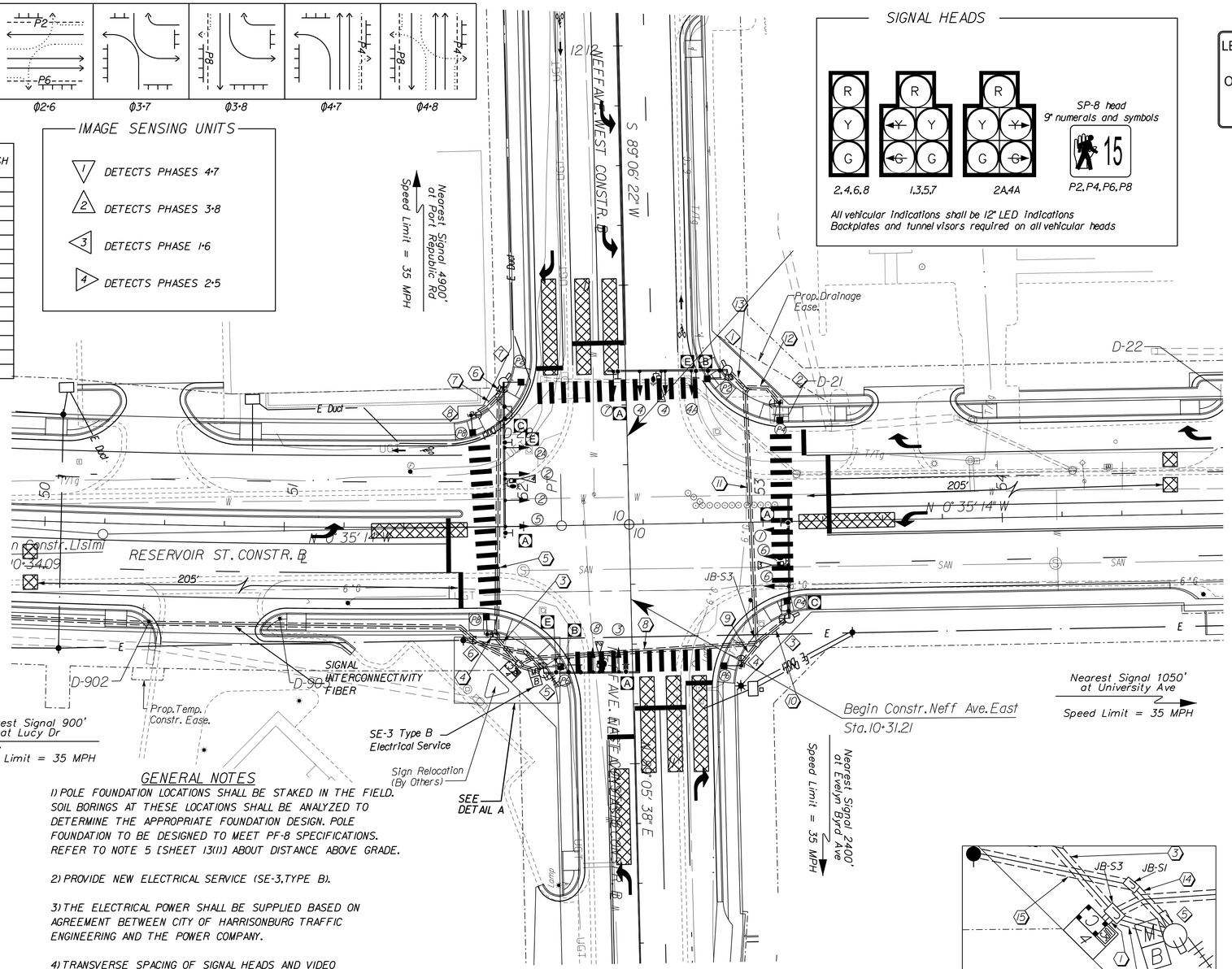


COLOR SEQUENCE CHART

PHASE / SIGNAL	ϕ1·5 R/W	ϕ1·6 R/W	ϕ2·5 R/W	ϕ2·6 R/W	ϕ3·7 R/W	ϕ3·8 R/W	ϕ4·7 R/W	ϕ4·8 R/W	FLASH
1	R/~~G~~	G	R	G	R	R	R	R	Y
2	R	R	G	G	R	R	R	R	Y
2A	R	R	G	G	R/~~G~~	R/~~G~~	R	R	Y
3	R	R	R	R	R/~~G~~	~~G~~/G	R	G	R
4	R	R	R	R	R	R	G	G	R
4A	R/~~G~~	R	R/~~G~~	R	R	R	G	G	R
5	R/~~G~~	R	~~G~~/G	G	R	R	R	R	Y
6	R	G	R	G	R	R	R	R	Y
7	R	R	R	R	R/~~G~~	R	~~G~~/G	G	R
8	R	R	R	R	R	G	R	G	R
P2	DW	DW	W	W	DW	DW	DW	DW	DW
P4	DW	DW	DW	DW	DW	DW	W	W	DW
P6	DW	W	DW	W	DW	DW	DW	DW	DW
P8	DW	DW	DW	DW	DW	W	DW	W	DW

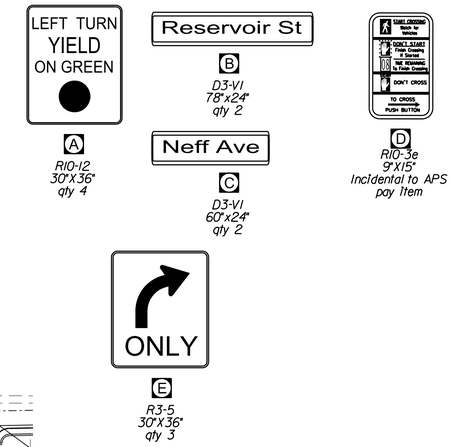
IMAGE SENSING UNITS

- 1 — DETECTS PHASES 4·7
- 2 — DETECTS PHASES 3·8
- 3 — DETECTS PHASE 1·6
- 4 — DETECTS PHASES 2·5



SIGNAL HEADS

All vehicular indications shall be 12" LED indications
Backplates and tunnel visors required on all vehicular heads



L.E.D. STREET NAME SIGN NOTES

1) ALL STREET NAME TEXT IS TO BE COMPOSED OF 8" CLEARVIEW 2-W FONT UNLESS NOTED OTHERWISE.

LEGEND

- Proposed signal pole and identifier
- Proposed pedestrian pole and identifier
- Existing strain pole
- Proposed signal head
- Existing signal head
- Mast arm-mounted sign
- Post-mounted sign
- Sign identifier
- Proposed junction box - JB-S2 unless noted
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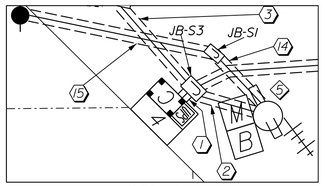

DETAIL A
SCALE: 1"=10'

GENERAL NOTES

1) POLE FOUNDATION LOCATIONS SHALL BE STAKED IN THE FIELD. SOIL BORINGS AT THESE LOCATIONS SHALL BE ANALYZED TO DETERMINE THE APPROPRIATE FOUNDATION DESIGN. POLE FOUNDATION TO BE DESIGNED TO MEET PF-8 SPECIFICATIONS. REFER TO NOTE 5 [SHEET 13(1)] ABOUT DISTANCE ABOVE GRADE.

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5) ALL JUNCTION BOXES SHALL BE JB-S2 UNLESS OTHERWISE INDICATED.

6) GROUND RODS SHALL BE INSTALLED IN JUNCTION BOXES SO AS TO BE READILY-ACCESSIBLE FOR FUTURE INSPECTIONS.

7) ALL JUNCTION BOX COLLARS SHALL BE MARKED TO SHOW THE NUMBER AND DIRECTIONS OF CONDUITS,SIMILAR TO THE PF-8 FOUNDATION MARKINGS.

8) ALL PEDESTRIAN SIGNALS SHALL BE INSTALLED WITH ACCESSIBLE PEDESTRIAN SIGNAL EQUIPMENT.

SCALE 0 25' 50'

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'
DRAWN BY: GG — DATE
CHECKED BY: CMY — DATE
DESIGN BY: GG — DATE
TAX MAP

RESERVOIR STREET
NEFF AVENUE SIGNAL PLAN
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 13(5)

NEFF AVENUE TRAFFIC SIGNAL

CONDUCTOR SCHEDULE

		RUN NO.														
CONDUIT		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SIZE		(3) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 1"	(1) 2"
TYPE		ECI-1	ECI-1	ECI-1	ECI-1	BORED	ECI-1	ECI-1	BORED	ECI-1	ECI-1	BORED	ECI-1	ECI-1	ECI-1	ECI-1
AWG 8	IC	3	3												3	3
AWG 14	2C(S)	4	1	1		1	1		2		1	1		1		
	4C	39	6	13	2	11	9	2	20	2	7	11	2	9		
VIDEO DET CABLE**		4	1	1		1	1		2		1	1		1		
EMERG.PREEMP.CABLE		4	1	1		1	1		2		1	1		1		
FIBER OPTIC CABLE		1														
ETHERNET CABLE		1	1													
#8 BONDED GROUND		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

** 5 CONDUCTOR SIAMESE CABLE
CONDUIT SCHEDULE INCLUDES CONDUIT SPECIFIED IN PF-8 STANDARD,CF-1 STANDARD, PF-2 STANDARD AND SE-3 TYAPE B STANDARD.

SIGNAL POLE LEGEND

NO.	STANDARD			SIGNAL MOUNTING**				CAMERA DIST. FROM POLE		EVP DIST. FROM POLE	TRAFFIC SIGN MOUNTING				POLE LOCATION*		
	TYPE	POLE HEIGHT	ARM LENGTH	DISTANCE FROM POLE							DISTANCE FROM POLE				STA	OFFSET	ANGLE
1	MP-1	20'	50'	15'	26'	37'	48'	28'	-	30'	6'	13'	46'	-	10+61.5	42.5' RT	90°
2	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	53+7.9	49.6' LT	n/a
3	MP-1	20'	50'	13'	26'	37'	-	22'	-	25'	6'	40'	-	-	53+10.3	40.4' RT	90°
4	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	10+60.1	45.4' LT	n/a
5	MP-1	20'	40'	21'	31'	-	-	23'	-	24'	5'	13'	34'	-	10+61.2	37.1' RT	90°
6	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	51+84.0	44.8' RT	n/a
7	MP-1	20'	65'	27'	38'	49'	60'	40'	-	42'	13'	25'	63'	-	10+60.6	51.0' LT	0°
8	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	51+78.5	46.6' LT	n/a

*CONTRACTOR SHALL VERIFY POLE BASE ELEVATIONS AND REQUIRED POLE HEIGHTS AND PROVIDE THAT INFORMATION IN THE SHOP DRAWINGS.
**THE BOTTOMS OF THE PEDESTRIAN SIGNAL HEADS SHALL BE 7' ABOVE ADJACENT SIDEWALK ELEVATION.

WIRING NOTES

1) ALL VEHICULAR SIGNAL HEADS SHALL BE POWERED BY #14/4C CABLE. TWO #14/4C CABLES SHALL BE RUN TO SIGNAL HEADS WITH GREATER THAN 4 SECTIONS.

2) ALL PEDESTRIAN SIGNAL HEADS SHALL BE POWERED BY #14/4C CABLE.

3) ALL PEDESTRIAN PUSH BUTTONS SHALL BE POWERED BY #14/4C CABLE.

4) ALL EMERGENCY VEHICLE PREEMPTORS SHALL BE WIRED WITH EMERGENCY VEHICLE PREEMPTION DETECTOR CABLE AND #14/2C SHIELDED CABLE (FOR THE CONFIRMATION BEACON)

5) ALL LED-LIGHTED STREET NAME SIGNS SHALL BE POWERED BY #14/4C CABLE.

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'
DRAWN BY GG DATE
CHECKED BY CMY DATE
DESIGN BY GG DATE
TAX MAP

RESERVOIR STREET

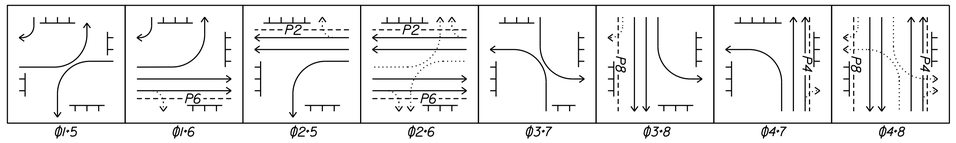
NEFF AVENUE
SIGNAL PLAN NOTES

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
13(6)

UNIVERSITY BOULEVARD TRAFFIC SIGNAL

PHASING DIAGRAM



COLOR SEQUENCE CHART

PHASE / SIGNAL	ϕ1·5 R/W	ϕ1·6 R/W	ϕ2·5 R/W	ϕ2·6 R/W	ϕ3·7 R/W	ϕ3·8 R/W	ϕ4·7 R/W	ϕ4·8 R/W	FLASH
1	R/G	G/G	R	G	R	R	R	R	Y
2	R	R	G	G	R	R	R	R	Y
3	R	R	R	R	R/G	G/G	R	G	R
4	R	R	R	R	R	R	G	G	R
5	R/G	R	G/G	G	R	R	R	R	Y
6	R	G	R	G	R	R	R	R	Y
7	R	R	R	R	R/G	R	G/G	G	R
8	R	R	R	R	R	G	R	G	R
8A	R/G	R/G	R	R	R	G	R	G	R
P2	DW	DW	W	W	DW	DW	DW	DW	BLANK
P4	DW	DW	DW	DW	DW	DW	W	W	BLANK
P6	DW	W	DW	W	DW	DW	DW	DW	BLANK
P8	DW	DW	DW	DW	DW	W	DW	W	BLANK

IMAGE SENSING UNITS

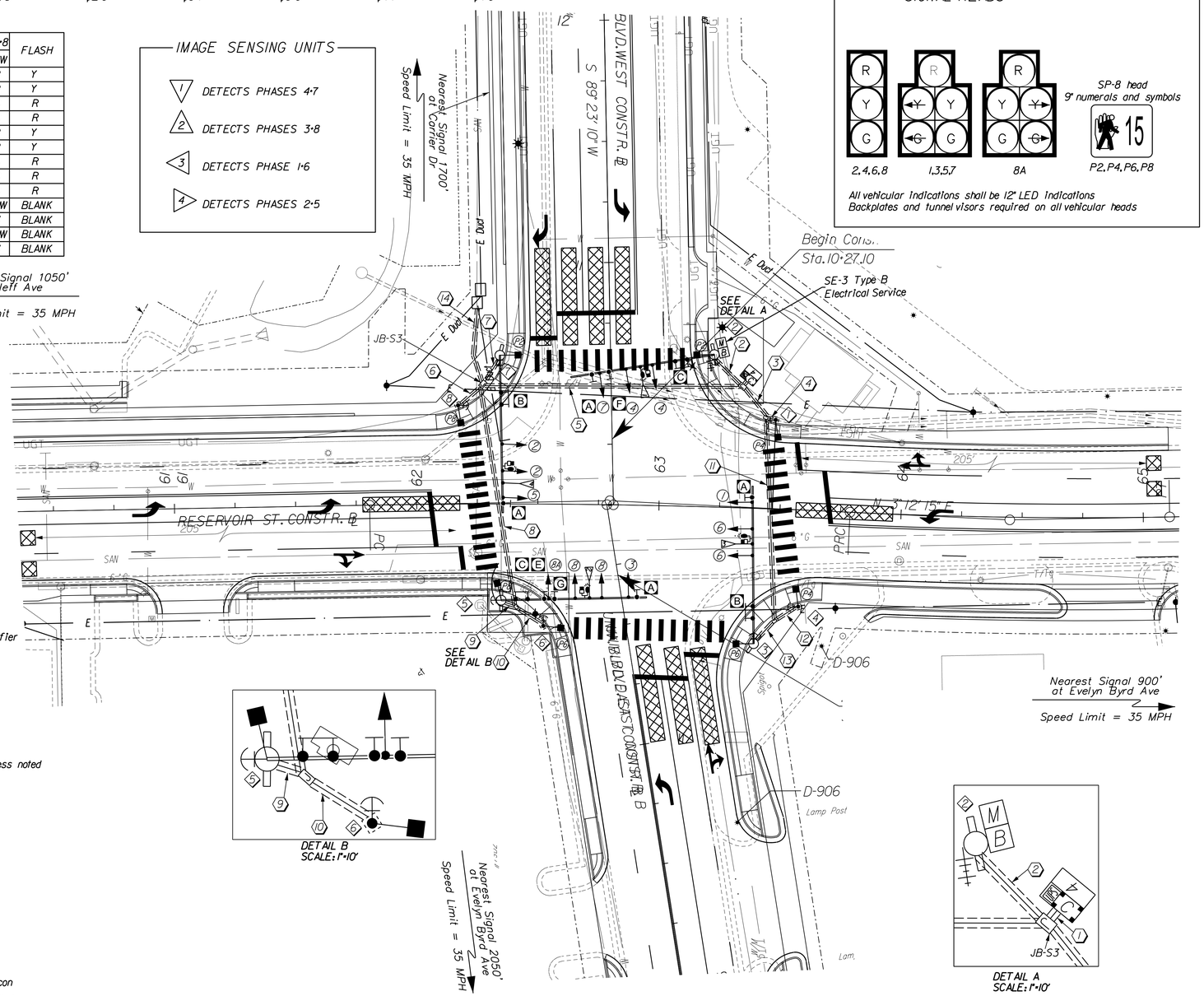
- 1 — DETECTS PHASES 4·7
- 2 — DETECTS PHASES 3·8
- 3 — DETECTS PHASE 1·6
- 4 — DETECTS PHASES 2·5

SIGNAL HEADS

SP-8 head
9" numerals and symbols

P2, P4, P6, P8

All vehicular indications shall be 12" LED indications
Backplates and tunnel visors required on all vehicular heads

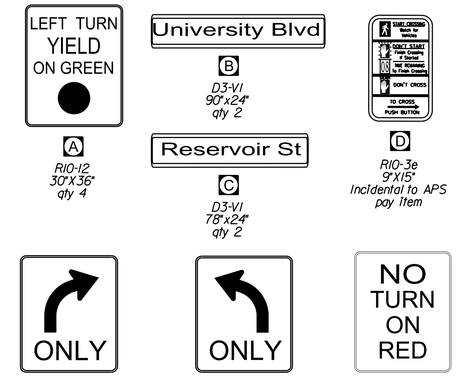


DETAIL B
SCALE: 1"=10'

DETAIL A
SCALE: 1"=10'

LEGEND

- Proposed signal pole and identifier
- Proposed pedestrian pole and identifier
- Existing strain pole
- Proposed signal head
- Existing signal head
- Mast arm-mounted sign
- Post-mounted sign
- Sign identifier
- Proposed junction box - JB-S2 unless noted
- Controller cabinet
- Uninterruptible Power Supply
- Proposed conduit and identifier
- Breaker box
- Meter box
- Proposed video detector
- Proposed pedestrian signal head
- Proposed pedestrian push button
- Proposed overhead sign
- Proposed directional antenna mast
- Proposed video detection zone
- Proposed opticom and flashing beacon
- Existing PTZ camera to be reinstalled



L.E.D. STREET NAME SIGN NOTES

1) ALL STREET NAME TEXT IS TO BE COMPOSED OF 8" CLEARVIEW 2-W FONT UNLESS NOTED OTHERWISE.

GENERAL NOTES

1) POLE FOUNDATION LOCATIONS SHALL BE STAKED IN THE FIELD. SOIL BORINGS AT THESE LOCATIONS SHALL BE ANALYZED TO DETERMINE THE APPROPRIATE FOUNDATION DESIGN. POLE FOUNDATION TO BE DESIGNED TO MEET PF-8 SPECIFICATIONS. REFER TO NOTE 5 [SHEET 13(1)] ABOUT DISTANCE ABOVE GRADE.

2) PROVIDE NEW ELECTRICAL SERVICE (SE-3,TYPE B).

3) THE ELECTRICAL POWER SHALL BE SUPPLIED BASED ON AGREEMENT BETWEEN CITY OF HARRISONBURG TRAFFIC ENGINEERING AND THE POWER COMPANY.

4) TRANSVERSE SPACING OF SIGNAL HEADS AND VIDEO DETECTORS SHALL BE VERIFIED AND ADJUSTED AS NECESSARY IN THE FIELD.

5) ALL JUNCTION BOXES SHALL BE JB-S2 UNLESS OTHERWISE INDICATED.

6) GROUND RODS SHALL BE INSTALLED IN JUNCTION BOXES SO AS TO BE READILY-ACCESSIBLE FOR FUTURE INSPECTIONS.

7) ALL JUNCTION BOX COLLARS SHALL BE MARKED TO SHOW THE NUMBER AND DIRECTIONS OF CONDUITS, SIMILAR TO THE PF-8 FOUNDATION MARKINGS.

8) ALL PEDESTRIAN SIGNALS SHALL BE INSTALLED WITH ACCESSIBLE PEDESTRIAN SIGNAL EQUIPMENT.

SCALE
0 25' 50'

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'
DRAWN BY: GG — DATE
CHECKED BY: CMY — DATE
DESIGN BY: GG — DATE
TAX MAP

RESERVOIR STREET
UNIVERSITY BLVD SIGNAL PLAN
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
13(7)

UNIVERSITY BOULEVARD TRAFFIC SIGNAL

CONDUCTOR SCHEDULE

		RUN NO.													
CONDUIT		1	2	3	4	5	6	7	8	9	10	11	12	13	14
SIZE		(3) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2" (1) 1"	(2) 3" (3) 2" (1) 1"	(1) 2"
TYPE		ECI-I	ECI-I	ECI-I	ECI-I	BORED	ECI-I	ECI-I	BORED	ECI-I	ECI-I	BORED	ECI-I	ECI-I	ECI-I
AWG 8	IC	3	3			3									3
AWG 14	2C(S)	4	1	1		2		1	1	1		1		1	
	4C	38	7	11	2	20	2	7	11	9	2	9	2	7	
VIDEO DET	CABLE**	4	1	1		2		1	1	1		1		1	
EMERG.PREEMP.	CABLE	4	1	1		2		1	1	1		1		1	
ANTENNA CABLE		1	1												
PTZ CAMERA CABLE		1	1												
#8 BONDED GROUND		1	1	1	1	1	1	1	1	1	1	1	1	1	1

** 5 CONDUCTOR SIAMESE CABLE
CONDUIT SCHEDULE INCLUDES CONDUIT SPECIFIED IN PF-8 STANDARD.CF-1 STANDARD.
PF-2 STANDARD AND SE-3 TYAPE B STANDARD.

SIGNAL POLE LEGEND

NO.	STANDARD			SIGNAL MOUNTING**				CAMERA DIST. FROM POLE		EVP DIST. FROM POLE	TRAFFIC SIGN MOUNTING				POLE LOCATION*		
	TYPE	POLE HEIGHT	ARM LENGTH	DISTANCE FROM POLE							DISTANCE FROM POLE				STA	OFFSET	ANGLE
1	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	63+46.8	36.8' LT	n/a
2	MP-1	20'	60'	26'	37'	48'	-	31'	-	29'	14'	44'	51'	-	10+61.2	42.9' RT	11°
3	MP-1	20'	65'	36'	47'	58'	-	41'	-	43'	13'	60'	-	-	10+66.1	50.9' LT	9°
4	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	63+59.1	39.9' RT	n/a
5	MP-1	20'	60'	20'	31'	42'	53'	36'	-	35'	9'	18'	22'	56'	62+34.9	39.7' RT	82°
6	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	10+45.3	33.7' RT	n/a
7	MP-1	20'	65'	37'	48'	59'	-	53'	-	46'	18'	61'	-	-	62+34.3	61.4' LT	90°
8	PF-2	8'	n/a	-	-	-	-	-	-	-	-	-	-	-	62+17.3	40.7' LT	n/a

*CONTRACTOR SHALL VERIFY POLE BASE ELEVATIONS AND REQUIRED POLE HEIGHTS AND PROVIDE THAT INFORMATION IN THE SHOP DRAWINGS.
**THE BOTTOMS OF THE PEDESTRIAN SIGNAL HEADS SHALL BE 7' ABOVE ADJACENT SIDEWALK ELEVATION.

WIRING NOTES

1) ALL VEHICULAR SIGNAL HEADS SHALL BE POWERED BY #14/4C CABLE. TWO #14/4C CABLES SHALL BE RUN TO SIGNAL HEADS WITH GREATER THAN 4 SECTIONS.

2) ALL PEDESTRIAN SIGNAL HEADS SHALL BE POWERED BY #14/4C CABLE.

3) ALL PEDESTRIAN PUSH BUTTONS SHALL BE POWERED BY #14/4C CABLE.

4) ALL EMERGENCY VEHICLE PREEMPTORS SHALL BE WIRED WITH EMERGENCY VEHICLE PREEMPTION DETECTOR CABLE AND #14/2C SHIELDED CABLE (FOR THE CONFIRMATION BEACON)

5) ALL LED-LIGHTED STREET NAME SIGNS SHALL BE POWERED BY #14/4C CABLE.

McCORMICK TAYLOR

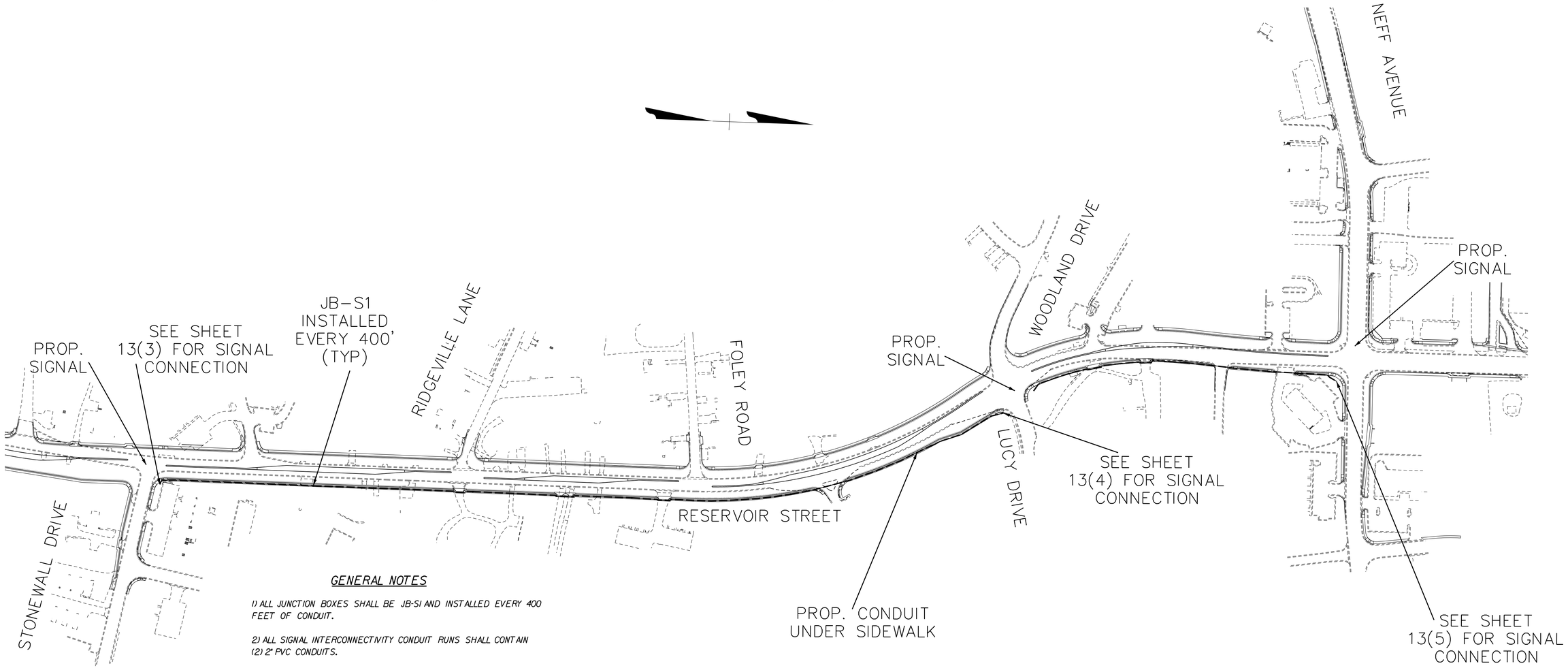
REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'
DRAWN BY GG DATE
CHECKED BY CMY DATE
DESIGN BY GG DATE
TAX MAP

RESERVOIR STREET
UNIVERSITY BLVD
SIGNAL PLAN NOTES
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
13(8)

TRAFFIC SIGNAL INTERCONNECTIVITY



GENERAL NOTES

1) ALL JUNCTION BOXES SHALL BE JB-S1 AND INSTALLED EVERY 400 FEET OF CONDUIT.

2) ALL SIGNAL INTERCONNECTIVITY CONDUIT RUNS SHALL CONTAIN (2) 2" PVC CONDUITS.

3) GROUND RODS SHALL BE INSTALLED IN JUNCTION BOXES SO AS TO BE READILY-ACCESSIBLE FOR FUTURE INSPECTIONS.

4) ALL JUNCTION BOX COLLARS SHALL BE MARKED TO SHOW THE NUMBER AND DIRECTIONS OF CONDUITS, SIMILAR TO THE PF-8 FOUNDATION MARKINGS.

