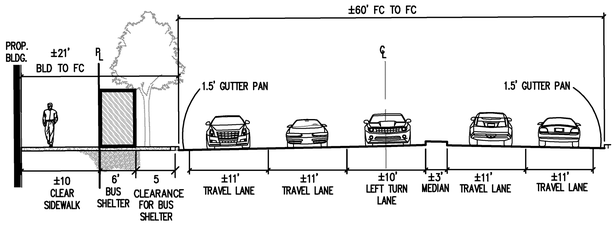
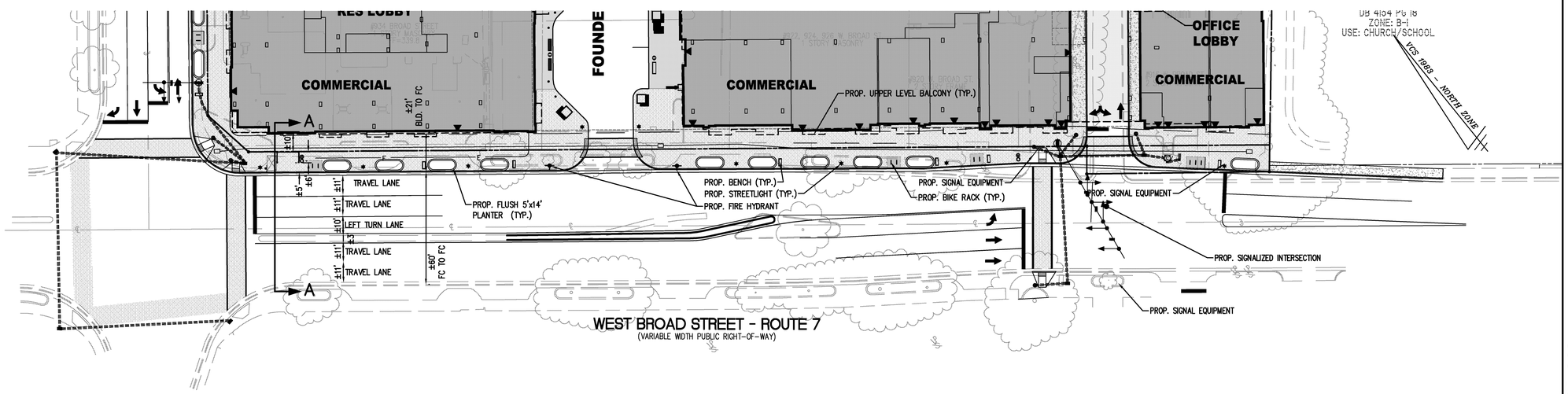
NOTES:

1. SEE SHEET C-0406 FOR TRAVEL LANE DIMENSIONS.



PROPOSED STREET SECTION A-A

NOT TO SCALE



WEST BROAD STREET - ROUTE 7

(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

30 0 15 30 60

1 INCH = 30'

WEST BROAD STREETSCAPE PLAN

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET,
NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

WALTER L. PHILLIPS INCORPORATED ESTABLISHED 1945

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Landscape Architects • Arborists
207 PARK AVENUE
FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 Fax (703) 533-1301
www.WLPINC.com

SCALE: 1" = 30'

DATE: SUB01 9/23/2016, SUB02 2/20/2018, GMP 6/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018; SUB04 8/14/18

DRAWN: AL KW, DM, BP, TT

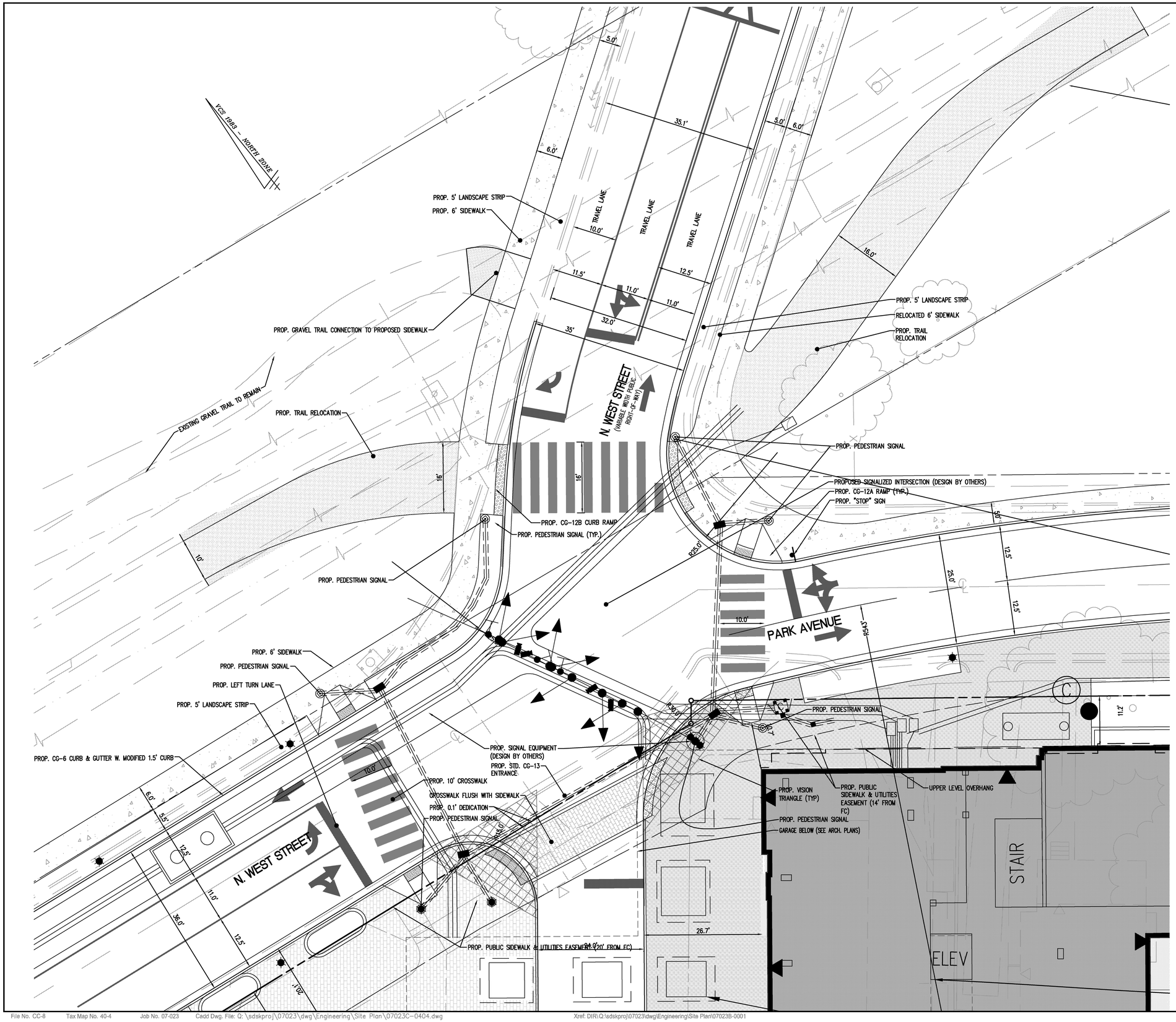
CHECKED: KW

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

SHEET: C-0403

File No. CC-8 Tax Map No. 40-4 Job No. 07-023 Cadd Dwg. File: Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023C-0403.dwg Xref: DIR\Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023B-0001



LEGEND

PROPOSED	DESCRIPTION	EXISTING
EP	EDGE OF PAVEMENT	EP.
MH	MANHOLE	MH
WV	WATER VALVE	WV
WM	WATER METER	WM
GM	GAS METER	GM
TCB	TRAFFIC CONTROL BOX	TCB
LP	LIGHT POLE	LP
LP/S	LIGHT POLE WITH SIGNALS	LP/S
	CURB & GUTTER CG-2	
CG-6R CG-6	TRANSITION FROM CG-6 TO CG-6R	CG-6 CG-6R
S	SANITARY SEWER	S
SL	SANITARY LATERAL	SL
C.O.	CLEAN OUT	C.O.
	STORM SEWER	
W	WATER MAIN	W
	FIRE HYDRANT	
c	PLUG	c
	OVERHEAD WIRES	
	UTILITY POLE	
UE	UNDERGROUND ELECTRIC	UE
T	TELEPHONE	T
G	GAS MAIN	G
E	ELECTRICAL	E
	TRANSFORMER	
	HANDICAP RAMP (CG-12)	
	GUARDRAIL	
	FENCE	
	TRAFFIC FLOW	
	LIGHT	
	DOOR	
	TREES	
	LIMITS OF CLEARING AND GRADING	
	TEST PIT	

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SCALE: 1" = 10'
DATE: SUB01 9/23/2016, SUB02 2/20/2018, GMP 6/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018; SUB04 8/14/18
DRAWN: AL, KW, DM, BP, TT
CHECKED: KW

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

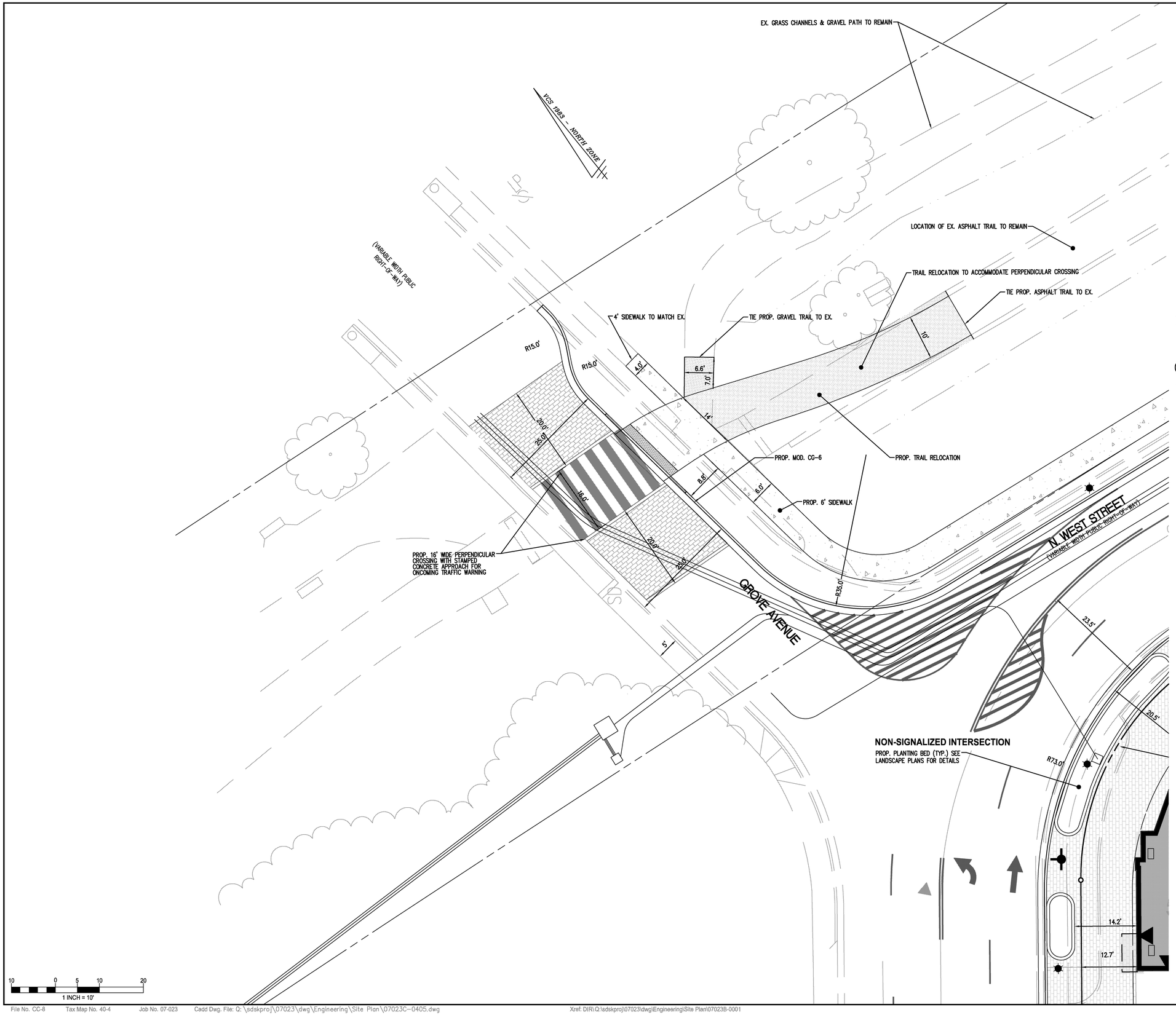
NORTH WEST STREET ENLARGMENT PLAN

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0404

File No. CC-8 Tax Map No. 40-4 Job No. 07-023 Cadd Dwg. File: Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023C-0404.dwg Xref: DIR\Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023B-0001



LEGEND

PROPOSED	DESCRIPTION	EXISTING
EP	EDGE OF PAVEMENT	EP.
MH	MANHOLE	MH
WV	WATER VALVE	WV
WM	WATER METER	WM
GM	GAS METER	GM
TCB	TRAFFIC CONTROL BOX	TCB
LP	LIGHT POLE	LP
LP/S	LIGHT POLE WITH SIGNALS	LP/S
	CURB & GUTTER CG-2	
CG-6R CG-6	TRANSITION FROM CG-6 TO CG-6R	CG-6 CG-6R
S	SANITARY SEWER	S
SL	SANITARY LATERAL	SL
C.O.	CLEAN OUT	C.O.
	STORM SEWER	
W	WATER MAIN	W
	FIRE HYDRANT	
E	PLUG	E
	OVERHEAD WIRES	
	UTILITY POLE	
UE	UNDERGROUND ELECTRIC	UE
T	TELEPHONE	T
G	GAS MAIN	G
E	ELECTRICAL	E
	TRANSFORMER	
	HANDICAP RAMP (CG-12)	
	GUARDRAIL	
	FENCE	
	TRAFFIC FLOW	
	LIGHT	
	DOOR	
	TREES	
	LIMITS OF CLEARING AND GRADING	
	TEST PIT	

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CHECKED: KW
DRAWN: AL KW, DM, BP, JT
DATE: SUBD1 9/23/2015, SUBD2 2/26/2016, GMP 8/21/2018, SUBD3 7/10/2018
GMP ADDENDUM01 7/27/2018, SUBD4 8/14/18
SCALE: 1" = 10'

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

GROVE AVENUE ENLARGEMENT PLAN

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

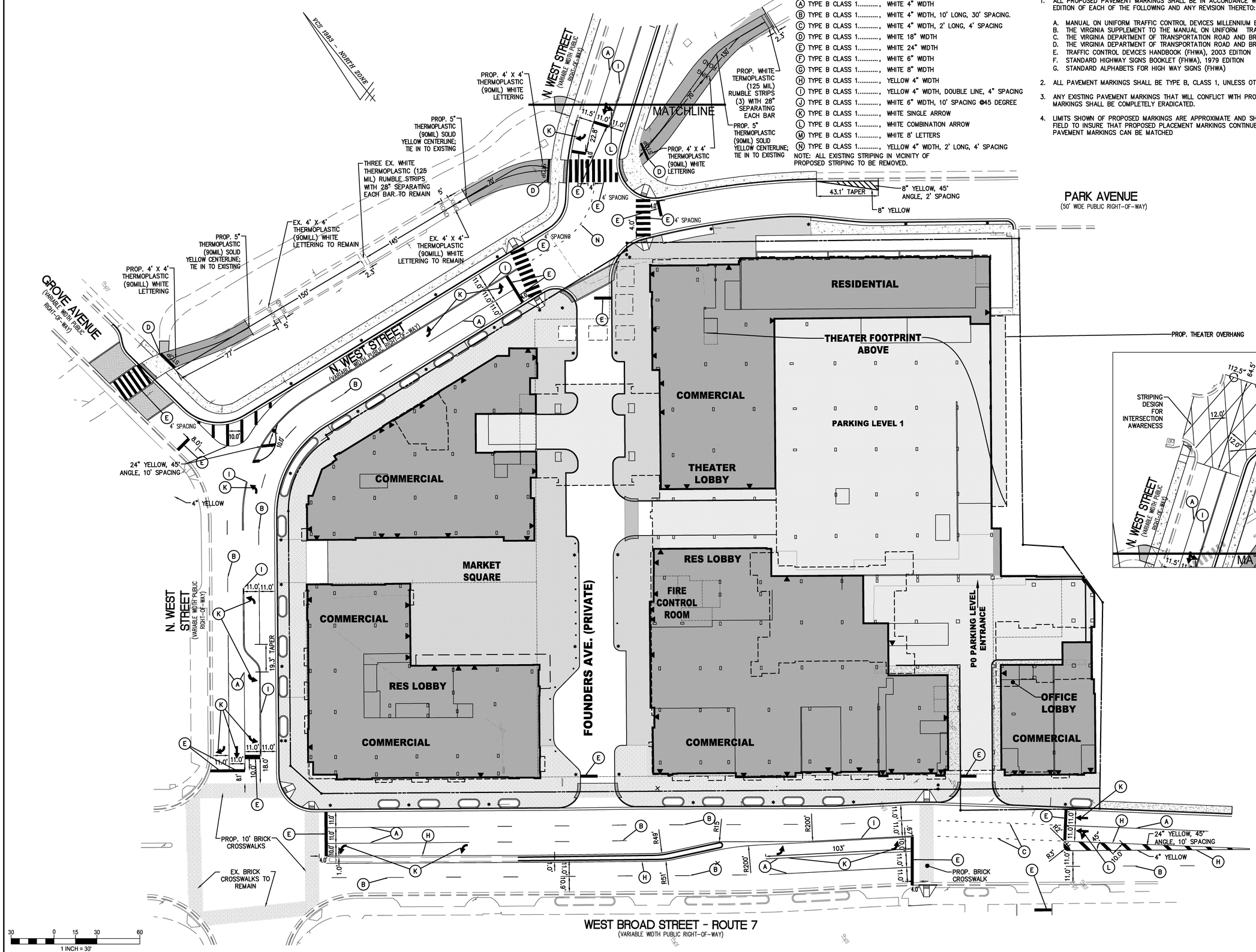
PAVEMENT MARKING LEGEND

- (A) TYPE B CLASS 1....., WHITE 4" WIDTH
- (B) TYPE B CLASS 1....., WHITE 4" WIDTH, 10' LONG, 30' SPACING.
- (C) TYPE B CLASS 1....., WHITE 4" WIDTH, 2' LONG, 4' SPACING
- (D) TYPE B CLASS 1....., WHITE 18" WIDTH
- (E) TYPE B CLASS 1....., WHITE 24" WIDTH
- (F) TYPE B CLASS 1....., WHITE 6" WIDTH
- (G) TYPE B CLASS 1....., WHITE 8" WIDTH
- (H) TYPE B CLASS 1....., YELLOW 4" WIDTH
- (I) TYPE B CLASS 1....., YELLOW 4" WIDTH, DOUBLE LINE, 4" SPACING
- (J) TYPE B CLASS 1....., WHITE 6" WIDTH, 10' SPACING @45 DEGREE
- (K) TYPE B CLASS 1....., WHITE SINGLE ARROW
- (L) TYPE B CLASS 1....., WHITE COMBINATION ARROW
- (M) TYPE B CLASS 1....., WHITE 8' LETTERS
- (N) TYPE B CLASS 1....., YELLOW 4" WIDTH, 2' LONG, 4' SPACING

NOTE: ALL EXISTING STRIPING IN VICINITY OF PROPOSED STRIPING TO BE REMOVED.

PAVEMENT MARKING NOTES

1. ALL PROPOSED PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF EACH OF THE FOLLOWNG AND ANY REVISION THERETO:
   - A. MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES MILLENNIUM EDITION)
   - B. THE VIRGINIA SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
   - C. THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS
   - D. THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS
   - E. TRAFFIC CONTROL DEVICES HANDBOOK (FHWA), 2003 EDITION
   - F. STANDARD HIGHWAY SIGNS BOOKLET (FHWA), 1979 EDITION
   - G. STANDARD ALPHABETS FOR HIGH WAY SIGNS (FHWA)
2. ALL PAVEMENT MARKINGS SHALL BE TYPE B, CLASS 1, UNLESS OTHERWISE NOTED.
3. ANY EXISTING PAVEMENT MARKINGS THAT WILL CONFLICT WITH PROPOSED PLACEMENT MARKINGS SHALL BE COMPLETELY ERADICATED.
4. LIMITS SHOWN OF PROPOSED MARKINGS ARE APPROXIMATE AND SHALL BE MODIFIED IN THE FIELD TO INSURE THAT PROPOSED PLACEMENT MARKINGS CONTINUE UNTIL EXISTING PAVEMENT MARKINGS CAN BE MATCHED



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COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
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8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

DATE: SUB01 1/23/2015, SUB02 2/20/2015, GMP 6/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18

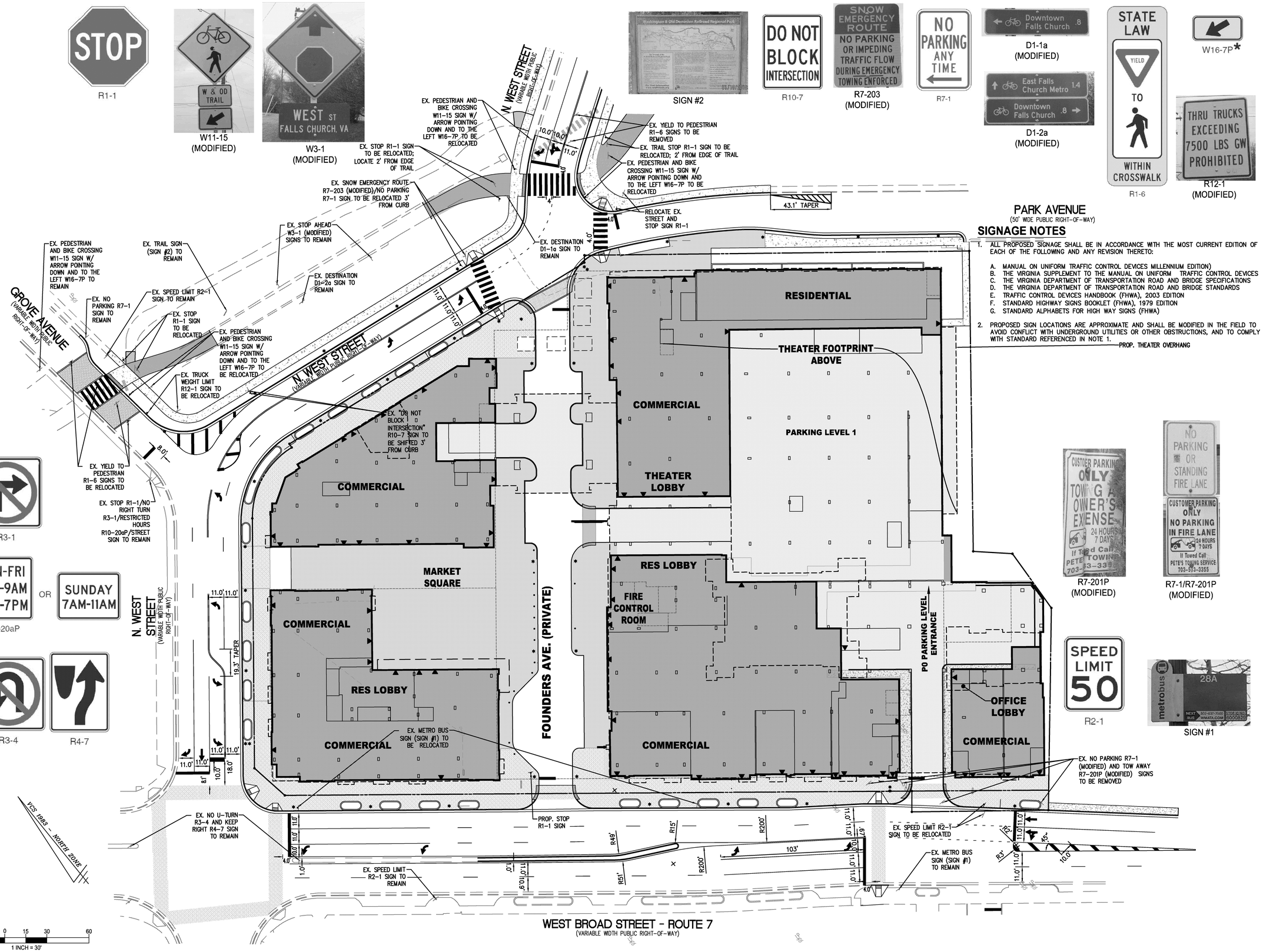
DRAWN: AL KW, DM, BP, JT
CHECKED: KW
SCALE: 1" = 30'

STRIPING PLAN

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0406



SIGNAGE NOTES

1. ALL PROPOSED SIGNAGE SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF EACH OF THE FOLLOWING AND ANY REVISION THERETO:
   - A. MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES MILLENNIUM EDITION)
   - B. THE VIRGINIA SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
   - C. THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS
   - D. THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS
   - E. TRAFFIC CONTROL DEVICES HANDBOOK (FHWA), 2003 EDITION
   - F. STANDARD HIGHWAY SIGNS BOOKLET (FHWA), 1979 EDITION
   - G. STANDARD ALPHABETS FOR HIGH WAY SIGNS (FHWA)
2. PROPOSED SIGN LOCATIONS ARE APPROXIMATE AND SHALL BE MODIFIED IN THE FIELD TO AVOID CONFLICT WITH UNDERGROUND UTILITIES OR OTHER OBSTRUCTIONS, AND TO COMPLY WITH STANDARD REFERENCED IN NOTE 1.

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COMMONWEALTH OF VIRGINIA PROFESSIONAL ENGINEER
KAREN L. S. WHITE
Lic. No.041850
8/14/18

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

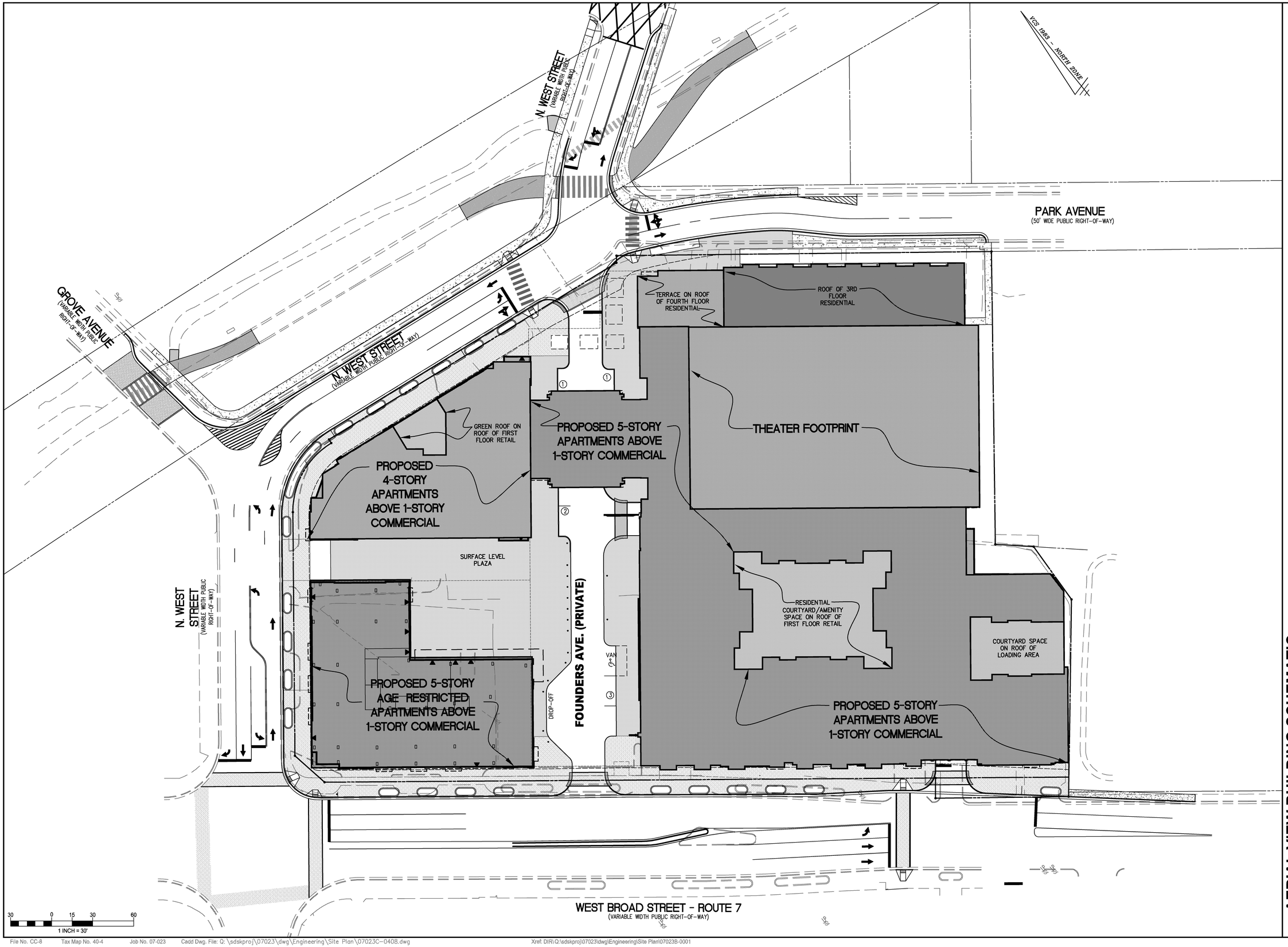
DATE: SUB01 1/23/2015, SUB02 2/20/2014, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18
SCALE: 1" = 30'
DRAWN: ALKW, DM, BP, TT
CHECKED: KW

SIGNAGE PLAN

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0407



AERIAL VIEW BUILDING SCHEMATIC

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET,
NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

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SCALE: 1" = 30'

DATE: SUB01 9/23/2016, SUB02 2/20/2018, GMP 6/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018; SUB04 8/14/18

DRAWN: AL, KW, DM, BP, TT

CHECKED: KW

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
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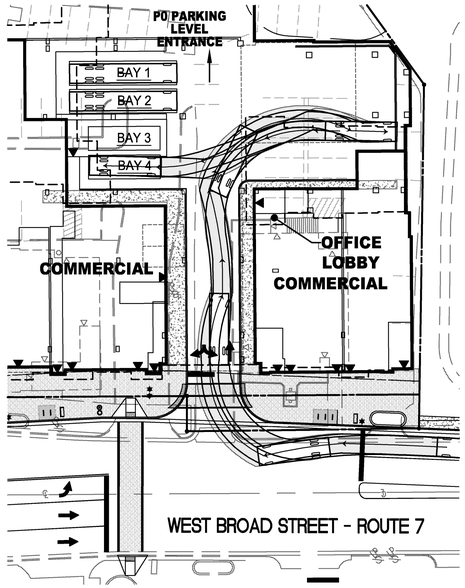
8/14/18
PROFESSIONAL ENGINEER

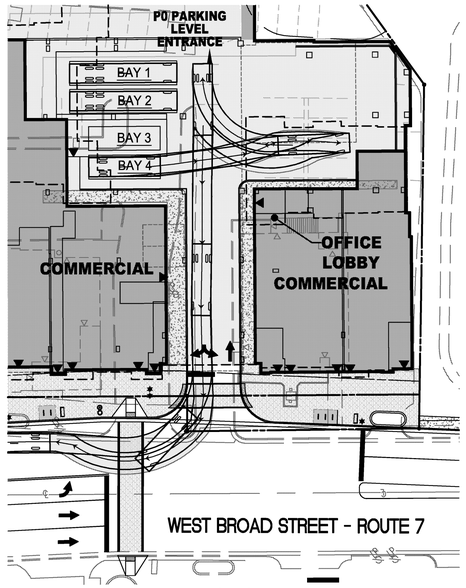
NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

File No. CC-8 Tax Map No. 40-4 Job No. 07-023 Cadd Dwg. File: Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023C-0408.dwg Xref: DIR\Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023B-0001

SHEET: C-0408



SU-30 ENTERING LOADING BAY 4



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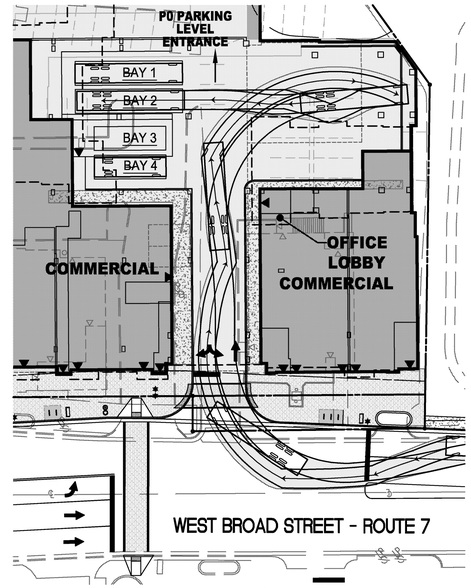

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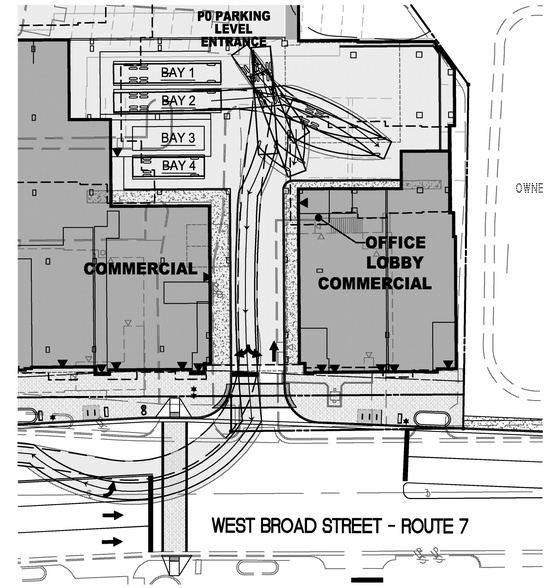
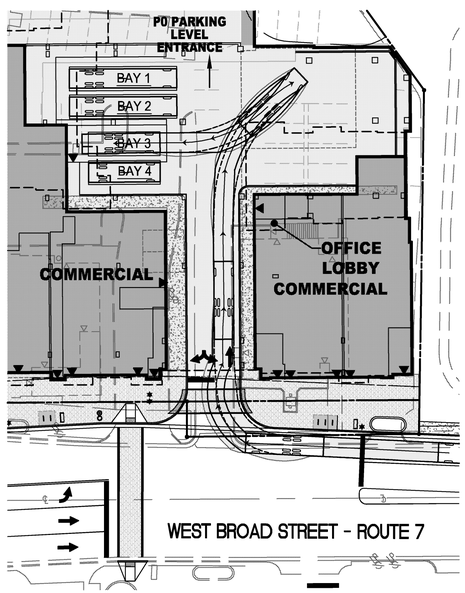
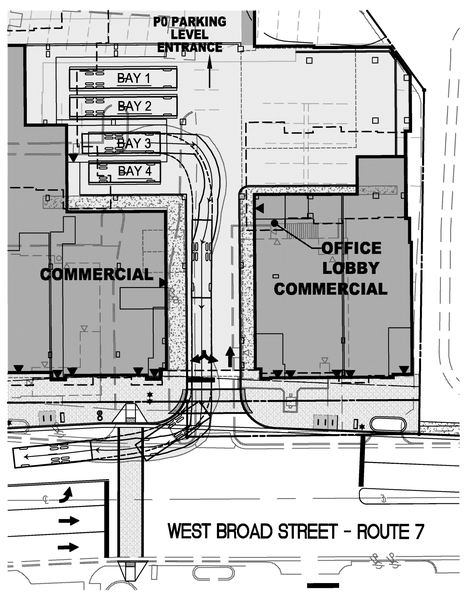


SU-45 EXITING LOADING BAY 2



GARBAGE TRUCK ENTERING LOADING BAY 3



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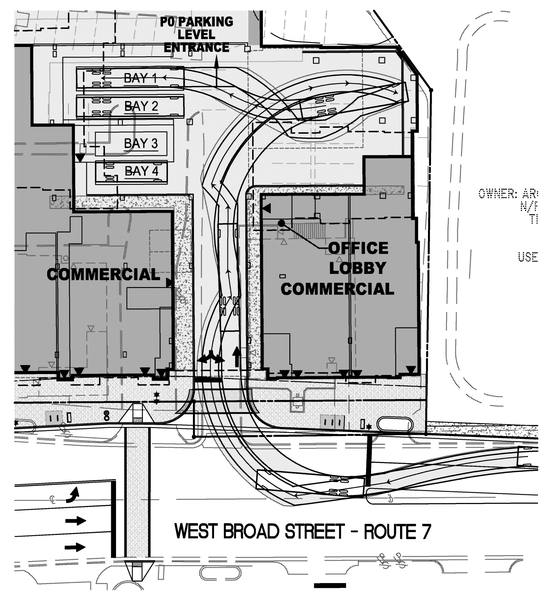

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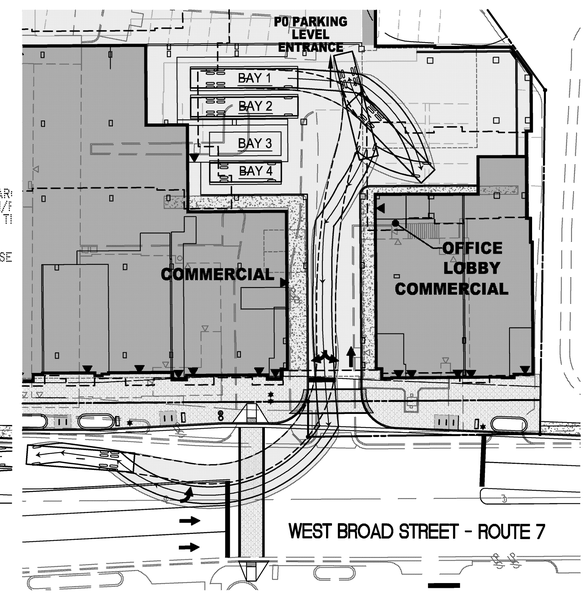

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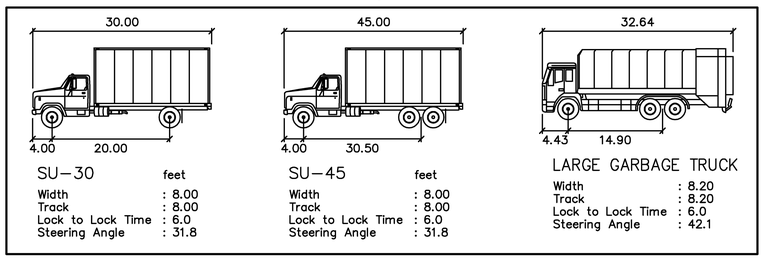

SU-30	feet
Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.8

SU-45	feet
Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.8

LARGE GARBAGE TRUCK	
Width	: 8.20
Track	: 8.20
Lock to Lock Time	: 6.0
Steering Angle	: 42.1

VCS 1983 - NORTH ZONE

30 0 15 30 60
1 INCH = 30'

VCS 1983 - NORTH ZONE

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DRAWN: AL KW, DM, BP, ,TT
CHECKED: KW

SCALE: 1" = 30'

DATE-SUBD1 9/23/2015, SUBD2 2/26/2016, GMP 8/21/2018, SUBD3 7/10/2018
GMP ADDENDUM01 7/27/2018, SUBD4 8/14/18

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

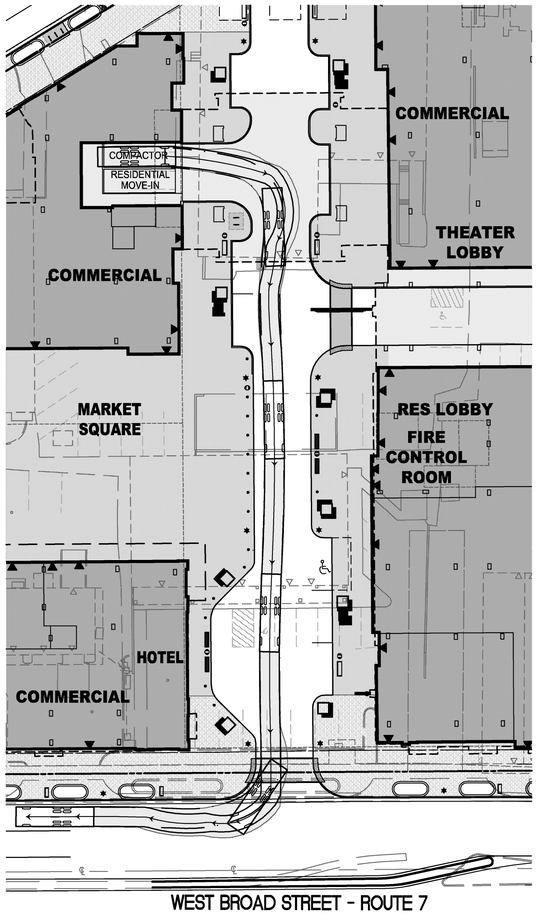
NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

LOADING AREA 1 - TRUCK MOVEMENTS

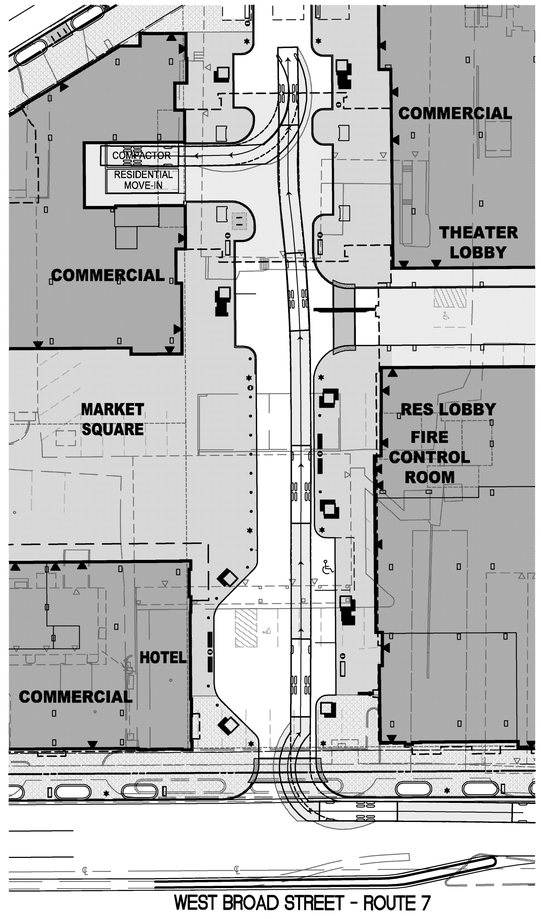
FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE CITY OF FALLS CHURCH, VIRGINIA

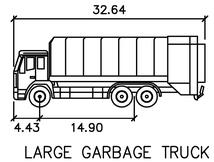
SHEET: C-0409



GARBAGE TRUCK EXITING LOADING DOCK AREA

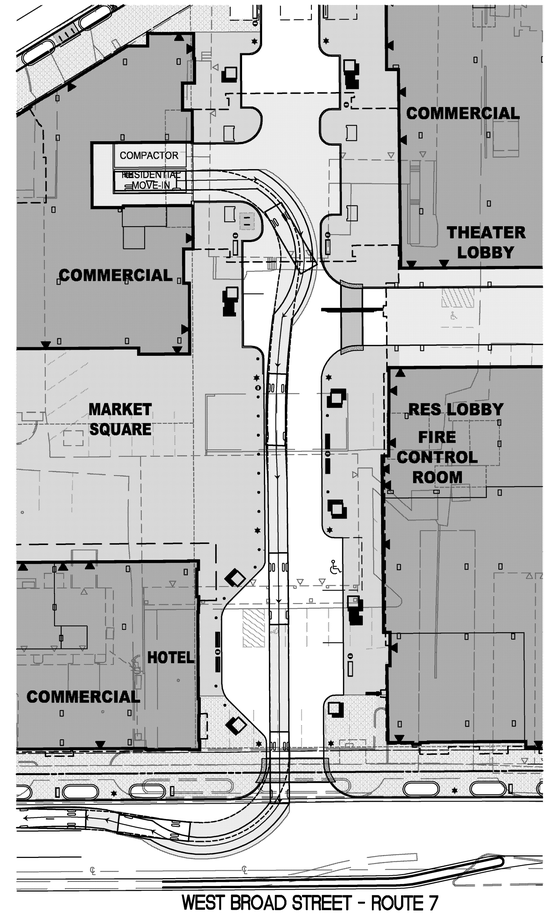


GARBAGE TRUCK ENTERING LOADING DOCK AREA

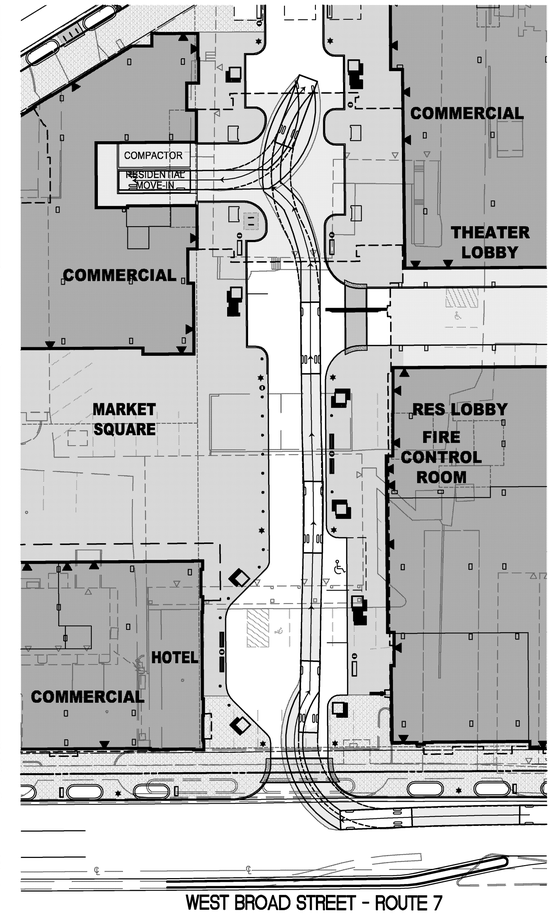


LARGE GARBAGE TRUCK

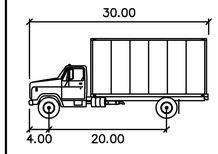
Width	: 8.20
Track	: 8.20
Lock to Lock Time	: 6.0
Steering Angle	: 42.1



SU-30 EXITING LOADING DOCK AREA



SU-30 ENTERING LOADING DOCK AREA



SU–30 feet

Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.8

30 0 15 30 60
1 INCH = 30'

LOADING AREA 2 - TRUCK & GARABAGE TRUCK MOVEMENTS

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

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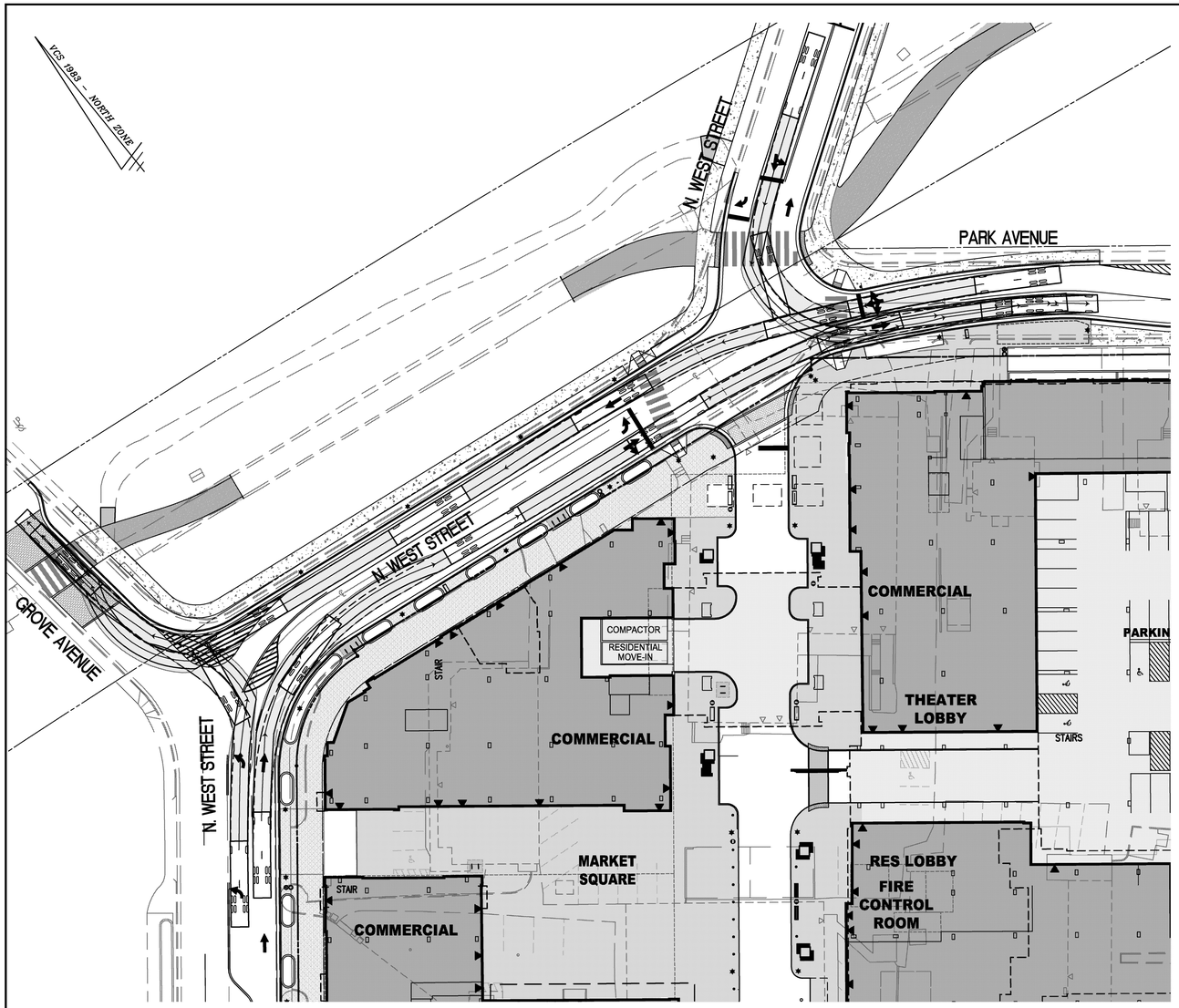
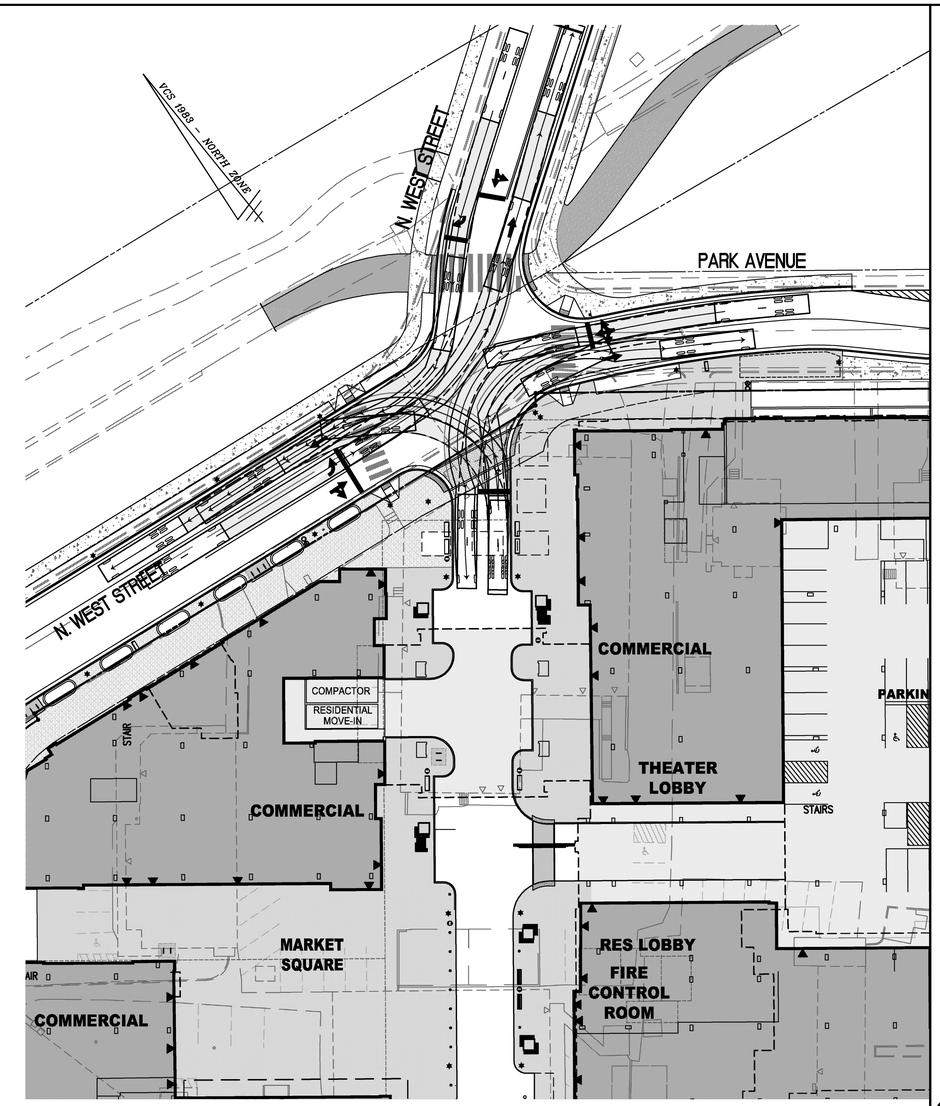
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18

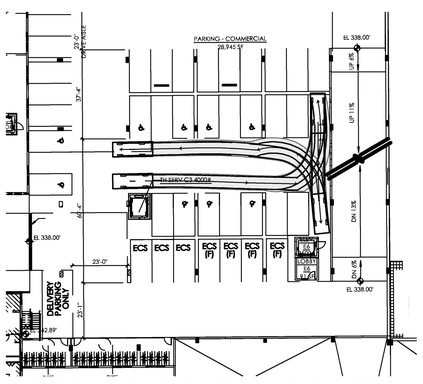
SCALE: 1" = 30'

DRAWN: AL KW, DM, BP, JT
CHECKED: KW

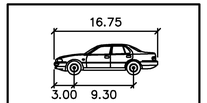
SHEET: C-0410





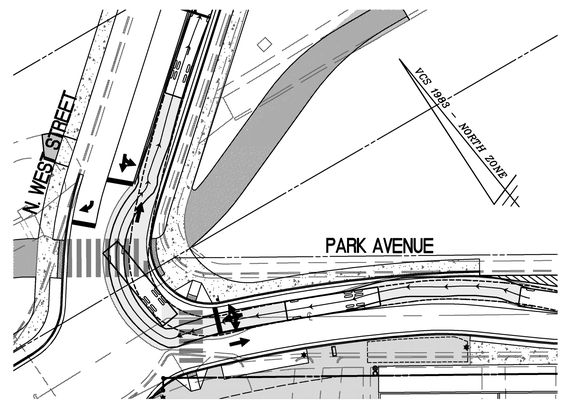


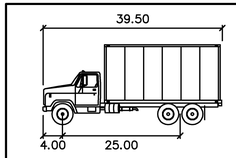
TYPICAL NON-THRU DRIVE AISLE AUTO TURNAROUND IN GARAGE



LARGE CAR feet

Width	: 6.08
Track	: 5.18
Lock to Lock Time	: 6.0
Steering Angle	: 30.5





SU-40

Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.8

30 0 15 30 60

1 INCH = 30'

PUBLIC STREET TRUCK MOVEMENTS

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE

CITY OF FALLS CHURCH, VIRGINIA

WALTER L. PHILLIPS INCORPORATED ESTABLISHED 1945

Engineers • Surveyors • Planners
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207 PARK AVENUE
FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 Fax (703) 533-1301
www.WLPINC.com

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

DATE-SUB01 1/23/2015, SUB02 2/26/2016, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18

SCALE: 1" = 30'

DRAWN: AL KW, DM, BP, JT

CHECKED: KW

File No. CC-8 Tax Map No. 40-4 Job No. 07-023 Cadd Dwg. File: Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023C-0409.dwg Xref: DIR\Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023B-0001

SHEET: C-0411

NOTES:

1. SEE SHEET C-0302 FOR LEGEND.
2. SEE GRADING ENLARGEMENTS SHEETS C-0502 THRU C-0504 FOR RAMPS & CROSSINGS.
3. PROPOSED ADA ACCESSIBLE RAMP TO BE MAX OF 8.33% LONGITUDINAL SLOPE AND 2% CROSS SLOPE. ALL RAMPS TO HAVE HAND RAILS.
4. PROPOSED LANDINGS TO BE 2% MAX SLOPE IN ANY DIRECTION.
5. PROPOSED ADA ACCESSIBLE PATH TO BE MAX. 5% LONGITUDINAL SLOPE AND 2% CROSS SLOPE.