5) ONLY SIGNAL INTERCONNECTIVITY CONDUIT IS SHOWN ON THIS PLAN SHEET. SEE SIGNAL PLANS FOR CONNECTIONS TO TRAFFIC SIGNALS.

6) ALL SIGNAL INTERCONNECTIVITY CONDUIT SHALL BE INSTALLED 18" TO 24" BELOW THE GROUND LEVEL.

SCALE
0 125' 250'

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 125'

DRAWN BY	DATE
GG	
CHECKED BY	DATE
CMY	
DESIGN BY	DATE
GG	

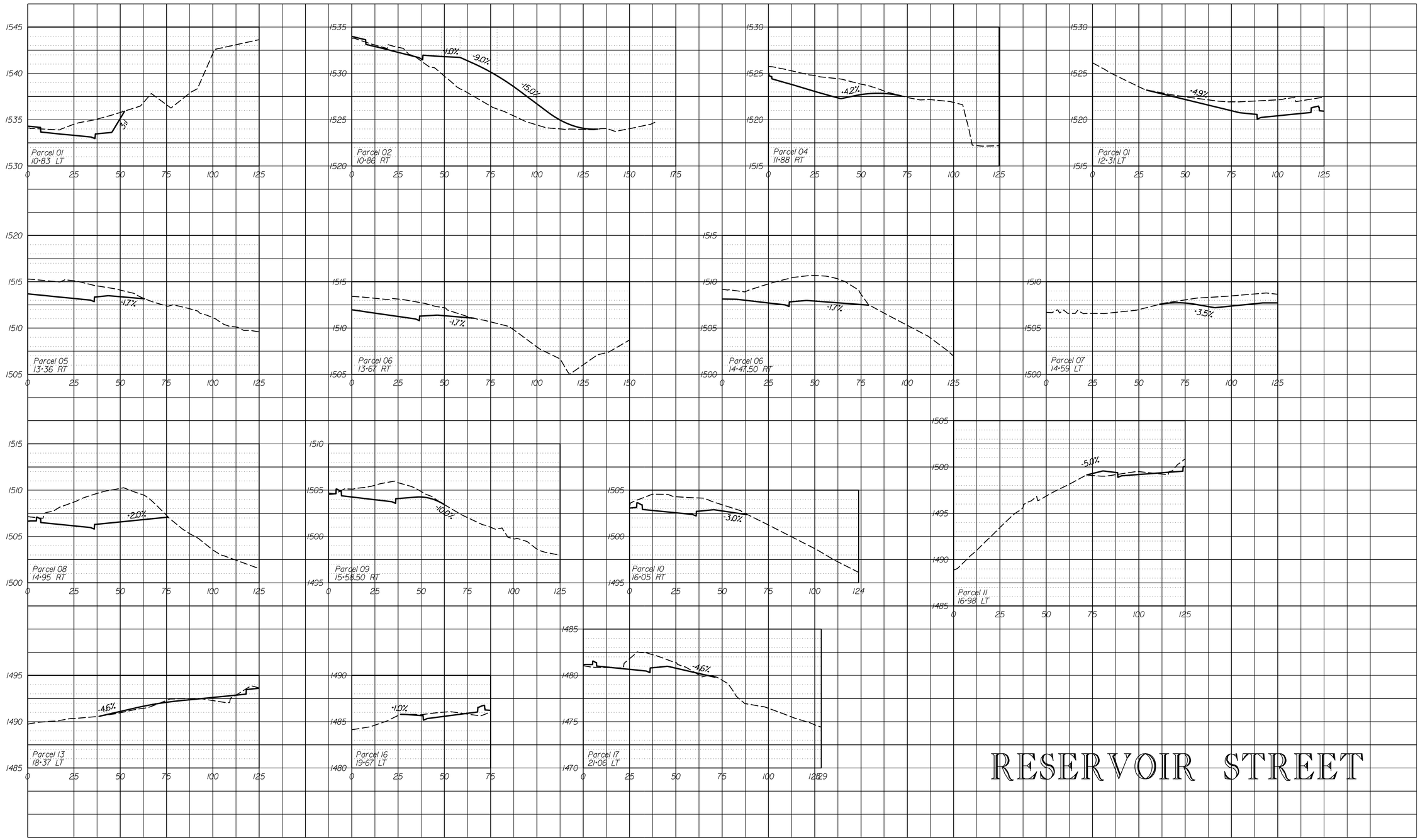
TAX MAP

RESERVOIR STREET

TRAFFIC SIGNAL INTERCONNECTIVITY PLAN

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
13(9)



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY: CMY — DATE:

CHECKED BY: RJD — DATE:

DESIGN BY: CMY — DATE:

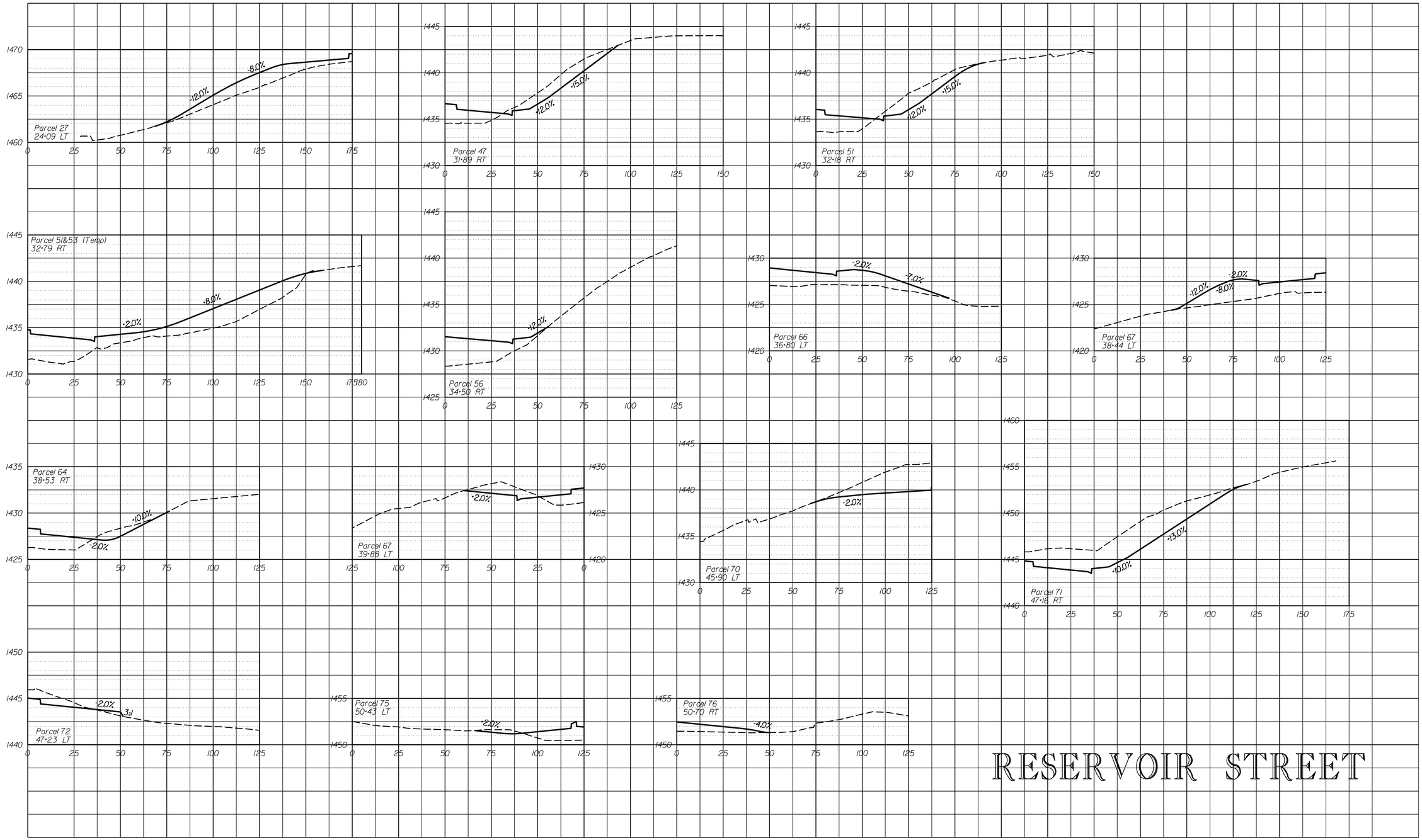
TAX MAP

RESERVOIR STREET

ENTRANCE PROFILES

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 14(1)



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

TAX MAP

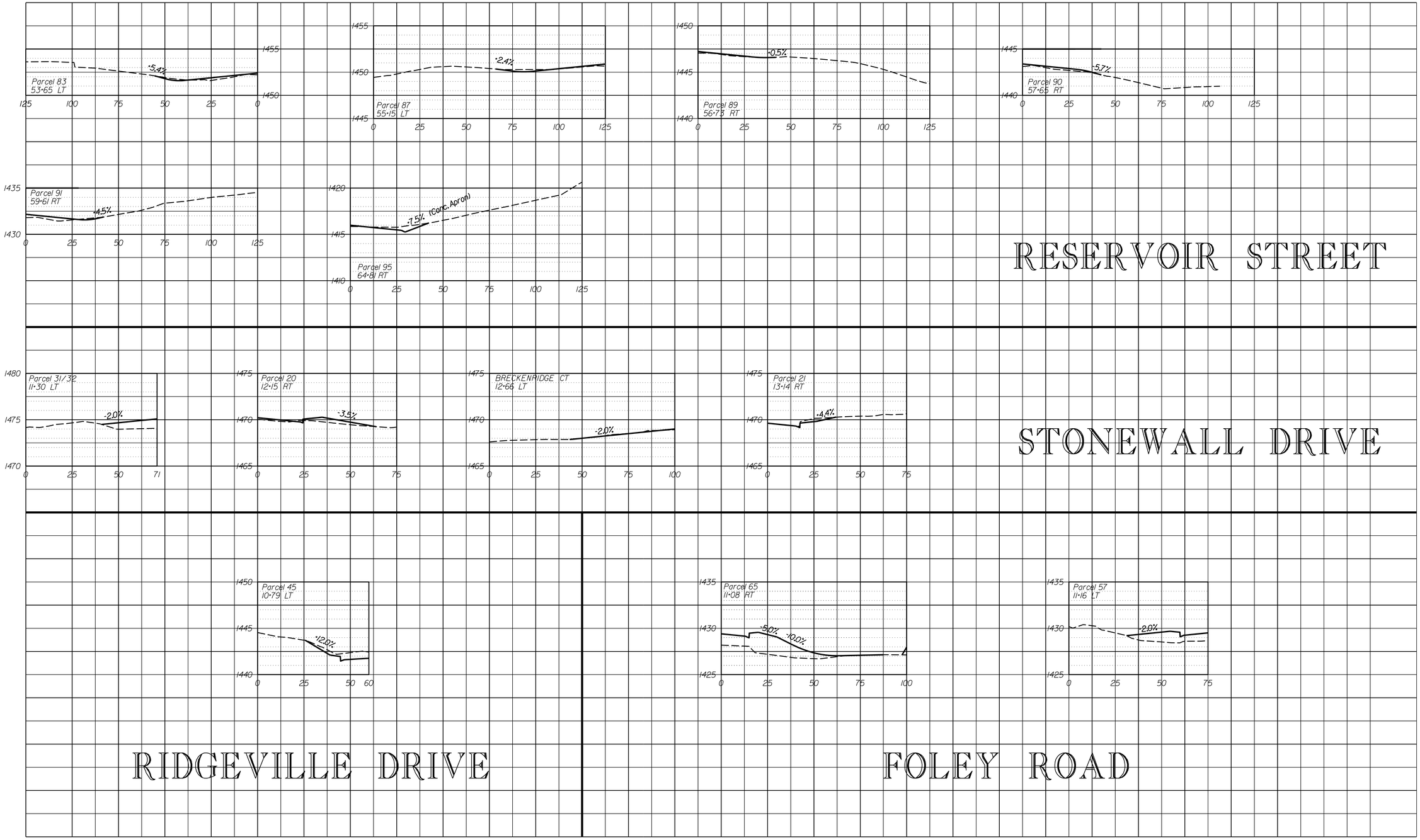
RESERVOIR STREET

ENTRANCE PROFILES

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET

14(2)



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY CMY DATE

CHECKED BY RJD DATE

DESIGN BY CMY DATE

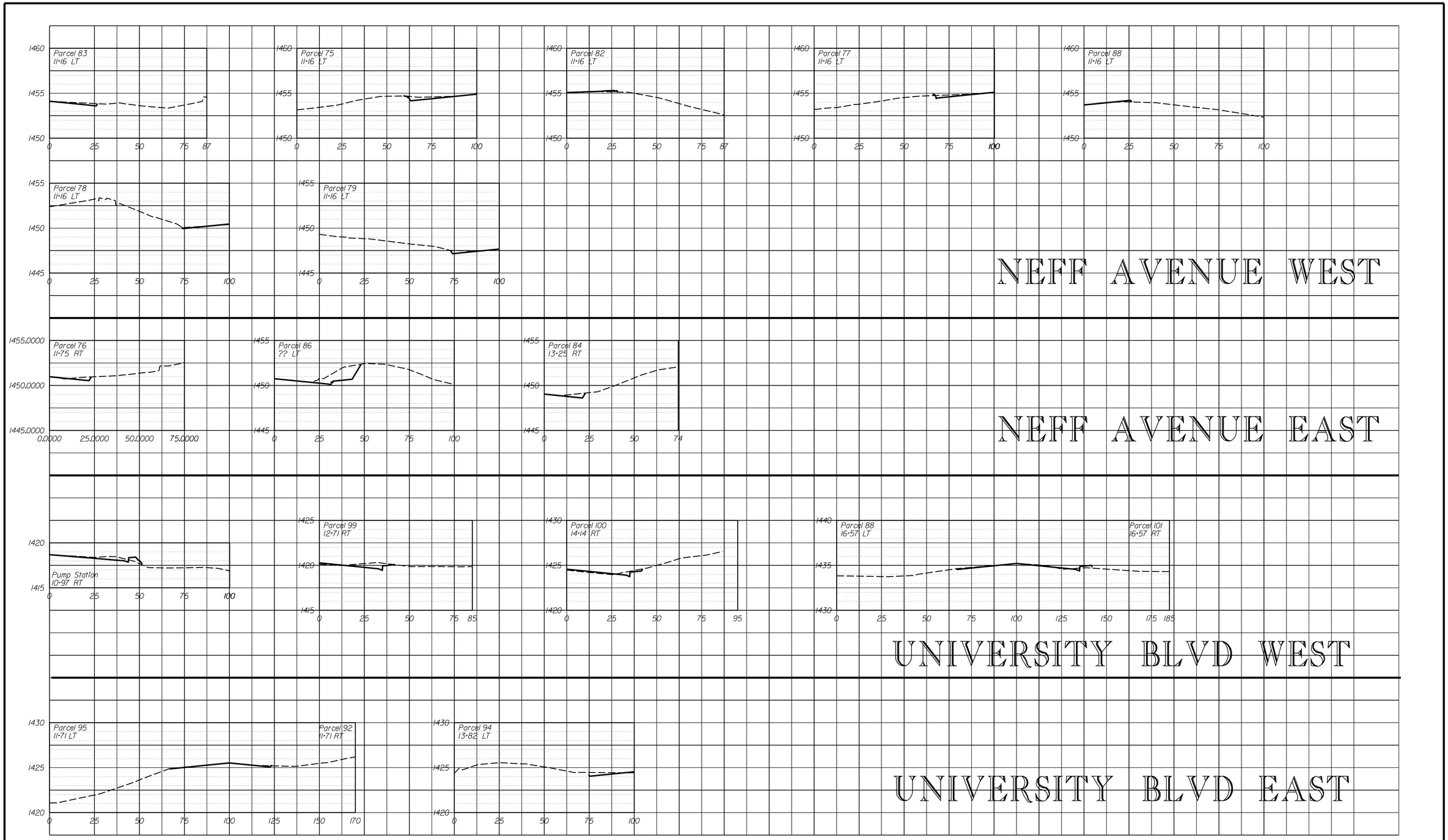
TAX MAP

RESERVOIR STREET

ENTRANCE PROFILES

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 14(3)



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: HORZ. 1" = 25' VERT. 1" = 5'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

TAX MAP

RESERVOIR STREET

ENTRANCE PROFILES

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 14(4)

E&S PHASE I OVERVIEW

SCALE
0 175' 350'

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 175'
DRAWN BY DATE
CHECKED BY DATE
DESIGN BY DATE
TAX MAP

RESERVOIR STREET

ESC PH.1 OVERVIEW

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
17

EROSION & SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION

The purpose of this project is the improvements of Reservoir Street from the intersection at University Boulevard to the South City Limits. Improvements include roadway widening and the addition of pedestrian facilities to include bicycle lanes and sidewalks.

EXISTING SITE CONDITIONS

The site is currently divided into two regions: Region 1 is from the intersection of Neff Avenue to the Southern City limits, and is mostly residential with grass yards. Region 2 is from the intersection of Neff Avenue to the intersection with University Boulevard and area primarily developed commercial areas with large quantities of impervious area. The site is considered rolling terrain. Drainage outfalls are handled via open channel adjacent to Woodland Drive, and closed system northeast of the intersection with University Boulevard.

ADJACENT PROPERTY

Region 2 is adjacent to expansive commercial development. Region 1 is adjacent to multi-family residential development, as well as a sparsely populated section of Rockingham County.

OFF-SITE AREA

If cut/fill is to be imported or exported, it is to be taken to/from an approved ESC site.

SOILS

(7A): Buchanan silt loam, 0 to 5 percent slopes. Compose 0.6% of Area of Interest (AOI).
(29B2): Frederick and Lodi silt loams, 2 to 7 percent slopes, eroded. Compose 17.2% of AOI.
(29C2): Frederick and Lodi silt loams, 7 to 15 percent slopes, eroded. Compose 23.3% of AOI.
(31B2): Frederick and Lodi gravelly silt loams, 2 to 7 percent slopes, eroded. Compose 4.3% of AOI.
(31C2): Frederick and Lodi gravelly silt loams, 7 to 15 percent slopes, eroded. Compose 38.3% of AOI.
(31D2): Frederick and Lodi gravelly silt loams, 15 to 25 percent slopes, eroded. Compose 8.0% of AOI.
(31E2): Frederick and Lodi gravelly silt loams, 25 to 45 percent slopes. Compose 1.7% of AOI.
(50B): Nixa-Frederick-Lodi gravelly loams, 2 to 7 percent slopes. Compose 0.6% of AOI.
(68B): Timberville variant silt loam, 0 to 7 percent slopes, frequently flooded. Compose 4.2% of AOI.
(73): Urban land. Composes 1.9% of AOI.

CRITICAL EROSION AREAS

There are no critical erosion areas, but attention should be given to existing stormwater outfall at approximate STA 44+50 LT.

EROSION & SEDIMENT CONTROL MEASURES

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained according to the minimum standards and specifications of the Virginia Erosion and Sediment Control Regulations, latest edition. The minimum standards of the handbook shall be adhered to unless otherwise waived or approved by a variance.

STRUCTURAL PRACTICES

1. Temporary Construction Entrance-3.02
A temporary construction entrance shall be installed location(s) depicted on the plans. During muddy conditions, drivers of construction vehicles will be required to clean off their wheels before entering the highway. Runoff created during this procedure shall pass through an approved sediment removing process.

2. Outlet Protection-3.18
The installation of riprap channel sections and/or stilling basins below storm drain outlets to reduce erosion and under-cutting from scouring at outlets and to reduce flow velocities before stormwater enters receiving channels below these outlets.

3. Silt Fence-3.05
A temporary sediment barrier constructed of posts, filter fabric and, in some cases, a wire support fence, placed across or at the toe of a slope or in a minor drainage way to intercept and detain sediment and decrease flow velocities from drainage areas of limited size; applicable where sheet and rill erosion or small concentrated flows may be a problem.

4. Temporary Diversion Dike 13*32 3.09
A temporary ridge of compacted soil constructed at the top or base of a sloping disturbed area. Used to divert storm runoff from upslope drainage areas away from unprotected disturbed areas and slopes to a stabilized outlet, or to divert sediment-laden runoff from a disturbed area to a sediment-trapping facility, such as a sediment trap or sediment basin.

5. Culvert Inlet Protection 13*32 3.08
A sediment filter shall be constructed on the upstream end of storm drain pipes to reduce sediment laden runoff from entering the pipe.

6. Stormwater Conveyance Channel 13*32 3.17
A stormwater conveyance channel shall be installed as shown on the plans. A permanent, designed waterway, shaped, sized, and lined with appropriate vegetation or structural material used to safely convey stormwater runoff within or away from a developing area, and to convey concentrated surface runoff water to a receiving channel or system without damage from erosion.

7. Soil Stabilization Blankets and Matting 13*32 3.36
The installation of a protective covering (blanket) or a soil stabilization mat on a prepared planting area of a steep slope, channel or shoreline. Matting shall be installed in the areas depicted on the grading plans.

8. Riprap 13*32 3.19
A permanent, erosion-resistant ground cover of large, loose, angular stone with filter fabric or granular underlining.

9. Construction Road Stabilization 13*32 3.03
A 69*32 course of VDOT #1 coarse aggregate shall be installed immediately after grading for entrances, driveways, and proposed parking lot areas.

10. Rock Check Dam 13*32 3.20
A small temporary stone dam constructed across a swale or drainage ditch. Used to reduce the velocity of concentrated stormwater flows.

11. Other practices shall be provided if determined by the Engineer or City E&SC Administrator.

VEGETATIVE PRACTICES

1. Top soiling (stockpile)
Topsoil will be stripped from areas to be graded and stockpiled for later use and will be stabilized by silt fencing, or seeding with appropriate seed mix for the time of year.

2. Erosion Control Blankets or Mulch and Seeding
Erosion control blankets (VDOT Standard EC-2), if needed, will be installed over fill slopes greater than 2.5:1 which have been brought to final grade and have been seeded to protect the slopes from rill and gully erosion and to allow seed to germinate properly. Mulch (straw or fiber) will be used on relatively flat areas and will be applied as a second step in the seeding operation.

3. Temporary and Permanent Seeding
Temporary and permanent seeding shall be installed (appropriate to the time of year) according to Seeding detail on site plan.

Note: Contractor to monitor erosion control outfalls and address issues that may arise during construction, especially after storm events.

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE:
DRAWN BY DATE
CHECKED BY DATE
DESIGN BY DATE
TAX MAP

RESERVOIR STREET
ESC NARRATIVE
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
17(1)

EROSION & SEDIMENT CONTROL NARRATIVE

MANAGEMENT STRATEGIES

1.Sediment trapping measures to be installed prior to any excavation on site

2.Construction will be sequenced so that existing cover will not be disturbed anymore than necessary.

3.Construction will be sequenced so that grading operations can begin and end as quickly as possible.

4.Temporary seeding or other stabilization will follow immediately after grading.

5.Areas,which are to be disturbed,will be clearly marked by flags,signs,etc.

6.The job superintendent shall be responsible for the installation and maintenance of all erosion and sediment control practices.

7.After achieving adequate stabilization to the satisfaction of the E&SC Administrator,the temporary E&S controls will be cleaned up.

PERMANENT STABILIZATION

All areas disturbed by construction and not otherwise stabilized,shall be stabilized with permanent seeding within 7 days following finish grading. Seeding shall be done according to standard & specification 3.32,PERMANENT SEEDING,of the handbook Seeding shall be applied depending on time of the year according to E & S C handbook specifications. In all seeding operations, seed,fertilizer,and lime will be applied prior to mulching. Erosion control blankets will be installed over fill slopes which have been brought to final grade and have been seeded to protect the slopes from rill and gully erosion and to allow seed to germinate properly. Mulch (straw or fiber) will be used on relatively flat areas. In all seeding operations,seed,fertilizer,and lime will be applied prior to mulching.

STORMWATER MANAGEMENT

The proposed site is approximately 0.3% of the upstream drainage area. No detention is required because the disturbed area is less than 1% of the drainage basin. The existing piping system is adequate to handle the proposed development flow; therefore no additional onsite storm water management is required.

A regional detention pond is proposed that will serve the entire subdivision to meet MS-19. This pond will reduce the developed runoff to or below the predeveloped rate. Long term maintenance of the detention facility and outlet system will be the responsibility of Associated Developers or their appointed property owner on which the pond is located. This maintenance will include mowing of the detention basin; cleaning out sediment buildup; and cleaning of outlet pipe system of sedimentation and debris.

The existing city storm system is adequate to handle the proposed development flow; therefore no additional onsite storm water management is required.

Stormwater management will be required. Detention ponds and outlet devices are shown on the plans. Long term maintenance of the detention facility and outlet system will be the responsibility of the Property Owners Association. This maintenance will include mowing of the detention banks,cleaning out sediment buildup,and cleaning of outlet pipe system of sedimentation and debris.

MAINTENANCE

In general,all erosion and sediment control measures will be checked daily and after each significant rainfall. The following items will be checked in particular:

1.The seeded area will be checked regularly to ensure that a good stand is maintained. Areas should be fertilized and reseeded as needed.

2.The gravel Construction Entrance shall be maintained in a condition,which will prevent tracking or flow of mud onto public right-of-ways. Periodic top dressing with additional stone or the washing and reworking of existing stone will be required when the stone is covered or has been pushed into the soil. It will be returned to its original depth of 6" (min.).

3.The Silt Fence barrier will be checked regularly for undermining of deterioration of the fabric. Sediment shall be removed when the level of sediment deposition reaches half way to the top of the barrier.

4.The outlet protection filter system will be checked regularly for sediment buildup that will prevent drainage. If the stone filter is clogged by sediment,it shall be removed and cleaned or replaced. Riprap should be inspected periodically to determine if high flows have caused scour beneath the riprap or filter fabric dislodged any of the stone. Care must be taken to properly control sediment-laden construction runoff,which may drain to the point of the new installation.

5.The culvert inlet protection filter system will be checked regularly for sediment buildup that will prevent drainage. If the stone filter is clogged by sediment,it shall be removed and cleaned or replaced. Sediment shall be removed and the impoundment restored to its original dimensions when sediment has accumulated to one-half the design depth.

6.The temporary diversion dike should be inspected after every storm and repairs made if necessary. Once every two weeks whether a storm has occurred or not,the measure shall be inspected and repairs made if needed. Damages made by construction traffic or other activity must be repaired before the end of the working day.

7.The inlet and outlet protection filter system will be checked regularly for sediment buildup which will prevent drainage. If the stone filter is clogged by sediment,it shall be removed and cleaned or replaced.

8.The stormwater conveyance channel,during initial establishment,grass-lined channels should be repaired immediately and grass re-established if necessary. After established,the channel should be checked periodically to determine if the grass is withstanding flow velocities without damage.

11.The rock check dam should be checked for sediment accumulation after each runoff-producing storm event. Sediment shall be removed when it reaches one-half the original height of the measure. Regular inspections should be made to insure that the center of the dam is lower than the edges. Erosions caused by high flows around the edges of the dam should be corrected immediately.

12.The soil stabilization blankets and matting should be inspected periodically following installation,particularly after rainstorms to check for erosion and undermining. Any dislocation or failure should be repaired immediately.

13.The construction road stabilization for both temporary and permanent roads and parking areas may require periodic top dressing with new gravel.

1. Erosion and sediment control measures shall be installed and maintained in accordance with the Virginia Erosion and Sediment Control Handbook. They shall be maintained continuously, relocated when and as necessary, and shall be checked after every rainfall. Seeded areas shall be checked regularly and shall be watered, fertilized, reseeded and mulched as necessary to obtain a dense stand of grass.

2. Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant (undisturbed) for longer than 30 days.

3. During construction of the project, soil stockpiles and borrow areas shall be stabilized or protected with sediment trapping measures. The contractor is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.

4. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered until a ground cover is achieved that,in the opinion of the City Erosion Control Administrator or his designated agent,is uniform,mature enough to survive and will inhibit erosion.

5. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land disturbing activity and shall be made functional before upslope land disturbance takes place.

6. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
   A. No more than 500 linear feet of trench may be opened at one time.
   B. Excavated material shall be placed on the uphill side of trenches.
   C. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device,or both,and discharged in a manner that does not adversely affect flowing streams or off-site property.
   D. Restabilization shall be accomplished in accordance with the contract documents.
   E. Applicable safety regulations shall be complied with.

7. Where construction vehicle access routes intersect paved public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a public road surface, the road shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner.

8. All unstabilized areas are to drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved.

9. The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the City Erosion Control Administrator.

10. Stabilization measures shall be applied to earthen structures such as dams, dikes, and diversions immediately after installation.