VCS 1983 – NORTH ZONE

GUY WIRES TO BE REWORKED TO PROVIDE CLEARANCE OVER SIDEWALK; CONTRACTOR TO COORDINATE WITH DVP

CONTRACTOR TO MODIFY STREET ELEVATION FROM CENTERLINE TO NEW GUTTER PAN

TIE INTO EX. CURB & GUTTER (MATCH LINE AND GRADE)

PROP. LIMITS OF CLEARING & GRADING

SEE GRADING PLAN ENLARGEMENTS ON SHEET C-0504

10' TRANSITION TO FLUSH CURB

SEE GRADING PLAN ENLARGEMENTS ON SHEET C-0503

TIE INTO EX. CURB & GUTTER (MATCH LINE AND GRADE)

COORDINATE WITH HOMEOWNER TO TIE IN TO EXISTING DRIVEWAY

PORTION OF EXISTING ROAD TO BE REGRADED & CROWNED PER ROAD REALIGNMENT

PARK AVENUE (50' WIDE PUBLIC RIGHT-OF-WAY)

TIE INTO EX. CURB & GUTTER (MATCH LINE AND GRADE)

PROP. LIMITS OF CLEARING & GRADING

TIE INTO EX. CURB & GUTTER (MATCH LINE AND GRADE)

GROVE AVENUE (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

N. WEST STREET (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

19' TRANSITION TO FLUSH CURB

5' TRANSITION TO FLUSH CURB

SCUPPER WITH SOLID TOP INVERT=339.5

5' TRANSITION TO FLUSH CURB

RESIDENTIAL

THEATER FOOTPRINT ABOVE

COMMERCIAL

PARKING LEVEL 1

13' TRANSITION TO FLUSH CURB

THEATER LOBBY

COMMERCIAL

#112, 112A N. WEST ST. 1 STORY MASONRY

GRADING WITHIN PARKING STRUCTURE BY OTHERS

MARKET SQUARE

GRADING IN MARKET SQUARE TO BE DETAILED BY OTHERS

RES LOBBY

FIRE CONTROL ROOM

COMMERCIAL

RES LOBBY

FOUNDERS AVE. (PRIVATE)

#928, 930, 932 W. BROAD ST. 1 STORY MASONRY

ADA SPACE CLEARANCE

FLUSH EDGE OF PAVEMENT WITH BOLLARDS (TYP.)

FLUSH EDGE OF PAVEMENT WITH BOLLARDS (TYP.)

COMMERCIAL

COMMERCIAL

P.O PARKING LEVEL ENTRANCE

GENERATOR

OFFICE LOBBY

COMMERCIAL

PROP. THEATER OVERHANG FROM UPPER LEVEL

PROP. LIMITS OF CLEARING & GRADING

OWNER: ST. JAMES CATHOLIC CHURCH
LOT 2
D.J. BROWN'S PROPERTY
DB Y-9 PG 347
ZONE: R-1B
USE: CHURCH/OFFICE

OWNER: ARCHDIOCESE OF ARLINGTON
N/F MOST REVEREND
THOMAS E. WELSH
DB 4154 PG 18
ZONE: B-1
USE: CHURCH/SCHOOL

MAINTAIN EXISTING GRADES WHEN BACKFILLING AFTER CULVERT CONSTRUCTION

PROP. LIMITS OF CLEARING & GRADING

PROP. LIMITS OF CLEARING & GRADING

BEGIN NEW HC RAMP AT EDGE OF DRIVEWAY CURB TRANSITION.

RAISED CURB AND EXISITING TREE TO BE REMOVED. REPLACE PLANTER WITH BRICK SIDEWALK TO MATCH EXISTING

WEST BROAD STREET – ROUTE 7 (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

SEE GRADING PLAN ENLARGEMENTS ON SHEET C-0502

SEE GRADING PLAN ENLARGEMENTS ON SHEET C-0502

30 0 15 30 60
1 INCH = 30'

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DRAWN: ALKW, DM, BP, JT
CHECKED: KW

DATE: SUBM1 9/23/2015, SUBM2 2/26/2016, GMP 8/21/2018, SUBM3 7/10/2018
GMP ADDENDUM01 7/27/2018, SUBM4 8/14/18

SCALE: 1" = 30'

COMMONWEALTH OF VIRGINIA PROFESSIONAL ENGINEER
KAREN L. S. WHITE
Lic. No.041850
8/14/18

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

GRADING PLAN

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

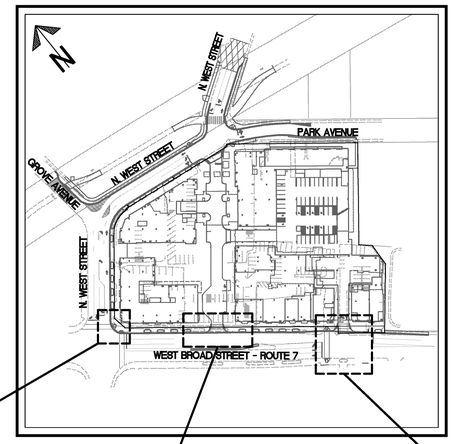
SHEET: C-0501

LEGEND

PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION	EXISTING
	CURB & GUTTER CG-2			HANDICAP RAMP (CG-12)	
CG-6R CG-6	TRANSITION FROM CG-6 TO CG-6R	CG-6 CG-6R		GUARDRAIL	
	SANITARY SEWER	S		FENCE	
SL	SANITARY LATERAL	SL		TRAFFIC FLOW	
C.O.	CLEAN OUT	C.O.		LIGHT	
	STORM SEWER			DOOR	
	WATER MAIN	W		TREES	
	FIRE HYDRANT		260 264	CONTOURS	260 264
	PLUG		+264 50	SPOT ELEVATION	+264 50
	OVERHEAD WIRES			DRAINAGE FLOW DIRECTION	
	UTILITY POLE		TC	TOP OF CURB	TC
UE	UNDERGROUND ELECTRIC	UE	BC	BOTTOM OF CURB	BC
T	TELEPHONE	T	TW	TOP OF WALL	TW
G	GAS MAIN	G	BW	BOTTOM OF WALL	BW
E	ELECTRICAL	E	HP	HIGH POINT	H.P.
	TRANSFORMER			LIMITS OF CLEARING AND GRADING	

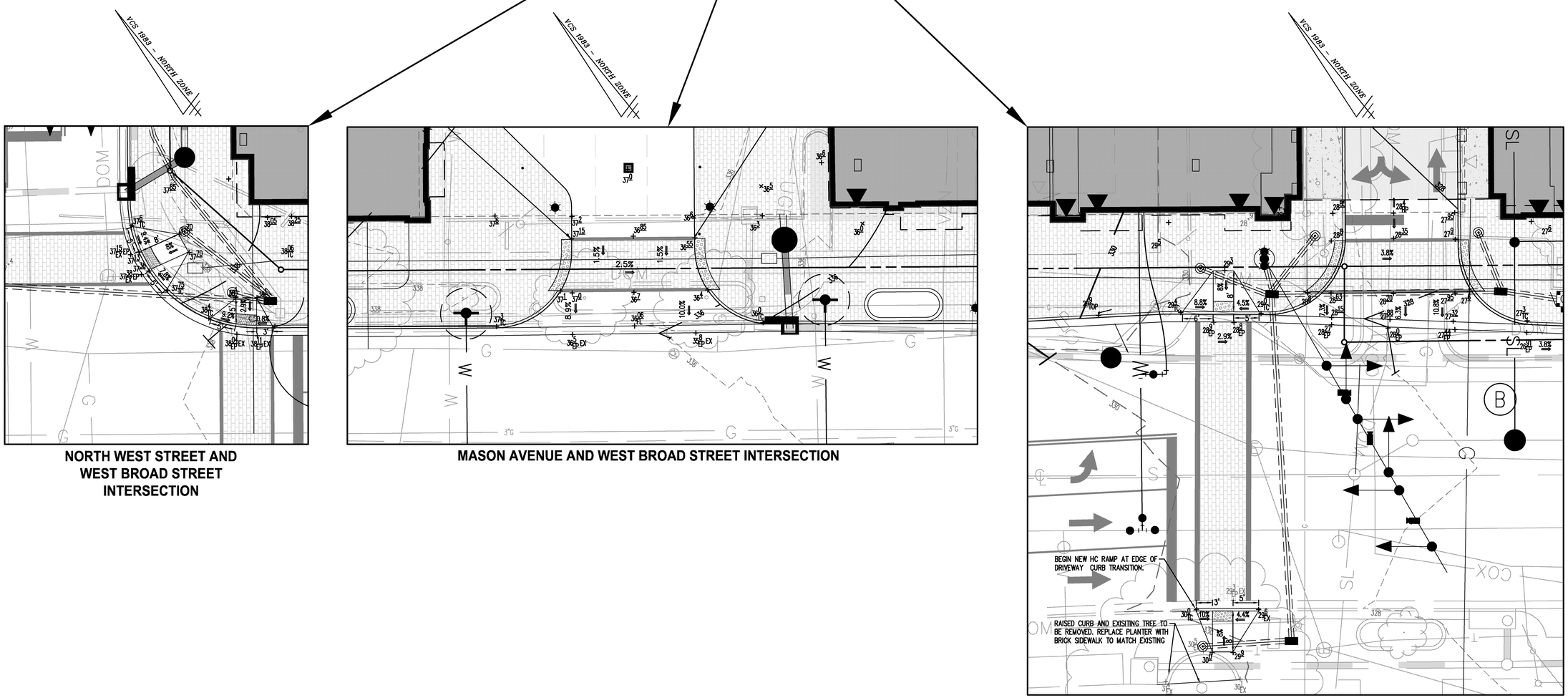
KEY MAP

NOT TO SCALE



NOTES

1. PROPOSED ADA ACCESSIBLE RAMP TO BE MAX OF 8.33% LONGITUDINAL SLOPE AND 2% CROSS SLOPE. ALL RAMPS TO HAVE HAND RAILS.
2. PROPOSED LANDINGS TO BE 2% MAX SLOPE IN ANY DIRECTION.
3. PROPOSED ADA ACCESSIBLE PATH TO BE MAX. 5% LONGITUDINAL SLOPE AND 2% CROSS SLOPE.



NORTH WEST STREET AND WEST BROAD STREET INTERSECTION

MASON AVENUE AND WEST BROAD STREET INTERSECTION

PROPOSED SIGNALIZED INTERSECTION ON WEST BROAD STREET

10 0 5 10 20
1 INCH = 10'

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www.WLPINC.com

ESTABLISHED 1945

SCALE: 1" = 10'

DATE: SUB01 9/23/2016, SUB02 2/20/2018, GMP 6/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018; SUB04 8/14/18

DRAWN: AL KW, DM, BP, TT

CHECKED: KW

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

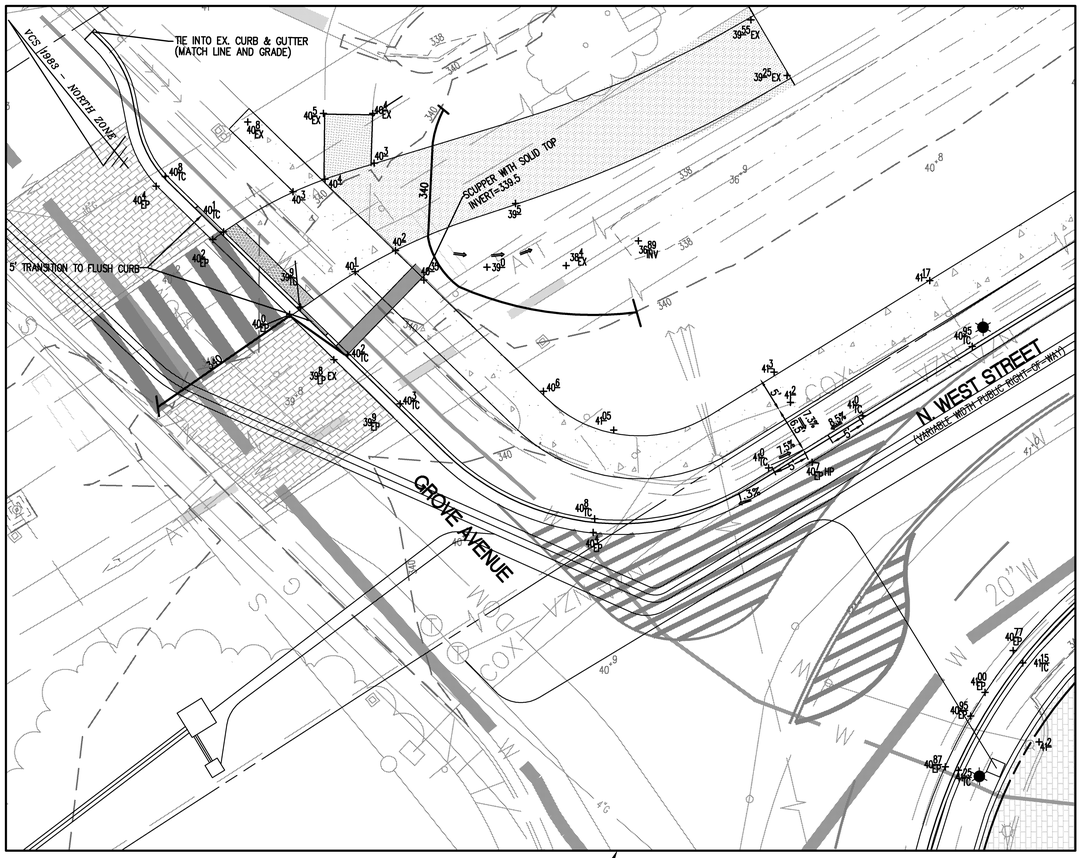
GRADING ENLARGEMENT

FOUNDERS ROW

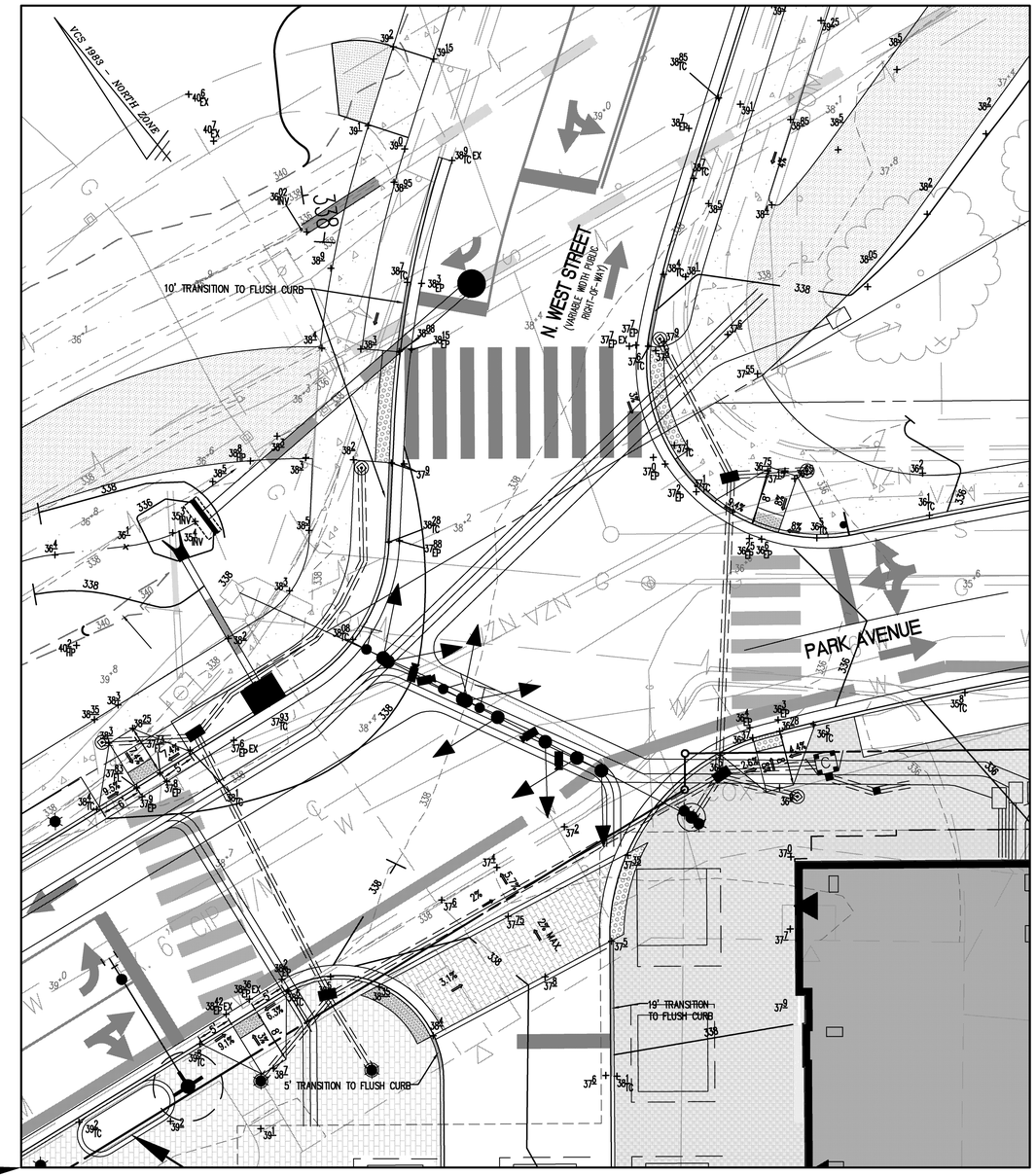
AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0502

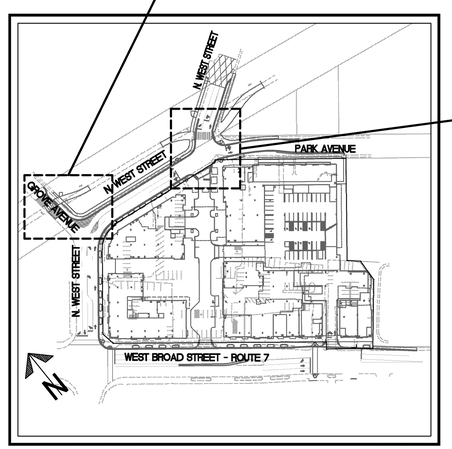
File No. CC-8 Tax Map No. 40-4 Job No. 07-023 Cadd Dwg. File: Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023C-0502.dwg Xref: DIR\Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023B-0001



GROVE AVENUE AND NORTH WEST STREET INTERSECTION



PARK AVENUE AND NORTH WEST STREET INTERSECTION



KEY MAP

NOT TO SCALE

10 0 5 10 20
1 INCH = 10'

NOTES

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8/14/18
PROFESSIONAL ENGINEER

DRAWN:	CHECKED:
AL KW, DM, BP, JT	KW

SCALE: 1" = 30'

DATE-SUB01 1/23/2015, SUB02 2/20/2015, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18

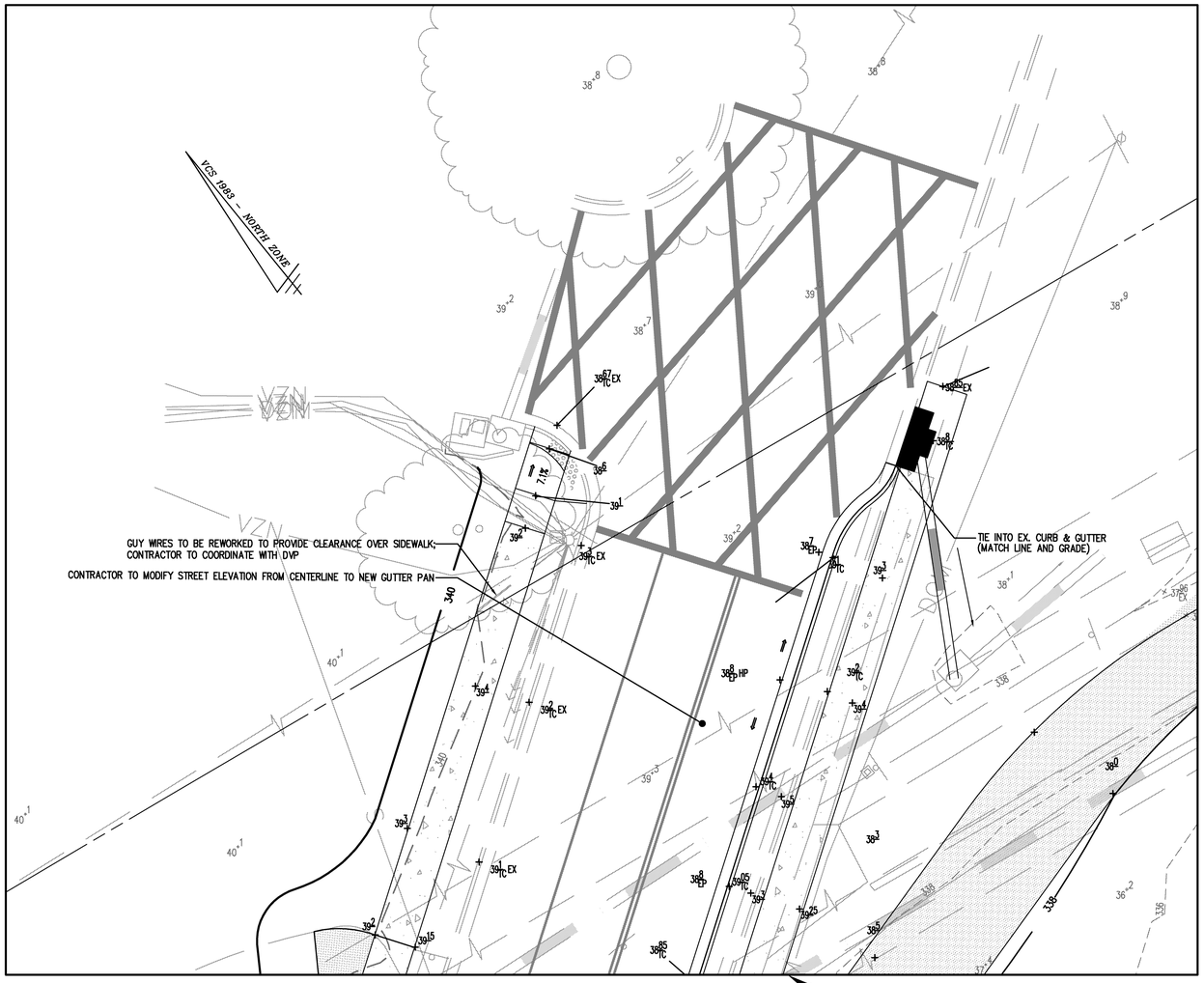
NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

GRADING ENLARGEMENT

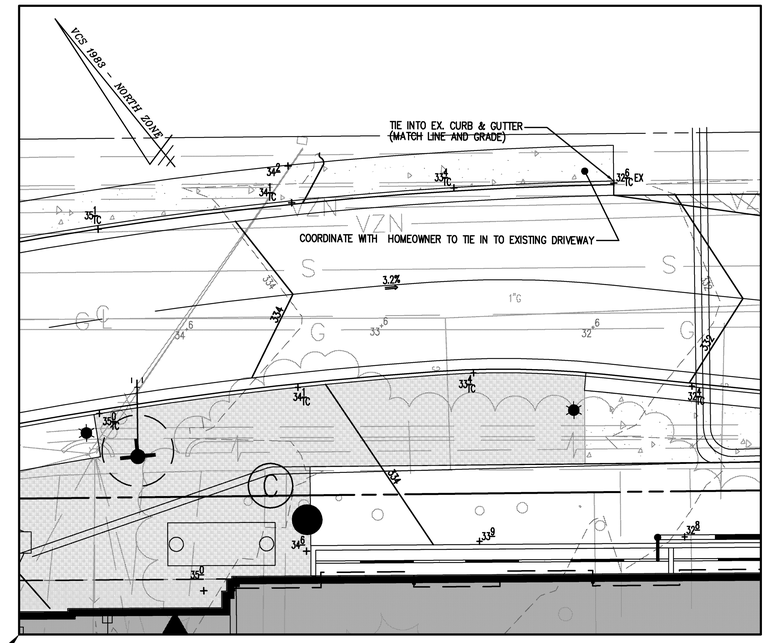
FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

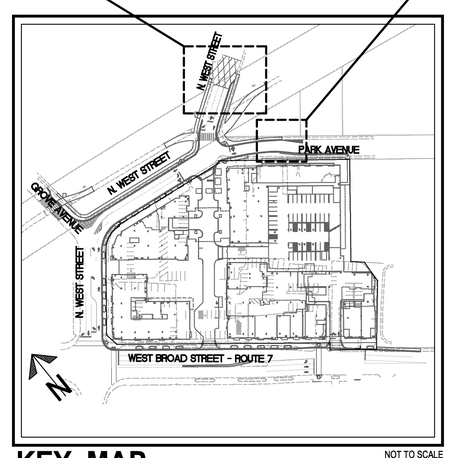
SHEET: C-0503



NORTH WEST STREET



PARK AVENUE



KEY MAP

NOT TO SCALE

10 0 5 10 20
1 INCH = 10'

NOTES

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NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

DATE-SUB01 1/23/2015, SUB02 2/20/2015, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18