11. All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed,unless otherwise authorized by the City Erosion Control Administrator. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

12. During dewatering operations,water shall be pumped into an approved filtering device.

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE:
DRAWN BY DATE
CHECKED BY DATE
DESIGN BY DATE
TAX MAP

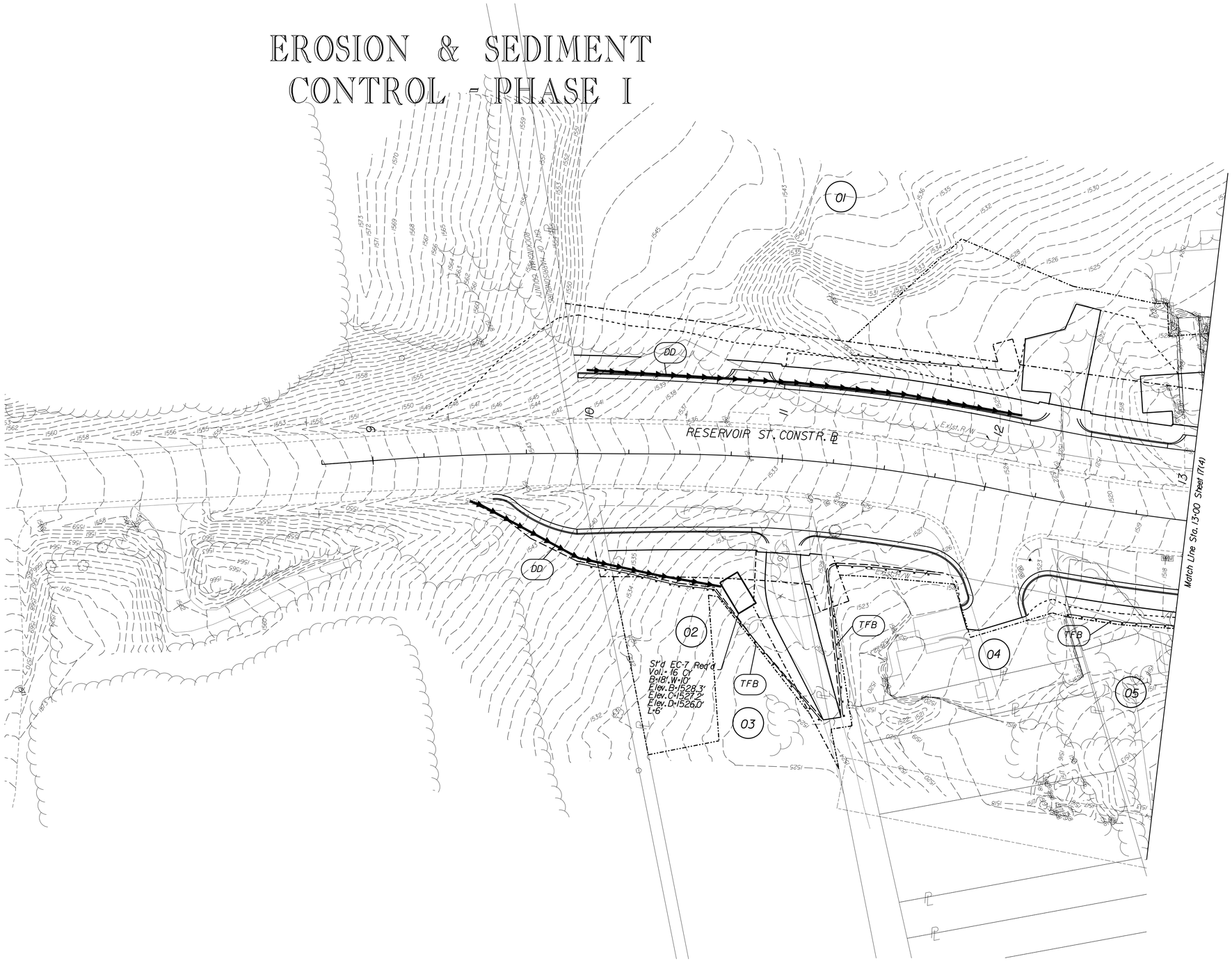
RESERVOIR STREET

ESC NARRATIVE

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
17(2)

EROSION & SEDIMENT CONTROL - PHASE I



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	3A
Entrance Profiles	14 SERIES
Drainage Descriptions	2B SERIES
Storm Sewer Profiles	20 SERIES

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
DAS	
DESIGN BY	DATE
JJK	

TAX MAP

RESERVOIR STREET

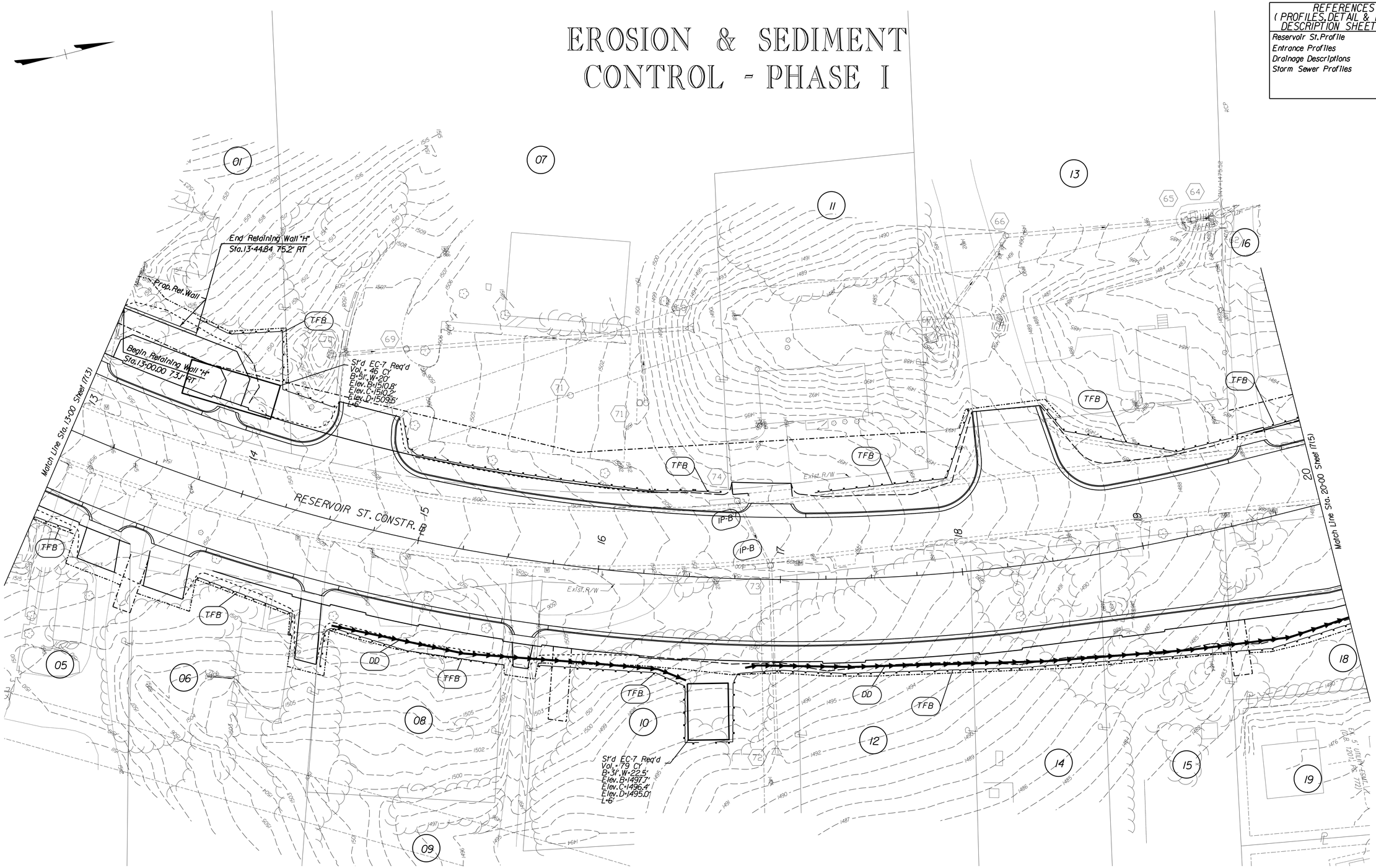
ESC PHASE 1
STA. 10+00-13+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
17(3)

EROSION & SEDIMENT CONTROL - PHASE I

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	4A
Entrance Profiles	14 Series
Drainage Descriptions	2B
Storm Sewer Profiles	20 Series



REV	DATE	DESCRIPTION	BY

McCORMICK TAYLOR

SCALE: 1" = 25'

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CHECKED BY	DATE
DAS	
DESIGN BY	DATE
JJK	

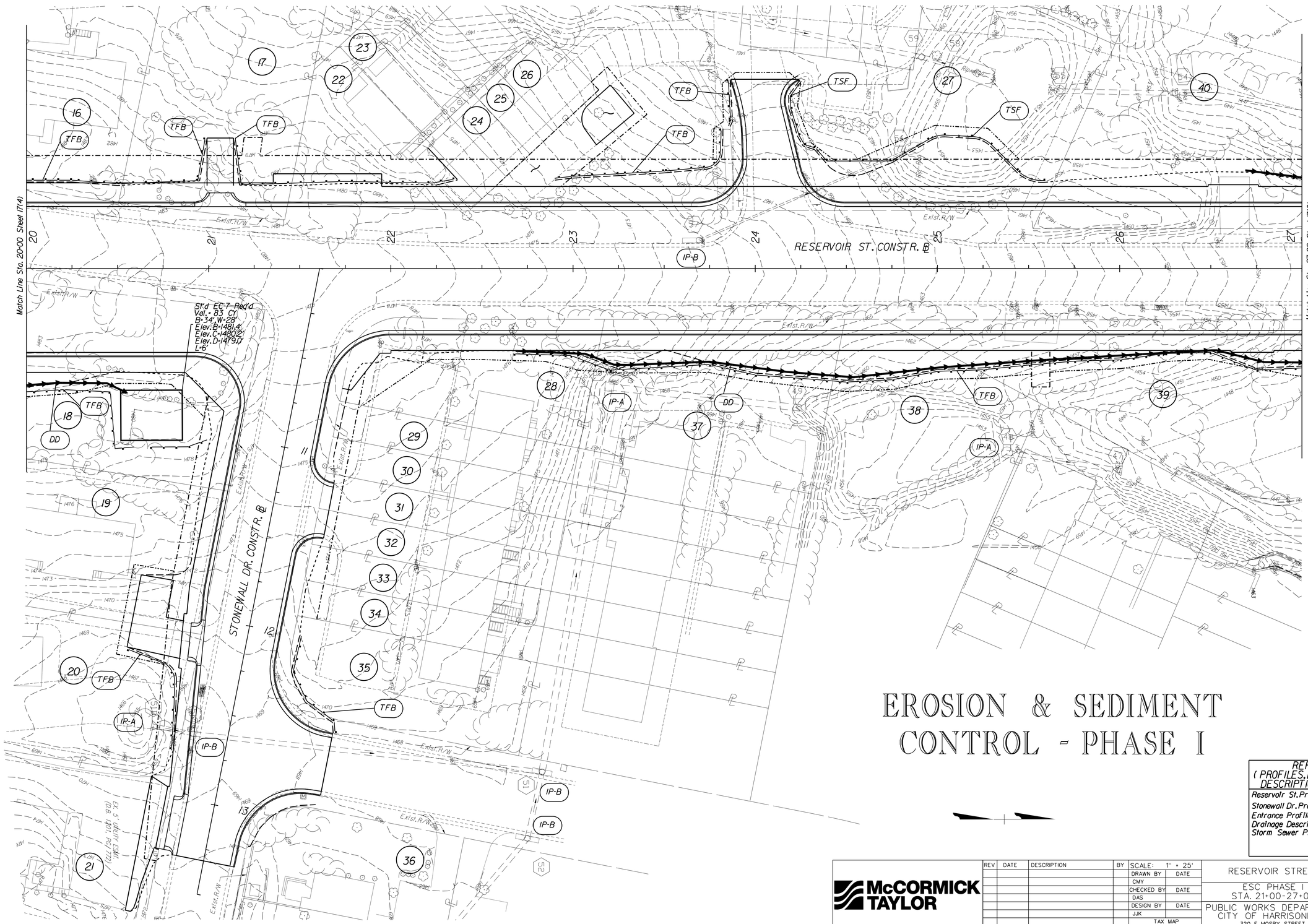
TAX MAP

RESERVOIR STREET

ESC PHASE 1
STA. 13+00-20+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 17(4)



EROSION & SEDIMENT CONTROL - PHASE I

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	5A
Stonewall Dr. Profile	5B
Entrance Profiles	14 Series
Drainage Descriptions	2B
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE:	1" = 25'
DRAWN BY	DATE
CMY	
CHECKED BY	DATE
DAS	
DESIGN BY	DATE
JJK	
TAX MAP	

RESERVOIR STREET

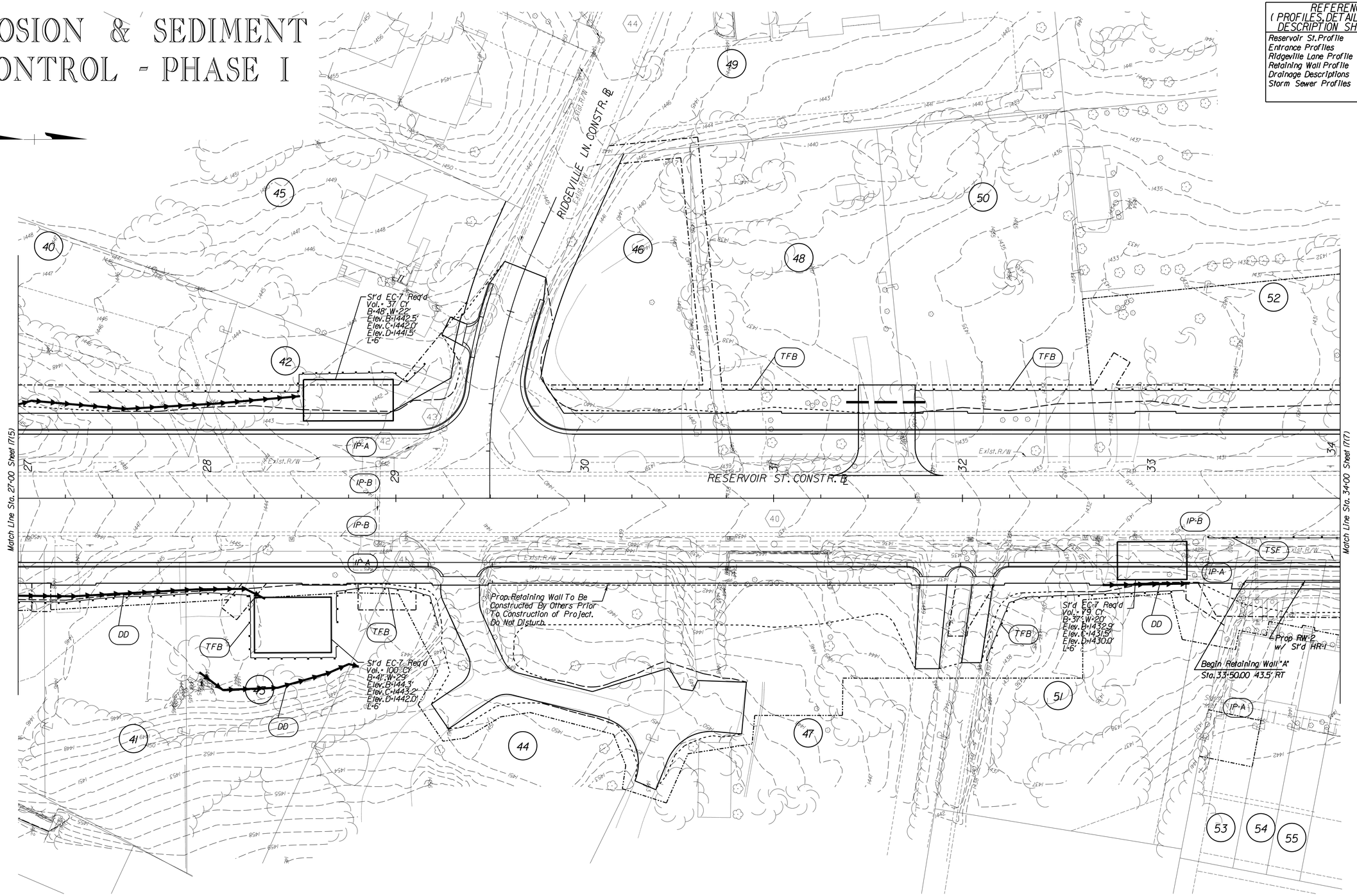
ESC PHASE I
STA. 21+00-27+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY STREET
HARRISONBURG, VIRGINIA

SHEET
17(5)

EROSION & SEDIMENT CONTROL - PHASE I

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	6A
Entrance Profiles	14 Series
Ridgeville Lane Profile	6B
Retaining Wall Profile	6A
Drainage Descriptions	2B
Storm Sewer Profiles	20 Series



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY CMY DATE

CHECKED BY DAS DATE

DESIGN BY JJK DATE

TAX MAP

RESERVOIR STREET

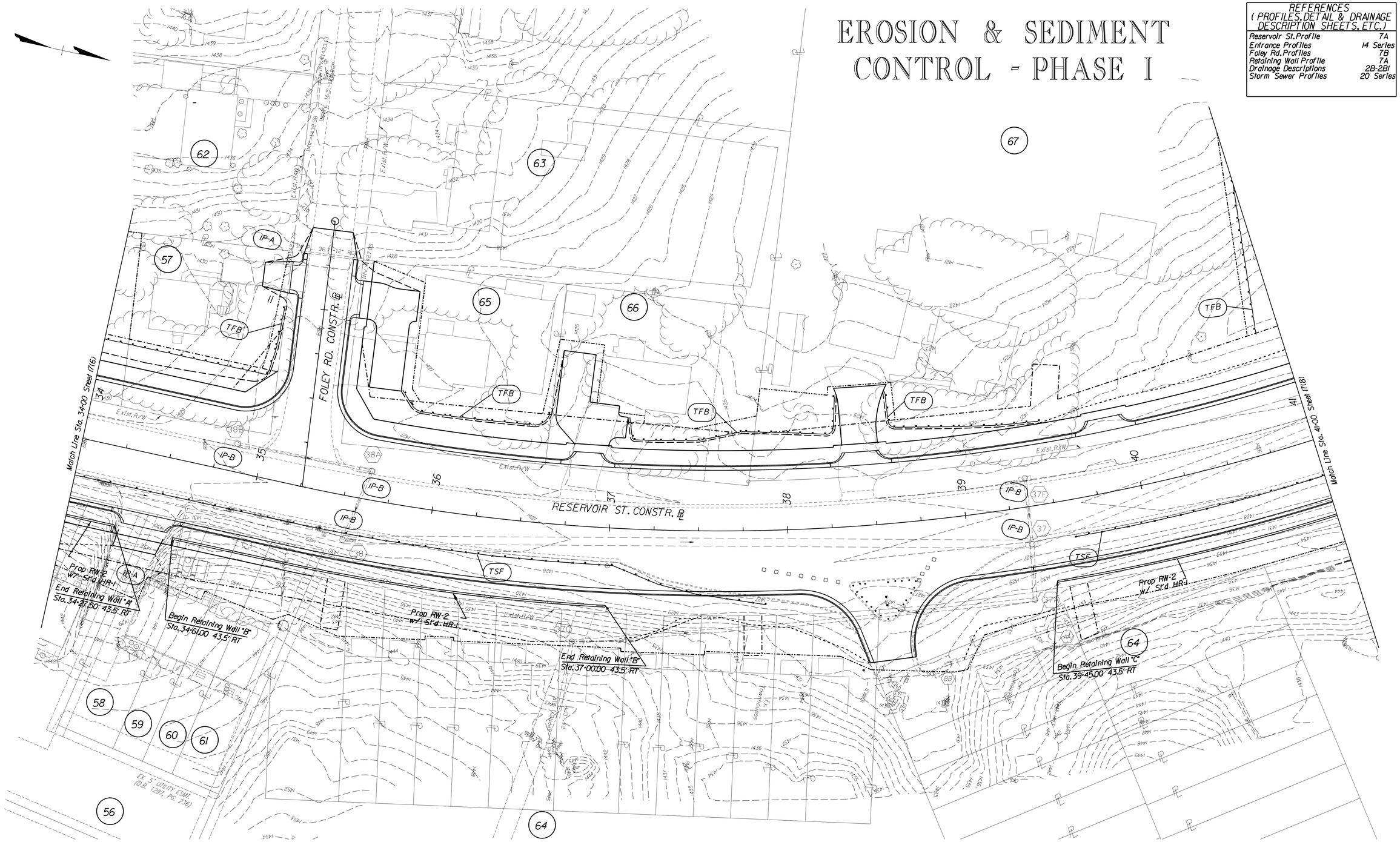
ESC PHASE 1
STA. 27+00-34+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 17(6)

EROSION & SEDIMENT CONTROL - PHASE I

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	7A
Entrance Profiles	14 Series
Foley Rd. Profiles	7B
Retaining Wall Profile	7A
Drainage Descriptions	2B-2B1
Storm Sewer Profiles	20 Series



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
DAS	
DESIGN BY	DATE
JJK	

TAX MAP

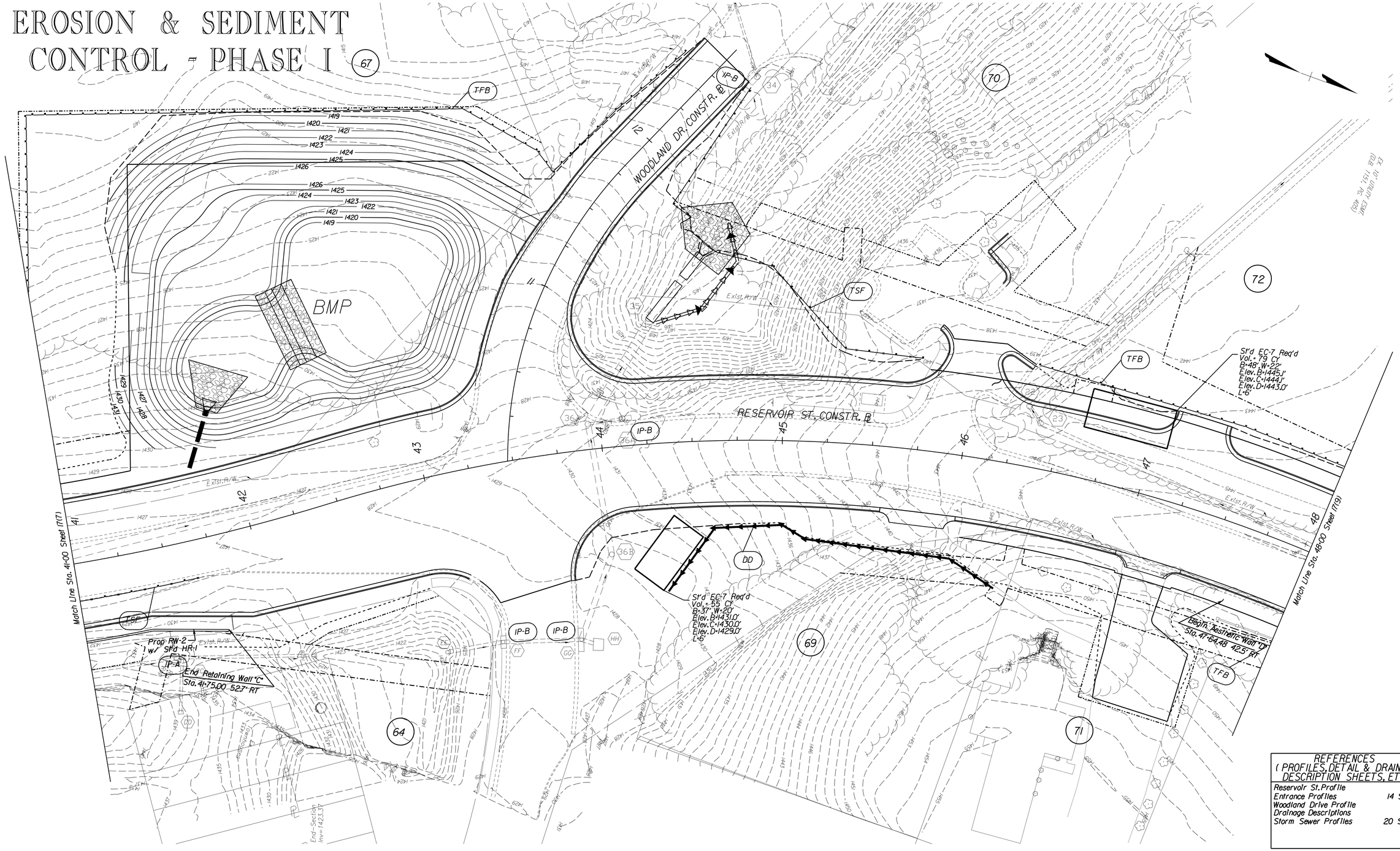
RESERVOIR STREET

ESC PHASE 1
STA. 34+00-41+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 17(7)

EROSION & SEDIMENT CONTROL - PHASE I



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	8A
Entrance Profiles	14 Series
Woodland Drive Profile	8B
Drainage Descriptions	2B1
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

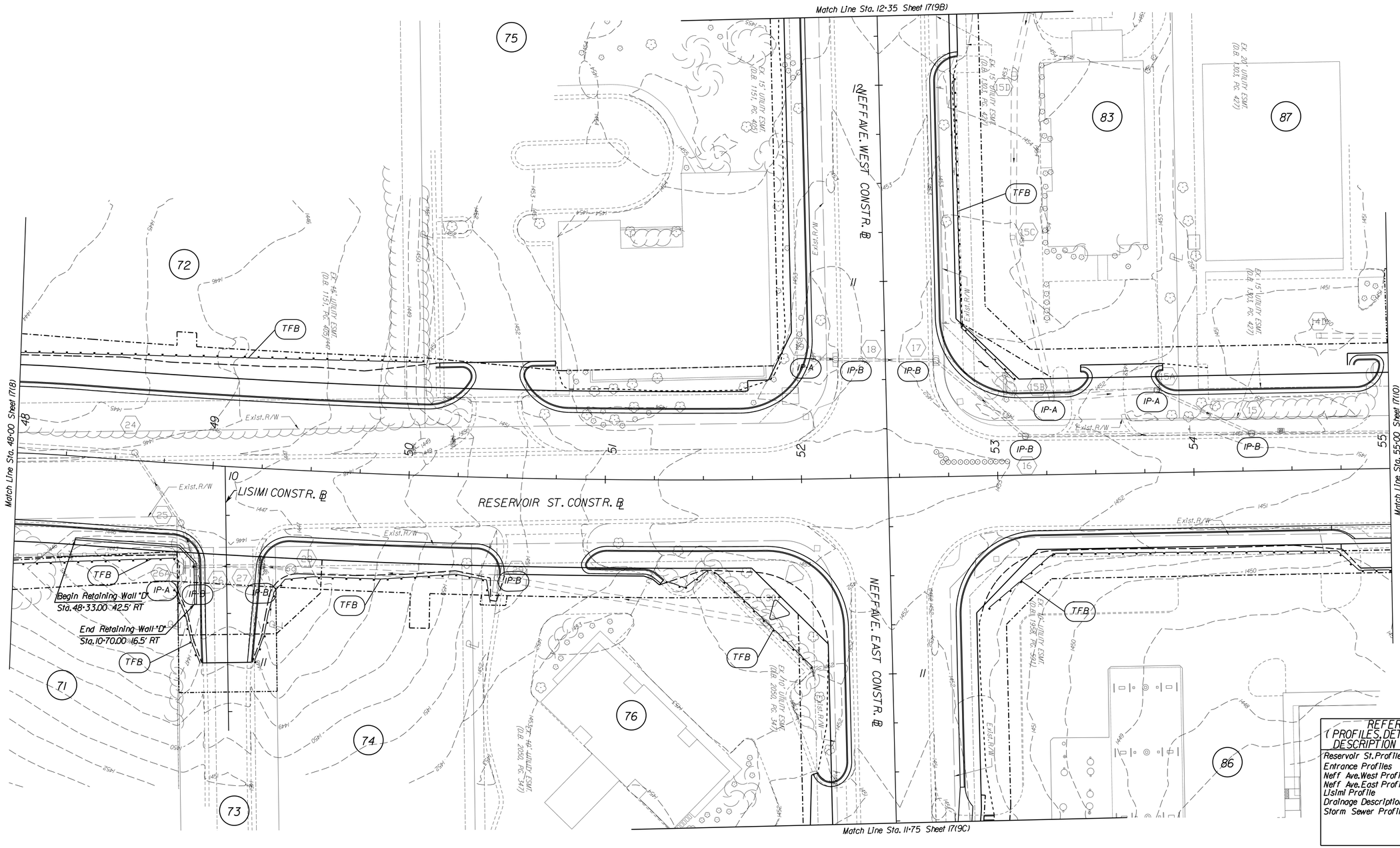
REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'
DRAWN BY | DATE
CMY
CHECKED BY | DATE
DAS
DESIGN BY | DATE
JJK
TAX MAP

RESERVOIR STREET
ESC PHASE 1
STA. 41+00-48+00
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
17(8)

EROSION & SEDIMENT CONTROL - PHASE I



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	9A
Entrance Profiles	14 Series
Neff Ave. West Profile	9D
Neff Ave. East Profile	9E
Lisimi Profile	9A
Drainage Descriptions	2B1-2B2
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
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CHECKED BY	DATE
DAS	
DESIGN BY	DATE
JJK	