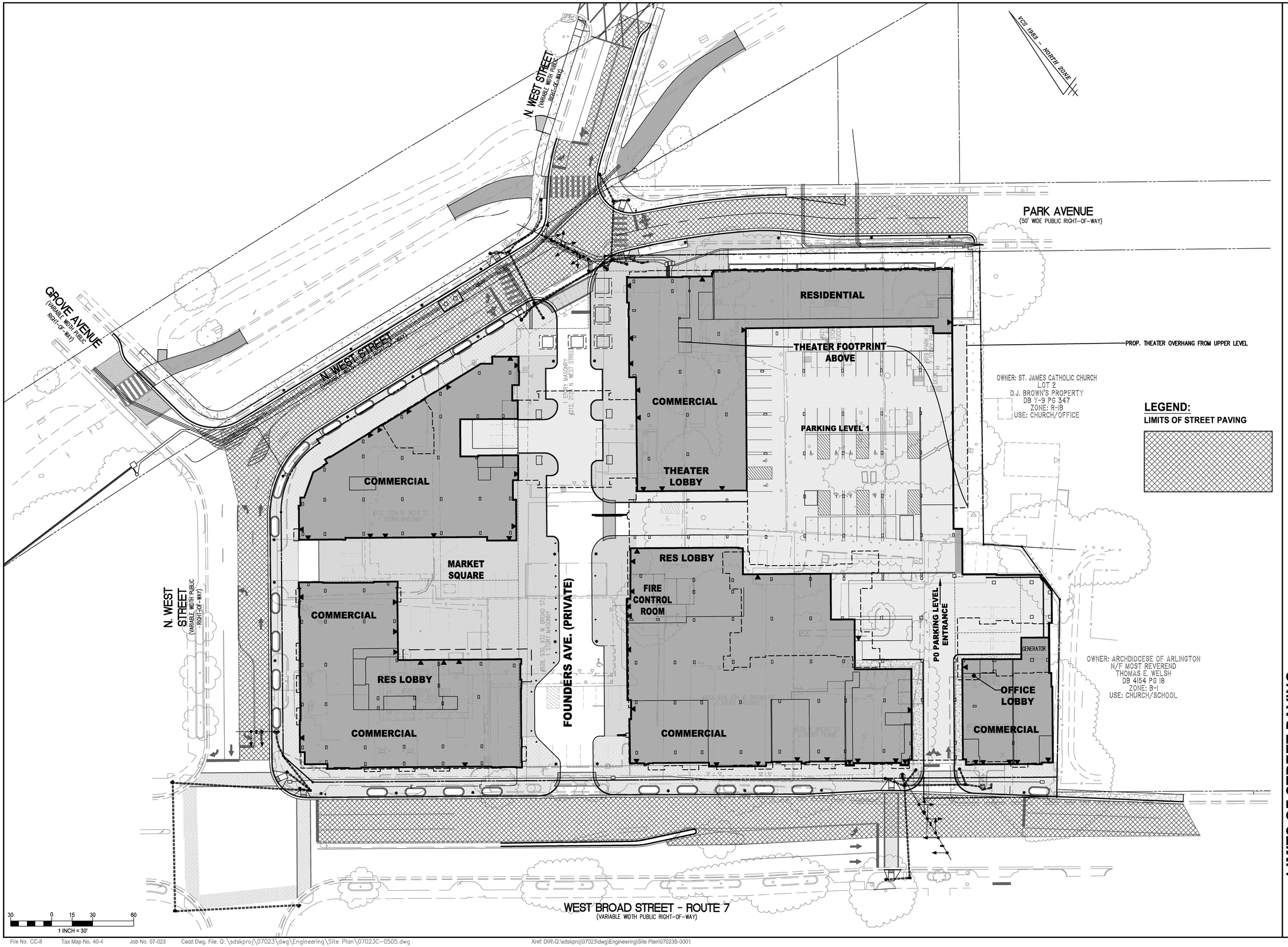
SCALE: 1" = 30'
DRAWN: AL KW, DM, BP, JT
CHECKED: KW

GRADING ENLARGMENT

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0504



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SUB04 8/14/18
GMP ADDENDUM01 7/27/2018
DRAWN: AL KW, DM, BP, JT
CHECKED: KW

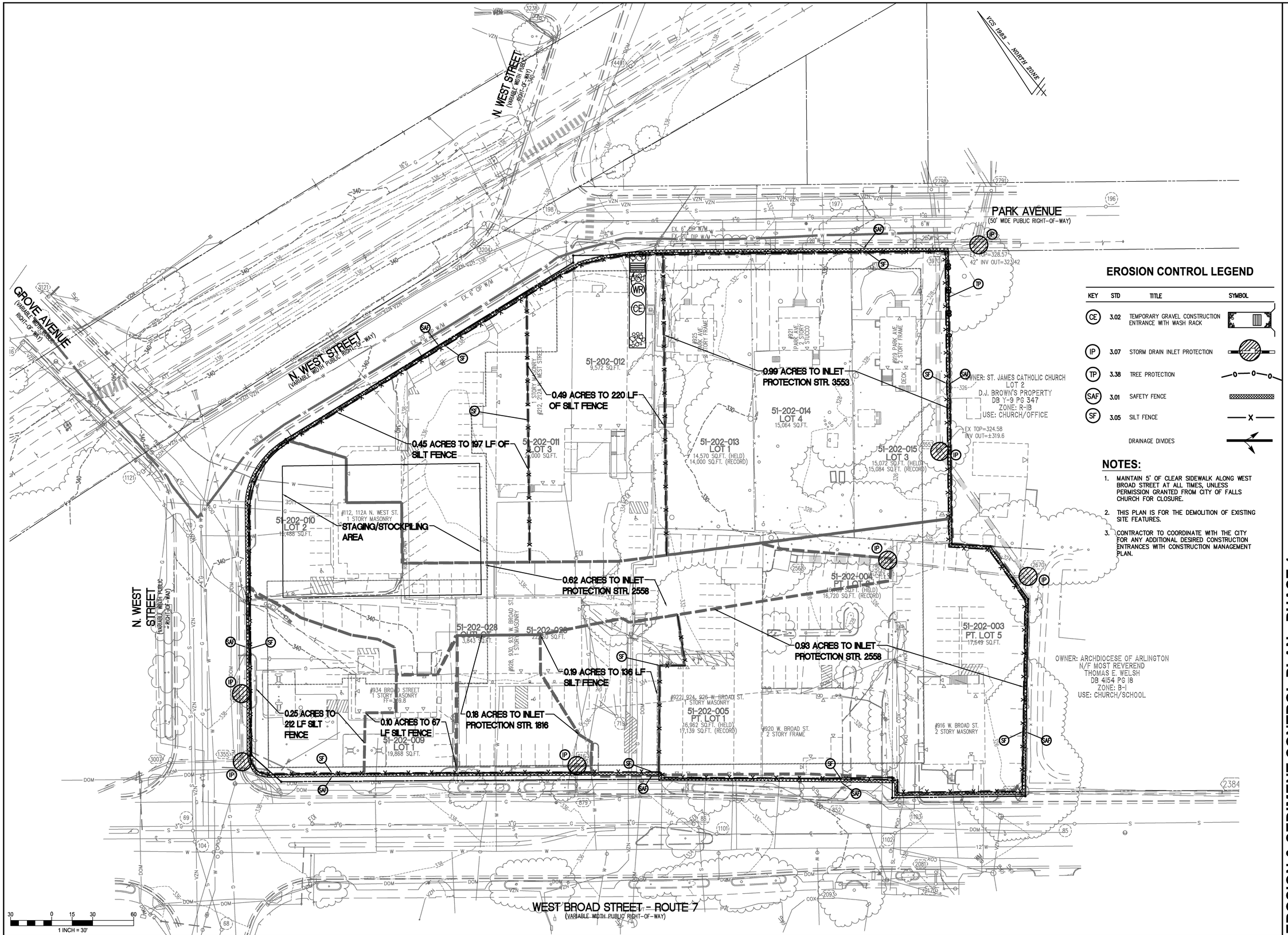
NO.	DESCRIPTION	DATE
	GMP SET	8/21/18

LIMITS OF STREET PAVING

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET,
NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0505



EROSION CONTROL LEGEND

KEY	STD	TITLE	SYMBOL
CE	3.02	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE WITH WASH RACK	
IP	3.07	STORM DRAIN INLET PROTECTION	
TP	3.38	TREE PROTECTION	
SAF	3.01	SAFETY FENCE	
SF	3.05	SILT FENCE	
		DRAINAGE DIVIDES	

NOTES:

1. MAINTAIN 5' OF CLEAR SIDEWALK ALONG WEST BROAD STREET AT ALL TIMES, UNLESS PERMISSION GRANTED FROM CITY OF FALLS CHURCH FOR CLOSURE.
2. THIS PLAN IS FOR THE DEMOLITION OF EXISTING SITE FEATURES.
3. CONTRACTOR TO COORDINATE WITH THE CITY FOR ANY ADDITIONAL DESIRED CONSTRUCTION ENTRANCES WITH CONSTRUCTION MANAGEMENT PLAN.

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DRAWN: AL KW, DM, BP, JT | CHECKED: KW

DATE: SUB01 1/23/2015, SUB02 2/26/2016, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18

SCALE: 1" = 30'

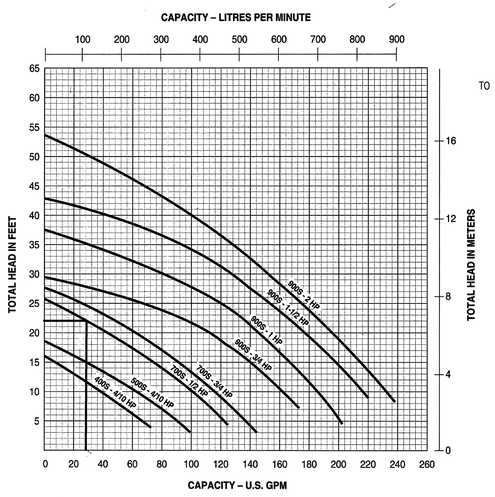
NO.	DESCRIPTION	DATE
	GMP SET	8/21/18

EROSION & SEDIMENT CONTROL PLAN - PHASE 1

FOUNDERS ROW

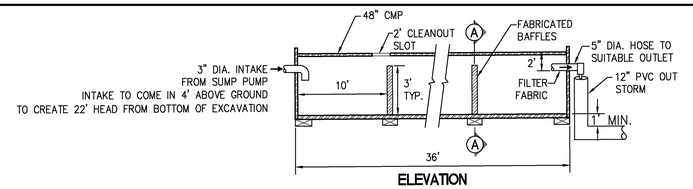
AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0601



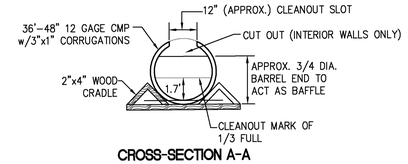
CONTRACTOR TO USE 700S–1/2 HP PUMP

PUMP SELECTION CHART



ELEVATION

NOTE: TANK TO BE CLEANED OF ALL SEDIMENT WHEN 1/3 FULL. SEDIMENT TO BE PLACED AND STABILIZED ON SITE OR HAULED OFFSITE. SEDIMENT NOT TO BE INTRODUCED TO DRAINAGE OUTFALL SYSTEM.



CROSS-SECTION A-A

CONTRACTOR TO USE 700S–1/2 HP PUMP

VOLUME COMPUTATIONS:

REQUIRED: 16 x PUMP RATE IN GPM = 16 x 28 = 448 CF
* PUMP DISCHARGE RATE @ 22' HEAD = 28 GPM

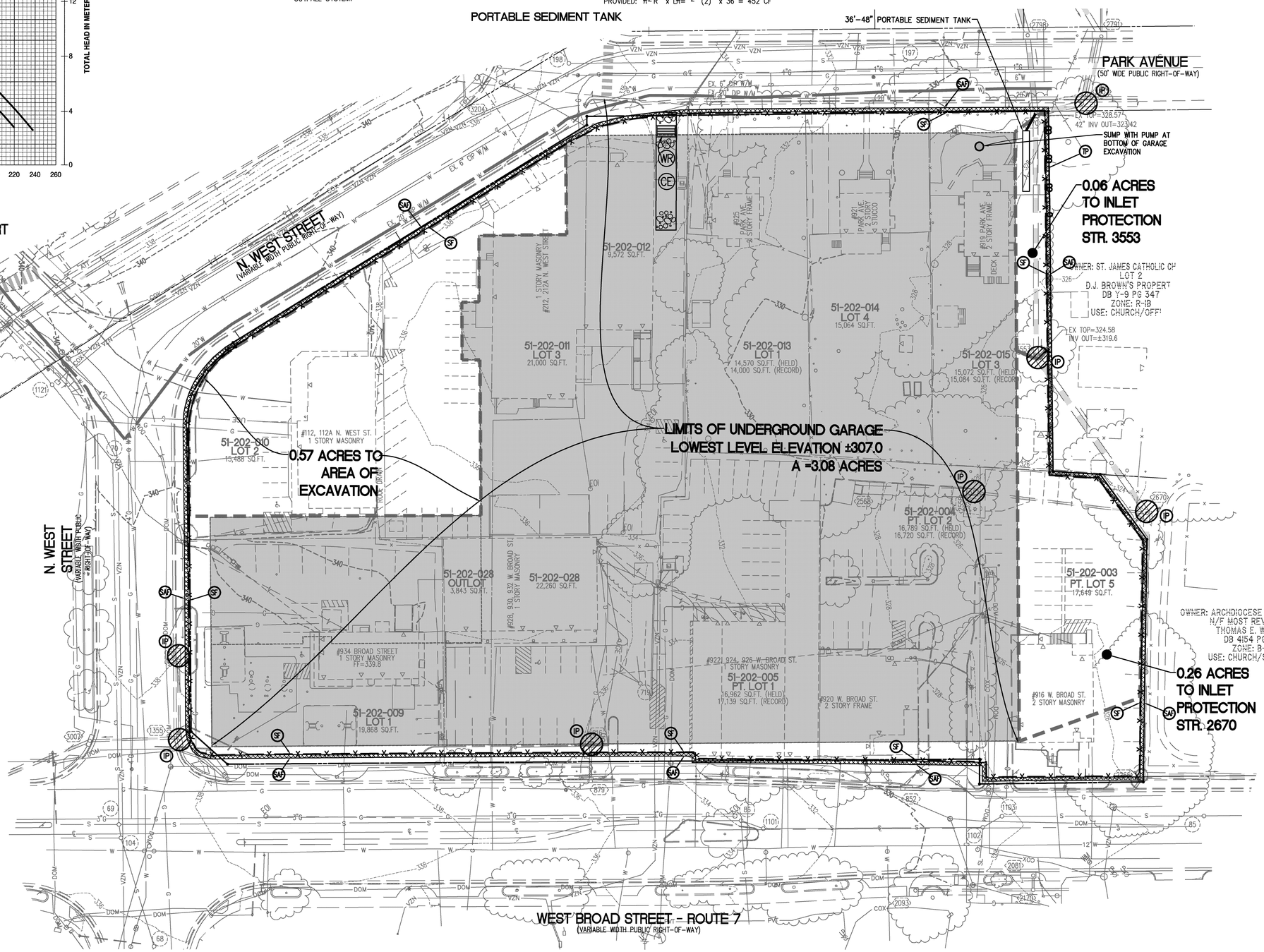
PROVIDED: $\pi^2 R \times L_{TT} = {}^2 (2) \times 36 = 452$ CF

PORTABLE SEDIMENT TANK

VCS 1983 – NORTH ZONE

NOTES:

1. MAINTAIN 5' OF CLEAR SIDEWALK ALONG WEST BROAD STREET AT ALL TIMES, UNLESS PERMISSION GRANTED FROM CITY OF FALLS CHURCH FOR CLOSURE.
2. CONTRACTOR TO COORDINATE WITH THE CITY FOR ANY ADDITIONAL DESIRED CONSTRUCTION ENTRANCES WITH CONSTRUCTION MANAGEMENT PLAN.



EROSION CONTROL LEGEND

KEY	STD	TITLE	SYMBOL
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IP	3.07	STORM DRAIN INLET PROTECTION	
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SF	3.05	SILT FENCE	
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30 0 15 30 60
1 INCH = 30'

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COMMONWEALTH OF VIRGINIA
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8/14/18
PROFESSIONAL ENGINEER

CHECKED: KW	DRAWN: AL KW, DM, BP, JT	DATE: SUB01 1/23/2015, SUB02 2/20/2015, GMP 8/21/2018, SUB03 7/10/2018 GMP ADDENDUM01 7/27/2018, SUB04 8/14/18	SCALE: 1" = 30'

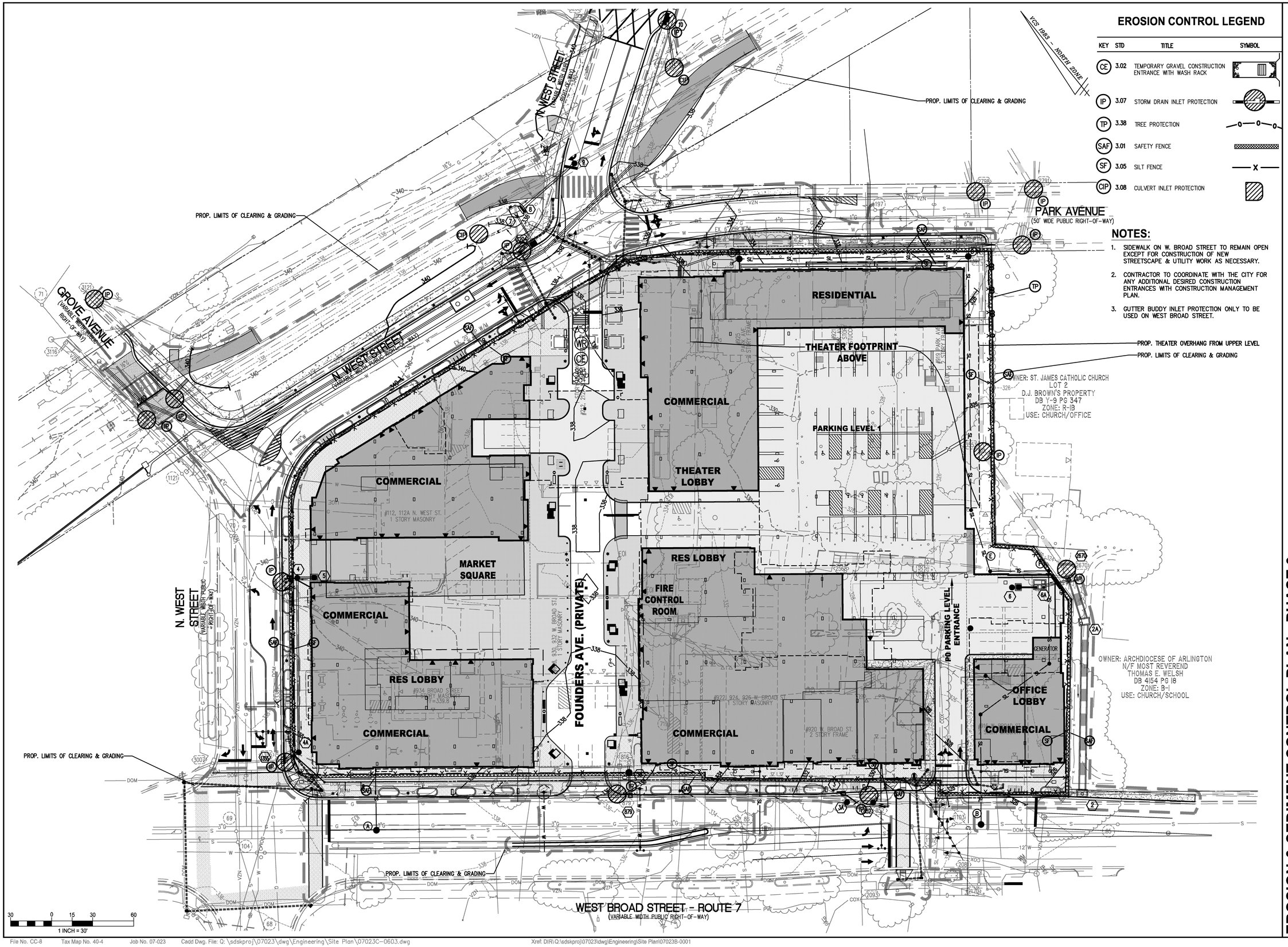
NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

EROSION & SEDIMENT CONTROL PLAN - PHASE 2

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0602



EROSION CONTROL LEGEND

KEY	STD	TITLE	SYMBOL
CE	3.02	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE WITH WASH RACK	
IP	3.07	STORM DRAIN INLET PROTECTION	
TP	3.38	TREE PROTECTION	
SAF	3.01	SAFETY FENCE	
SF	3.05	SILT FENCE	
CIP	3.08	CULVERT INLET PROTECTION	

NOTES:

1. SIDEWALK ON W. BROAD STREET TO REMAIN OPEN EXCEPT FOR CONSTRUCTION OF NEW STREETSCAPE & UTILITY WORK AS NECESSARY.
2. CONTRACTOR TO COORDINATE WITH THE CITY FOR ANY ADDITIONAL DESIRED CONSTRUCTION ENTRANCES WITH CONSTRUCTION MANAGEMENT PLAN.
3. GUTTER BUDDY INLET PROTECTION ONLY TO BE USED ON WEST BROAD STREET.

WALTER L. PHILLIPS INCORPORATED
ESTABLISHED 1945
Engineers • Surveyors • Planners
Landscape Architects • Arborists
207 PARK AVENUE
FALLS CHURCH, VIRGINIA 22046
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DATE: SUB01 9/23/2016, SUB02 2/20/2018, GMP 6/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018; SUB04 8/14/18
DRAWN: AL KW, DM, BP, TT
CHECKED: KW

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

EROSION & SEDIMENT CONTROL PLAN - PHASE 3

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET,
NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0603

File No. CC-8 Tax Map No. 40-4 Job No. 07-023 Cadd Dwg. File: Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023C-0603.dwg Xref: DIR\Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023B-0001

EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION:
THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT A MIXED USE RETAIL/COMMERCIAL/RESIDENTIAL BUILDING WITH TWO LEVELS OF UNDERGROUND GARAGE. CONSTRUCTION WILL ENTAIL APPROXIMATELY 268,392 SF OF DISTURBED AREA. OFFSITE CONSTRUCTION INCLUDES ROAD, SIDEWALK AND STREETSCAPE CONSTRUCTION, AND INSTALLATION OF UTILITY CONNECTIONS AND NEW UTILITY LINES IN WEST BROAD STREET, N. WEST STREET, AND PARK AVENUE. ADDITION OFFSITE WORK INCLUDES CONSTRUCTION OF IMPROVEMENTS FOR THE W&OD TRAIL CROSSINGS AT GROVE AVENUE AND NORTH WEST STREET. ALL EXISTING SITE CONDITIONS WILL BE DEMOLISHED, THEN EXCAVATION OF THE UNDERGROUND GARAGE WILL BEGIN, AND CONSTRUCTION IN A COUNTER-CLOCKWISE DIRECTION FROM THE LOW END OF THE SITE WILL RESUME FOOTING-TO-GRADE, AND THEN ABOVE GRADE CONSTRUCTION.

EXISTING SITE CONDITIONS:
THE EXISTING SITE IS CURRENTLY DEVELOPED WITH SEVERAL COMMERCIAL BUILDINGS, (3) SINGLE-FAMILY HOMES, AND A GAS STATION.

ADJACENT PROPERTIES:
NORTH: NORTH WEST STREET
WEST: N. WEST STREET
SOUTH: WEST BROAD STREET
EAST: ST. JAMES CHURCH PROPERTIES AND VARIOUS USES

SOILS:
SEE THIS SHEET FOR SOILS MAP

CRITICAL EROSION AREAS:
NO PART OF THE SITE IS CONSIDERED A CRITICAL EROSION HAZARD.

PHASING NARRATIVE:
THE FOLLOWING EROSION AND SEDIMENT CONTROL MEASURES WILL BE ACCOMPLISHED IN THREE PHASES. PHASE I SHALL BE IN PLACE PRIOR TO CLEARING AND SHALL REMAIN IN PLACE THROUGHOUT THE CLEARING AND LAND DISTURBING PROCESS. THE GENERAL CONTRACTOR IS TO PROVIDE DUST CONTROL THROUGHOUT LAND DISTURBING ACTIVITIES IN ACCORDANCE WITH VESCH STANDARD 3.39. STAGING AND STOCKPILING SHALL OCCUR ON THE HIGH SIDE OF THE SITE, IN THE NORTHERN CORNER.

PHASE 1:
AS THE FIRST ITEM OF CONSTRUCTION, THE CONTRACTOR IS TO PLACE THE SILT FENCE, SAFETY FENCE PERIMETER CONTROL AROUND THE SITE, AND INLET PROTECTION. REFER TO EROSION AND SEDIMENT CONTROL PLAN – PHASE 1 FOR LOCATION OF THESE MEASURES. THIS ACTIVITY IS TO BE FOLLOWED BY THE PLACEMENT OF THE CONSTRUCTION ENTRANCE AND TEMPORARY WATER SERVICE AS COORDINATED WITH CFC PUBLIC UTILITIES AND FAIRFAX WATER. CONSTRUCTION VEHICLES TO LEAVE THE SITE VIA PARK AVENUE BUT MUST TURN LEFT ONLY AND CANNOT TRAVERSE THE RESIDENTIAL EASTERN PORTION OF PARK AVENUE. A SPRAY NOZZLE IS TO BE PROVIDED ADJACENT TO THE CONSTRUCTION ENTRANCE TO CLEAN CONSTRUCTION VEHICLES BEFORE THEY ENTER THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR IS TO MAINTAIN ADJACENT ROADWAYS AND PARKING AREAS IN A MUD AND DUST FREE CONDITION. FOLLOWING INSTALLATION OF PHASE 1 CONTROLS, THE CONTRACTOR IS TO SCHEDULE CITY INSPECTION. FOLLOWING INSPECTOR APPROVAL, SITE DEMOLITION, CLEARING AND GRADING MAY PROCEED. AS BUILDINGS ARE REMOVED, ADDITIONAL MID-SITE SILT FENCE TO BE INSTALLED TO CONTROL SURFACE RUNOFF TO INLET STRUCTURES.

EXISTING IMPROVEMENTS WITHIN EROSION CONTROL PHASE 1 LIMITS OF DISTURBANCE TO BE CLEARED AS FOLLOWS:
1. EXISTING BUILDINGS AND UTILITY SERVICES TO BE REMOVED PER DEMOLITION PLAN.
2. TREES TO BE CLEARED PER DEMOLITION AND LANDSCAPE CONSERVATION PLANS.

PHASE 2:
INLET PROTECTION FROM PHASE 1 SHALL REMAIN AS SHOWN ON THE PHASE 2 E&S PLAN. INLET PROTECTION SHALL BE REMOVED FROM EXISTING STRUCTURES ONLY AS STRUCTURES ARE REMOVED. THE STRUCTURES SHALL REMAIN IN PLACE UNTIL THE GARAGE EXCAVATION BEGINS AND THE PORTABLE SEDIMENT TANK WITH PUMP IS INSTALLED. THE SAFETY FENCE SHALL REMAIN IN PLACE AROUND THE SITE PERIMETER AS SHOWN ON THE PHASE 2 E&S PLAN.

PHASE 3:
PHASE 3 IS FOR THE CONSTRUCTION ABOVE GRADE AFTER FOOTING-TO-GRADE CONSTRUCTION IS COMPLETED. THE CONSTRUCTION SHALL BE MOVED TO THE NEW MASON AVENUE ENTRANCE AT THE INTERSECTION WITH PARK AVENUE AND NORTH WEST STREET. AS NEW SIDEWALK IS INSTALLED, THE SAFETY FENCE SHALL BE MOVED BEHIND THE SIDEWALK. UTILITY IMPROVEMENTS WILL TAKE PLACE IN N. WEST STREET AND WEST BROAD ST. AND EROSION AND SEDIMENT CONTROLS ARE TO BE ADJUSTED AS REQUIRED BY THE SITE CONSTRUCTION OR AS DIRECTED BY THE INSPECTOR.