TAX MAP

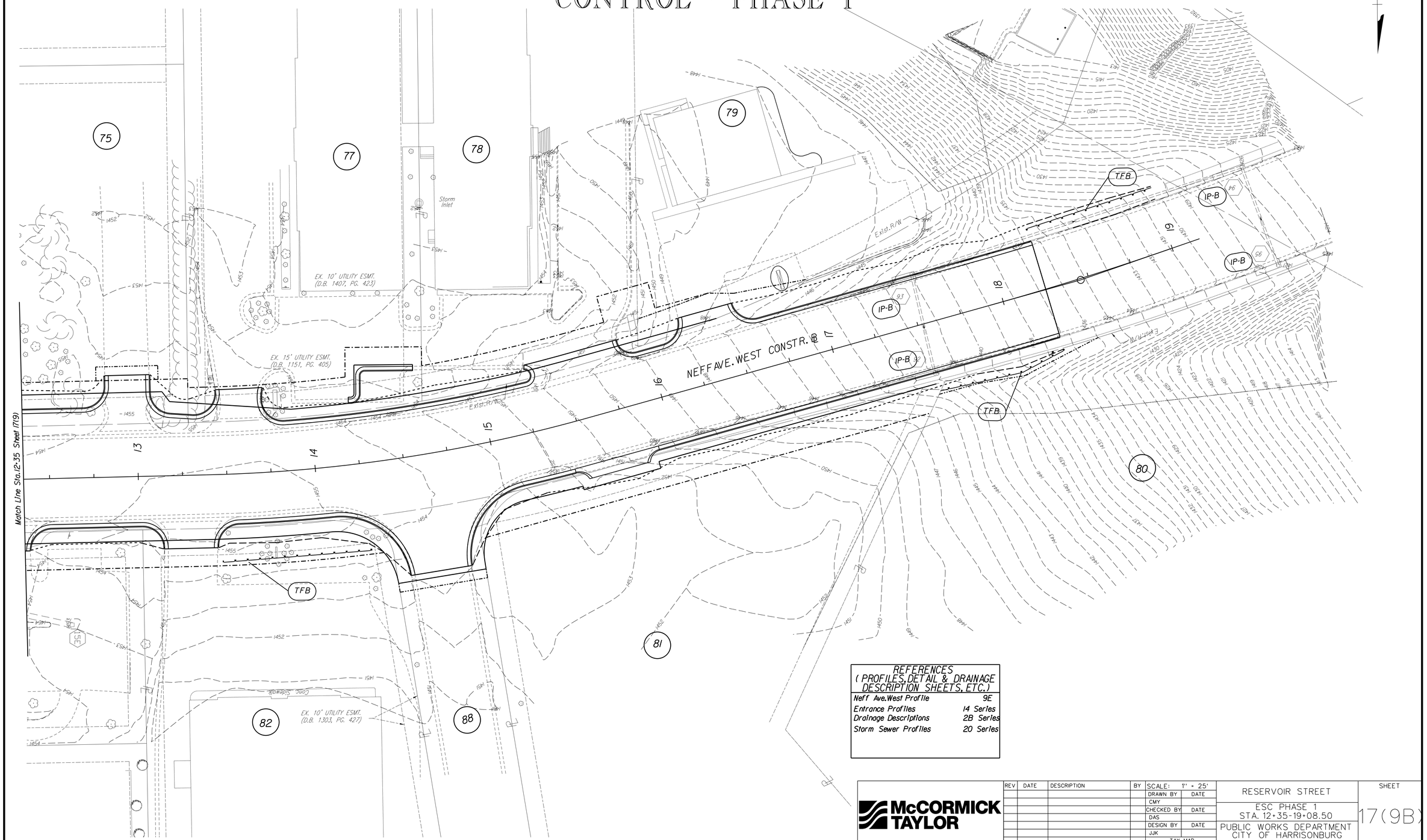
RESERVOIR STREET

ESC PHASE 1
STA. 48+00-55+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 17(9)

EROSION & SEDIMENT CONTROL - PHASE I



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Neff Ave.West Profile	9E
Entrance Profiles	14 Series
Drainage Descriptions	2B Series
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

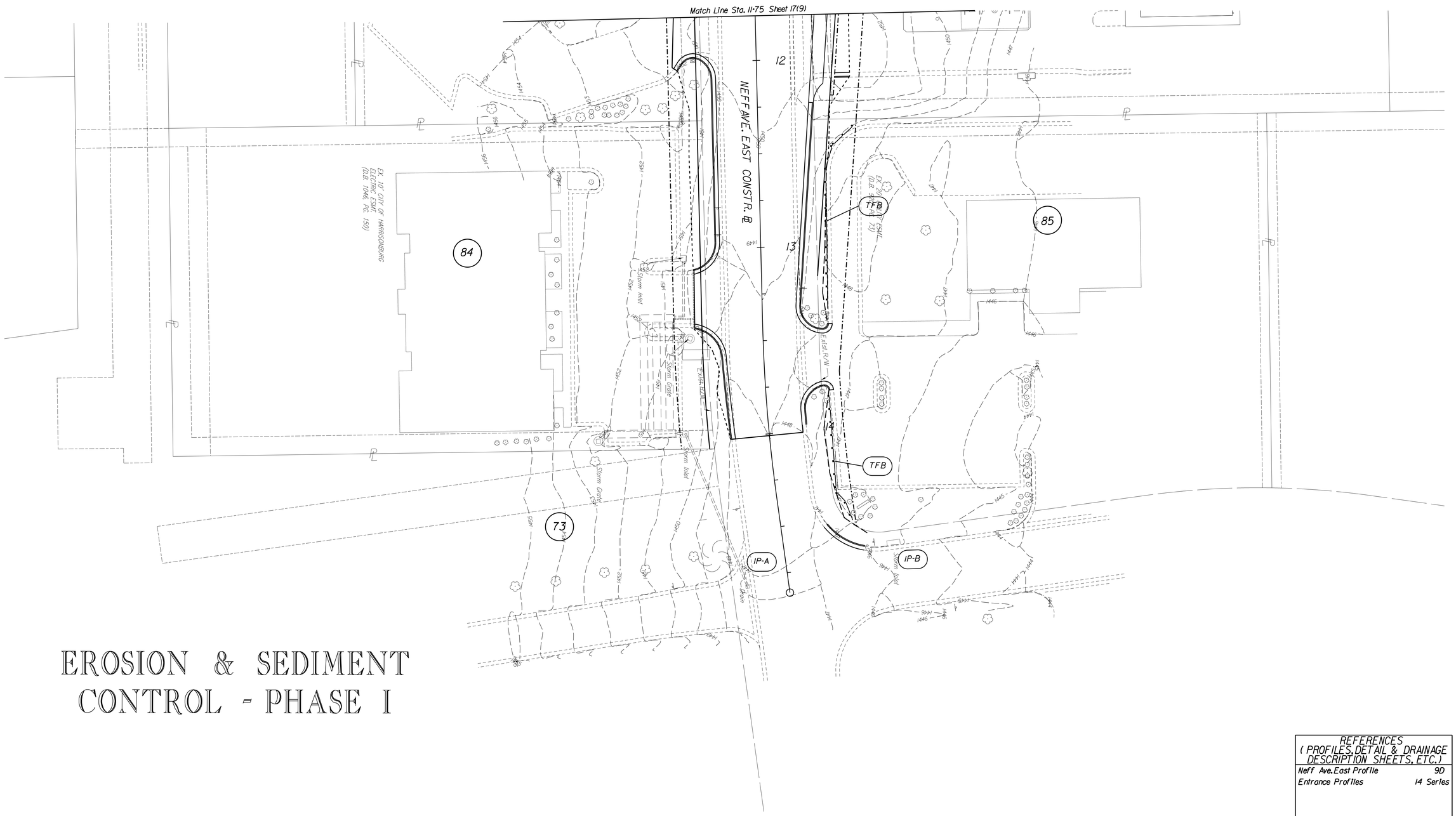
DRAWN BY CMY	DATE
CHECKED BY DAS	DATE
DESIGN BY JJK	DATE
TAX MAP	

RESERVOIR STREET

ESC PHASE 1
STA. 12+35-19+08.50

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 17(9B)



EROSION & SEDIMENT CONTROL - PHASE I

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Neff Ave. East Profile	9D
Entrance Profiles	14 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE:	1" = 25'
DRAWN BY	DATE
CMY	
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DESIGN BY	DATE
JJK	
TAX MAP	

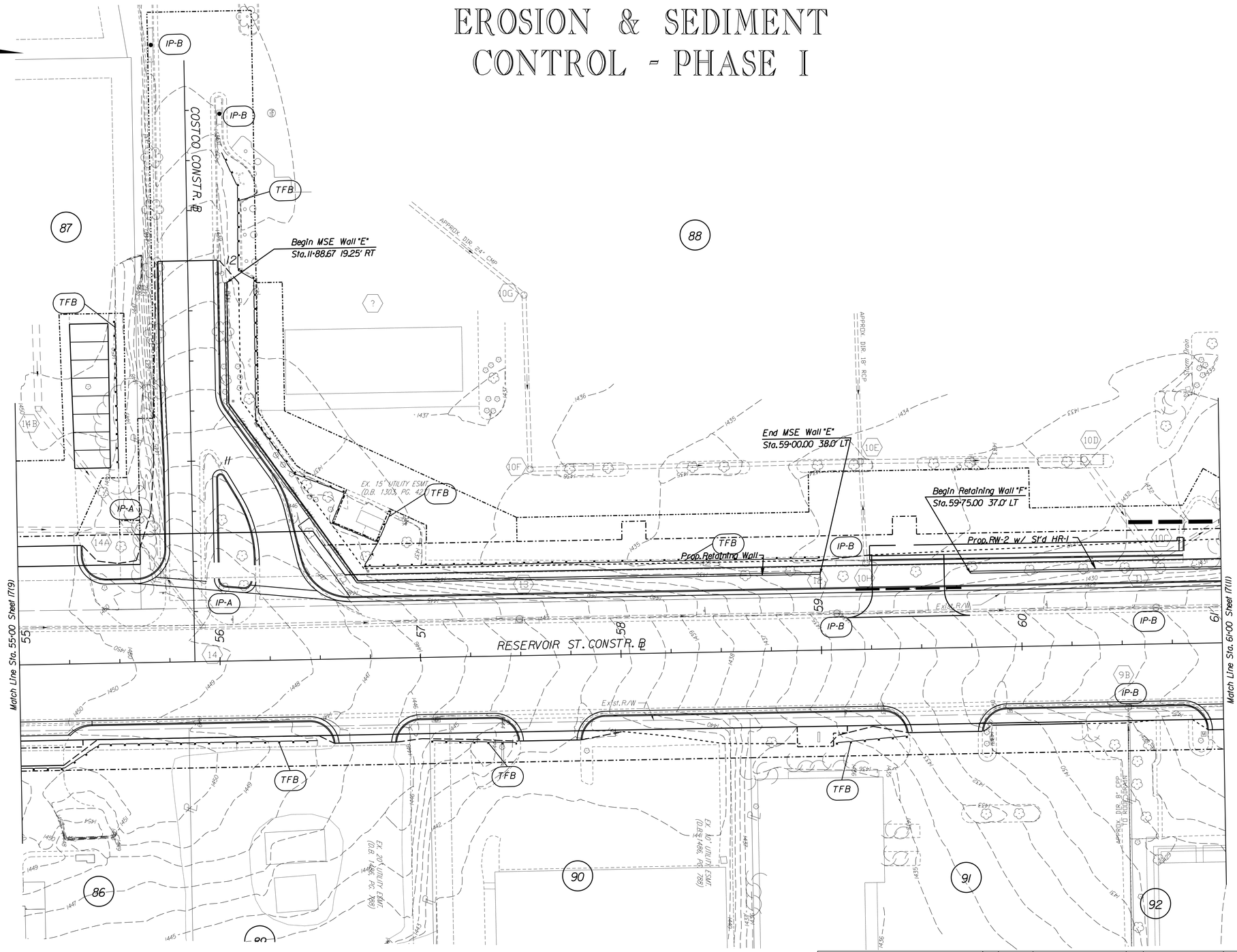
RESERVOIR STREET

ESC PHASE 1
STA. 11+75-14+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 17(9C)

EROSION & SEDIMENT CONTROL - PHASE I



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	10A
Entrance Profiles	14 Series
Retaining Wall Profiles	10A
Drainage Descriptions	2B Series
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE:	1" = 25'
DRAWN BY	DATE
CMY	
CHECKED BY	DATE
DAS	
DESIGN BY	DATE
JJK	
TAX MAP	

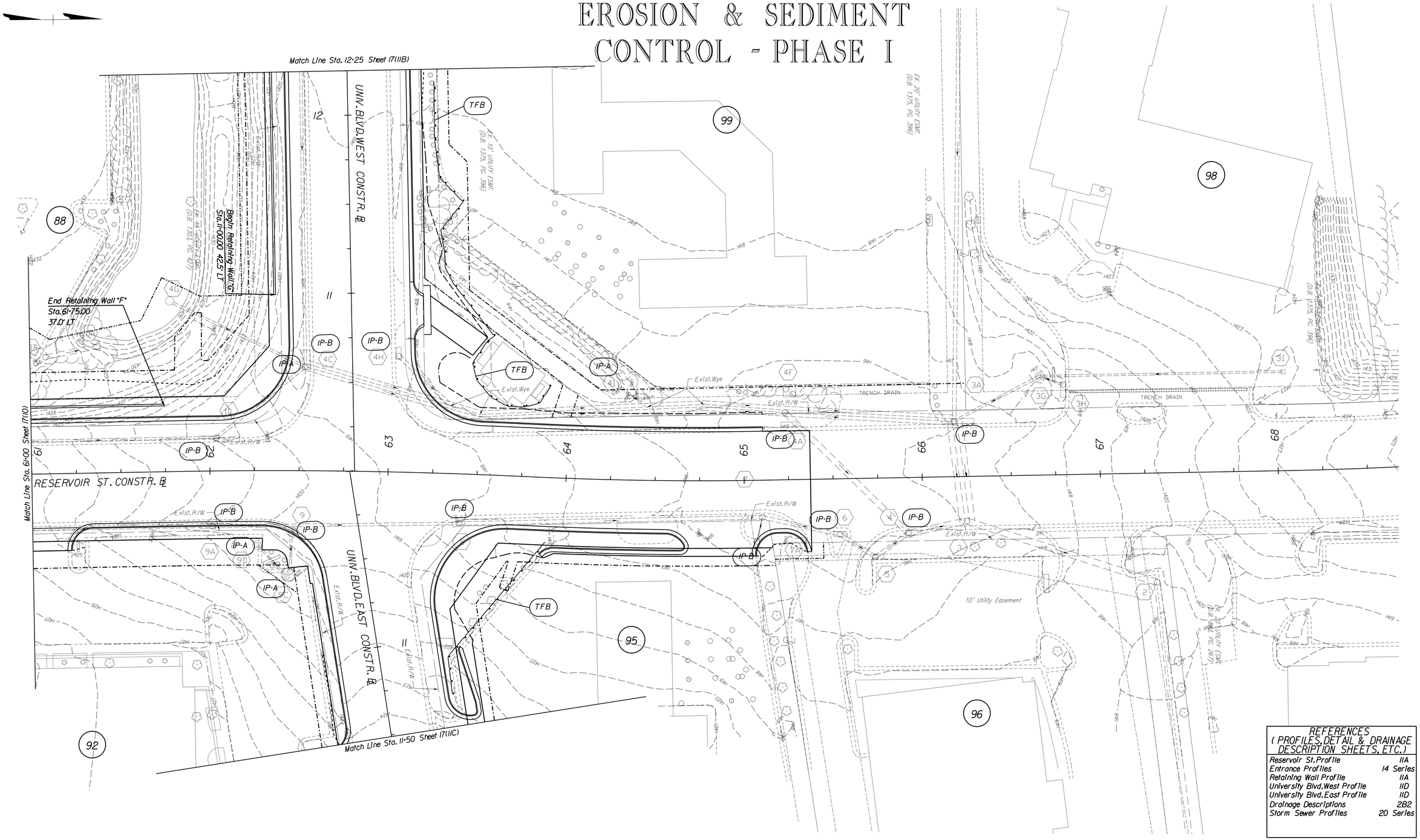
RESERVOIR STREET

ESC PHASE 1
STA. 55+00-61+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 17(10)

EROSION & SEDIMENT CONTROL - PHASE I



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	11A
Entrance Profiles	14 Series
Retaining Wall Profile	11A
University Blvd. West Profile	11D
University Blvd. East Profile	11D
Drainage Descriptions	2B2
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE:	1" = 25'
DRAWN BY	DATE
CMY	
CHECKED BY	DATE
DAS	
DESIGN BY	DATE
JJK	
TAX MAP	

RESERVOIR STREET

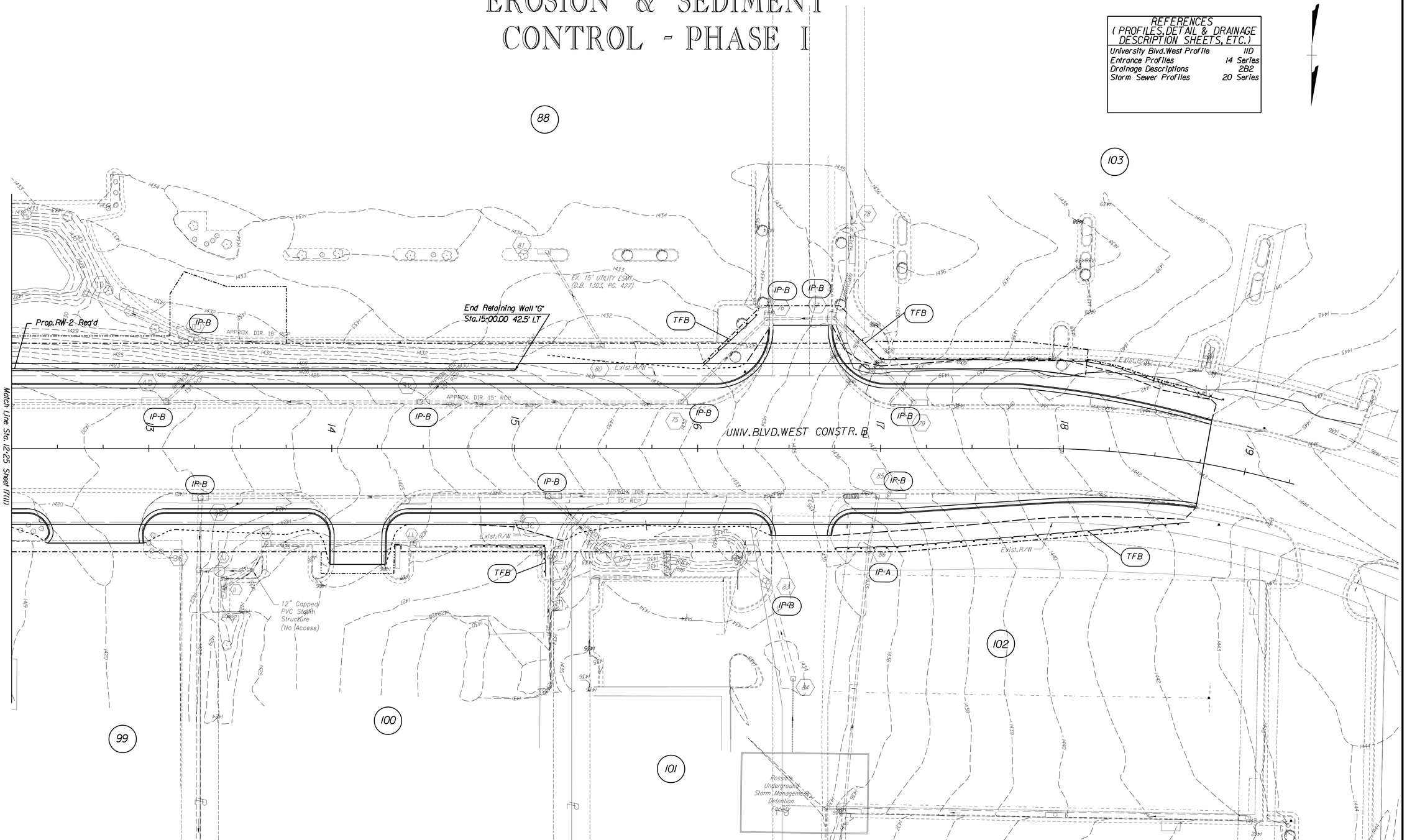
ESC PHASE 1
STA. 61+00-65+37.25

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
17(11)

EROSION & SEDIMENT CONTROL - PHASE I

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
University Blvd. West Profile	11D
Entrance Profiles	14 Series
Drainage Descriptions	2B2
Storm Sewer Profiles	20 Series



REV	DATE	DESCRIPTION	BY

McCORMICK TAYLOR

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
DAS	
DESIGN BY	DATE
JJK	

TAX MAP

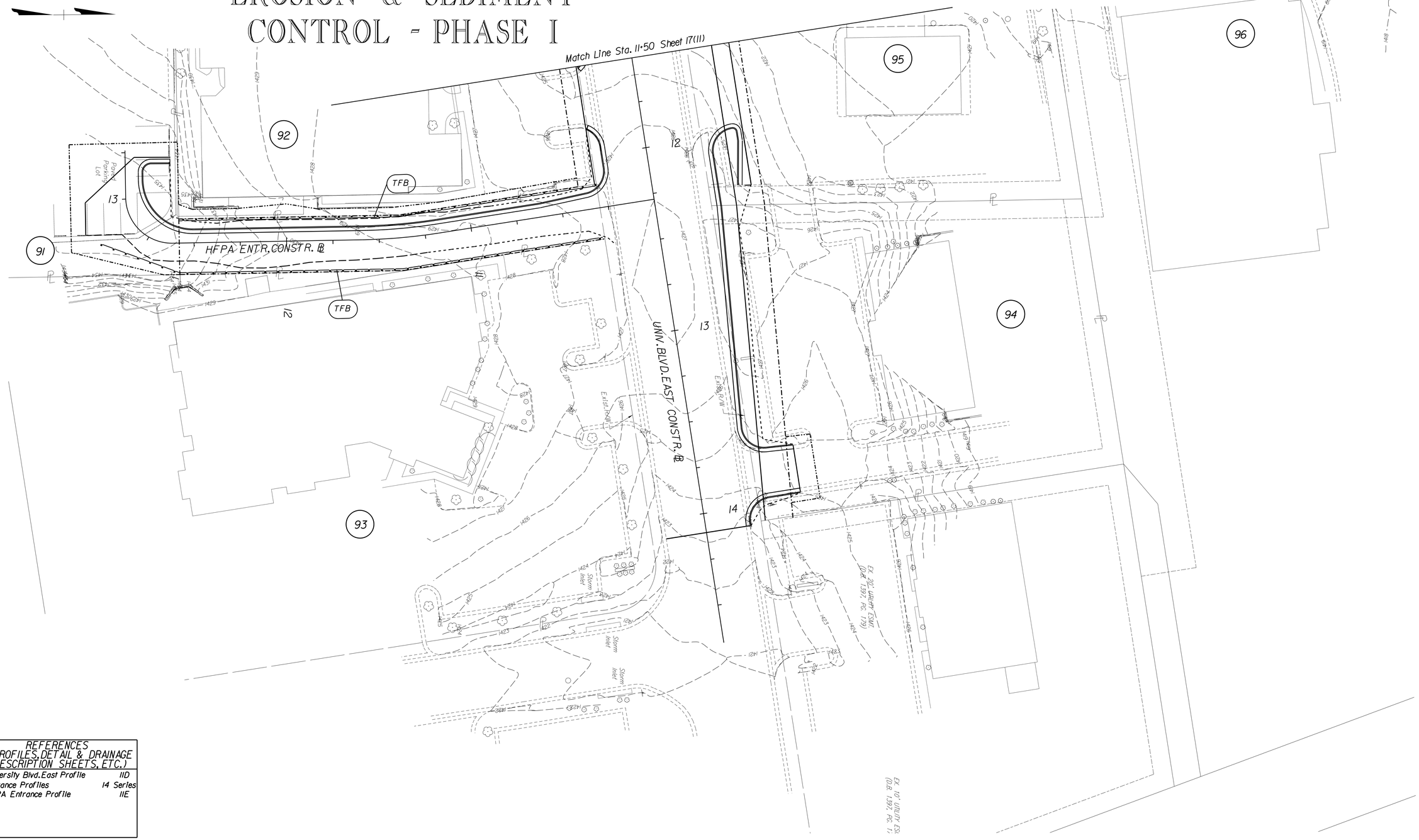
UNIVERSITY BLVD. WEST

ESC PHASE 1
STA. 12+25-18+75

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E. MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 17 (11B)

EROSION & SEDIMENT CONTROL - PHASE I



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
University Blvd.East Profile	11D
Entrance Profiles	14 Series
HFPA Entrance Profile	11E

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
DAS	
DESIGN BY	DATE
JJK	

TAX MAP

UNIVERSITY BOULEVARD EAST

ESC PHASE 1
STA. 11+50-14+10.37

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
17
(11C)

E&S PHASE II OVERVIEW

SCALE
0 175' 350'

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 175'
DRAWN BY DATE
CHECKED BY DATE
DESIGN BY DATE
TAX MAP

RESERVOIR STREET

ESC PH.2 OVERVIEW

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
18

EROSION & SEDIMENT CONTROL - PHASE II

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	3A
Entrance Profiles	14 Series
Drainage Descriptions	2B
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

TAX MAP

RESERVOIR STREET

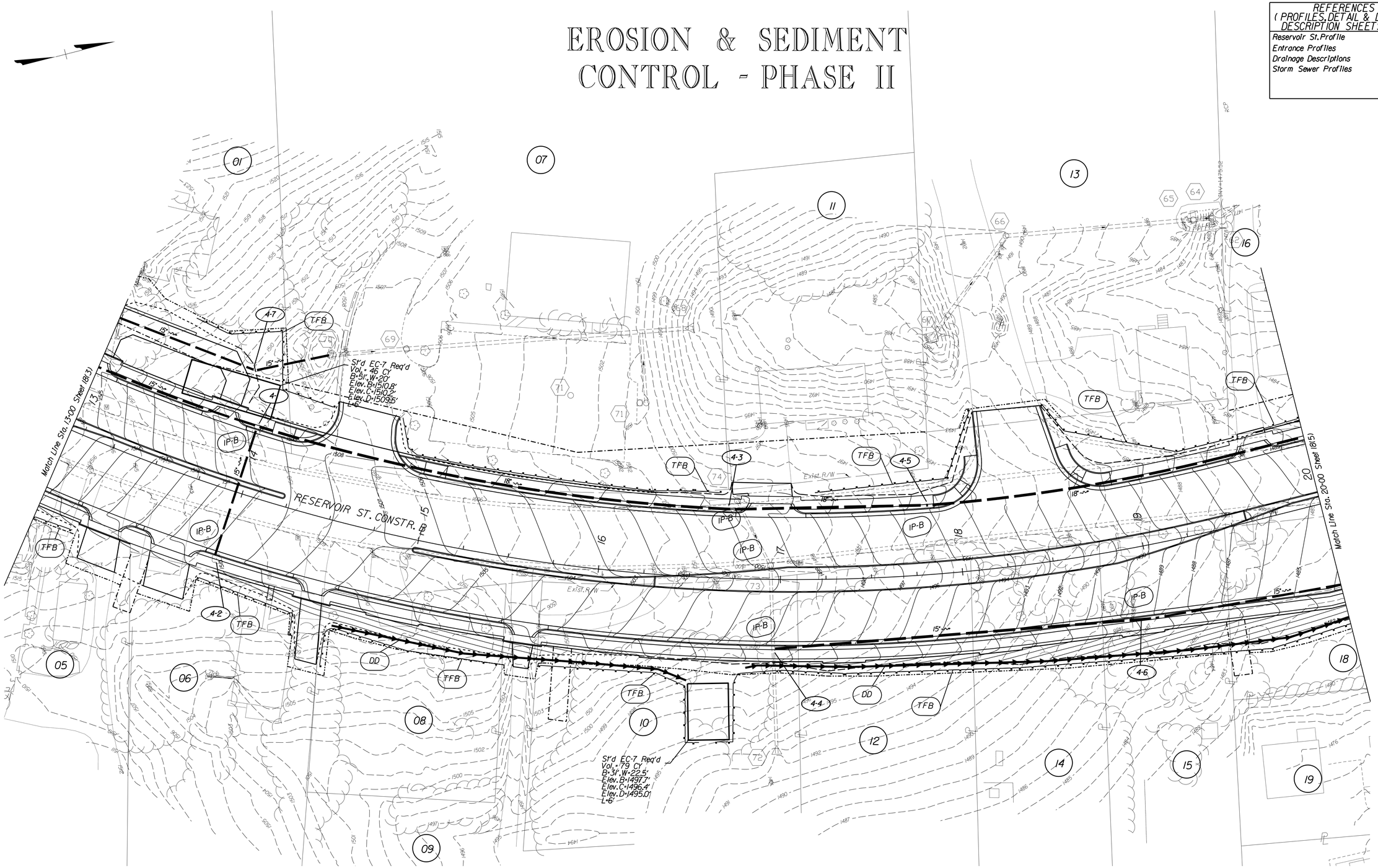
ESC PHASE 2
STA. 10+00-13+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
18(3)

EROSION & SEDIMENT CONTROL - PHASE II

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	4A
Entrance Profiles	14 Series
Drainage Descriptions	2B
Storm Sewer Profiles	20 Series



REV	DATE	DESCRIPTION	BY

McCORMICK TAYLOR

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

TAX MAP

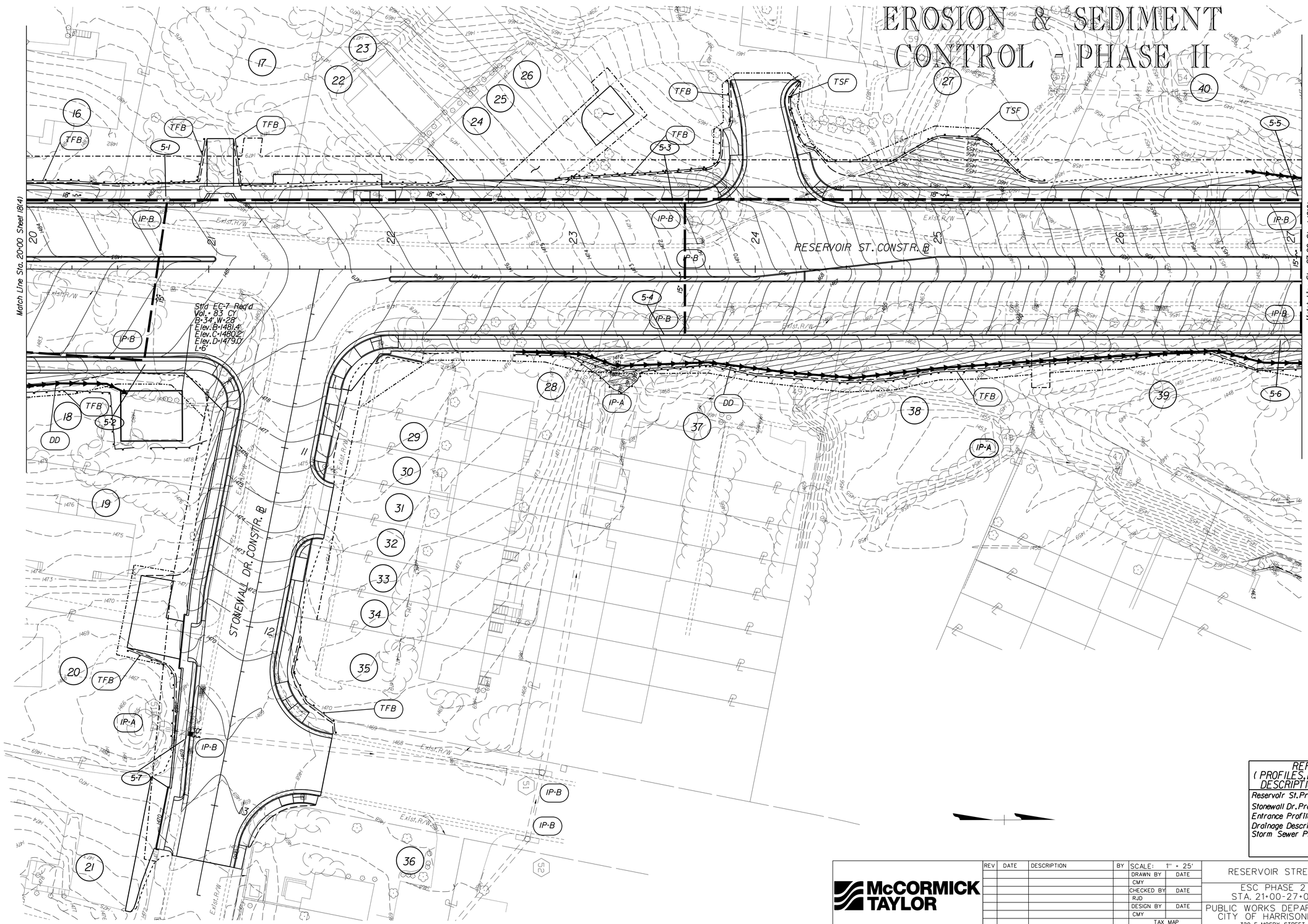
RESERVOIR STREET

ESC PHASE 2
STA. 13+00-20+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 18(4)

EROSION & SEDIMENT CONTROL - PHASE II



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	5A
Stonewall Dr. Profile	5B
Entrance Profiles	14 Series
Drainage Descriptions	2B
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

RESERVOIR STREET

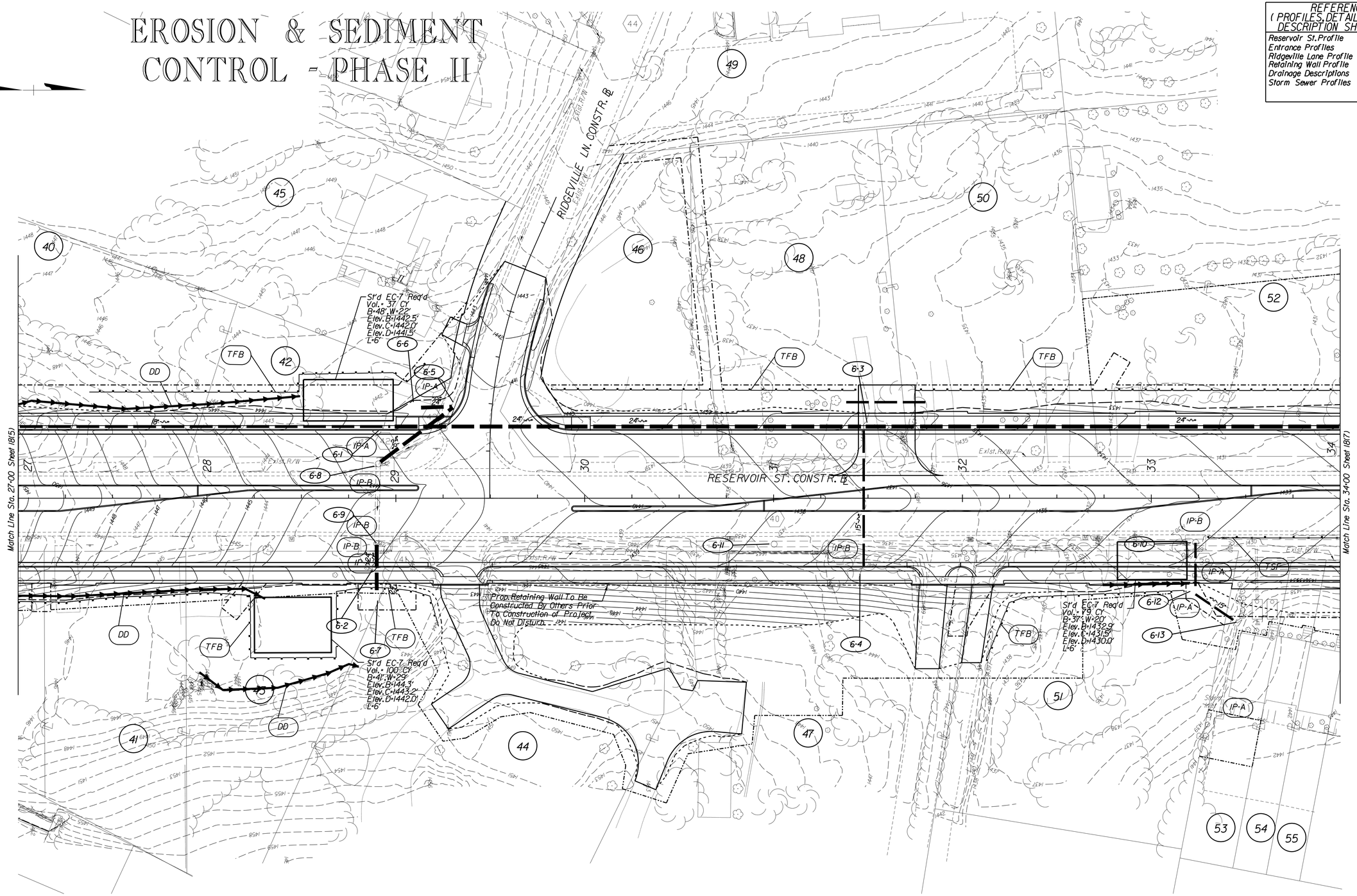
ESC PHASE 2
STA. 21+00-27+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY STREET
HARRISONBURG, VIRGINIA

SHEET
18(5)

EROSION & SEDIMENT CONTROL - PHASE II

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	6A
Entrance Profiles	14 Series
Ridgeville Lane Profile	6B
Retaining Wall Profile	6A
Drainage Descriptions	2B
Storm Sewer Profiles	20 Series



REV	DATE	DESCRIPTION	BY

McCORMICK TAYLOR

SCALE: 1" = 25'

DRAWN BY CMY — DATE

CHECKED BY RJD — DATE

DESIGN BY CMY — DATE

TAX MAP

RESERVOIR STREET

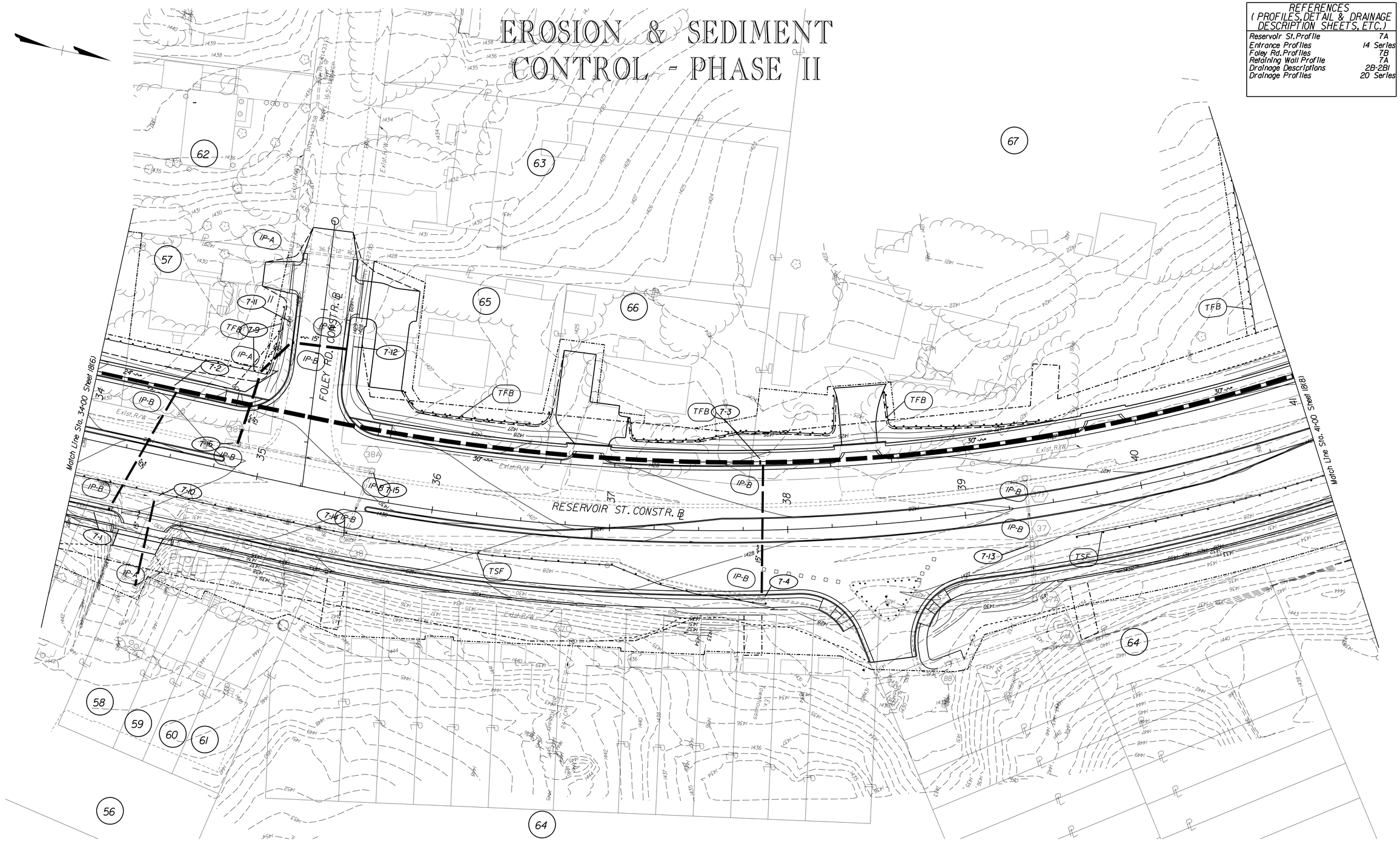
ESC PHASE 2
STA. 27+00-34+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 18(6)

EROSION & SEDIMENT CONTROL - PHASE II

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	7A
Entrance Profiles	14 Series
Foley Rd. Profiles	7B
Retaining Wall Profile	7A
Drainage Descriptions	2B-2BI
Drainage Profiles	20 Series



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

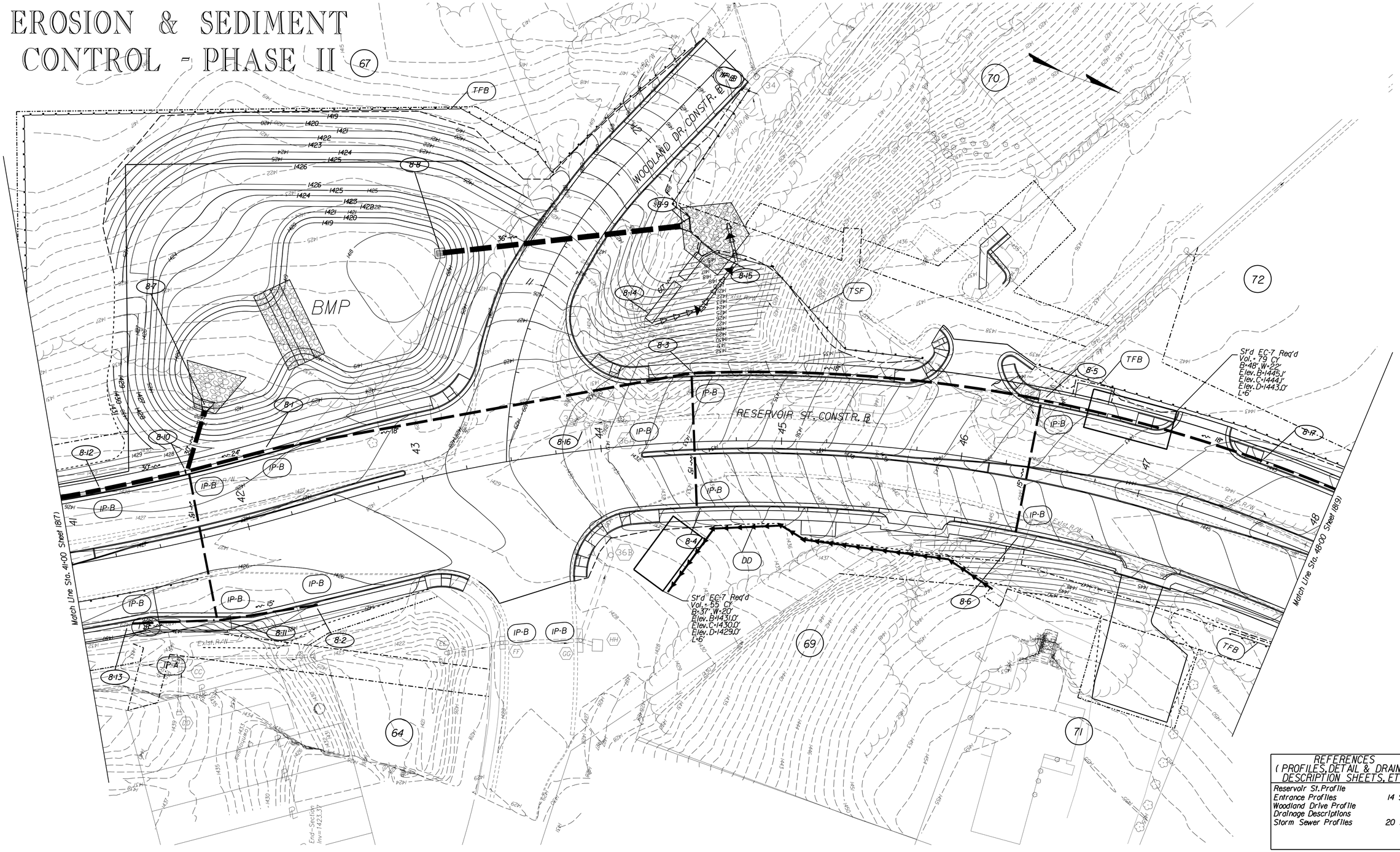
RESERVOIR STREET

ESC PHASE 2
STA. 34+00-41+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 18(7)

EROSION & SEDIMENT CONTROL - PHASE II



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	8A
Entrance Profiles	14 Series
Woodland Drive Profile	8B
Drainage Descriptions	2B1
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY: CMY — DATE

CHECKED BY: RJD — DATE

DESIGN BY: CMY — DATE

TAX MAP

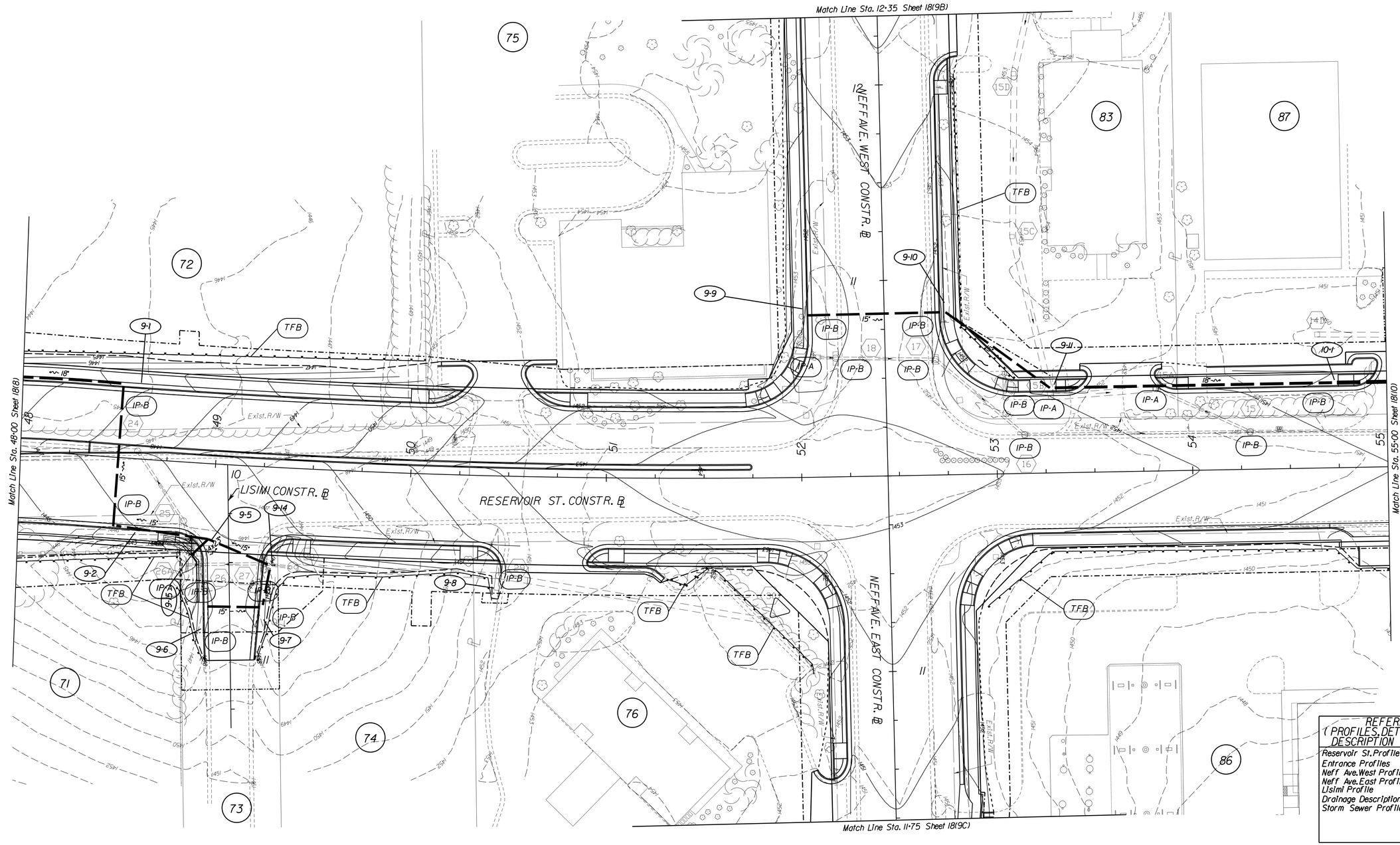
RESERVOIR STREET

ESC PHASE 2
STA. 41+00-48+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 18(8)

EROSION & SEDIMENT CONTROL - PHASE II



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	9A
Entrance Profiles	14 Series
Neff Ave. West Profile	9D
Neff Ave. East Profile	9E
Lisimi Profile	9A
Drainage Descriptions	2B1-2B2
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE:	1" = 25'
DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

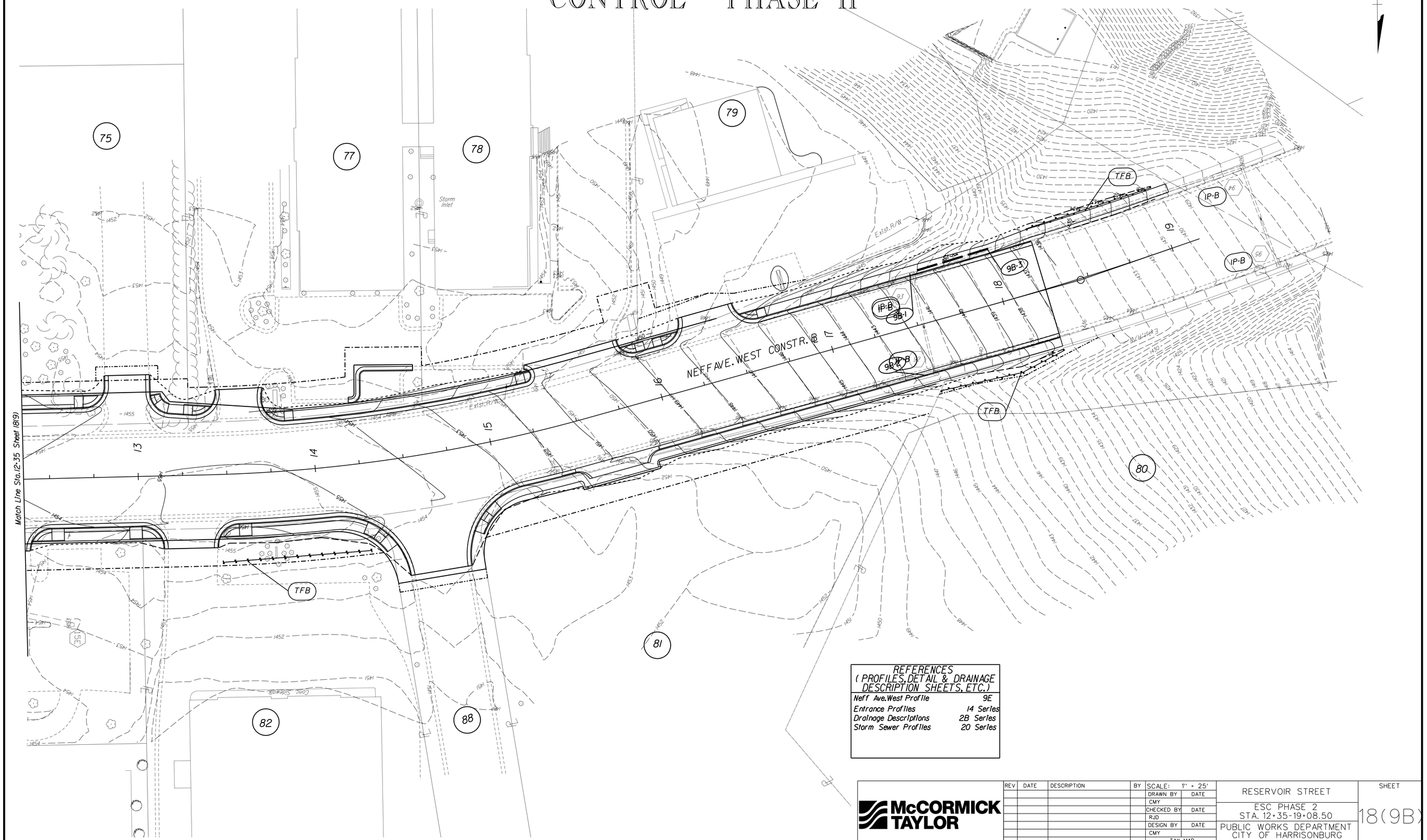
RESERVOIR STREET

ESC PHASE 2
STA. 48+00-55+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 18(9)

EROSION & SEDIMENT CONTROL - PHASE II



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Neff Ave. West Profile	9E
Entrance Profiles	14 Series
Drainage Descriptions	2B Series
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY CMY DATE

CHECKED BY RJD DATE

DESIGN BY CMY DATE

TAX MAP

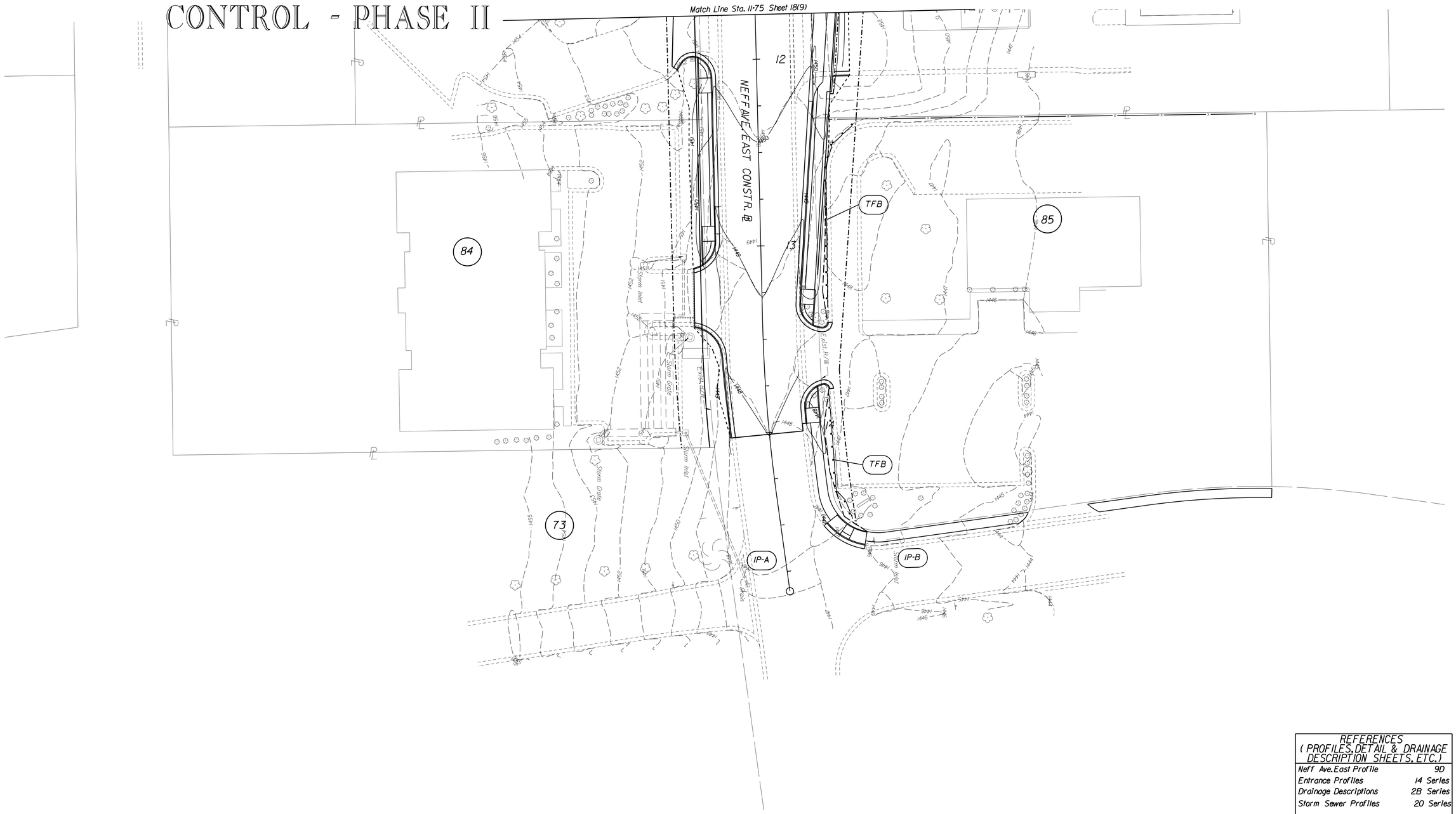
RESERVOIR STREET

ESC PHASE 2
STA. 12+35-19+08.50

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 18(9B)

EROSION & SEDIMENT CONTROL - PHASE II



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Neff Ave. East Profile	9D
Entrance Profiles	14 Series
Drainage Descriptions	2B Series
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE:	1" = 25'
DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	
TAX MAP	