INLET PROTECTION SHALL BE PROVIDED IN VICINITY OF W&OD TRAIL IMPROVEMENTS AS SOON AS WORK TAKES PLACE. INLET PROTECTION SHALL BE ADDED TO THE NEW STORM SEWER STRUCTURES AS THEY ARE BROUGHT ONLINE.

PERMANENT STABILIZATION:
PERMANENT SOIL STABILIZATION SHALL BE IN ACCORDANCE TO VESCH SECTIONS 3.29 TO 3.36. ANY SOIL NOT TO BE BROUGHT TO FINAL GRADE FOR MORE THAN 30 DAYS IS TO BE SEEDED AND MULCHED. THIS IS TO INCLUDE ANY DENUDED AREAS OR STOCKPILES. AND AREAS LEFT DORMANT OR NOT BROUGHT TO FINAL GRADE SHALL BE PERMANENTLY SEEDED AND MULCHED.

ALL STORM AND SANITARY LINES NOT IN THE STREET SHALL BE MULCHED AND SEEDED WITHIN 7 DAYS AFTER BACKFILL, NO MORE THAN 500 FEET SHALL BE OPEN AT ANY ONE TIME. ELECTRIC, TELEPHONE, CABLE, AND GAS UTILITY TRENCHES SHALL BE COMPACTED, SEEDED, MULCHED WITHIN FIVE DAYS AFTER BACKFILL.

NO DISTURBED AREA WILL BE DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS IT IS AN ACTIVE WORK AREA OR OTHERWISE AUTHORIZED BY CITY OF FALLS CHURCH INSPECTOR.

DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE IMMEDIATELY STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

DEWATERING NOTE:
RAINWATER/GROUNDWATER ACCUMULATION FROM WITHIN THE EXCAVATION IS TO BE PUMPED OUT, AS NECESSARY. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

MAINTENANCE PROGRAM:
THE SITE SUPERINTENDENT, OR HIS/HER REPRESENTATIVE, SHALL MAKE A VISUAL INSPECTION OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREAS (I.E. SEEDED AND MULCHED AREAS) ON A DAILY BASIS, ESPECIALLY AFTER A HEAVY RAINFALL EVENT TO INSURE THAT ALL CONTROLS ARE MAINTAINED AND PROPERLY FUNCTIONING. ANY DAMAGED CONTROLS SHALL BE REPAIRED PRIOR TO THE END OF THE WORK DAY INCLUDING RE-SEEDING AND MULCHING IF NECESSARY.

EROSION AND SEDIMENT CONTROL MEASURES:

1. ALL EROSION AND SILTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO LAND DISTURBANCE ACTIVITY, FOLLOWING THE IMPLEMENTATION OF TREE PRESERVATION MEASURES.
2. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL ALL GROUND DISTURBING ACTIVITY CEASES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS IS COMPLETE.
3. ALL STANDARDS AND SPECIFICATIONS REFER TO THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
4. A CONSTRUCTION ENTRANCE SHALL BE INSTALLED AND MAINTAINED FOR THE DURATION OF ALL DISTURBING ACTIVITIES AS SHOWN ON THE PLAN PER STD. AND SPEC. NO. 3.02 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. NO CONSTRUCTION TRAFFIC SHALL BE PERMITTED TO ENTER THE SITE OTHER THAN THIS ENTRANCE UNTIL PARKING LOT IS PAVED.
5. ALL AREAS DISTURBED BY CONSTRUCTION THAT ARE NOT TO BE CONSTRUCTED UPON SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISH GRADING BY SEEDING AND MULCHING PER STD. AND SPEC. NO. 3.31 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
6. BARE SOIL SURFACES NOT AT FINISH GRADE, WHICH WILL BE EXPOSED MORE THAN 7 DAYS, SHALL BE STABILIZED WITH TEMPORARY SEEDING AND MULCHING PER STD. AND SPEC. NO. 3.32 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.

GENERAL LAND CONSERVATION NOTES

1. NO DISTURBED AREA WILL BE DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR OR HIS AGENT.
2. ALL EROSION AND SILTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO CLEARING AND GRADING.
3. ALL STORM AND SANITARY LINES NOT IN STREETS ARE TO BE MULCHED AND SEEDED WITHIN 5 DAYS AFTER BACKFILL. NO MORE THAN 500 FEET ARE TO BE OPEN AT ANY ONE TIME.
4. ELECTRIC POWER, TELEPHONE, AND GAS SUPPLY TRENCHES AREA TO BE COMPACTED, SEEDED, AND MULCHED WITHIN 5 DAYS AFTER BACKFILL.
5. DURING CONSTRUCTION, MONITOR NEAREST INLETS TO ENSURE NO CONSTRUCTION SEDIMENT ENTERS THE INLETS. PROVIDE INLET PROTECTION AND MONITOR THE SEDIMENT LEAVING THE SITE.
6. ANY DISTURBED AREA NOT COVERED BY NOTE #1 ABOVE AND NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1ST, OR DISTURBED AFTER THAT DATE, IS TO BE MULCHED WITH HAY OR STRAW MULCH AT THE RATE OF TWO TONS PER ACRE AND OVER-SEEDED NO LATER THAN MARCH 15TH.
7. AT THE COMPLETION OF CONSTRUCTION PROJECTS, AND PRIOR TO THE RELEASE OF THE BOND, ALL TEMPORARY SILTATION AND EROSION CONTROLS SHALL BE REMOVED AND DISTURBED AREAS SHALL BE STABILIZED.
8. IF THE MAXIMUM PERIOD FOR DENUDATION IS EXCEEDED AND ANY AREAS REMAIN EXPOSED WITHOUT COVER OR SURFACE, THE CITY MAY (IN THE EVENT THE DEVELOPER DOES NOT) INSTALL SUCH GROUND COVER OR OTHER STABILIZING DEVICES AND/OR MATERIAL TO THE MINIMUM EXTENT NECESSARY TO ACHIEVE EROSION AND SEDIMENT CONTROL EQUAL TO THAT WHICH WOULD HAVE BEEN FURNISHED BY THE PERMANENT COVER SHOWN ON THE APPROVED PLANS. THE COST OF ANY SUCH TEMPORARY MEASURES TAKEN BY THE CITY SHALL BE BORNE BY THE DEVELOPER AND SHALL BE A CHARGE AGAINST THE EROSION AND SEDIMENT CONTROL BOND.
9. WHERE CONSISTENT WITH JOB SAFETY REQUIREMENTS, ALL EXCAVATED MATERIAL IS TO BE PLACED ON THE UPHILL SIDE OF TRENCHES. NO MATERIAL IS TO BE PLACED IN STREAMBEDS. NO STOCKPILE IS PERMITTED. WHERE SOIL IS PLACED ON DOWNHILL SIDE OF TRENCHES, IT IS TO BE BACK-SLOPED TO DRAIN TOWARD THE TRENCH. WHEN NECESSARY TO DEWATER THE TRENCHES, THE PUMP DISCHARGE HOSES MUST OUTLET IN A STABILIZED AREA TO AN EXISTING STORM INLET.

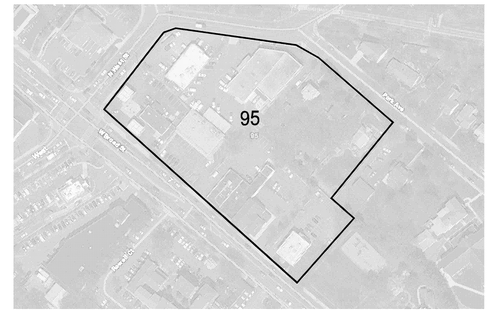
MAINTENANCE NOTES

1. MAINTENANCE OF THE TEMPORARY CONSTRUCTION ENTRANCE SHALL BE REQUIRED TO PREVENT MUD DEPOSITS IN THE RIGHT-OF-WAY.
2. INLET PROTECTION SHALL BE INSPECTED AT THE END OF EACH DAY AND AFTER EACH RAINFALL AND REQUIRED REPAIRS MADE IMMEDIATELY.
3. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE MAINTAINED IN PLACE UNTIL GROUND DISTURBING CONSTRUCTION AND PERMANENT STABILIZATION IS COMPLETE AND SHALL BE REMOVED BY PERMISSION OF THE COUNTY INSPECTOR.
4. FILTER STONE SHALL BE REGULARLY CHECKED TO ENSURE THAT FILTRATION PERFORMANCE IS MAINTAINED. STONE CHOKED WITH SEDIMENT SHALL BE REMOVED AND CLEANED OR REPLACED.

GENERAL EROSION AND SEDIMENT NOTES

1. UNLESS OTHERWISE INDICATED ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS EROSION AND SEDIMENT CONTROL REGULATIONS.
2. THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO FINAL INSPECTION.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BOTTOM OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
7. ALL DISTURBED 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.
8. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO ON APPROVED FILTERING DEVICE.
9. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
10. CONTRACTOR IS TO REMOVE MUD/SWEEP STREET AS NEEDED OR DAILY TO KEEP PUBLIC STREETS FREE OF SEDIMENT.

SOIL MAP



SOIL INFORMATION

SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SOIL DRAINAGE	EROSION POTENTIAL	PROBLEM CLASS
95	URBAN LAND	N/A	N/A	N/A	N/A

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PROFESSIONAL ENGINEER

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GMP ADDENDUM#1 7/27/2018, SUB#4 8/14/18
DRAWN: AL KW, DM, BP, JT
CHECKED: KW

EROSION & SEDIMENT CONTROL NARRATIVE

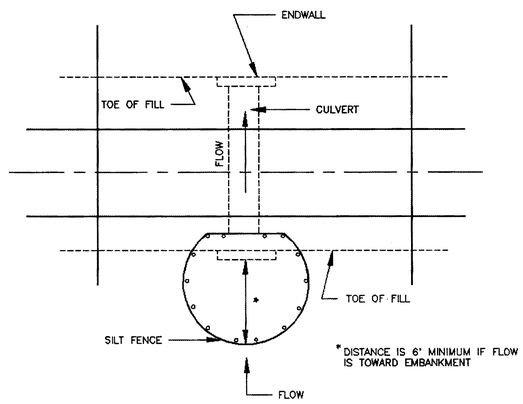
FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

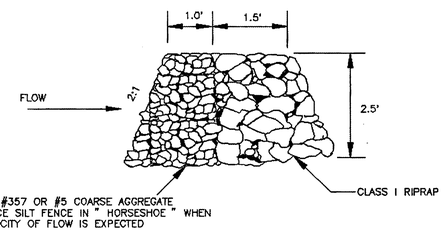
SHEET: C-0604

1992 3.08

SILT FENCE CULVERT INLET PROTECTION

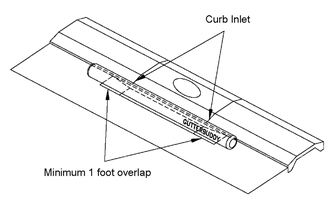


OPTIMAL STONE COMBINATION**



Source: Adapted from VDOT Standard Sheets and Va. DSWC

Plate 3.08-1

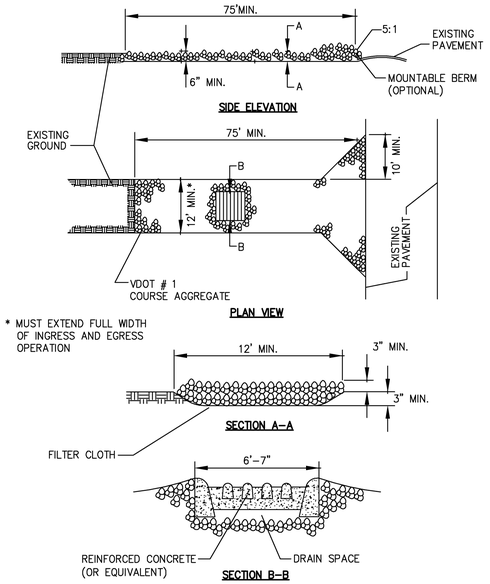


GUTTERBUDDY CURB INLET PROTECTION

PRODUCED BY ACF ENVIRONMENTAL

TO BE USED ON EXISTING STORM STRUCTURES ON WEST BROAD STREET. USE ON OTHER STREETS REQUIRES APPROVAL FROM CITY OF FALLS CHURCH

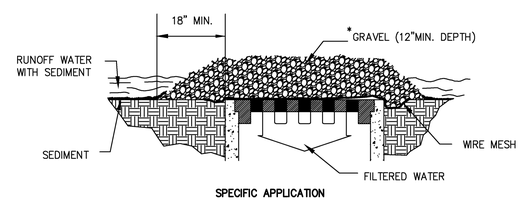
NOT TO SCALE



CONSTRUCTION ENTRANCE

NOT TO SCALE

NOTE: CONSTRUCTION ENTRANCE MAY NEED MAINTENANCE OVER TIME BY WAY OF REMOVAL AND REPLACEMENT OF STONE AND/OR REMOVAL OF ACCUMULATED SEDIMENT, BACK FLUSHING ENTRANCE, ETC.



SPECIFIC APPLICATION

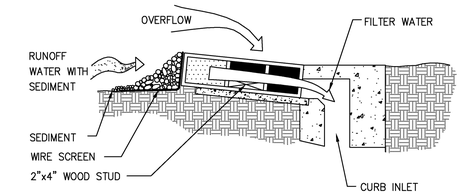
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE

GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER

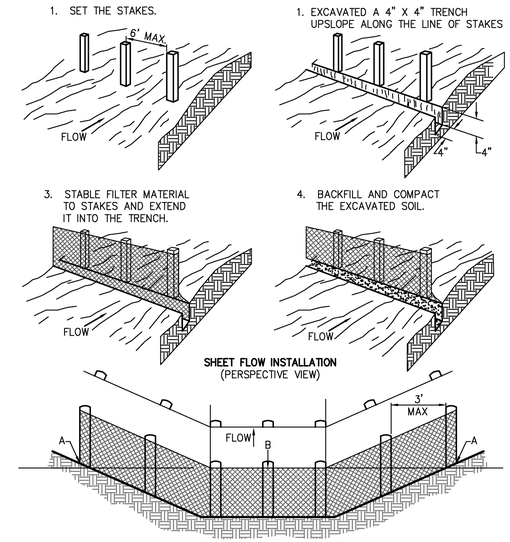
NOT TO SCALE

NOTE: INLET PROTECTION MAY NEED MAINTENANCE OVER TIME BY WAY OF REMOVAL OF ACCUMULATED SEDIMENT.



BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER

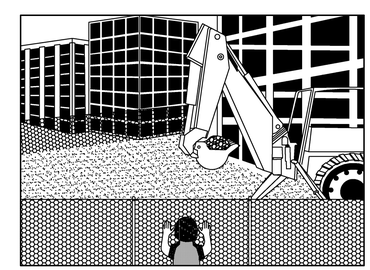
NOT TO SCALE



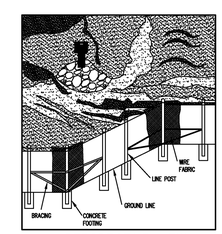
CONSTRUCTION OF SILT FENCE (WITHOUT WIRE SUPPORT)

NOT TO SCALE

1992 3.01



PERSPECTIVE VIEW



PERSPECTIVE VIEW
METAL FENCE

NOTE:
CONTRACTOR TO ATTACH A DUST CONTROL BARRIER TO THE SAFETY FENCE TO CONTROL DUST DURING CONSTRUCTION ACTIVITIES.

SAFETY FENCE
(METAL FENCE IS REQUIRED)

SOURCE: ADAPTED FROM CONWED PLASTICS AND VDOT ROAD AND BRIDGE STANDARDS

PLATE 3.01-1

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DATE: ADDENDUM01 7/27/2018, SUB04 8/14/18

SCALE: NONE

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
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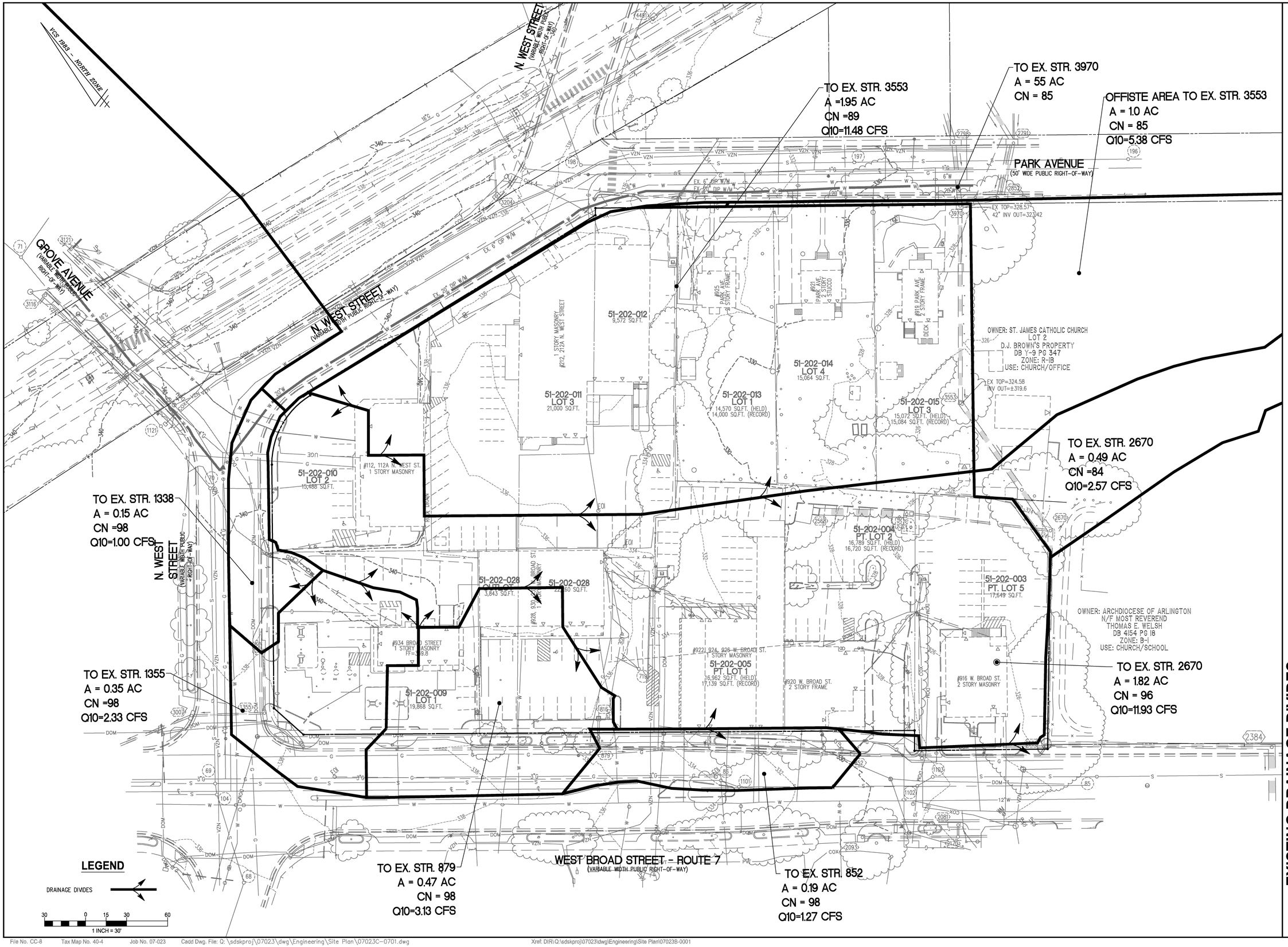
EROSION & SEDIMENT CONTROL DETAILS

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0605



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EXISTING DRAINAGE DIVIDES

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
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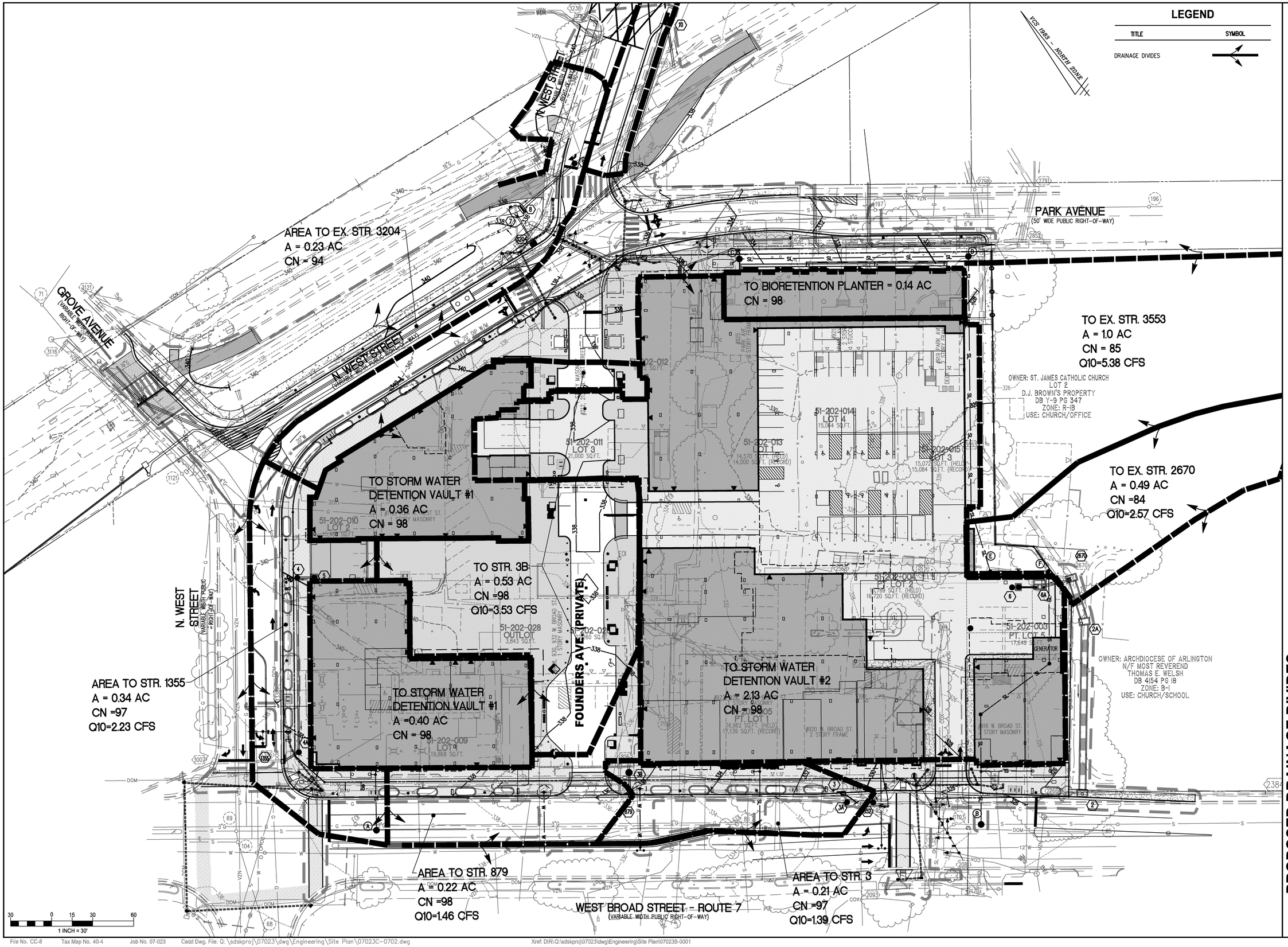
SHEET: C-0701

File No. CC-8 Tax Map No. 40-4 Job No. 07-023 Cadd Dwg. File: Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023C-0701.dwg Xref: DIR\Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023B-0001



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DRAWN: AL KW, DM, BP, JT
CHECKED: KW
DATE: SUB01 1/23/2015, SUB02 2/20/2014, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18
SCALE: 1" = 30'

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

PROPOSED DRAINAGE DIVIDES

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

File No. CC-8 Tax Map No. 40-4 Job No. 07-023 Cadd Dwg. File: Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023C-0702.dwg Xref: DIR\Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023B-0001

SHEET: C-0702

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

○ 2011 BMP Standards and Specifications ⦿ 2013 Draft BMP Standards and Specifications

Project Name:	FOUNDERS ROW
Date:	2/20/2016
Linear Development Project?	No

CLEAR ALL

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* →	4.32
Maximum reduction required:	*20%*
The site's net increase in impervious cover (acres) is:	*0.982828283*
Post-Development TP Load Reduction for Site (lb/yr):	*3.13*

Check:	
BMP Design Specifications List:	2013 Draft Stds & Specs
Linear project?	No
Land cover areas entered correctly?	✓
Total disturbed area entered?	✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed				1.10	1.10
Impervious Cover (acres)				3.22	3.22
					4.32

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed				0.12	0.12
Impervious Cover (acres)				4.20	4.20
Area Check	OK.	OK.	OK.	OK.	4.32

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre

Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	1.10	0.12
Weighted Rv(turf)	0.25	0.25
% Managed Turf	26%	4%
Impervious Cover (acres)	3.22	3.22
Rv(impervious)	0.95	0.95
% Impervious	74%	96%
Total Site Area (acres)	**4.32**	**3.34**
Site Rv	**0.77**	**0.92**

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.2776	0.2572
Pre-ReDevelopment Treatment Volume (cubic feet)	12,094	11,202
Pre-ReDevelopment TP Load (lb/yr)	**7.60**	**7.04**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	1.76	2.11
Baseline TP Load (lb/yr) (**0.41 lbs/acre/yr** applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		*1.37*

[1] Adjusted Land Cover Summary:
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requriement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)

Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.12
Weighted Rv (turf)	0.25
% Managed Turf	3%
Impervious Cover (acres)	4.20
Rv(impervious)	0.95
% Impervious	97%
Final Site Area (acres)	**4.32**
Final Post Dev Site Rv	**0.93**

Land Cover Summary-Post

Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.12
Weighted Rv (turf)	0.25
% Managed Turf	4%
ReDev. Impervious Cover (acres)	3.22
Rv(impervious)	0.95
% Impervious	96%
Total ReDev. Site Area (acres)	**3.34**
ReDev Site Rv	**0.92**

Land Cover Summary-Post

Post-Development New Impervious	
New Impervious Cover (acres)	0.98
Rv(impervious)	0.95

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.3350
Final Post-Development Treatment Volume (cubic feet)	14,591
Final Post-Development TP Load (lb/yr)	**9.17**
Final Post-Development TP Load per acre (lb/acre/yr)	2.12

Post-ReDevelopment Treatment Volume (acre-ft)	0.2572
Post-ReDevelopment Treatment Volume (cubic feet)	11,202
Post-ReDevelopment Load (TP) (lb/yr)*	7.04
Post-ReDevelopment TP Load per acre (lb/acre/yr)	2.11
Max. Reduction Required (Below Pre-ReDevelopment Load)	20%
TP Load Reduction Required for Redeveloped Area (lb/yr)	**1.41**

Post-Development Treatment Volume (acre-ft)	0.0778
Post-Development Treatment Volume (cubic feet)	3,389
Post-Development TP Load (lb/yr)	2.13
TP Load Reduction Required for New Impervious Area (lb/yr)	**1.73**

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	3.13

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	54.36
Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	65.58

Drainage Area A

CLEAR BMP AREAS

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)				0.12	0.12	0.25
Impervious Cover (acres)				4.20	4.20	0.95
				Total	4.32	

Total Phosphorus Available for Removal in D.A. A (lb/yr)	9.17
Post Development Treatment Volume in D.A. A (ft^3)	14,591

Stormwater Best Management Practices (RR = Runoff Reduction)

--Select from dropdown lists--

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft^3)	Runoff Reduction (ft^3)	Remaining Runoff Volume (ft^3)	Total BMP Treatment Volume (ft^3)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
1. Vegetated Roof (RR)													
1.a. Vegetated Roof #1 (Spec #5)	45		0.03		43	52	95	0		0.06	0.03	0.03	
1.b. Vegetated Roof #2 (Spec #5)	60				0	0	0	0		0.00	0.00	0.00	
6. Bioretention (RR)													
6.a. Bioretention #1 or Micro-Bioretention #1 or Urban Bioretention (Spec #9)	40		0.14	0	199	298	497	25	0.00	0.31	0.17	0.14	
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device-Hydrodynamic	0		0.53	0	0	1,827	1,827	20	0.00	1.15	0.23	0.92	
14.b. Manufactured Treatment Device-Filtering	0		2.11	0	0	7,275	7,275	50	0.00	4.57	2.28	2.28	

Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
1. Vegetated Roof (RR)				
0		0.43	0.19	0.23
0		0.00	0.00	0.00
6. Bioretention (RR)				
40	0.00	2.23	1.43	0.80
14. Manufactured BMP (no RR)				
0	0.00	8.20	0.00	8.20
0	0.00	32.66	0.00	32.66

Site Results (Water Quality Compliance)

Area Checks	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST/OPEN SPACE (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	4.20	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	2.81	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.12	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.00	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft^3) 14,591

Runoff Reduction Volume and TP By Drainage Area

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft^3)	241	0	0	0	0	241
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	9.17	0.00	0.00	0.00	0.00	9.17
TP LOAD REDUCTION ACHIEVED (lb/yr)	2.71	0.00	0.00	0.00	0.00	2.71
TP LOAD REMAINING (lb/yr)	6.46	0.00	0.00	0.00	0.00	6.46
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	1.62	0.00	0.00	0.00	0.00	1.62

Total Phosphorus

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	9.17
TP LOAD REDUCTION REQUIRED (lb/yr)	3.13
TP LOAD REDUCTION ACHIEVED (lb/yr)	2.71
TP LOAD REMAINING (lb/yr):	6.46
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.42

SEE BMP TREATMENT SUMMARY TO THE RIGHT.

Runoff Volume and Curve Number Calculations

Enter design storm rainfall depths (in):

1-year storm	2-year storm	10-year storm
2.64	3.19	4.90

Use NOAA Atlas 14 (http://hdsc.nws.noaa.gov/hdsc/pfds/)

*Notes (see below):

[1] The curve numbers and runoff volumes computed in this spreadsheet for each drainage area are limited in their applicability for determining and demonstrating compliance with water quantity requirements. See VRRM User's Guide and Documentation for additional information.

[2] Runoff Volume (RV) for pre- and post-development drainage areas must be in volumetric units (e.g., acre-feet or cubic feet) when using the Energy Balance Equation. Runoff measured in watershed-inches and shown in the spreadsheet as RV(watershed-inch) can only be used in the Energy Balance Equation when the pre- and post-development drainage areas are equal. Otherwise RV(watershed-inch) must be multiplied by the drainage area.

[3] Adjusted CNs are based on runoff reduction volumes as calculated in D.A. tabs. An alternative CN adjustment calculation for Vegetated Roofs is included in BMP specification No. 5.

Drainage Area Curve Numbers and Runoff Depths*

Curve numbers (CN, CNadj) and runoff depths ($RV_{Developed}$) are computed with and without reduction practices.

Drainage Area A		A Soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.12
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	0.00	0.00	4.20
	CN	98	98	98	98

Total Area (acres):	4.32
Runoff Reduction Volume (ft^3):	241

$CN_{(D.A.\ A)}$ = **98**

	1-year storm	2-year storm	10-year storm
$RV_{Developed}$ *(watershed-inch)* with no Runoff Reduction*	2.41	2.96	4.66
$RV_{Developed}$ *(watershed-inch)* with Runoff Reduction*	2.39	2.94	4.65
Adjusted CN*	**98**	**98**	**98**

**See Notes above*

SWM/BMP/OUTFALL NARRATIVE

UNDER EXISTING CONDITIONS, APPROXIMATELY HALF AN ACRE OF THE SITE OUTFALLS TO NORTH WEST STREET INTO A PIPED STORM SEWER SYSTEM, WHICH REACHES PEARSON BRANCH, AND THE REMAINDER OF THE SITE OUTFALLS TOWARDS ADJACENT PROPERTIES TO THE EAST, INTO THE PIPED STORM SEWER SYSTEM THAT EVENTUALLY REACHES ELLISON BRANCH. BOTH OUTFALL PATHS TIE RUN IN TOGETHER AT SPRING STREET AND EVENTUALLY OUTFALLS TO THE TRIPPS RUN WATERSHED.

THE BMP ON THE SITE IS BEING MET WITH A COMBINATION OF TREATMENT METHODS. A PORTION OF THE COURTYARD ROOF AREAS ARE BEING TREATED WITH VEGETATED ROOF, THE RESIDENTIAL ROOF AREA ALONG PARK AVENUE IS TREATED WITH BIORETENTION PLANTERS, FOUNDERS AVENUE IS TREATED WITH A CDS BMP STRUCTURE, AND A LARGE WITH THE TREATMENTS LISTED ABOVE, THE PROJECT MEETS 86.5% OF ITS BMP TREATMENT REQUIRED. SEE SHEET C-0706 FOR THE BMP TREATMENT SCHEMATIC. THE PURCHASE OF NUTRIENT CREDITS FROM RESOURCE ENVIRONMENTAL SOLUTIONS FOR 0.42 LBS OF PHOSPHORUS REMOVAL WITHIN THE POTOMAC WATERSHED WILL MEET THE REST OF THE REQUIREMENT. SEE SHEET C-0707 FOR THE AVAILABILITY LETTER.

FOR QUANTITY CONTROL, TWO DETENTION VAULTS ARE PROPOSED, ONE ON THE EAST END OF THE SITE, AND ONE AT THE WEST END. THE VAULT AT THE WEST END WILL CAPTURE AND DETAIN APPROXIMATELY 0.76 ACRES OF ROOF RUNOFF, AND TIE INTO THE EXISTING STORM SEWER SYSTEM THAT OUTFALLS TO PEARSON BRANCH. THE VAULT AT THE EAST END WILL CAPTURE AND DETAIN 2.13 ACRES OF ROOF RUNOFF AND TIE INTO THE EXISTING STORM SEWER SYSTEM THAT OUTFALLS TO ELLISON BRANCH. THE OVERALL RUNOFF RATE FROM THE SITE IS DECREASED WITH DETENTION AND THE SITE MEETS THE WATER QUANTITY BALANCE EQUATION, AS DEMONSTRATED BELOW.

DUE TO THE RESULTS OF THIS ANALYSIS AND THE FACT THAT THE PROJECT WILL RESULT IN THE REDUCTION OF THE EXISTING RUNOFF RATE, IT IS THE OPINION OF THE SUBMITTING ENGINEER THAT THIS OUTFALL IS ADEQUATE, AND THAT IMPACT ONTO THE ADJACENT PROPERTIES ARE IMPROVED FROM EXISTING CONDITIONS BY REDUCING RUNOFF ONTO THEIR SITE.

BMP TREATMENT SUMMARY

ONSITE PHOSPHORUS REMOVAL CREDIT:	2.71 LBS (CALCULATIONS, THIS SHEET)
NUTRIENT CREDIT PURCHASE:	0.42 LBS (AVAILABILITY LETTER, SHEET C-0707)
TOTAL PHOSPHORUS REDUCTION ACHIEVED:	3.13 LBS
PHOSPHORUS REDUCTION REQUIRED:	3.13 LBS

WATER QUANTITY BALANCE EQUATION

1 YR STORMWATER COMPUTATIONS BALANCE EQUATION	
Qdeveloped ≤ I.F. * (Qpre-developed * RVpre-developed) / RVdeveloped	
I.F. = 0.9 (less than 1 acre) I.F. = 0.8 (greater than 1 acre)	
Qdeveloped = Qundetained (4.855 CFS) + Qdetained (2.986 CFS)=	7.841 CFS
I.F. * (Qpre-developed * RVpre-developed) / RVdeveloped =	
(Rv developed = Rv undetained + RV detained)	
0.8* (13.35 * 28102) / 34400 =	8.725 CFS
	7.841 CFS < 8.725 CFS

Q1 (UNDETAINED) = 4.855 CFS (1.43 ACRES)
Q1 (DETAINED VAULT #1) = 1.307 CFS (0.76 ACRES)
Q1 (DETAINED VAULT #2) = 1.679 CFS (2.13 ACRES)

10 YR STORMWATER COMPUTATIONS
Qdeveloped (detained & undetained) ≤ Qpre-developed
16.777 CFS (detained) + 9.377 CFS (undetained) = 26.154 CFS
26.154 CFS < 27.3 CFS pre-development

SEE HYDROGRAPHS ON SHEET C-0704.

Q10 (UNDETAINED) = 9.377 CFS
Q10 (DETAINED VAULT #1) = 4.117 CFS (0.76 ACRES)
Q10 (DETAINED VAULT #2) = 12.660 CFS (2.13 ACRES)

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GMP ADDENDUM01 7/27/2018; SUB04 8/14/18

SCALE: NONE | DRAWN: AI, KW, DM, BP, TT | CHECKED: KW

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

STORMWATER MANAGEMENT AND ONSITE BMP CALCULATIONS

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0703

PRE-DEVELOPMENT 1-YEAR

Hydrograph Report

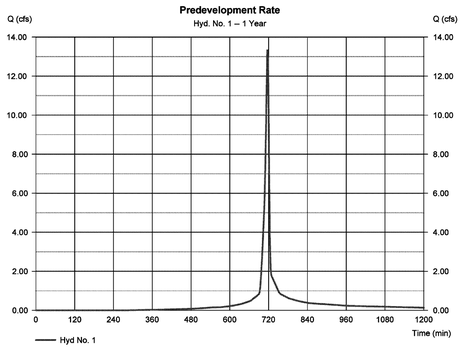
1

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5 — Sunday, 09 / 18 / 2016

Hyd. No. 1

Predevelopment Rate

Hydrograph type	= SCS Runoff	Peak discharge	= 13.35 cfs
Storm frequency	= 1 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 28,102 cuft
Drainage area	= 4.320 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.64 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



PRE-DEVELOPMENT 10-YEAR

Hydrograph Report

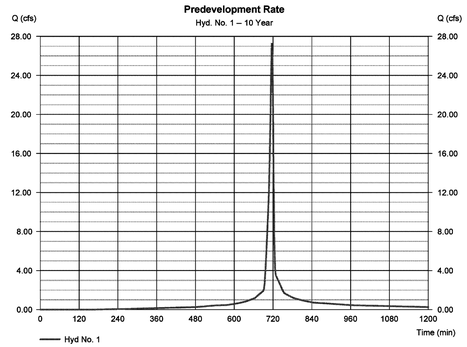
2

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5 — Sunday, 09 / 18 / 2016

Hyd. No. 1

Predevelopment Rate

Hydrograph type	= SCS Runoff	Peak discharge	= 27.30 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 60,272 cuft
Drainage area	= 4.320 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



DETENTION VAULT #1 ROUTING 1-YEAR

Hydrograph Report

1

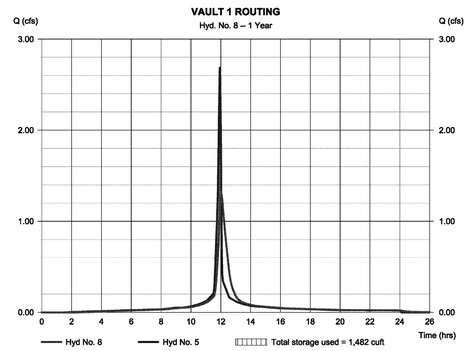
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5 — Wednesday, 02 / 14 / 2018

Hyd. No. 8

VAULT 1 ROUTING

Hydrograph type	= Reservoir	Peak discharge	= 1.307 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 6,225 cuft
Inflow hyd. No.	= 5 - DET. VAULT 1	Max. Elevation	= 337.10 ft
Reservoir name	= VAULT #1	Max. Storage	= 1,482 cuft

Storage Indication method used.



DETENTION VAULT #1 ROUTING 10-YEAR

Hydrograph Report

2

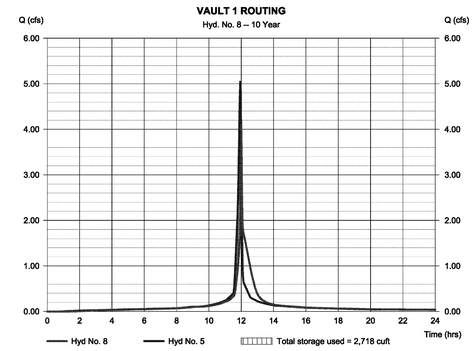
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5 — Wednesday, 02 / 14 / 2018

Hyd. No. 8

VAULT 1 ROUTING

Hydrograph type	= Reservoir	Peak discharge	= 4.117 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 12,053 cuft
Inflow hyd. No.	= 5 - DET. VAULT 1	Max. Elevation	= 338.30 ft
Reservoir name	= VAULT #1	Max. Storage	= 2,718 cuft

Storage Indication method used.



POST-DEVELOPMENT UNDETAINED 1-YEAR

Hydrograph Report

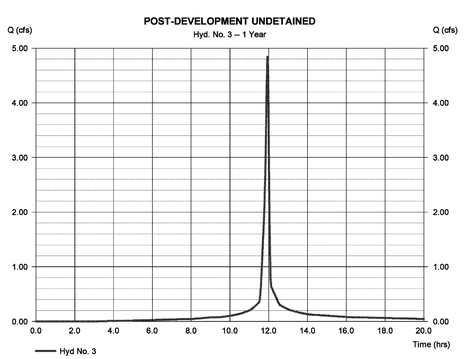
1

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5 — Wednesday, 02 / 14 / 2018

Hyd. No. 3

POST-DEVELOPMENT UNDETAINED

Hydrograph type	= SCS Runoff	Peak discharge	= 4.855 cfs
Storm frequency	= 1 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 10,698 cuft
Drainage area	= 1.430 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.64 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



POST-DEVELOPMENT UNDETAINED 10-YEAR

Hydrograph Report

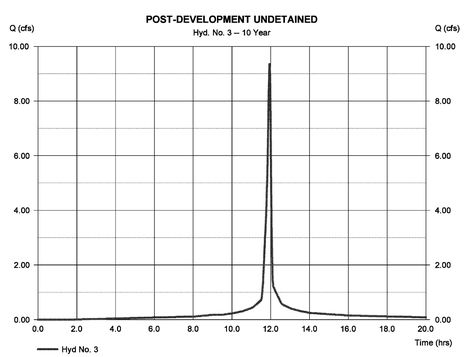
2

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5 — Wednesday, 02 / 14 / 2018

Hyd. No. 3

POST-DEVELOPMENT UNDETAINED

Hydrograph type	= SCS Runoff	Peak discharge	= 9.377 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 21,574 cuft
Drainage area	= 1.430 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



DETENTION VAULT #2 ROUTING 1-YEAR

Hydrograph Report

1

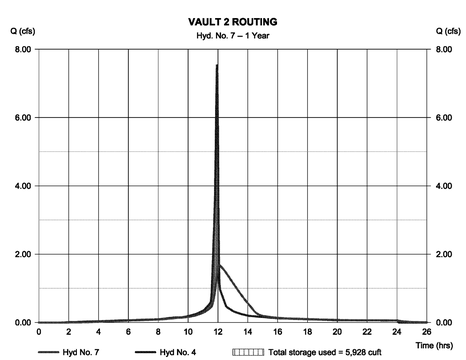
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5 — Wednesday, 02 / 14 / 2018

Hyd. No. 7

VAULT 2 ROUTING

Hydrograph type	= Reservoir	Peak discharge	= 1.679 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 17,460 cuft
Inflow hyd. No.	= 4 - DET. VAULT 2	Max. Elevation	= 322.99 ft
Reservoir name	= VAULT #2	Max. Storage	= 5,928 cuft

Storage Indication method used.



DETENTION VAULT #2 ROUTING 10-YEAR

Hydrograph Report

2

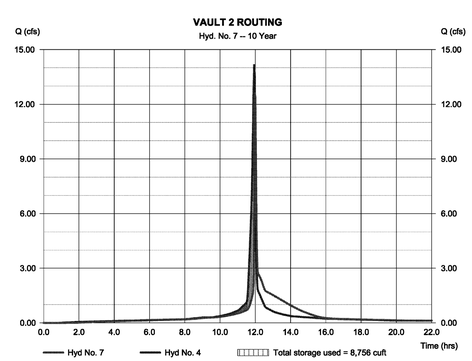
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5 — Wednesday, 02 / 14 / 2018

Hyd. No. 7

VAULT 2 ROUTING

Hydrograph type	= Reservoir	Peak discharge	= 12.66 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 33,794 cuft
Inflow hyd. No.	= 4 - DET. VAULT 2	Max. Elevation	= 324.77 ft
Reservoir name	= VAULT #2	Max. Storage	= 8,756 cuft

Storage Indication method used.



SEE WATER QUANTITY BALANCE EQUATION ON SHEET C-0702 FOR STORMWATER COMPLIANCE.

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COMMONWEALTH OF VIRGINIA — KAREN L. S. WHITE Lic. No.041850 — 8/14/18 — PROFESSIONAL ENGINEER

DATE-SUBD1 1/23/2015, SUB02 2/26/2014, GMP 8/21/2018, SUB03 7/10/2018	DRAWN: AL KW, DM, BP, JT	CHECKED: KW
SCALE: NONE	GMP ADDENDUM01 7/27/2018, SUB04 8/14/18	

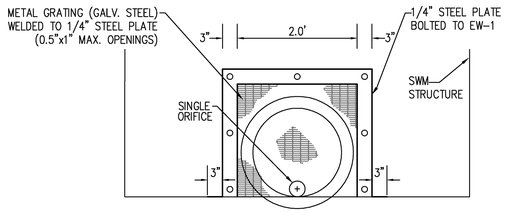
NO.	DESCRIPTION	DATE
	GMP SET	8/21/18

STORMWATER HYDROGRAPHS

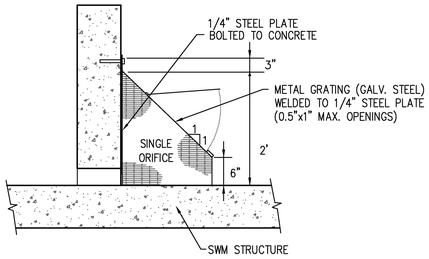
FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0704



ELEVATION



SECTION

NOTES:

1. THIS DETAIL (METAL GRATING AND STEEL PLATE) MAY BE APPLIED DIRECTLY AGAINST CONCRETE.
2. A 1.5'x2' HINGED GATE WITH LOCKING MECHANISM SHALL BE INSTALLED ON THE FRONT FACE OF THE CAGE.

SWM TRASH RACK

N.T.S.

Pond Report

2

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5 — Wednesday, 02 / 14 / 2018

Pond No. 4 - VAULT #1

Pond Data

UG Chambers -Invert elev. = 335.60 ft, Rise x Span = 3.00 x 30.00 ft, Barrel Len = 35.00 ft, No. Barrels = 1, Slope = 0.50%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	335.60	n/a	0	0
0.32	335.92	n/a	242	242
0.63	336.24	n/a	333	575
0.95	336.55	n/a	333	908
1.27	336.87	n/a	333	1,242
1.59	337.19	n/a	333	1,575
1.90	337.51	n/a	333	1,909
2.22	337.82	n/a	333	2,242
2.54	338.14	n/a	333	2,576
2.86	338.46	n/a	333	2,909
3.18	338.77	n/a	242	3,151

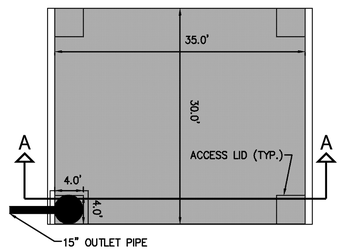
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	8.00	0.00	0.00
Span (in)	= 15.00	8.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 335.60	335.60	0.00	0.00
Length (ft)	= 10.00	0.67	0.00	0.00
Slope (%)	= 0.50	0.50	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

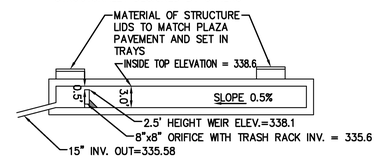
	[A]	[B]	[C]	[D]
Crest Len (ft)	= 9.34	0.00	0.00	0.00
Crest El. (ft)	= 338.10	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	---

Exfil.(in/hr) = 0.000 (by Wet area)
TW Elev. (ft) = 0.00



DETENTION VAULT #1 - STRUCTURE 5

DETAILS ARE FOR DIMENSIONAL PURPOSES; TO BE STRUCTURALLY DESIGNED BY OTHERS



SECTION A-A

Pond Report

2

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5 — Wednesday, 02 / 14 / 2018

Pond No. 3 - VAULT #2

Pond Data

UG Chambers -Invert elev. = 319.20 ft, Rise x Span = 6.00 x 40.00 ft, Barrel Len = 40.25 ft, No. Barrels = 1, Slope = 0.50%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	319.20	n/a	0	0
0.62	319.82	n/a	837	837
1.24	320.44	n/a	999	1,835
1.86	321.06	n/a	999	2,834
2.48	321.68	n/a	999	3,832
3.10	322.30	n/a	999	4,831
3.72	322.92	n/a	999	5,830
4.34	323.54	n/a	999	6,828
4.96	324.16	n/a	999	7,827
5.58	324.78	n/a	999	8,825
6.20	325.40	n/a	837	9,662

Culvert / Orifice Structures

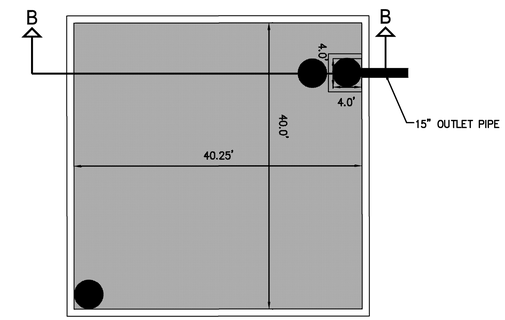
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	6.00	6.00	0.00
Span (in)	= 15.00	6.00	6.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 319.20	319.20	323.20	0.00
Length (ft)	= 32.00	4.00	0.67	0.00
Slope (%)	= 1.00	0.50	0.50	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 10.00	0.00	0.00	0.00
Crest El. (ft)	= 324.20	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

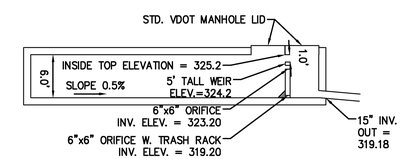
Exfil.(in/hr) = 0.000 (by Wet area)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

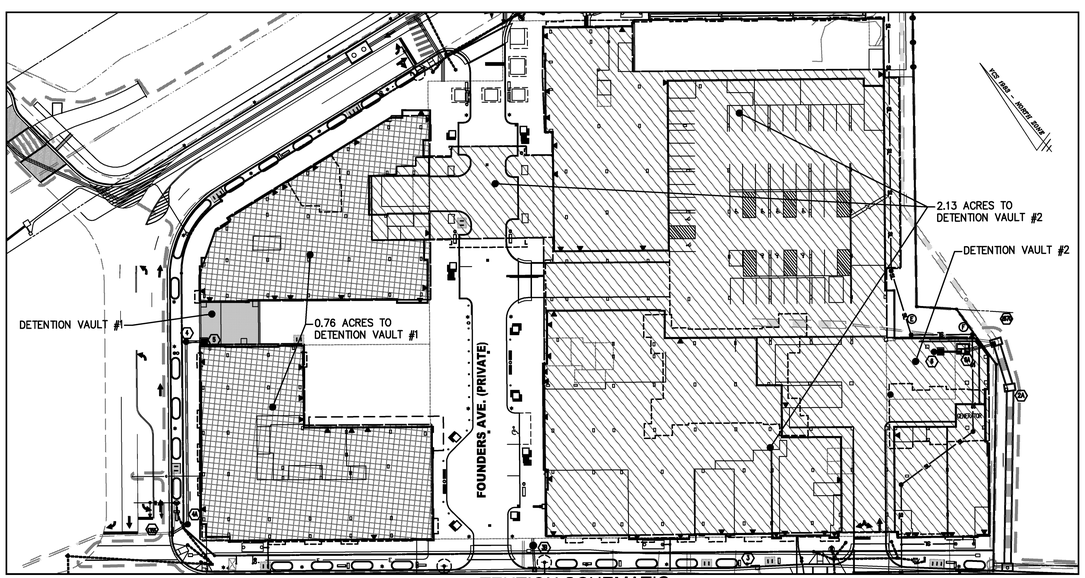


DETENTION VAULT #2 - STRUCTURE 6

DETAILS ARE FOR DIMENSIONAL PURPOSES; TO BE STRUCTURALLY DESIGNED BY OTHERS



SECTION B-B



DETENTION SCHEMATIC

SCALE: 1"=50'

THE REMAINING 1.43 ACRES OF THE SITE IS UNDETAINED.