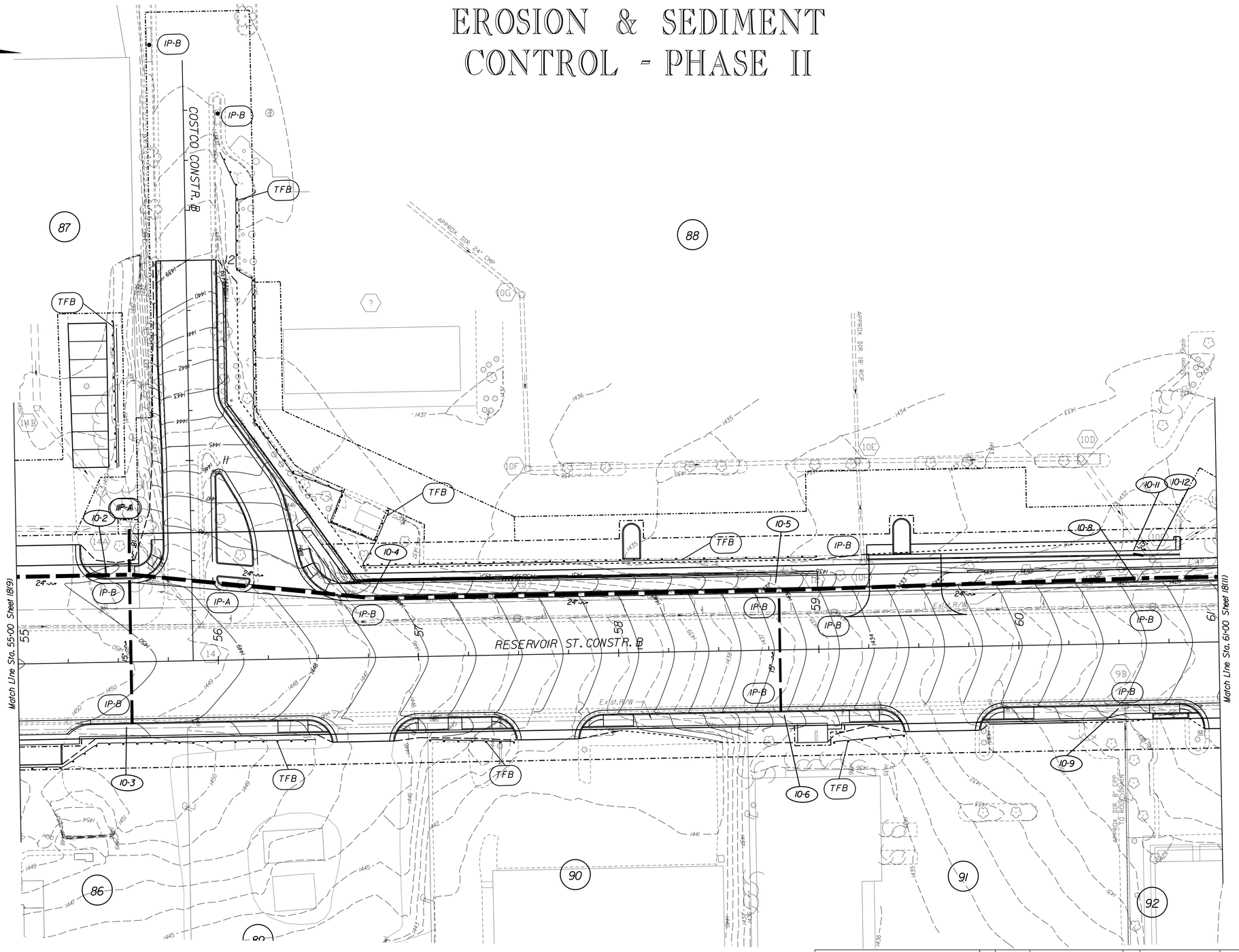
RESERVOIR STREET

ESC PHASE 2
STA. 11+75-14+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
18(9C)

EROSION & SEDIMENT CONTROL - PHASE II



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	10A
Entrance Profiles	14 Series
Retaining Wall Profiles	10A
Drainage Descriptions	2B2
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

TAX MAP

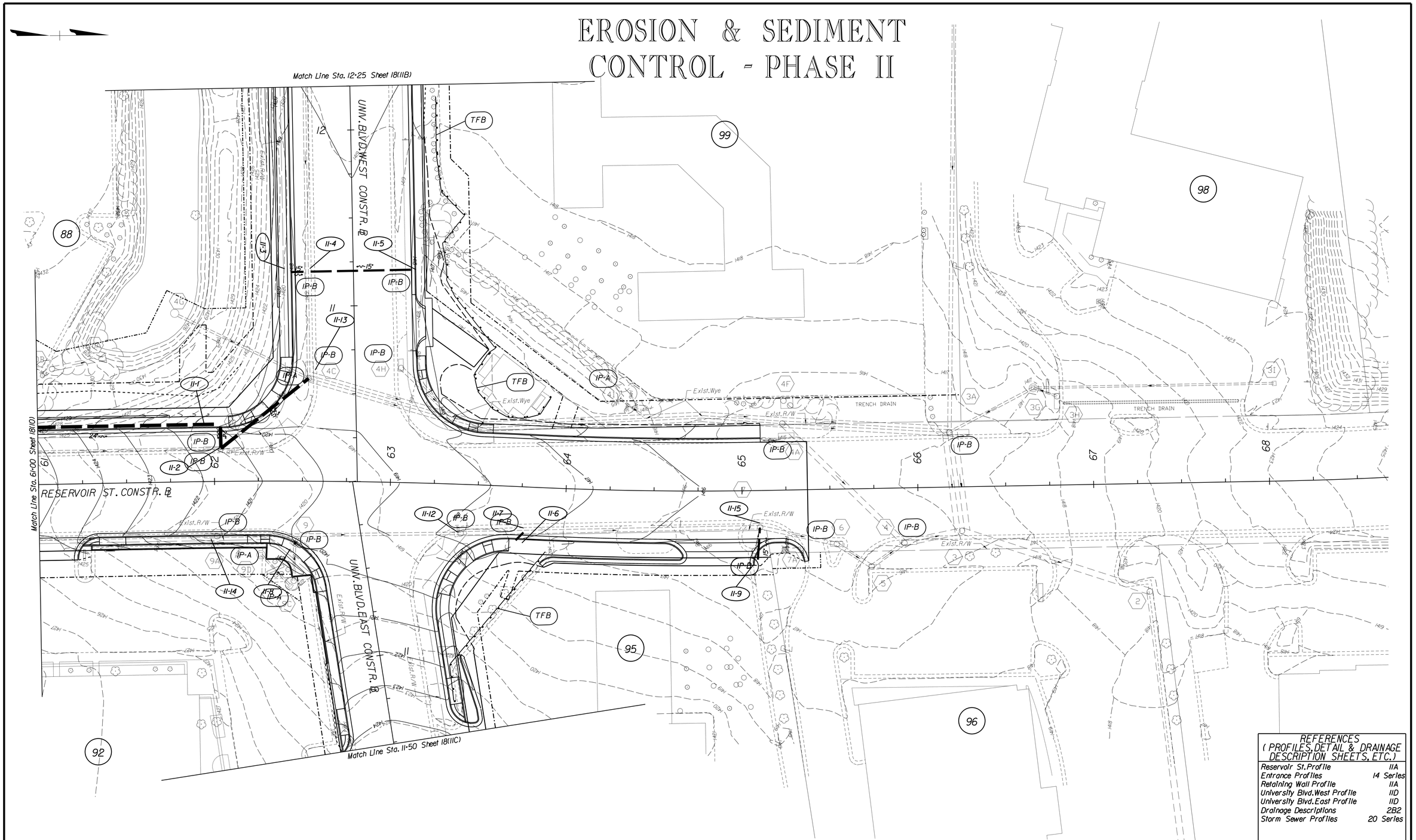
RESERVOIR STREET

ESC PHASE 2
STA. 55+00-61+00

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 18(10)

EROSION & SEDIMENT CONTROL - PHASE II



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Reservoir St. Profile	11A
Entrance Profiles	14 Series
Retaining Wall Profile	11A
University Blvd. West Profile	11D
University Blvd. East Profile	11D
Drainage Descriptions	2B2
Storm Sewer Profiles	20 Series

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

TAX MAP

RESERVOIR STREET

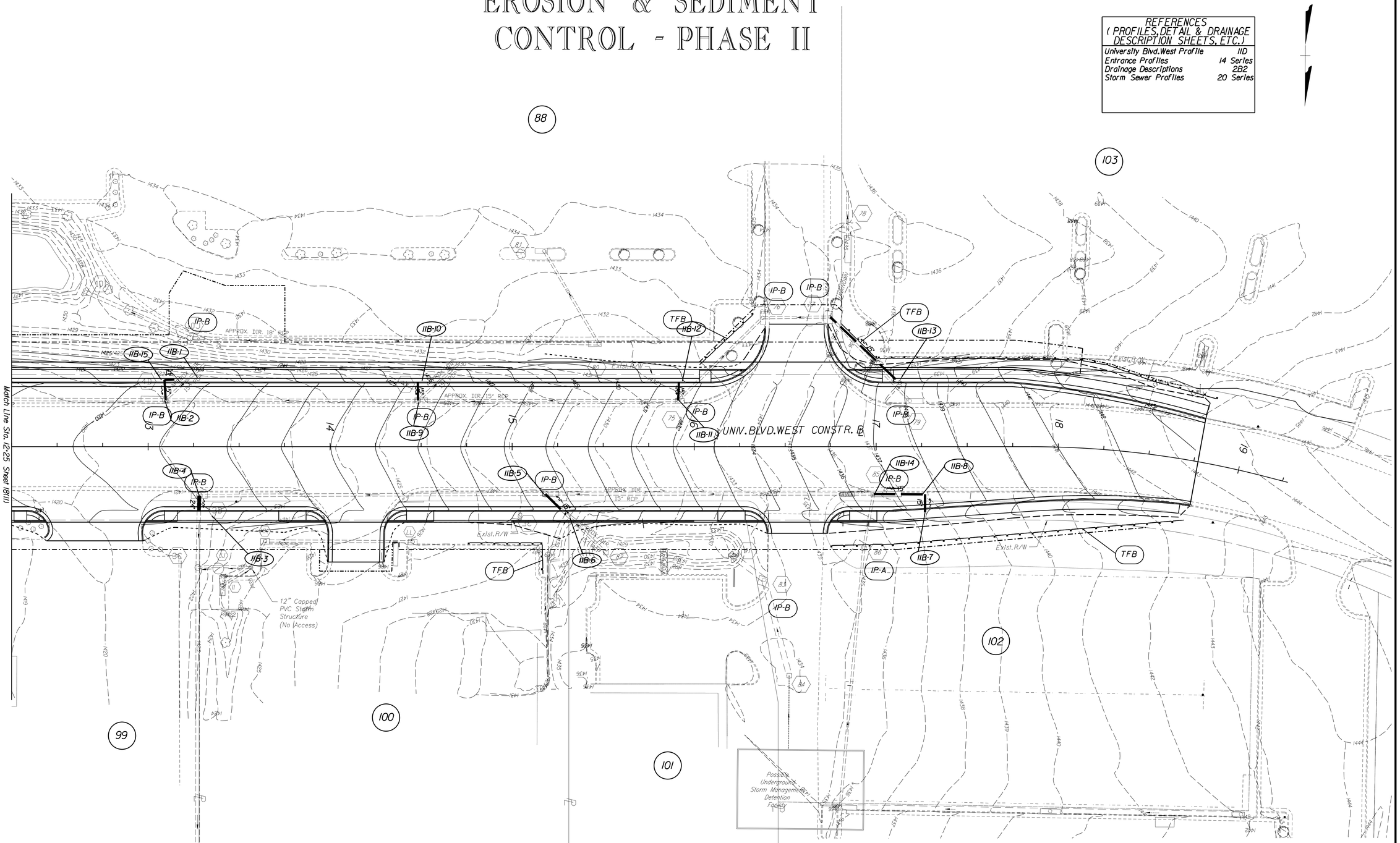
ESC PHASE 2
STA. 61+00-65+37.25

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
18(11)

EROSION & SEDIMENT CONTROL - PHASE II

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
University Blvd. West Profile	11D
Entrance Profiles	14 Series
Drainage Descriptions	2B2
Storm Sewer Profiles	20 Series



McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY	DATE
CMY	
CHECKED BY	DATE
RJD	
DESIGN BY	DATE
CMY	

TAX MAP

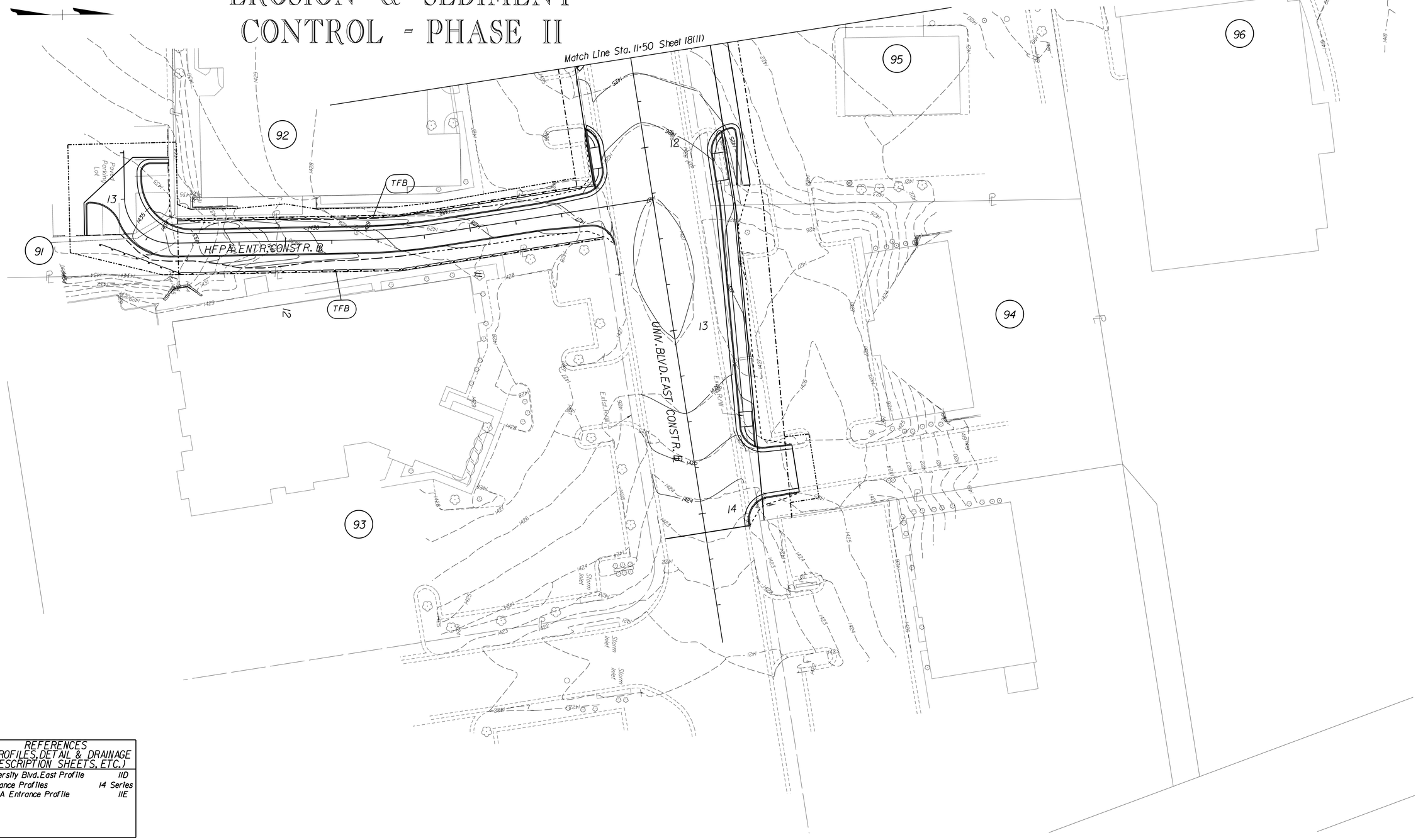
UNIVERSITY BLVD. WEST

ESC PHASE 2
STA. 12+25-18+75

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 18 (11B)

EROSION & SEDIMENT CONTROL - PHASE II



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
University Blvd. East Profile	11D
Entrance Profiles	14 Series
HFPA Entrance Profile	11E

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY CMY DATE

CHECKED BY RJD DATE

DESIGN BY CMY DATE

TAX MAP

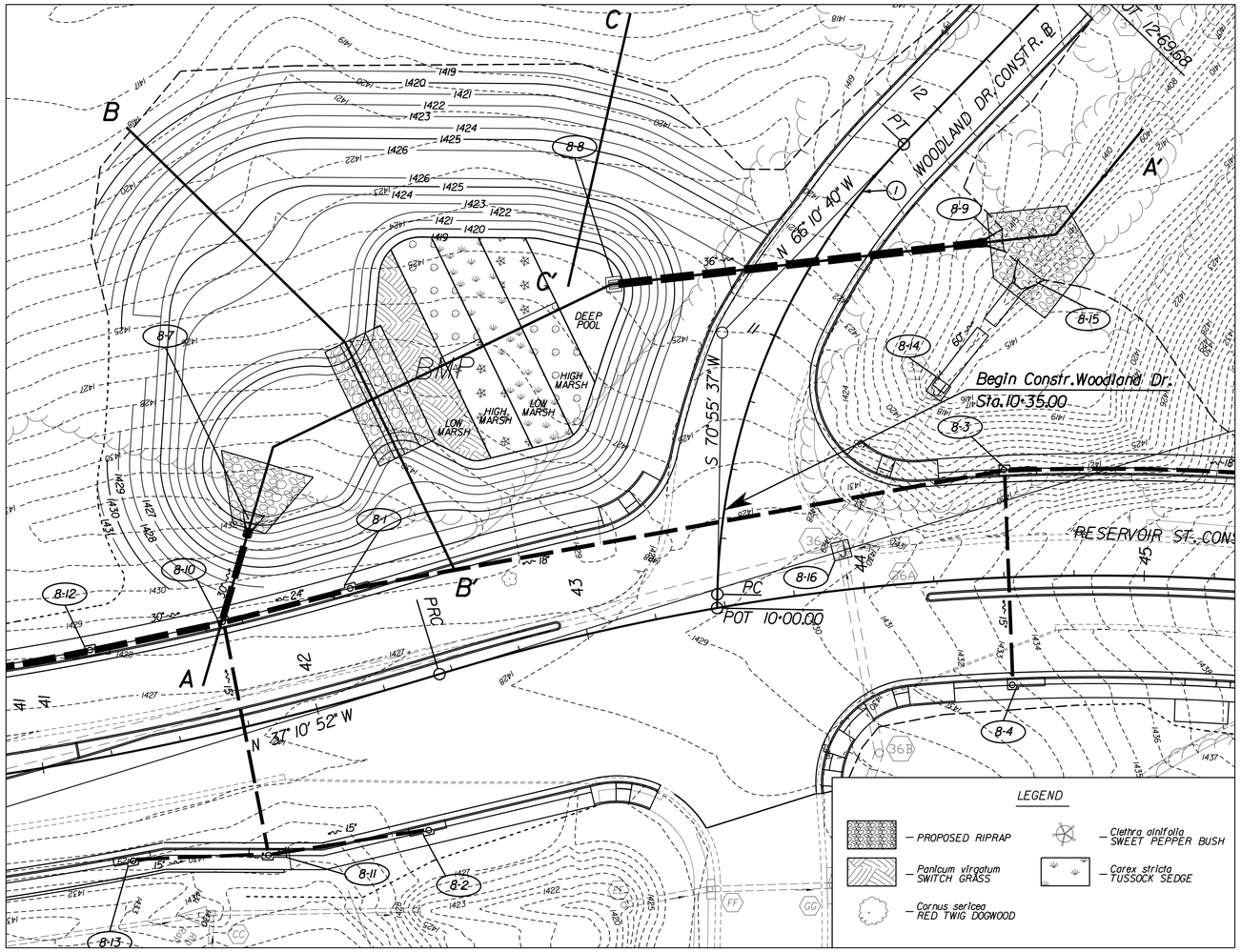
UNIVERSITY BOULEVARD EAST

ESC PHASE 2
STA. 11+50-14+10.37

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 18 (11C)

SWM BMP LAYOUT AND GRADING



LAYOUT & GRADING

SCALE 0 25' 50'

PROJECT NARRATIVE:

The proposed best management practice (BMP) pond was designed to provide both water quality and quantity management for the Reservoir Street widening project within the City of Harrisonburg, VA. A dry extended detention basin is proposed for quality management of the first inch of runoff over the entire impervious area within the project site from the Rockingham County boundary to Neff Avenue (WQV BMP = 2 x WQV). A modified VDOT stormwater management structure with a 3" low flow orifice is proposed to provide a minimum of 30 hours of extended detention for the water quality volume. A closed storm sewer system will be used to convey runoff to the pond.

The proposed BMP will manage stormwater runoff from a total of 15.3 acres (9.6 acres of impervious area) discharging to an existing outlet ditch along Woodland Drive. Additional storage was provided in the BMP to manage post development peak flows from the 2, 10, and 100 year storms to pre-development peak flows at the downstream point of analysis. The proposed BMP has a target phosphorous removal efficiency of 35%.

Hydrology for the proposed site was analyzed using Bentley's PondPack V8i utilizing the TR-20/TR-55 routines. Drainage area boundaries, runoff curve numbers (CN) and time of concentration computations (Tc) within the contributing area of the BMP were developed based on the topographic survey and field verified conditions. The ultimate outfall for this project area is located at the former location of the City maintained SWM pond now occupied by a 12'x6' culvert beneath the parking lot of the Sunchase Apartments. The ultimate outfall hydrologic computations, including the offsite drainage area boundaries, CN values and Tc computations were estimated using a combination of the survey and field verified data along with the 1996 design and report for the original pond as provided by the City of Harrisonburg Engineering Division.

WATER QUALITY SUMMARY - BMP:

Drainage Area = 15.3 acres
Pavement Area = 9.6 acres
Proposed CN = 90
Tc = 0.28 hrs

Dry Extended Detention Basin
BMP WQV = 2xWQV = 1"/12 x 15.3 ac = 1.28 ac-ft
Total Volume Provided = 1.99 ac-ft
WSE at 1.28 ac-ft = 1423.5 ft

Proposed Phosphorous Loading Rates

Proposed Phosporous Load = 21.2 lb/yr
Required Reduction = 8.9 lb/yr
Removal Efficiency = 50%
Load Removal = 10.6 lb/yr

HYDROLOGIC SUMMARY - BMP:

Peak Flow Summary (Basin)	2-YR CFS	10-YR CFS	100-YR CFS
Pre-Development	-	-	-
Post-Development	29.4	49.2	84.8
Post-Development Routed	21	29.5	75.1

Routed Elevations

2-Yr Water Surface Elevation	1,423.3	FT (MSL)
10-Yr Water Surface Elevation	1,423.9	FT (MSL)
100-Yr Water Surface Elevation	1,424.6	FT (MSL)

Peak Flow Summary (Outfall)*	2-YR CFS	10-YR CFS	100-YR CFS
Pre-Development	114.3	269.5	607.8
Post-Development	-	-	-
Post-Development Routed	110.3	269.4	601.6

*Note: Peak flows at outfall include the offsite watershed.

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

Profile / Sections	19(2)
Structure / Pond Details	19(3)
Drainage Descriptions	2B

McCORMICK TAYLOR

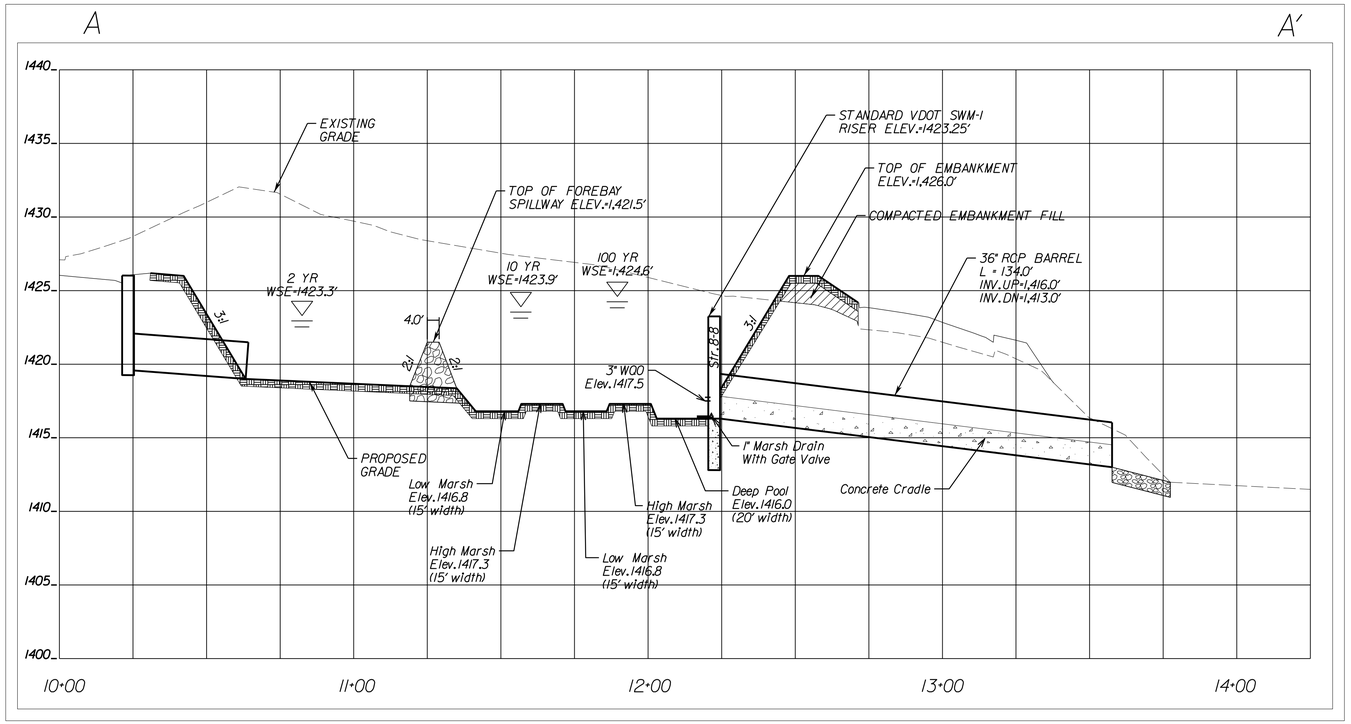
REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'
DRAWN BY DATE
CHECKED BY DATE
DESIGN BY DATE
TAX MAP

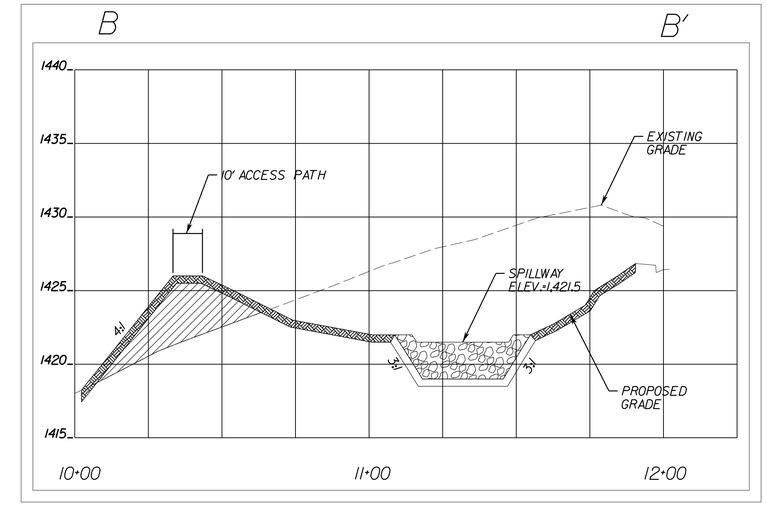
RESERVOIR STREET
BMP LAYOUT & GRADING
PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 19(1)

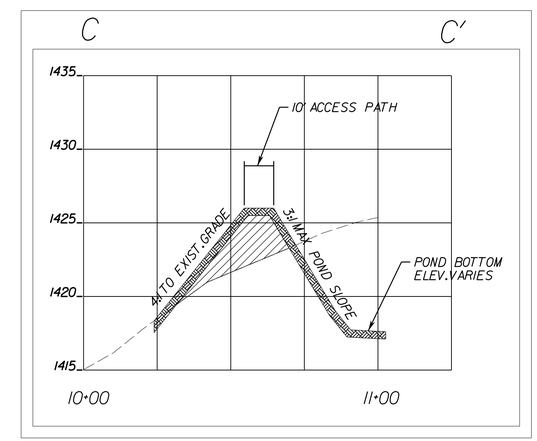
SWM BMP PROFILE AND CROSS SECTION



CROSS SECTION A-A'



CROSS SECTION B-B'



CROSS SECTION C-C'

LEGEND

- TOPSOIL DRESSING
- LOW PERMEABILITY LINER/FILL
- CONCRETE CRADLE
- CLASS I RIPRAP
- CLASS A-3 CONCRETE

VERTICAL SCALE: 0, 5', 10'

HORIZONTAL SCALE: 0, 25', 50'

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Layout / Grading	19(1)
Structure / Pond Details	19(3)
Drainage Descriptions	2B

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'

DRAWN BY | DATE

CHECKED BY | DATE

DESIGN BY | DATE

TAX MAP

RESERVOIR STREET

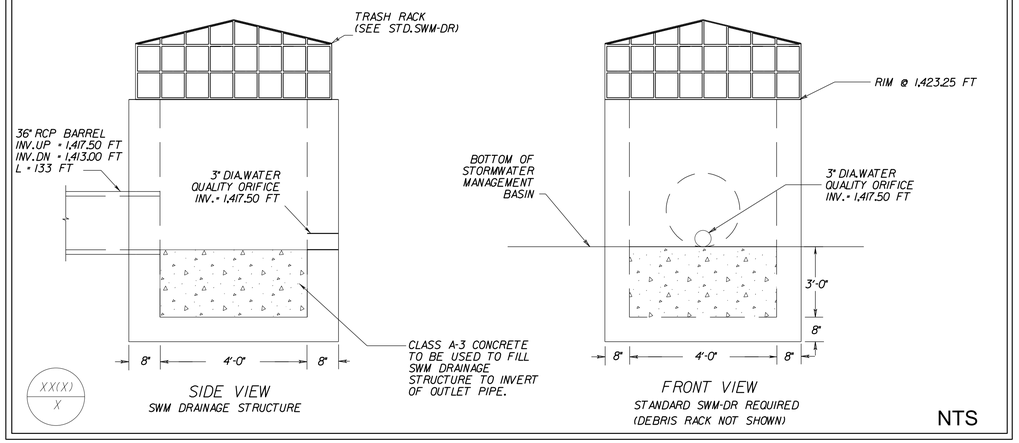
BMP Profile

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E. MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET 19(2)

SWM BMP DRAINAGE STRUCTURE NOTES AND DETAILS

STRUCTURE EXHIBIT FOR STANDARD VDOT SWM-1 (8-8)



DETENTION BASIN SWM BMP CONSTRUCTION SEQUENCE:

1. Install construction entrance and perimeter erosion and sediment controls as shown on the plan.
2. Construct access road to BMP per the plan.
3. Begin excavation of fill for BMP to serve as a temporary sediment basin during construction within the contributing watershed.
4. Contractor should install,operate,and maintain a temporary sump with suitable pump and pump outlet sediment controls for dewatering during excavation of BMP as needed.
5. Install principal spillway and outlet protection per the plan and modify to serve as a temporary sediment basin.
6. Immediately stabilize the temporary sediment basin with temporary seeding,mulch,and blankets or matting per the plan.
7. BMP will continue to operate as a temporary sediment basin until the contributing drainage area is stabilized.
8. When directed by the City of Harrisonburg or the Engineer,BMP shall be converted to its final configuration as a Pond per the plan.
9. Remove all collected sediment in BMP and finish rough grading per the plan.
10. Install lining per the plan.Basin bottom shall be lined with clay to min.depth of 12" below bottom elevation. See table 3.07-3 on this sheet for clay liner requirements.If the existing soil beneath the basin meets the clay liner requirements to a depth of 12" below the bottom elevation then a constructed clay liner is not required.
11. Finish grading BMP per the plan.
12. Temporarily stabilize BMP if the season is not suitable for permanent stabilization and planting of aquatic vegetation.
13. During suitable planting season,install permanent stabilization and aquatic vegetation.
14. Remove temporary erosion and sediment controls when directed by City of Harrisonburg or the Engineer.