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COMMONWEALTH OF VIRGINIA PROFESSIONAL ENGINEER — KAREN L. S. WHITE Lic. No.041850 — 8/14/18

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

DATE: SUB01 1/23/2015, SUB02 2/26/2014, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18

SCALE: AS NOTED

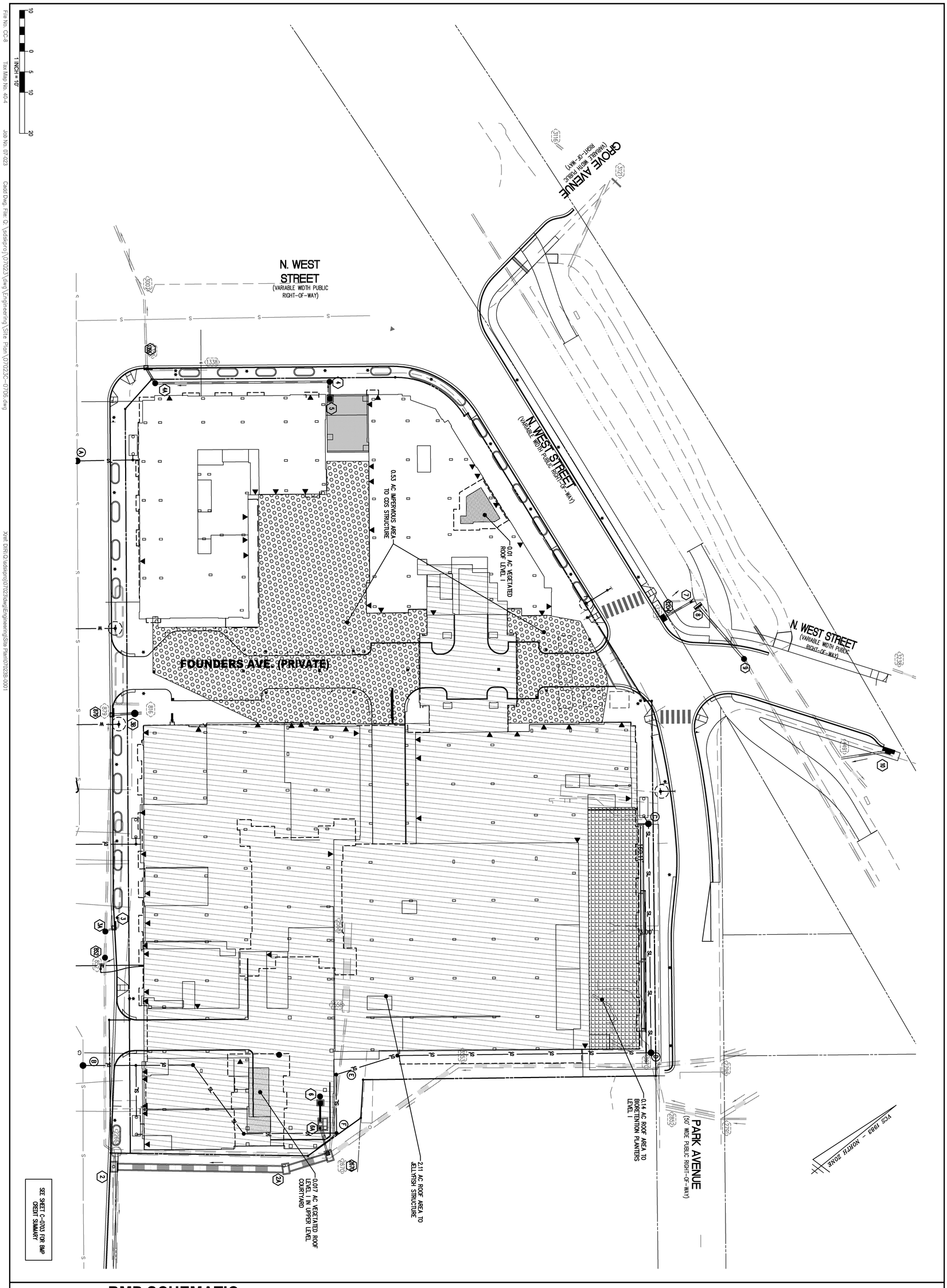
DRAWN: AL KW, DM, BP, TT
CHECKED: KW

STORMWATER MANAGEMENT DETAILS

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0705



File No. CC-8

Tax Map No. 40-4

Job No. 07-023

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Xref: DIR\Q:\sdskproj\07023\dwg\Engineering\Site Plan\07023B-0001

BMP SCHEMATIC

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE CITY OF FALLS CHURCH, VIRGINIA

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

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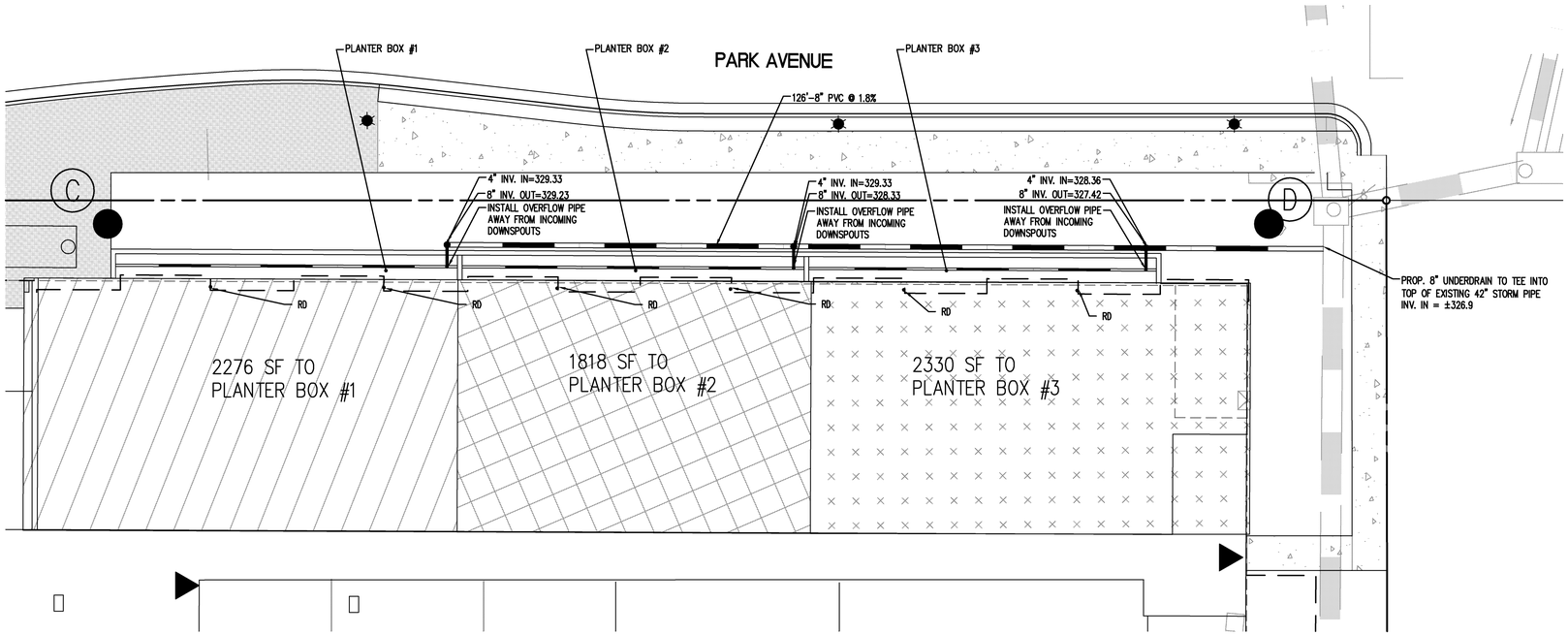
SCALE: 1" = 30'

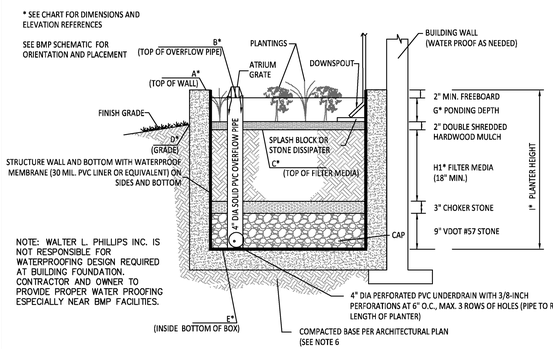
DATE: SUB01 9/23/2016, SUB02 2/20/2018, GMP 6/21/2018, SUB03 7/10/2018 GMP ADDENDUM01 7/27/2018; SUB04 8/14/18

DRAWN: AI, KW, DM, BP, TT

CHECKED: KW

SHEET: C-0706





BIORETENTION BOX SECTION A-A

NOTES:

1. SEE VIRGINIA DEQ STORMWATER DESIGN SPECIFICATION NO. 9 FOR ADDITIONAL DESIGN AND CONSTRUCTION INFORMATION.
2. THE PLANTER BOX MAY BE CONTAINED IN A PRECAST CONCRETE, CAST-IN-PLACE CONCRETE OR 6"X6" PRESSURE TREATED WOOD VAULT (WALLS AND BASE). OTHER MATERIALS MAY INCLUDE MOLDED POLYPROPYLENE CELLS AND PRECAST MODULAR BLOCK SYSTEMS (VIRGINIA DEQ DESIGN SPECIFICATION NO. 9, SECTION 9-A-1).
3. SINCE PLANTER BOXES ARE LOCATED NEAR THE BUILDING FOUNDATION, WATERPROOFING BY USING A WATERTIGHT CONCRETE SHELL OR AN IMPERMEABLE LINER IS REQUIRED TO PREVENT SEEPAGE.
4. AN ATRIUM GRATE OR EQUIVALENT MAY BE USED FOR THE OVERFLOW ON TOP OF THE PVC STANDPIPE.
5. CONTRACTOR TO ENSURE THAT THE PROPER DOWNSPOUTS DISCHARGE INTO THE PLANTER BOX. RIVER ROCK OR OTHER ENERGY DISSIPATION SHALL BE USED WHERE DOWNSPOUTS TIE INTO THE PLANTER BOX.
6. FOR PLANTER BOXES ATTACHED TO THE FOUNDATION AND/OR A RETAINING WALL, SEE ARCHITECTURAL PLANS FOR STRUCTURAL DETAILS/REQUIREMENTS.

BIORETENTION PLANTER BOX DETAIL

PLANTER BOX DIMENSIONS

PLANTER BOX ID	ELEVATIONS					PLANTER DIMENSIONS					
	A	B	C	D	E	G (FT)	H1 (FT)	I (FT)	WIDTH (FT)	LENGTH (FT)	SURFACE AREA (SF)
1	332.69	332.52	331.86	334.6	329.36	0.50	1.50	3.33	3.50	49.30	172.6
2	332.69	332.52	331.86	332.8	329.36	0.50	1.50	3.33	3.50	49.30	172.6
3	331.69	331.52	330.86	331.1	328.36	0.50	1.50	3.33	3.50	50.00	175.0

Planter # 1 — 2276 SF
AREA TO URBAN BIORETENTION STORMWATER PLANTER
TREAT 1" STORM RUNOFF PER DEQ SPEC. #9
TvBMP = 0.95 x 2276 SF x 0.0833' = 181 CF
SIZE OF THE PLANTER = 172.6 SF
V1 (PONDING DEPTH) = 172.6 SF X 0.5 = 86 CF
V2 (SOIL MEDIA) = 172.6 SF X 1.5 X 0.25 (VOID = 64 CF
V3 (#57 & PEA GRAVEL) = 172.6 SF X 1 X 0.4 (VOIDS) = 69 CF
TOTAL VOLUME = 219 CF PROVIDED

Planter # 2 — 1818 SF
AREA TO URBAN BIORETENTION STORMWATER PLANTER
TREAT 1" STORM RUNOFF PER DEQ SPEC. #9
TvBMP = 0.95 x 1818 SF x 0.0833' = 144 CF
SIZE OF THE PLANTER = 172.6 SF
V1 (PONDING DEPTH) = 172.6 SF X 0.5 = 86 CF
V2 (SOIL MEDIA) = 172.6 SF X 1.5 X 0.25 (VOID = 64 CF
V3 (#57 & PEA GRAVEL) = 172.6 SF X 1 X 0.4 (VOIDS) = 69 CF
TOTAL VOLUME = 219 CF PROVIDED

Planter # 3 — 2330 SF
AREA TO URBAN BIORETENTION STORMWATER PLANTER
TREAT 1" STORM RUNOFF PER DEQ SPEC. #9
TvBMP = 0.95 x 2330 SF x 0.0833' = 185 CF
SIZE OF THE PLANTER = 175 SF
V1 (PONDING DEPTH) = 175 SF X 0.5 = 87 CF
V2 (SOIL MEDIA) = 175 SF X 1.5 X 0.25 (VOIDS) = 65 CF
V3 (#57 & PEA GRAVEL) = 175 SF X 1 X 0.4 (VOIDS) = 70 CF
TOTAL VOLUME = 222 CF PROVIDED

res

Date: June 25, 2018

To: MillCreek Residential
c/o Joe Muffler
6701 Democracy Boulevard, Suite 500
Bethesda, MD 20817

From: Elizabeth Yost
Credit Sales Coordinator
Resource Environmental Solutions

Subject: Potomac Watershed – Nutrient Credit Pricing

Project Reference: Founders Row, Falls Church, HUC 02070010

This letter is to confirm the pricing of Nutrient Credits to be sold and debited from one or more of Resource Environmental Solutions, LLC's nutrient bank facilities within the above-referenced watersheds. Upon approval and release by DEQ, all such Nutrient Credits may be used by permit applicants within these watersheds to compensate for nutrient loadings in excess of state or local regulations, as per Virginia Code § 62.1-44.15:35 and § 62.1-44.19:14 and Virginia Administrative Code 9 VAC 25-820-10 et seq. We appreciate the opportunity to assist you with your project. Currently our Nutrient Credit price for your project is as follows:

- 0.42 pounds of Phosphorus Credits = **$10,080.00**

This pricing is good for 60 days as of the date of this correspondence.

Please feel free to contact me if you have any questions.

Sincerely,

Elizabeth M. Yost

Elizabeth M. Yost
Resource Environmental Solutions
eyost@res.us

10055 Red Run Blvd.
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Owings Mills, MD
21117

412 N. 4th St.
Suite 300
Baton Rouge, LA
70802

701 E. Bay St.
Suite 306
Charleston, SC
29403

5020 Montrose Blvd.
Suite 650
Houston, TX
77006

1200 Camellia Blvd.
Suite 220
Lafayette, LA
70508

137½ East Main St.
Suite 210
Oak Hill, WV
25901

33 Terminal Way
Suite 431
Pittsburgh, PA
15219

302 Jefferson St.
Suite 110
Raleigh, NC
27605

1408 B Roseneath Rd.
Richmond, VA
23230

Table 9.7. Bioretention Material Specifications

Material	Specification	Notes
Filter Media Composition	Filter Media to contain: • 80% - 90% sand • 10%-20% soil fines • 3%-5% organic matter	The volume of filter media based on 110% of the plan volume, to account for settling or compaction.
Filter Media Testing	Available P between L+ and M per DCR 2005 Nutrient Management Criteria.	The media should be certified by the supplier.
Mulch Layer	Use aged, shredded hardwood bark mulch or stable coarse compost.	Lay a 2 to 3 inch layer on the surface of the filter bed.
Alternative Surface Cover	Use river stone or pea gravel, coir and jute matting, or turf cover.	Lay a 2 to 3 inch layer of to suppress weed growth.
Top Soil For Turf Cover	Loamy sand or sandy loam texture, with less than 5% clay content, pH corrected to between 6 and 7, and an organic matter content of at least 2%.	3 inch surface depth.
Geotextile/Liner	Use a non-woven geotextile fabric with a flow rate of > 110 gal./min./sq. ft. (e.g., Geotex 351 or equivalent)	Apply only to the sides and directly above the underdrain. For hotspots and certain karst sites only, use an appropriate liner on bottom.
Choking Layer	Lay a 2 to 4 inch layer of sand over a 2 inch layer of choker stone (typically #8 or #89 washed gravel), which is laid over the underdrain stone.	
Stone Jacket for Underdrain and/or Storage Layer	1 inch stone should be double-washed and clean and free of all fines (e.g., VDOT #57 stone).	12 inches for the underdrain; 12 to 18 inches for the stone storage layer, if needed
Underdrains, Cleanouts, and Observation Wells	Use 6 inch rigid schedule 40 PVC pipe (or equivalent corrugated HDPE for micro-bioretention), with 3/8-inch perforations at 6 inches on center; position each underdrain on a 1% or 2% slope located nor more than 20 feet from the next pipe.	Lay the perforated pipe under the length of the bioretention cell, and install non-perforated pipe as needed to connect with the storm drain system. Install T's and Y's as needed, depending on the underdrain configuration. Extend cleanout pipes to the surface with vented caps at the Ts and Ys.
Plant Materials	Plant one tree per 250 square feet (15 feet on-center, minimum 1 inch caliper). Shrubs a minimum of 30 inches high planted a minimum of 10 feet on-center. Plant ground cover plugs at 12 to 18 inches on-center; Plant container-grown plants at 18 to 24 inches on-center, depending on the initial plant size and how large it will grow.	Establish plant materials as specified in the landscaping plan and the recommended plant list. In general, plant spacing must be sufficient to ensure the plant material achieves 80% cover in the proposed planting areas within a 3-year period. If seed mixes are used, they should be from a qualified supplier, should be appropriate for stormwater basin applications, and should consist of native species (unless the seeding is to establish maintained turf).

Native trees or shrubs are preferred for urban bioretention areas, although some ornamental species may be used. As with regular bioretention, the selected perennials, shrubs, and trees must be tolerant of salt, drought, and inundation. Additionally, tree species should be those that are known to survive well in the compacted soils and polluted air and water of an urban landscape.

SECTION 9-A-7: URBAN BIORETENTION MATERIAL SPECIFICATIONS

Please consult the **main part of this design specification** (**Table 9.7**) for the typical materials needed for filter media, stone, mulch and other bioretention features. The unique components for urban bioretention may include the inlet control device, a concrete box or other containing shell, protective grates, and an underdrain that daylights to another stormwater practice or connects to the storm drain system. The underdrain should:

- Consist of slotted pipe greater than or equal to 4 inches in diameter, placed in a layer of washed (less than 1% passing a #200 sieve) VDOT #57 stone.
- Have a minimum of 2 inches of gravel laid above and below the pipe.
- Be laid at a minimum slope of 0.5 %.
- Extend the length of the box filter from one wall to within 6 inches of the opposite wall, and may be either centered in the box or offset to one side.
- Be separated from the soil media by an appropriate filter fabric for the particular application based on AASHTO M288-06 or a 2 to 3 inch layer of either washed VDOT #8 stone or 1/8 to 3/8 inch pea gravel.

SECTION 9-A-9: MAINTENANCE

Routine operation and maintenance are essential to gain public acceptance of highly visible urban bioretention areas. Weeding, pruning, and trash removal should be done as needed to maintain the aesthetics necessary for community acceptance. During drought conditions, it may be necessary to water the plants, as would be necessary for any landscaped area.

To ensure proper performance, inspectors should check that stormwater infiltrates properly into the soil within 24 hours after a storm. If excessive surface ponding is observed, corrective measures include inspection for soil compaction and underdrain clogging. Consult the maintenance guidance outlined in **the main part of this design specification**.

NOTES:

1. SEE SHEET C-0302 FOR LEGEND.
2. SEE LANDSCAPE PLAN FOR BIORETENTION PLANTINGS.
3. SEE ARCHITECTURAL/STRUCTURAL PLANS FOR PLANTER WALL DESIGN.
4. SEE ARCHITECTURAL PLANS FOR VEGETATED ROOF DESIGN.
5. CONTRACTOR TO REFER TO MOST RECENT VERSION OF VA DCR STORMWATER DESIGN SPECIFICATIONS FOR ADDITIONAL CONSTRUCTION DETAILS.

10 0 5 10 20
1 INCH = 10'

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Landscape Architects • Arborists
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www.WLPINC.com

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

SCALE: 1" = 10' | DRAWN: AL KW, DM, BP, JT | CHECKED: KW
DATE: SUB01 1/23/2015, SUB02 2/20/2015, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18

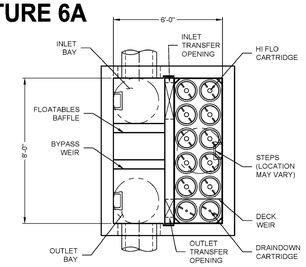
NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

BIORETENTION PLANTER PLAN AND DETAILS

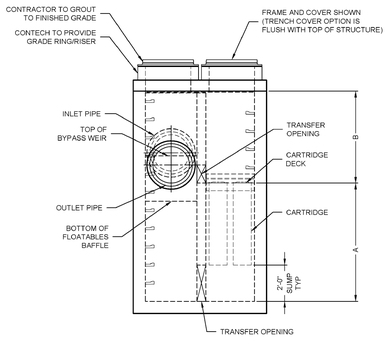
FOUNDERS ROW
AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0707

STRUCTURE 6A



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)

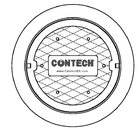


ELEVATION VIEW

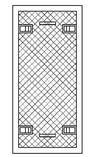
JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE SELECTION				
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.96	1.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	5.00	4.00	4.00	4.00



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24" TRENCH COVER
(LENGTH VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID					*
WATER QUALITY FLOW RATE (cfs)					*
PEAK FLOW RATE (cfs)					*
RETURN PERIOD OF PEAK FLOW (yrs)					*
# OF CARTRIDGES REQUIRED (HF / DD)					*
CARTRIDGE LENGTH					*
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*
SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.					
RIM ELEVATION					*
ANTI-FLOTATION BALLAST		WIDTH		HEIGHT	
		*		*	
NOTES/SPECIAL REQUIREMENTS:					
* PER ENGINEER OF RECORD					

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish® Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,616; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFPD0806
STANDARD DETAIL
PEAK DIVERSION CONFIGURATION

I:\CAD\MAC-CASTRE\ATMENT\13-JELLYFISH FILTER\6-STANDARD DRAWINGS\JFPD\JVOLUFP0806-STL_NEW.DWG 1/25/2018 10:38 AM

CONTECH® ENGINEERED SOLUTIONS

Project Name:	Founder's Row		
Site Designation:	Flow-Based Jellyfish	**Date:**	2/15/18
County or Independent City:	Falls Church	**Design Engineer:**	JLW
State:	VA		

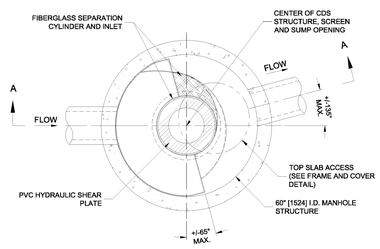
Mass Loading Calculations:

Peak Design Flow (cfs)	TBD
Water Quality Flow (cfs)	**3.16**
Annual Rainfall (inches)	43
Total Drainage Area, A (ac)	2.13
Post Development Impervious Area, A_i (ac)	2.13
Pervious Area, A_p (ac)	**0.00**
Impervious Runoff Coefficient, Rv	0.95
Pervious Runoff Coefficient, Rv	0.25
% Impervious	**100%**
Runoff Coefficient, Rc	**0.95**
TSS Removal By Pretreatment	0%
Agency Required TSS % Removal	80%
Required TSS Removal Efficiency of Filter	**80%**
Percent Runoff Capture	90%
Mean Annual Runoff, V_t (ft^3)	**284,263**
Event Mean Concentration of Pollutant, EMC (mg/L)	60
Annual Mass Load, M_{total} (lbs)	**1064.13**

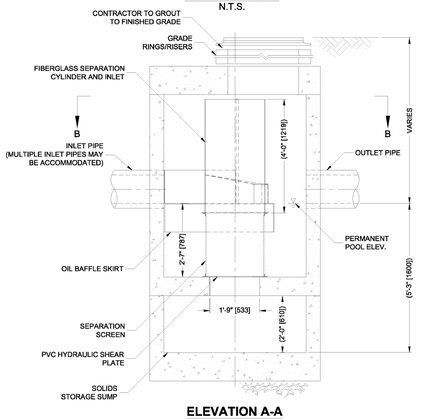
Flow Based Filter Sizing:

Mass to be Captured by System (lbs)	**851.30**
Filter Type	Jellyfish
Structure Type	Peak Diversion
Cartridge Length	54"
Allowable Load Per Hi-Flo Cartridge (lbs)	**125**
Allowable Load Per Draindown Cartridge (lbs)	**63**
# Hi-Flo Cartridges Required	**16**
# Draindown Cartridges Required	**4**
Recommended Model	**8'x 11' Peak Diversion**
TSS Treatment Capacity (lbs)	**2252.00**
Maximum Water Quality Flow	**3.21 cfs**

STRUCTURE 3B



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.

CDS
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,616; US 8,123,935; RELATED FOREIGN PATENTS OR OTHER PATENTS PENDING

CDS2020-5-C DESIGN NOTES

CDS2020-5-C RATED TREATMENT CAPACITY IS 1.1 CFS [31.2 L/s], OR PER LOCAL REGULATIONS. MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY IS 14.0 CFS [396 L/s]. IF THE SITE CONDITIONS EXCEED 14.0 CFS [396 L/s], AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

THE STANDARD CDS2020-5-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS

FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO..
5. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH® ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2020-5-C
ONLINE CDS
STANDARD DETAIL

\\AD.CONTECH-CPI.COM\ROOT\COMMON\CAD\TREATMENT\22 CDS\#6 STANDARD DRAWINGS\ONLINE (CDS-C)\DWG\CDS2020-5-C-OTL.DWG 9/25/2015 8:17 AM

CONTECH® ENGINEERED SOLUTIONS

Project Name:	Founder's Row		
Site Designation:	Flow-Based Jellyfish	**Date:**	2/15/18
County or Independent City:	Falls Church	**Design Engineer:**	JLW
State:	VA		

Mass Loading Calculations:

Peak Design Flow (cfs)	TBD
Water Quality Flow (cfs)	**3.16**
Annual Rainfall (inches)	43
Total Drainage Area, A (ac)	2.13
Post Development Impervious Area, A_i (ac)	2.13
Pervious Area, A_p (ac)	**0.00**
Impervious Runoff Coefficient, Rv	0.95
Pervious Runoff Coefficient, Rv	0.25
% Impervious	**100%**
Runoff Coefficient, Rc	**0.95**
TSS Removal By Pretreatment	0%
Agency Required TSS % Removal	80%
Required TSS Removal Efficiency of Filter	**80%**
Percent Runoff Capture	90%
Mean Annual Runoff, V_t (ft^3)	**284,263**
Event Mean Concentration of Pollutant, EMC (mg/L)	60
Annual Mass Load, M_{total} (lbs)	**1064.13**

Flow Based Filter Sizing:

Mass to be Captured by System (lbs)	**851.30**
Filter Type	Jellyfish
Structure Type	Peak Diversion
Cartridge Length	54"
Allowable Load Per Hi-Flo Cartridge (lbs)	**125**
Allowable Load Per Draindown Cartridge (lbs)	**63**
# Hi-Flo Cartridges Required	**16**
# Draindown Cartridges Required	**4**
Recommended Model	**8'x 11' Peak Diversion**
TSS Treatment Capacity (lbs)	**2252.00**
Maximum Water Quality Flow	**3.21 cfs**

WALTER L. PHILLIPS INCORPORATED ESTABLISHED 1945
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Landscape Architects • Arborists
207 PARK AVENUE
FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 Fax (703) 533-1301
www.WLPINC.com

COMMONWEALTH OF VIRGINIA PROFESSIONAL ENGINEER
KAREN L. S. WHITE
Lic. No.041850
8/14/18

SCALE: 1" = 10'
DATE: SUB01 1/23/2015, SUB02 2/26/2015, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18
DRAWN: AL KW, DM, BP, JT
CHECKED: KW

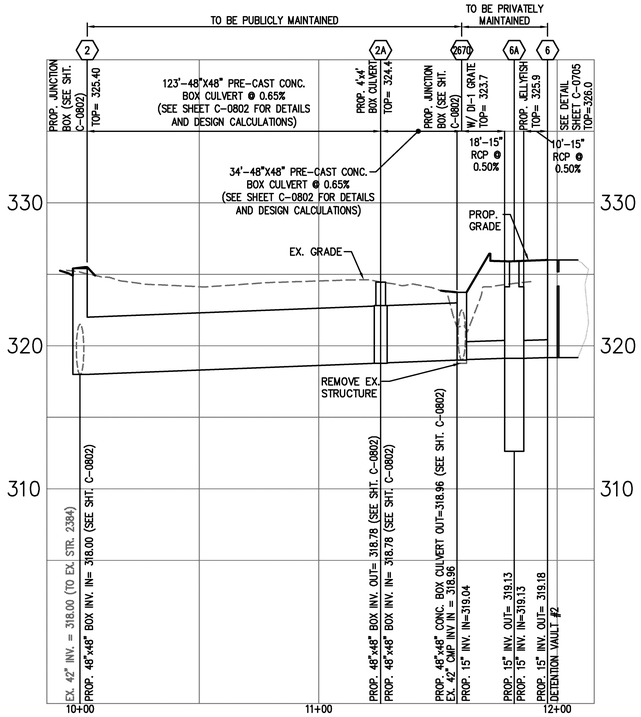
NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