MAINTENANCE PLAN FOR STORMWATER DETENTION PONDS

1.Mowing.All grasses should be mowed at least twice each year.Grasses such as tall fescue should be mowed in early summer after emergence of the heads on cool season grasses.They should be mowed again in the early fall to prevent seeds of annual weeds from maturing.Mowing of legumes such as Sericea lespedeza and crown vetch can be permitted to grow on the dam or in any part of the auxiliary spillway.

2.Liming and fertilizing.The soil should be sampled according to recommended procedures at least once every 4 years.The sample should be tested at a qualified soil testing laboratory.Lime and fertilizer should be applied in accordance with recommendations based on the tests.

3.Replanting and overseeding.If vegetation covers less than 40% of the soil surface,lime,fertilize and seed in accordance with current recommendations for new seedings.If vegetation covers most than 40% but less than 70% of the soil surface,lime fertilize and overseed in accordance with current recommendations.

4.Removing trash and debris.Trash,litter,and vegetation will be removed as needed to prevent obstruction to the flow of water,to prevent movement of trash and litter to downstream properties,to maintain the integrity of the structure,to provide an attractive appearance and to minimize water pollution.

5.Removing sediment.Soil materials (including clay,silt,sand and gravel) will be removed before the detention pool or the BMP pool loses 10% of the designed storage capacity.

6.Sediment disposal.Sediment disposal should be in accordance with current procedures for disposal of sediment.Where necessary or desirable,the sediment deemed will be tested for appropriate pollutants before it is removed from the pond.

7.Repairs,repair slides,slumps and eroded areas promptly and in a workmanlike manner trash racks, pipes,headwalls,etc.will be maintained,repaired and/or replaced as needed to maintain the integrity of the structure.Exposed metal surfaces will be painted to minimize damage due to rust.

8.Maintenance inspections.A representative of the owner(s) will inspect each stormwater management structure after each significant rainfall.Appropriate action will be taken to ensure appropriate maintenance.All maintenance costs will be borne by the owner(s).Where structures are to be maintained by more than one party,allocation of costs will be in accordance with terms set forth in the maintenance agreement.

9.Maintenance records.The landowner,or someone designated by the landowner,shall inspect the detention pond within 24 hours after each rainfall event of one inch or more of rain.The owner or the designee shall keep written records of these inspections.The records shall also include maintenance and repairs performed.

10.The detention pond shall not be modified in any way without prior approval by City.

PLANTING NOTES

1. All areas not noted for marsh plantings are to be seeded as with other disturbed areas.
2. Planting shall be done in accordance with VDOT Standard L-5 (120ILD4).
3. Nursery stock shall come from a local nursery or be adapted to local growing conditions and be guaranteed by the nursery as such.
4. Soils shall support the marsh at the time of stabilization and planting.
5. The owner shall be given the opportunity to inspect and approve all plant material at its source prior to digging or delivery. If this opportunity is waived,a representative sample of each species may be required for approval prior to shipment of the total quantity.
6. Location of plant materials shown on the plans are schematic only and shall be adjusted as required for changes due to field conditions when directed by the owner.
7. Plants shall conform to the American Standard for Nursery Stock (ANSI Z-60J),current issue,by the American Nursery and Landscape Association,and Sections 244 & 605 of the VDOT Road and Bridge Specifications.
8. During the establishment period,the contractor shall water each plant with the following minimum quantities or water for each watering,unless otherwise directed by the engineer.

   Shrubs: 2 Gallons per plt
   Herbaceous material: 0.5 Gallons per plt

   The contractor shall water all living plants once per week during the establishment period (a total of 27 weeks).
9. Height of plants indicated on this sheet refer to height of plants delivered to the project site,not after they have been pruned.
10. Planting pits for container material shall be twice the width of the container and equal to the depth of the container.

TABLE 3.07 - 3
Clay Liner Specifications

Property	Test Method (or equal)	Unit	Specification
Permeability	ASTM D-2434	*cm/sec*	1×10^{-6}
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

Source: City of Austin, 1988

SCIENTIFIC NAME	COMMON NAME	PLANT HEIGHT	ON CENTER SPACING	ROOT CONDITION	TOTAL NUMBER OF PLANTS
NATIVE SHRUBS					
Clethra alnifolia	SWEET PEPPER BUSH	18"-24"	4'-5'	CONTAINER	36
Carnus sericea	RED TWIG DOGWOOD	18"-24"	4'-6'	CONTAINER	33
HERBACEOUS MATERIAL					
Panicum virgatum	SWITCH GRASS	18"-24"	3'	CONTAINER	95
Carex stricta	TUSSOCK SEDGE	6"-18"	3'	CONTAINER	111

NOTE:

CONTAINER DEFINED AS IN AMERICAN NURSERY STANDARD FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.

GENTLY REMOVE PLANTS FROM CONTAINERS, CAREFUL TO NOT DAMAGE SECONDARY ROOT GROWTH.

REMOVAL OF BINDING MATERIALS FROM TRUNKS AND STEM SHALL CONFORM TO SECTION 605.03 OF THE SPECIFICATIONS.

PLANT AT THE SAME DEPTH AS WHEN PREVIOUSLY GROWN.

CUT LINEAR SLITS IN ORGANIC CONTAINER TO FACILITATE ROOT PENETRATION

IF CONTAINER IS NON-ORGANIC COMPLETELY REMOVE

QUANTITIES:

WATERING	4600 GALLONS (1 UNIT = 1000 GALLONS)
MULCHING	5470 SQUARE FEET (1 UNIT - 100 SQUARE FEET)
REMULCHING	51 CUBIC YARDS
BED PREPARATION	5470 SQUARE FEET (1 UNIT - 100 SQUARE FEET)
VEGETATION CONTROL	5 COMPLETE WEEDING OPERATIONS

REFERENCES (PROFILES,DETAIL & DRAINAGE DESCRIPTION SHEETS,ETC.)	
Layout / Grading	19(1)
Profile / Sections	19(2)
Drainage Descriptions	2B

McCORMICK TAYLOR

REV	DATE	DESCRIPTION	BY

SCALE: 1" = 25'
DRAWN BY DATE
CHECKED BY DATE
DESIGN BY DATE
TAX MAP

RESERVOIR STREET

BMP NOTES / DETAILS

PUBLIC WORKS DEPARTMENT
CITY OF HARRISONBURG
320 E MOSBY ROAD
HARRISONBURG, VIRGINIA

SHEET
19(3)

PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bloker Design Associates (703) 368-7373
DESIGN BY McCormick Taylor, Inc. (540) 248-0436
SUBSURFACE UTILITY BY, DATE City of Harrisonburg Public Utilities (540) 434-9959

STORM SEWER PROFILES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(1)

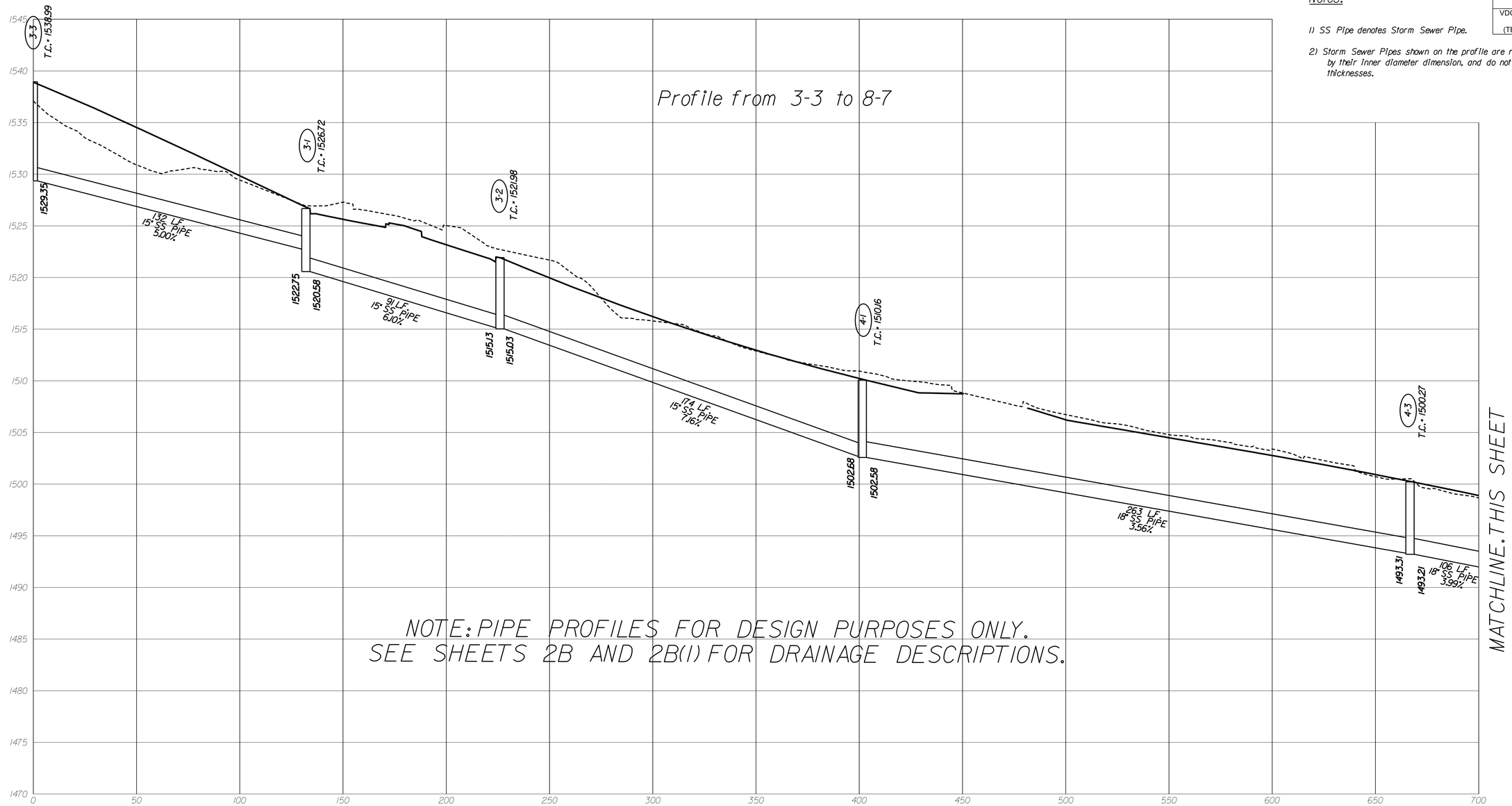
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VDOT (Division) or Co. Name (Location), Virginia (TECHNICAL DISCIPLINE)

Notes:

1) SS Pipe denotes Storm Sewer Pipe.

2) Storm Sewer Pipes shown on the profile are represented by their inner diameter dimension, and do not include wall thicknesses.



HORZ. 1" = 25' VERT. 1" = 5'	PROJECT UPC# 101219	SHEET NO. 20(1)

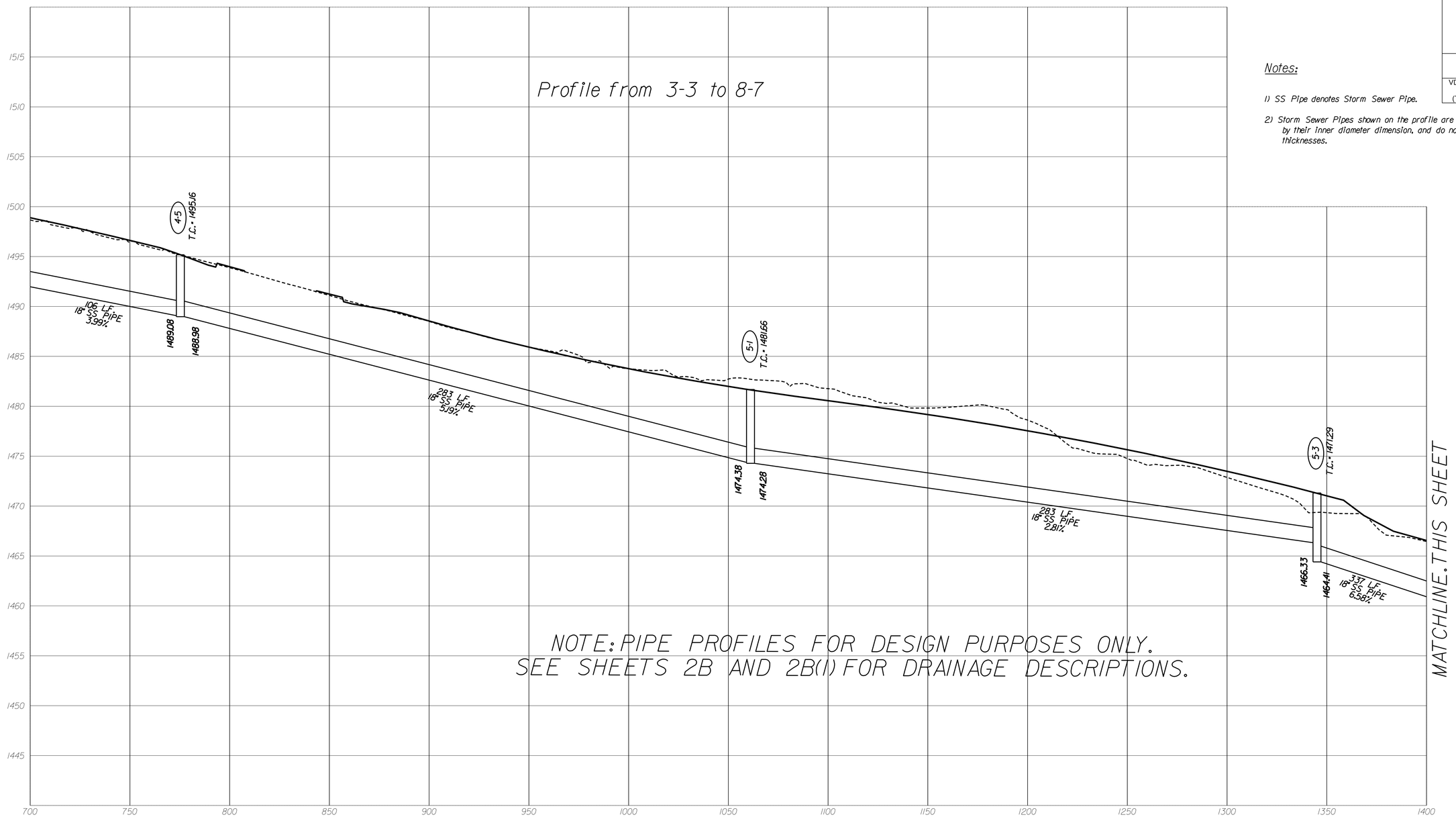
PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bloker Design Associates (703) 368-7373
DESIGN BY McCormick Taylor, Inc. (540) 248-0436
SUBSURFACE UTILITY BY, DATE City of Harrisonburg Public Utilities (540) 434-9959

STORM SEWER PROFILES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VDOT (Division) or Co. Name (Location), Virginia (TECHNICAL DISCIPLINE)



NOTE: PIPE PROFILES FOR DESIGN PURPOSES ONLY.
SEE SHEETS 2B AND 2B(1) FOR DRAINAGE DESCRIPTIONS.

Notes:

1) SS Pipe denotes Storm Sewer Pipe.

2) Storm Sewer Pipes shown on the profile are represented by their inner diameter dimension, and do not include wall thicknesses.

HORZ. 1" = 25' VERT. 1" = 5'	PROJECT UPC# 101219	SHEET NO. 20(2)

PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bioker Design Associates (703) 368-7373
DESIGN BY McCormick Taylor, Inc. (540) 248-0436
SUBSURFACE UTILITY BY, DATE City of Harrisonburg Public Utilities (540) 434-9959

STORM SEWER PROFILES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(3)

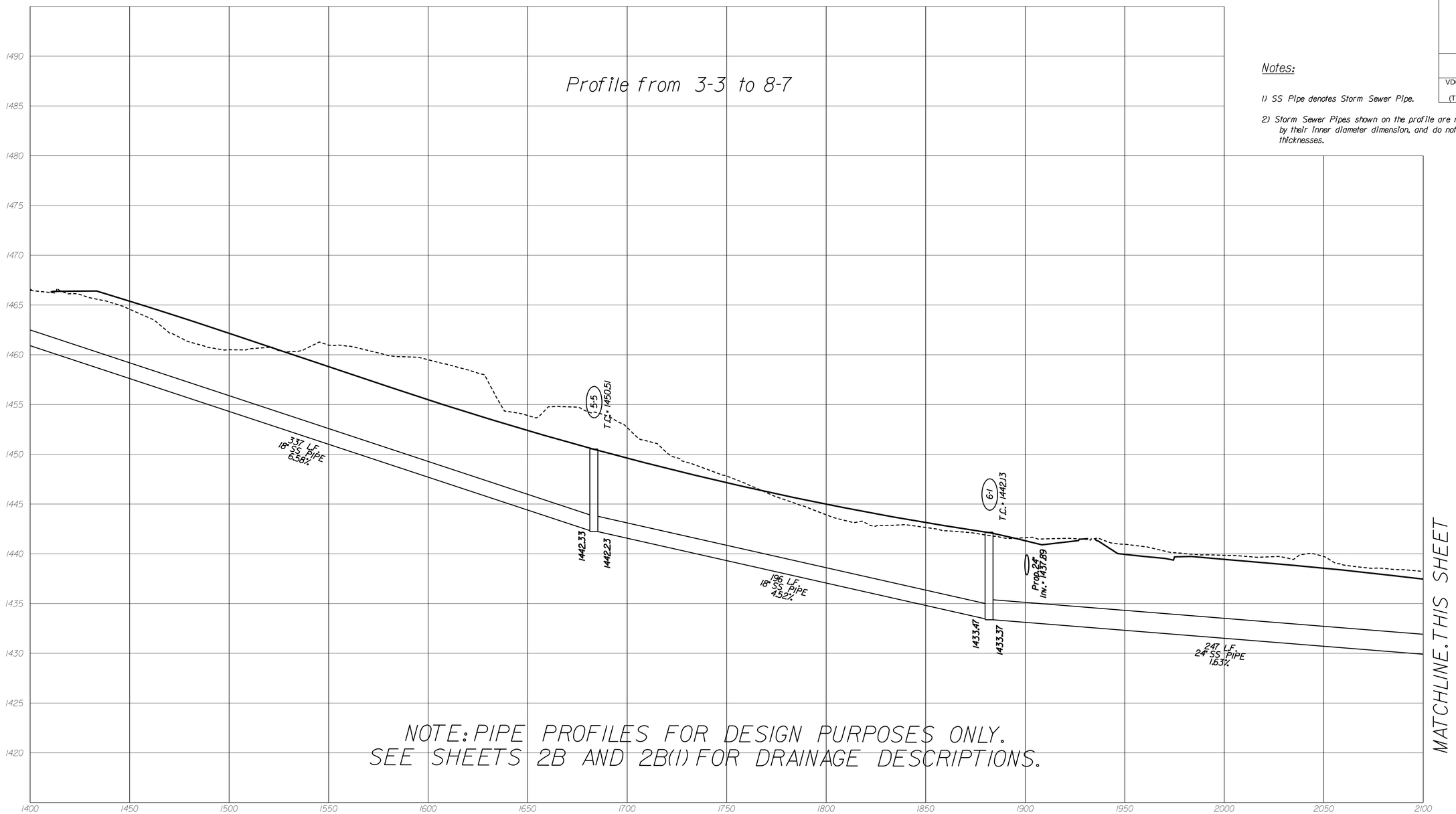
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VDOT (Division) or Co. Name (Location), Virginia (TECHNICAL DISCIPLINE)

Notes:

1) SS Pipe denotes Storm Sewer Pipe.

2) Storm Sewer Pipes shown on the profile are represented by their inner diameter dimension, and do not include wall thicknesses.



NOTE: PIPE PROFILES FOR DESIGN PURPOSES ONLY.
SEE SHEETS 2B AND 2B(1) FOR DRAINAGE DESCRIPTIONS.

1425

HORZ. 1" = 25' VERT. 1" = 5'	PROJECT UPC# 101219	SHEET NO. 20(3)

PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bloker Design Associates (703) 368-7373
DESIGN BY McCormick Taylor, Inc. (540) 248-0436
SUBSURFACE UTILITY BY, DATE City of Harrisonburg Public Utilities (540) 434-9959

STORM SEWER PROFILES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(4)

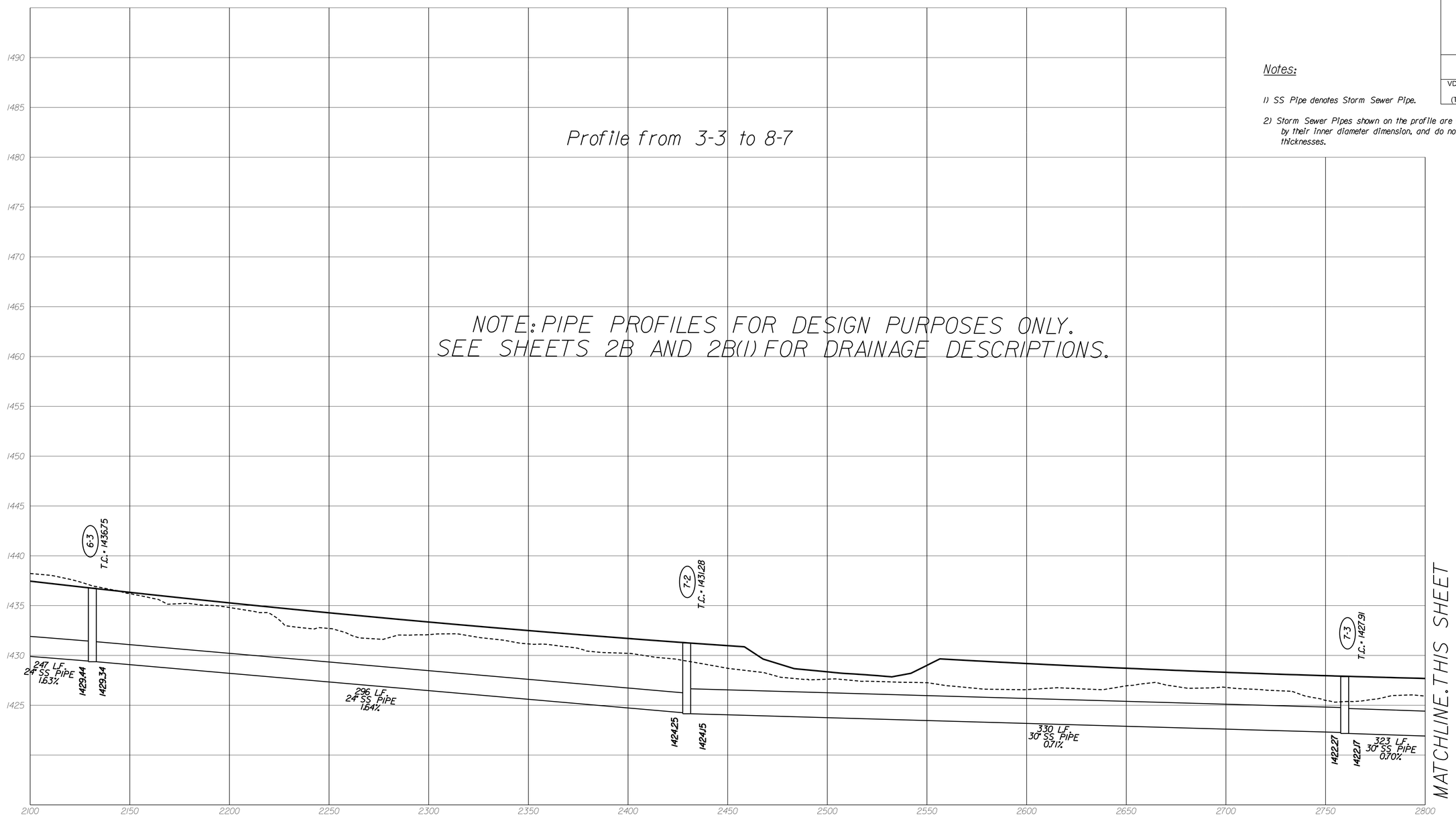
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VDOT (Division) or Co. Name (Location), Virginia (TECHNICAL DISCIPLINE)

Notes:

1) SS Pipe denotes Storm Sewer Pipe.

2) Storm Sewer Pipes shown on the profile are represented by their inner diameter dimension, and do not include wall thicknesses.



HORZ. 1" = 25' VERT. 1" = 5'	PROJECT UPC# 101219	SHEET NO. 20(4)

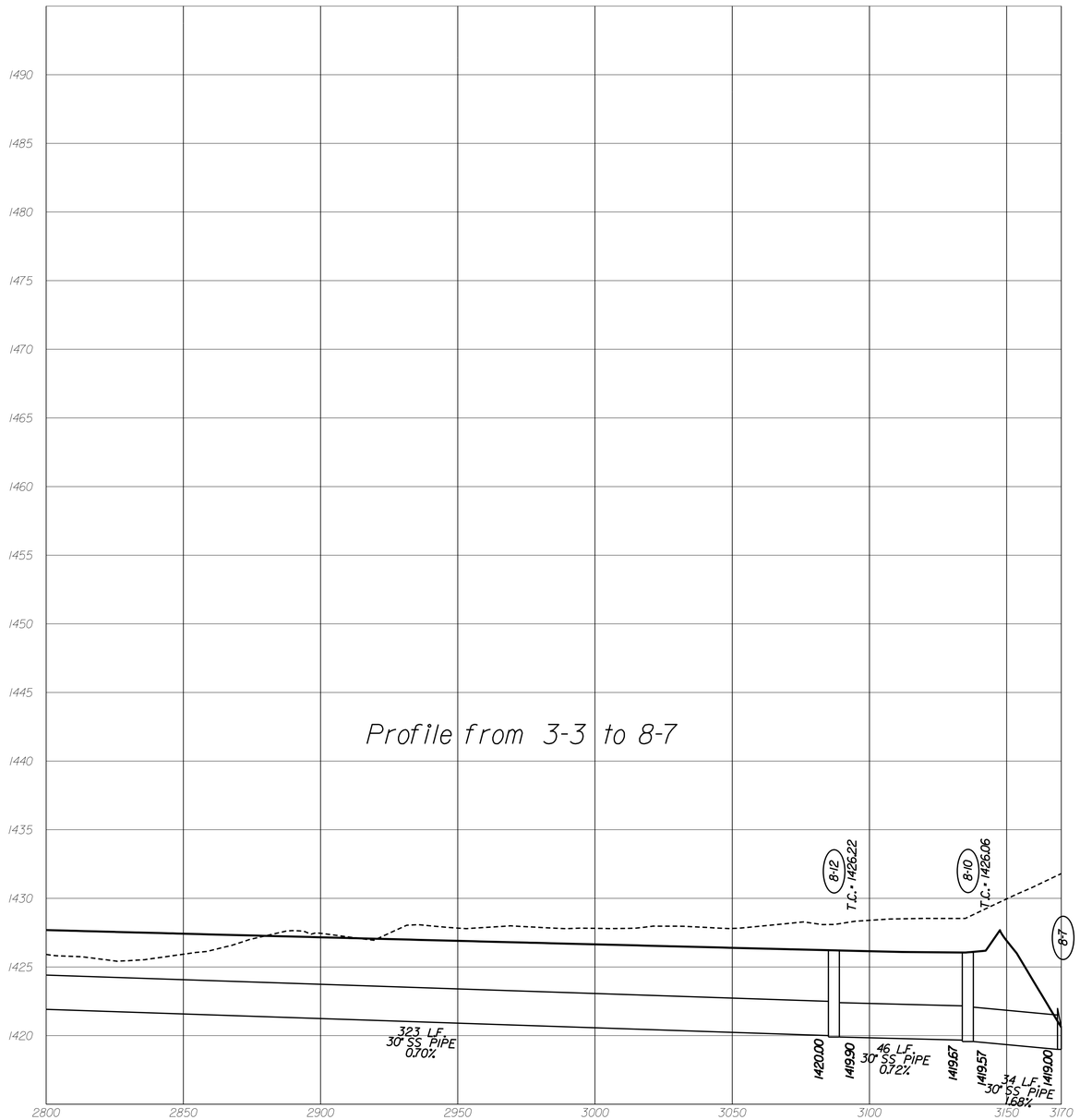
PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bloker Design Associates (703) 368-7373
DESIGN BY McCormick Taylor, Inc. (540) 248-0436
SUBSURFACE UTILITY BY, DATE City of Harrisonburg Public Utilities (540) 434-9959

STORM SEWER PROFILES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(5)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VDOT (Division) or Co. Name (Location), Virginia (TECHNICAL DISCIPLINE)



Notes:

1) SS Pipe denotes Storm Sewer Pipe.

2) Storm Sewer Pipes shown on the profile are represented by their inner diameter dimension, and do not include wall thicknesses.

NOTE: PIPE PROFILES FOR DESIGN PURPOSES ONLY.
SEE SHEETS 2B AND 2B(1) FOR DRAINAGE DESCRIPTIONS.

HORZ. 1" = 25' VERT. 1" = 5'	PROJECT UPC# 101219	SHEET NO. 20(5)

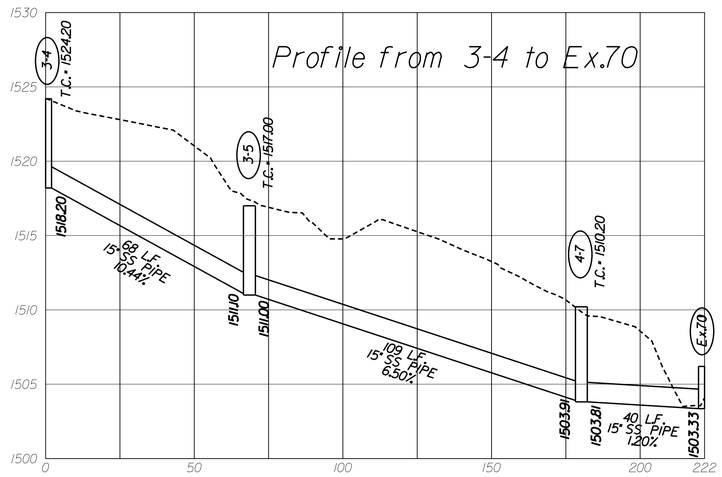
PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bloker Design Associates (703) 368-7373
DESIGN BY McCormick Taylor, Inc. (540) 248-0436
SUBSURFACE UTILITY BY, DATE City of Harrisonburg Public Utilities (540) 434-9959

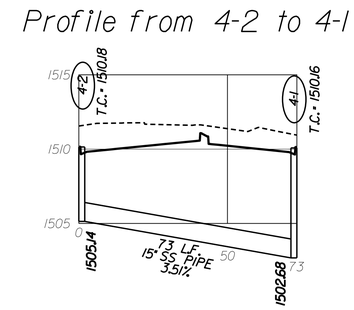
STORM SEWER PROFILES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(6)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VDOT (Division) or Co. Name (Location), Virginia (TECHNICAL DISCIPLINE)



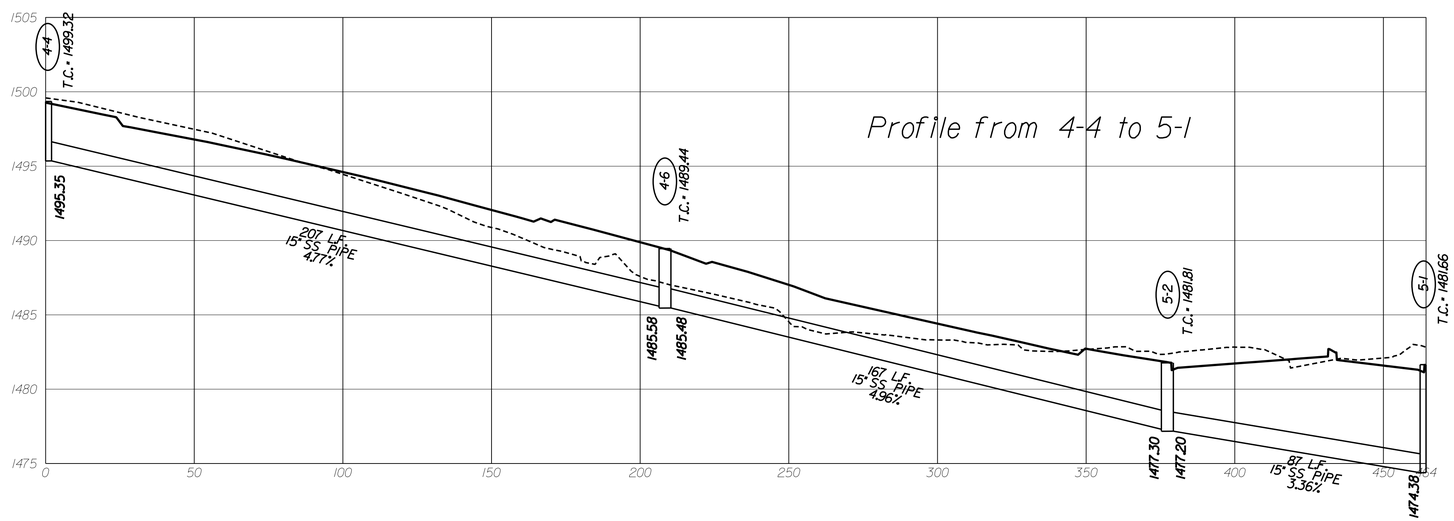


Notes:

1) SS Pipe denotes Storm Sewer Pipe.

2) Storm Sewer Pipes shown on the profile are represented by their inner diameter dimension, and do not include wall thicknesses.

NOTE: PIPE PROFILES FOR DESIGN PURPOSES ONLY.
SEE SHEETS 2B AND 2B(1) FOR DRAINAGE DESCRIPTIONS.



HORZ. 1" = 25' VERT. 1" = 5'	PROJECT UPC# 101219	SHEET NO. 20(6)

PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bloker Design Associates (703) 368-7373
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SUBSURFACE UTILITY BY, DATE City of Harrisonburg Public Utilities (540) 434-9959

STORM SEWER PROFILES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(7)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VDOT (Division) or Co. Name (Location), Virginia (TECHNICAL DISCIPLINE)

Notes:

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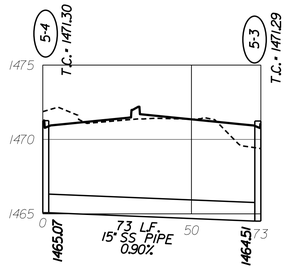
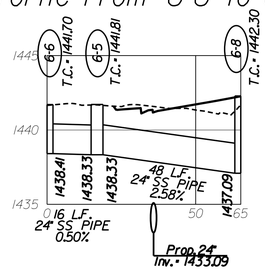
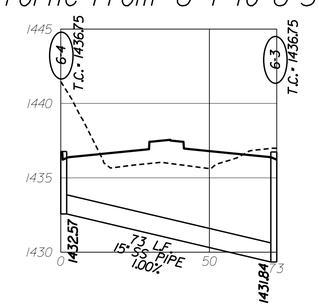
Profile from 5-4 to 5-3



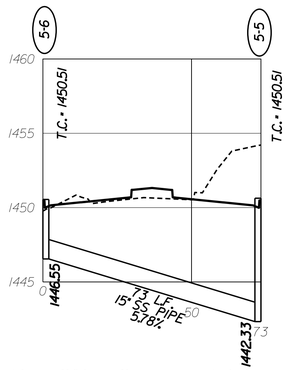
Profile from 6-6 to 6-8



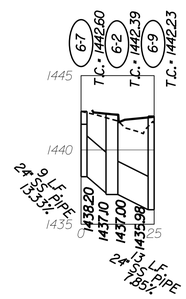
Profile from 6-4 to 6-3



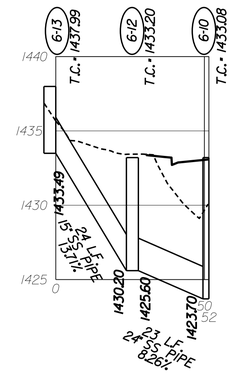
Profile from 5-6 to 5-5



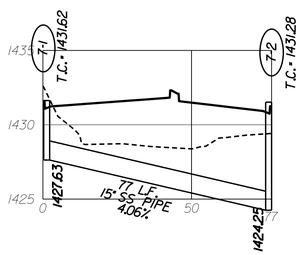
Profile from 6-7 to 6-9



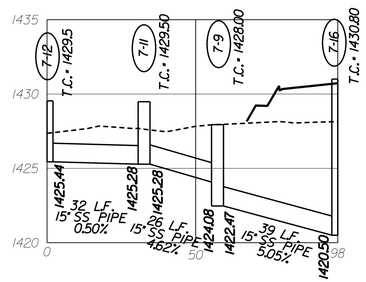
Profile from 6-13 to 6-10



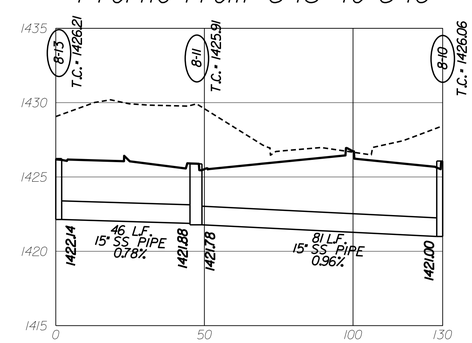
Profile from 7-1 to 7-2



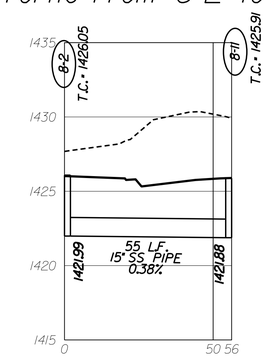
Profile from 7-12 to 7-16



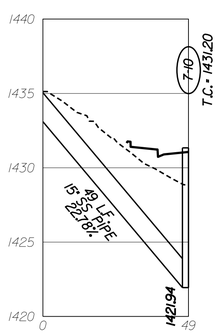
Profile from 8-13 to 8-10



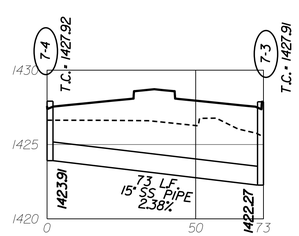
Profile from 8-2 to 8-11



Profile from Ex. to 7-10



Profile from 7-4 to 7-3



NOTE: PIPE PROFILES FOR DESIGN PURPOSES ONLY.
SEE SHEETS 2B AND 2B(1) FOR DRAINAGE DESCRIPTIONS.

HORZ. 1" = 25' VERT. 1" = 5'	PROJECT	SHEET NO.
	UPC# 101219	20(7)

PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bloker Design Associates (703) 368-7373
DESIGN BY McCormick Taylor, Inc. (540) 248-0436
SUBSURFACE UTILITY BY, DATE City of Harrisonburg Public Utilities (540) 434-9959

STORM SEWER PROFILES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(8)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VDOT (Division) or Co. Name (Location), Virginia (TECHNICAL DISCIPLINE)

Notes:

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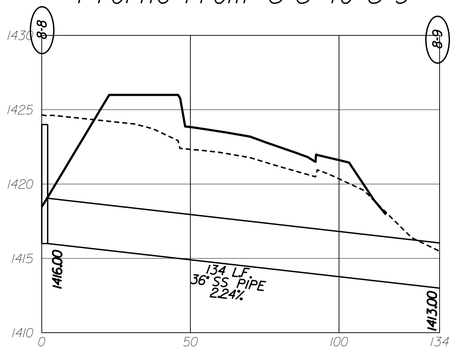
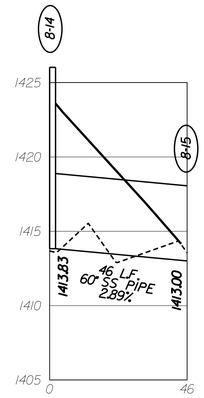
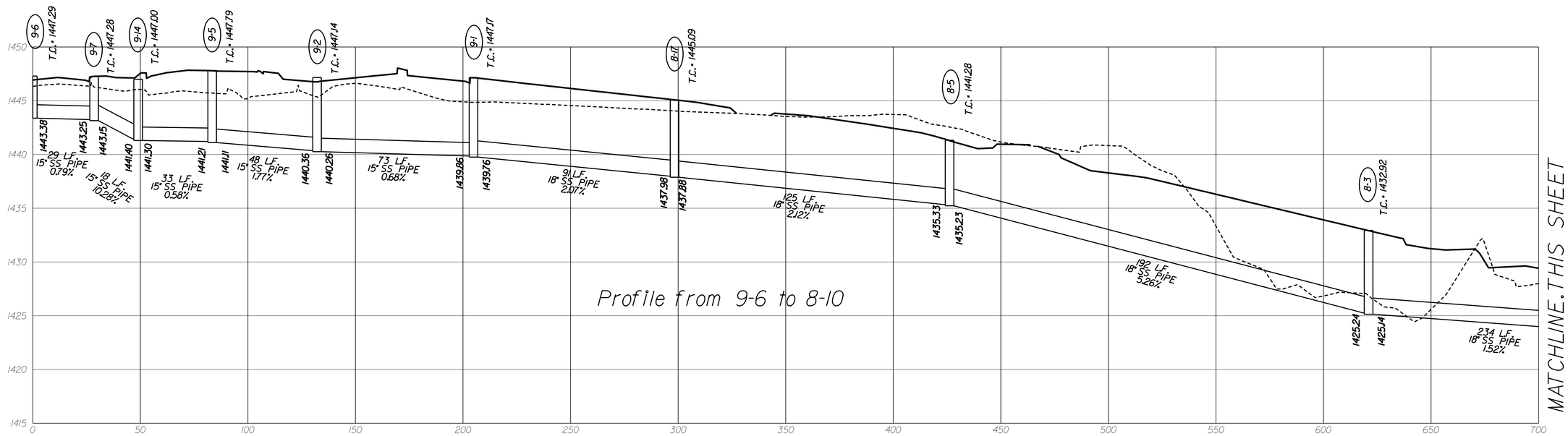
Profile from 8-8 to 8-9



Profile from 8-14 to 8-15



NOTE: PIPE PROFILES FOR DESIGN PURPOSES ONLY.
SEE SHEETS 2B AND 2B(1) FOR DRAINAGE DESCRIPTIONS.



MATCHLINE THIS SHEET

HORZ. 1" = 25' VERT. 1" = 5'	PROJECT UPC# 101219	SHEET NO. 20(8)

PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bioker Design Associates (703) 368-7373
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STORM SEWER PROFILES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(9)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

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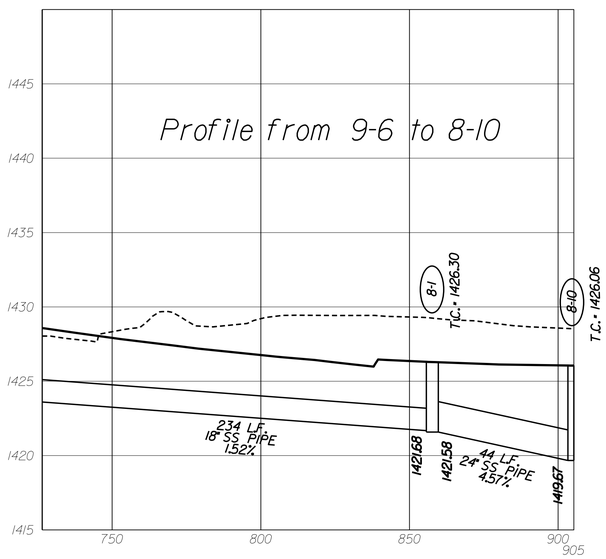
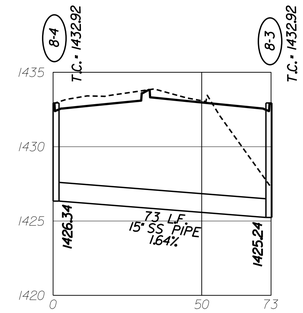
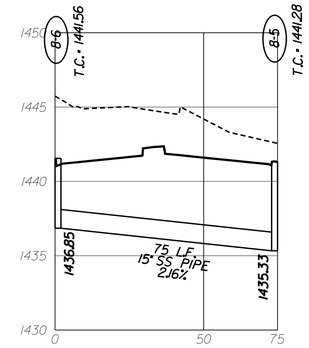


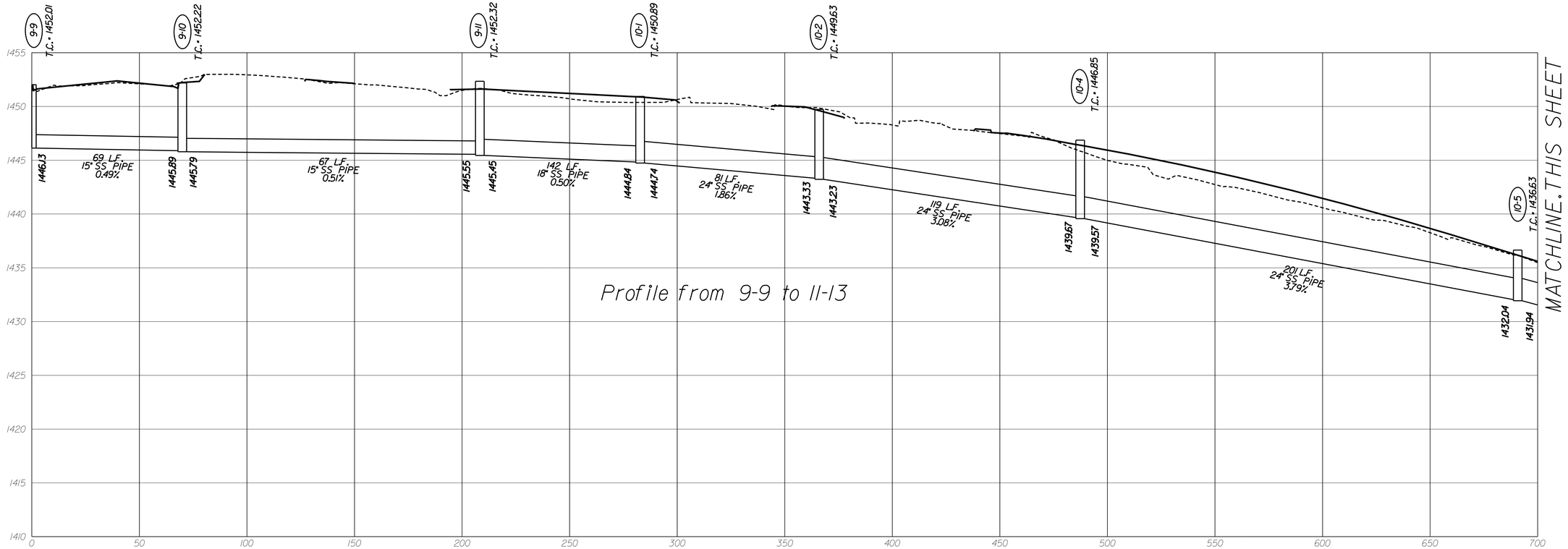


Profile from 8-4 to 8-3



Profile from 8-6 to 8-5

NOTE: PIPE PROFILES FOR DESIGN PURPOSES ONLY.
SEE SHEETS 2B AND 2B(1) FOR DRAINAGE DESCRIPTIONS.



HORZ. 1" = 25' VERT. 1" = 5'	PROJECT UPC# 101219	SHEET NO. 20(9)

PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bloker Design Associates (703) 368-7373
DESIGN BY McCormick Taylor, Inc. (540) 248-0436
SUBSURFACE UTILITY BY, DATE City of Harrisonburg Public Utilities (540) 434-9959

STORM SEWER PROFILES

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(10)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VDOT (Division) or Co. Name (Location), Virginia (TECHNICAL DISCIPLINE)

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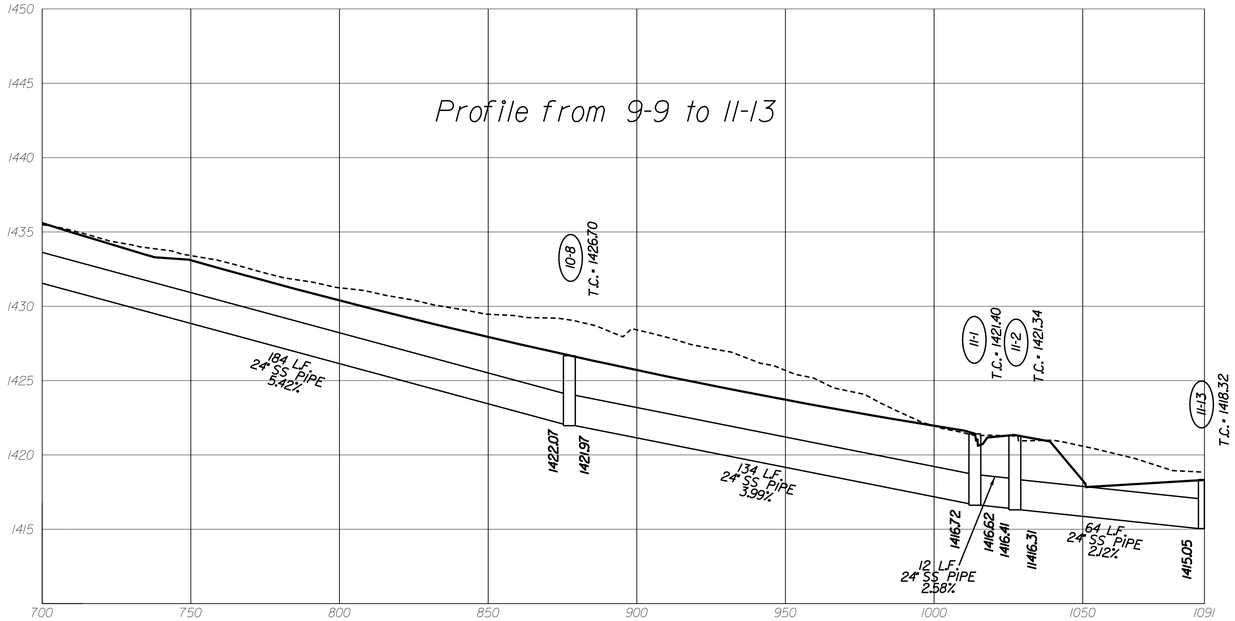
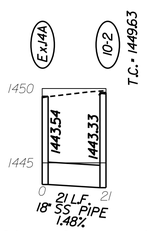
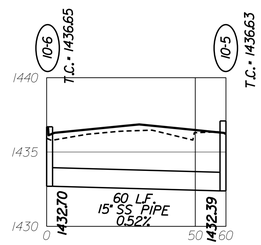
NOTE: PIPE PROFILES FOR DESIGN PURPOSES ONLY. SEE SHEETS 2B AND 2B(1) FOR DRAINAGE DESCRIPTIONS.

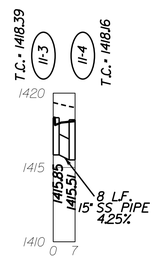




Profile from Ex-14A to 10-2

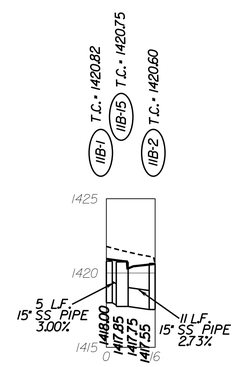


Profile from 10-6 to 10-5

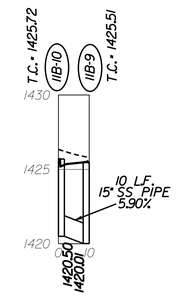


Profile from 11-3 to 11-4

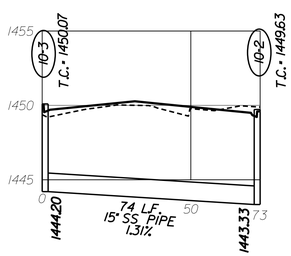
Profile from 11B-1 to 11B-2

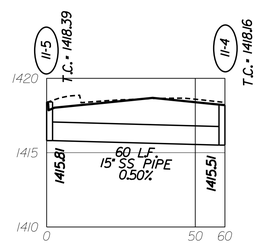


Profile from 11B-10 to 11B-9

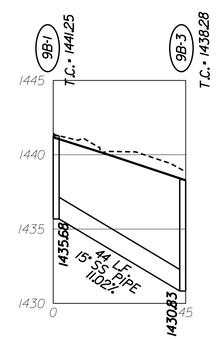


Profile from 10-3 to 10-2

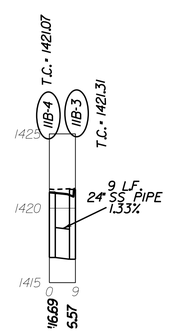




Profile from 11-5 to 11-4

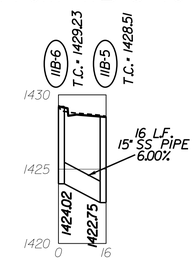


Profile from 9B-1 to 9B-3



Profile from 11B-4 to 11B-3

Profile from 11B-6 to 11B-5



HORZ. 1" = 25' VERT. 1" = 5'	PROJECT	SHEET NO.
	UPC# 101219	20(10)

PROJECT MANAGER City of Harrisonburg Public Works (540) 434-5928
SURVEYED BY, DATE Bioker Design Associates (703) 368-7373
DESIGN BY McCormick Taylor, Inc. (540) 248-0436
SUBSURFACE UTILITY BY, DATE City of Harrisonburg Public Utilities (540) 434-9959

STORM SEWER PROFILES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	710	VDOT# U000-115-R30 UPC# 101219	20(11)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

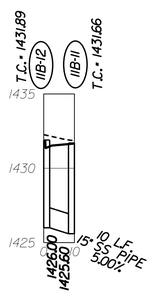
VDOT (Division) or Co. Name (Location), Virginia (TECHNICAL DISCIPLINE)

Notes:

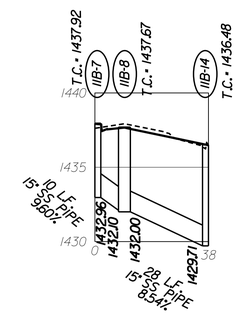
1) SS Pipe denotes Storm Sewer Pipe.

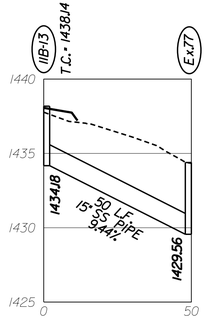
2) Storm Sewer Pipes shown on the profile are represented by their inner diameter dimension, and do not include wall thicknesses.

Profile from 11B-12 to 11B-11

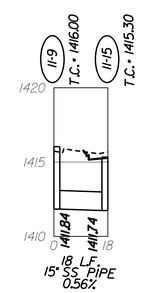


Profile from 11B-7 to 11B-14





Profile from 11B-12 to Ex.77



Profile from 11-9 to 11-15

NOTE: PIPE PROFILES FOR DESIGN PURPOSES ONLY.
SEE SHEETS 2B AND 2B(1) FOR DRAINAGE DESCRIPTIONS.

HORZ. 1" = 25' VERT. 1" = 5'	PROJECT UPC# 101219	SHEET NO. 20(11)