BMP MANUFACTURED DEVICE DETAILS

FOUNDERS ROW

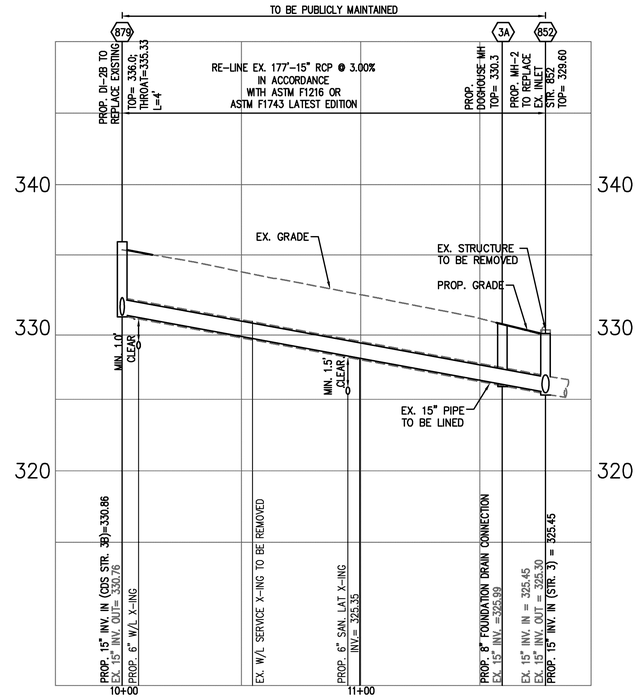
AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: **C-0708**



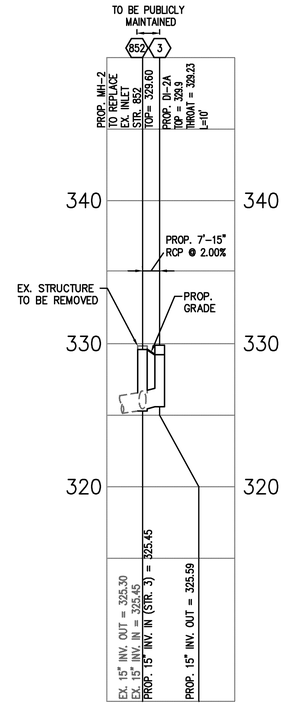
STORM STRUCTURE 2 TO SWM VAULT #2

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=5'



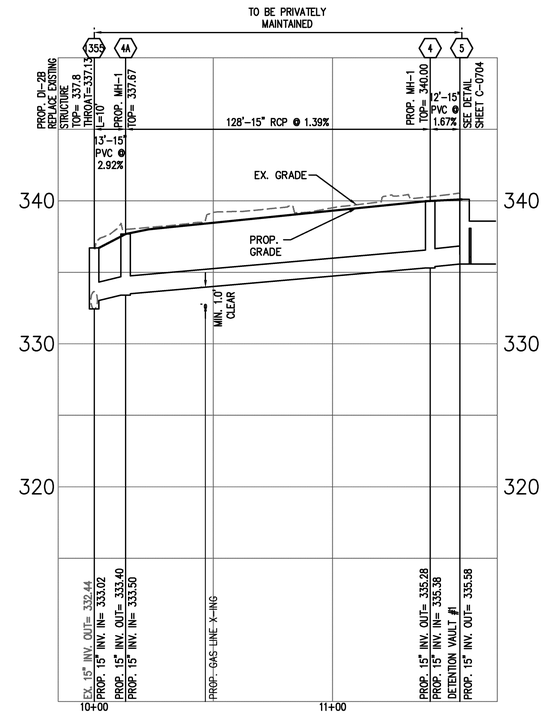
STORM STRUCTURE 879 TO STRUCTURE 852

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=5'



STORM STRUCTURE 852 TO STRUCTURE 3

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=5'



STORM STRUCTURE 1355 TO SWM VAULT #1

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=5'

STORM SEWER COMPUTATIONS

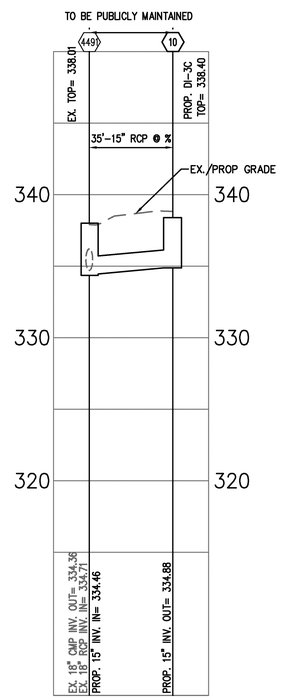
FROM POINT	TO POINT	AREA "A" ACRES	CURVE NUMBER CN	RUNOFF Q INCRE-MENT C.F.S.	RUNOFF Q10 C.F.S.	INVERT ELEV'S UPPER END	INVERT ELEV'S LOWER END	LENGTH FT.	SLOPE FT./FT.	MANNING'S 'n'	DIA. IN.	CAPA-CITY C.F.S.	VEL. F.P.S.	FLOW TIME SEC.	NORMAL DEPTH IN.
5	4	0.71	98	4.12*	4.12	335.58	335.38	12	0.0167	0.011	15	9.81	7.69	1.56	6.75
4	4A	0.00	0.00	0.00	4.12	335.28	333.50	128	0.0139	0.013	15	7.58	6.34	20.18	7.85
4A	1355	0.00	0.00	0.00	4.12	333.40	333.02	13	0.0292	0.013	15	11.00	8.36	1.55	6.34
1355	3007	0.34	97	2.23	6.35	332.44	331.87	52	0.0110	0.013	15	6.73	6.28	8.28	11.52
879	852	1.02	98	6.79	6.79	330.76	325.45	177	0.0300	0.013	15	11.14	9.57	18.49	8.42
3	852	0.21	97	1.39	1.39	325.59	325.45	7	0.0200	0.013	15	9.09	5.39	1.30	3.95
852	2266	0.00	0.00	0.00	8.18	325.30	317.99	145	0.0504	0.013	15	14.44	12.20	11.89	8.05
3204	7	0.23	94	1.18	1.18	335.52	335.40	23	0.0052	0.013	12	2.56	3.21	7.16	5.70
8	9	0.87	87	3.93	3.93	335.30	334.98	51	0.0063	0.013	18	8.29	4.65	10.97	8.69

*CONTROLLED BY DETENTION STRUCTURE

INLET COMPUTATIONS

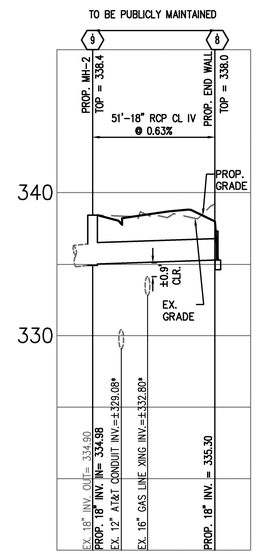
INLET NUMBER	TYPE	LENGTH (FT.)	STATION	DRAINAGE AREA (AC.)	CN	Q INCR. (CFS)	Q_b, CARRYOVER (CFS)	Qt, GUTTERFLOW	S, GUTTER SLOPE (FT/FT)	Sx, CROSS SLOPE (FT/FT)	T, (SPREAD)	W (FT)	WT	Sw (FT/FT)	Sw/Sx	Eo (App. 9C-8)	a = 12W(SW-SX) + LOCAL DEPRESSION	S' w= a/(12W)	Se= Sx + S' w(Eo) (FT/FT)	COMPUTED LENGTH, Ll, (FT) (App. 9C-17)	L, SPECIFIED LENGTH (FT)	L/Ll	E (App. 9C-18)	Q_i, INTERCEPTED (CFS)	Q_b, CARRYOVER (CFS)	SAG INLETS ONLY d (FT)	h (FT)	d/h	T, SPREAD @ SAG (FT)
1	2	3	4	5	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
879	DI-3B	10	0+00	0.22	98	1.46	0.00	1.46	0.029	0.02	5.23	1.50	0.29	0.08	4.00	0.77	3.13	0.17	0.15	10.10	10	0.99	0.9997647	1.46	0.00	-	-	-	-
3	DI-3B	10	0+00	0.21	97	1.39	0.02	1.41	0.030	0.02	5.11	1.50	0.29	0.08	4.00	0.77	3.13	0.17	0.15	10.05	10	0.99	0.9999223	1.41	0.00	-	-	-	-
1355	DI-3C	4	0+00	0.34	97	1.77	0.00	1.77	0.021	0.02	4.42	1.50	0.34	0.08	4.00	-	-	-	-	-	4	-	-	1.77	0.00	0.37	0.46	0.81	17.79
4	DI-3B	6	0+00	0	0	0.46	0.00	0.46	0.020	0.02	2.78	1.50	0.54	0.08	4.00	0.97	3.13	0.17	0.19	4.92	6	1.22	1	0.46	0.00	-	-	-	-
3204	DI-3C	4	0+00	0.23	94	1.18	0.00	1.18	0.002	0.02	8.00	1.50	0.19	0.08	4.00	-	-	-	-	-	4	-	-	1.18	0.00	0.37	0.46	0.80786	17.79

THE ABOVE COMPUTATIONS EVALUATE THE 10-YEAR STORM CONDITIONS.



STORM STRUCTURE 4491 TO STRUCTURE 10

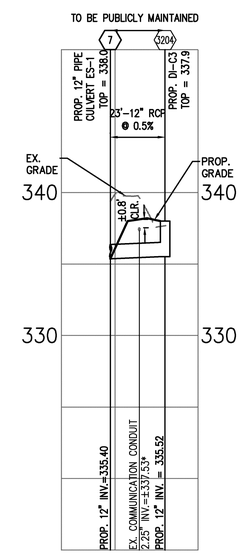
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=5'



STORM STRUCTURE 9 TO STRUCTURE 8 (W&OD TRAIL)

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=5'

*CROSSING INVERT PROVIDED FROM FIELD INFORMATION FROM MID-ATLANTIC UTILITY LOCATING, LLC DATED 6/2017.



STORM STR. 7 TO STR. 3204

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=5'

*CROSSING INVERT PROVIDED FROM FIELD INFORMATION FROM MID-ATLANTIC UTILITY LOCATING, LLC DATED 6/2017.

NOTE: CONTRACTOR TO PROVIDE STORM WATER PIPE SUBMITTALS TO THE CITY FOR APPROVAL PRIOR TO CONSTRUCTION.

WALTER L. PHILLIPS INCORPORATED ESTABLISHED 1945
Engineers • Surveyors • Planners
Landscape Architects • Arborists
207 PARK AVENUE
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www.WLPINC.com
COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

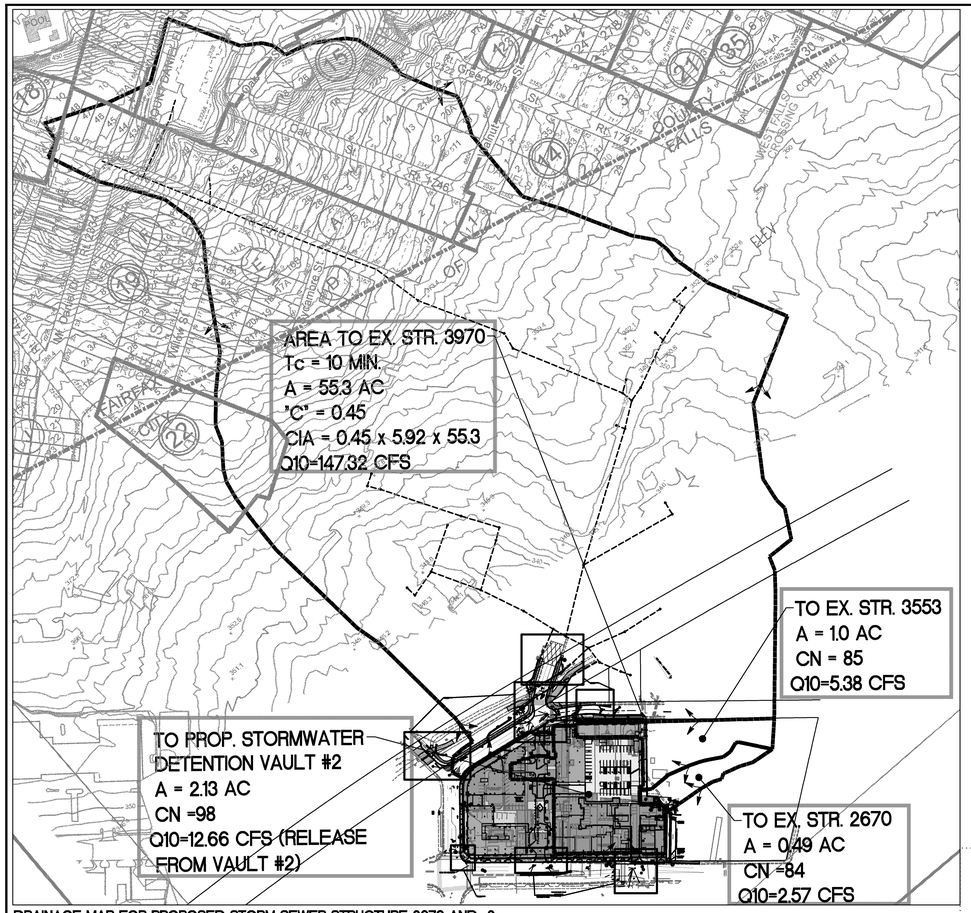
DATE: SUB01 1/23/2015, SUB02 2/20/2015, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18
SCALE: HOR. 1"=30' VERT. 1"=5'
DRAWN: AL KW, DM, BP, TT
CHECKED: KW

STORM SEWER PROFILES

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

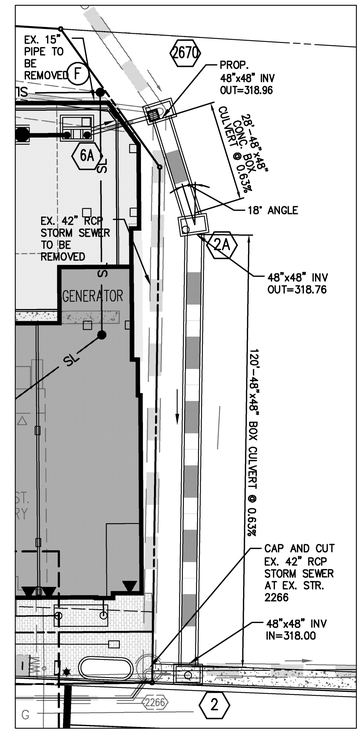
SHEET: C-0801



DRAINAGE MAP FOR PROPOSED STORM SEWER STRUCTURE 2670 AND 2
SCALE: 1"=200'

PLAN VIEW STRUCTURE #2670 TO #2

1"=20'

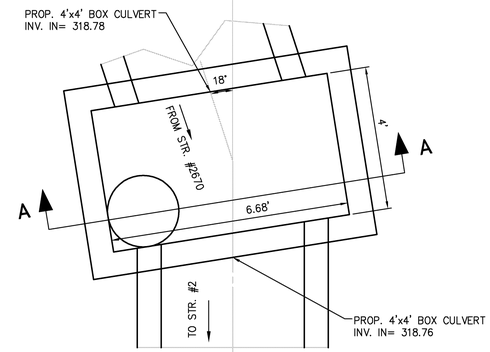


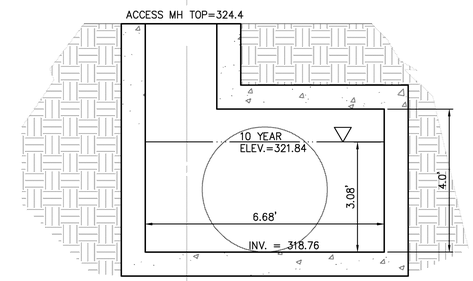
NOTE:

JUNCTION BOXES & BOX CULVERT TO BE STRUCTURALLY DESIGNED BY OTHERS

STORM STRUCTURE #2A JUNCTION BOX PLAN VIEW

SCALE: 1"=2'

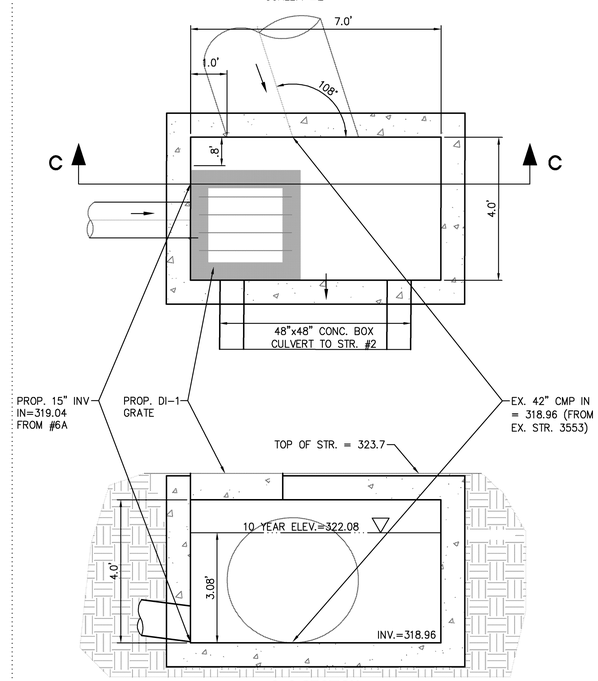




SECTION A-A

STORM STRUCTURE 2670 JUNCTION BOX DETAIL PLAN VIEW

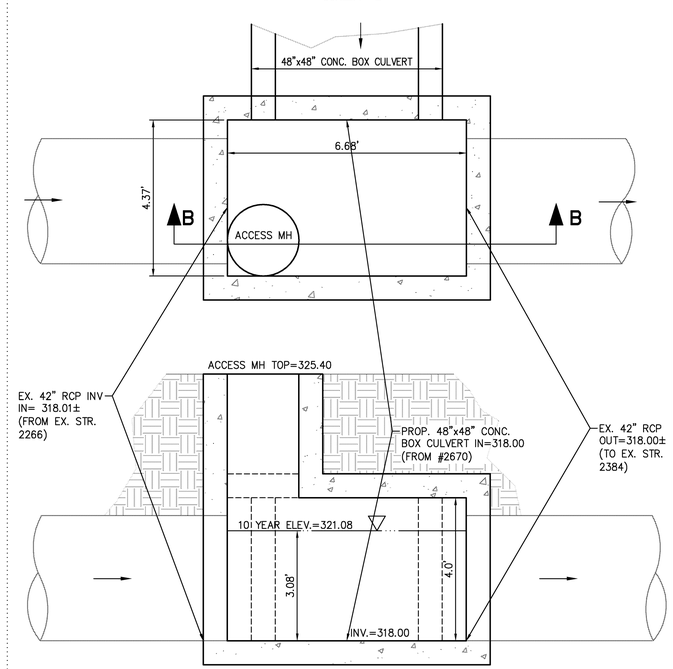
SCALE: 1"=2'



C-C SECTION

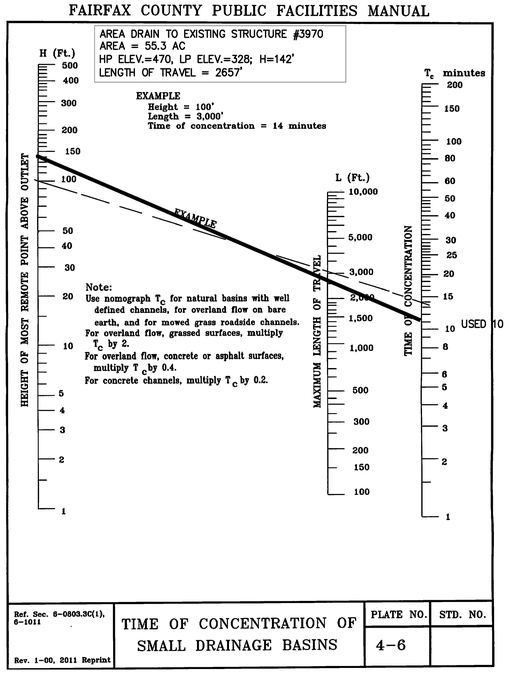
STORM STRUCTURE #2 JUNCTION BOX DETAIL PLAN VIEW

SCALE: 1"=2'



B-B SECTION

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



ANALYSIS RUNOFF TO STORM SEWER STRUCTURE #2670 TO #2

STRUCTURE	AREA (AC)	CN OR "C"	Q10 (CFS)
TO 3970	55.3	0.45*	147.32
EXISTING TO 3553	1	85	5.38
EXISTING TO 2670	0.49	84	2.57
ROOF TO 2670	2.13	98	12.66
			167.93

*C VALUE AND RATIONAL METHOD WERE USED FOR THE OFFSITE DRAINAGE AREA TO UTILIZE TIME OF CONCENTRATION

48"x48" CONCRETE BOX CULVERT CALCULATION

Project Description

Worksheet	str. 2670 AND 2
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coefficient	0.010
Slope	0.0063 ft/ft
Bottom Width	4.00 ft
Discharge	167.93 cfs

Results

Depth	3.12 ft
Flow Area	12.5 ft²
Wetted Perimeter	10.24 ft
Top Width	4.00 ft
Velocity	13.46 ft/s

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www.WLPINC.com

DRAWN: AL KW, DM, BP, JT | CHECKED: KW

SCALE: AS NOTED | DATE: SUB01 1/23/2015, SUB02 2/26/2016, GMP 8/21/2018, SUB03 7/10/2018, GMP ADDENDUM01 7/27/2018, SUB04 8/14/18

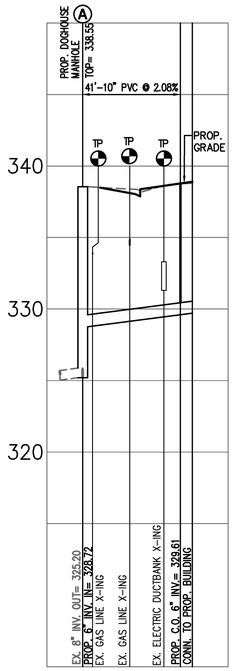
COMMONWEALTH OF VIRGINIA PROFESSIONAL ENGINEER
KAREN L. S. WHITE
Lic. No.041850
8/14/18

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

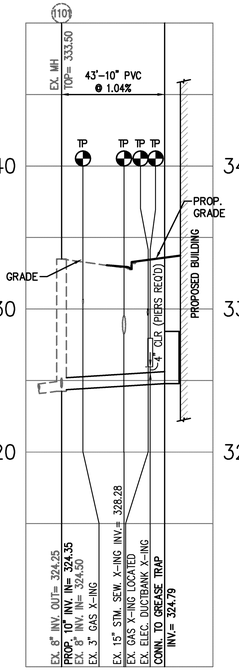
STORM SEWER PROFILE & DETAILS

FOUNDERS ROW

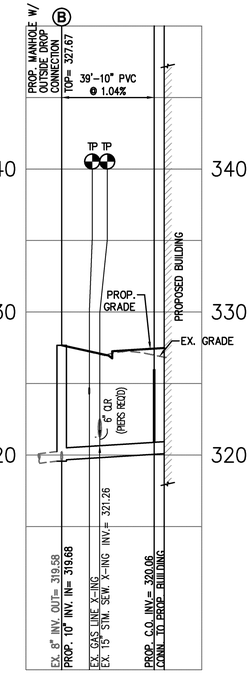
AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA



SANITARY "A"

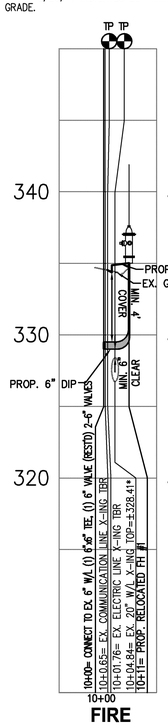


SANITARY "1101"

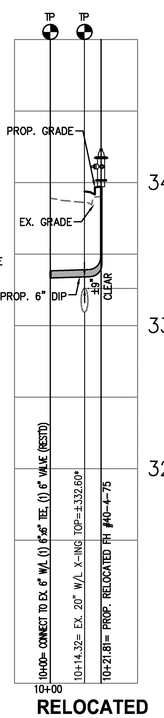


SANITARY "B"

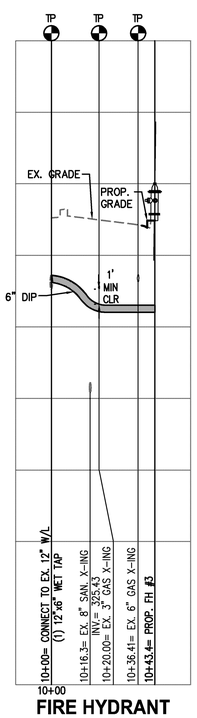
*TEST PIT INFORMATION FROM MID-ATLANTIC UTILITY LOCATING, LLC DATED 5/23/17 INDICATES 20" WATER LINE APPROXIMATELY 6' BELOW GRADE.



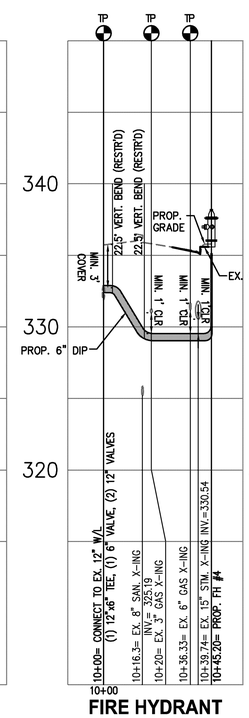
FIRE HYDRANT #1



RELOCATED FIRE HYDRANT #40-4-75

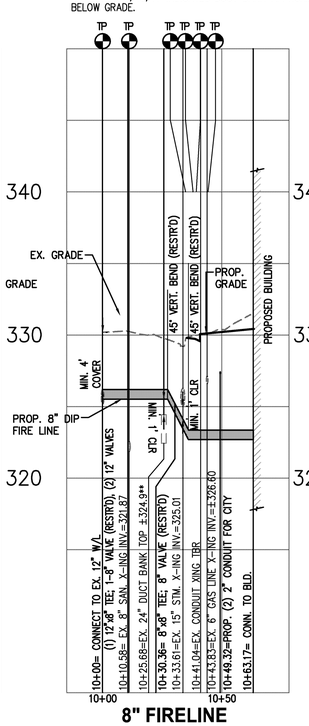


FIRE HYDRANT #3



FIRE HYDRANT #4

*TEST PIT INFORMATION FROM MID-ATLANTIC UTILITY LOCATING, LLC DATED 5/16/17 INDICATES DUCT BANK APPROXIMATELY 5' BELOW GRADE.



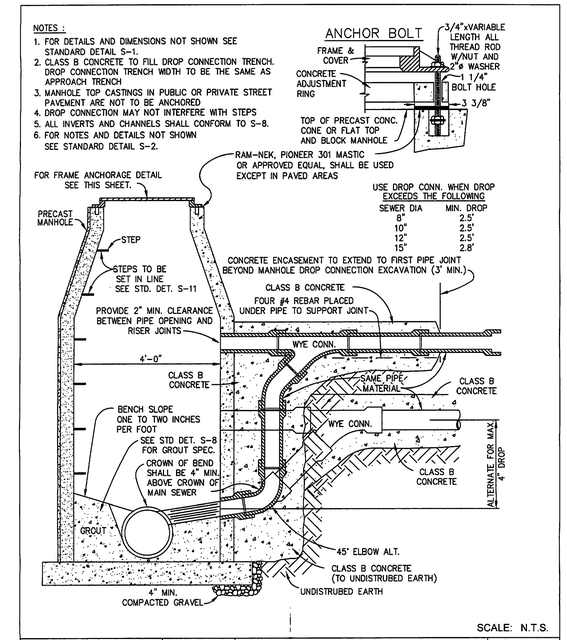
8" FIRELINE WEST BROAD STREET

*TEST PIT INFORMATION FROM MID-ATLANTIC UTILITY LOCATING, LLC DATED 5/16/17 INDICATES DUCT BANK APPROXIMATELY 5' BELOW GRADE.

NOTE:
TEST PITS TO BE PREFORMED 90 DAYS PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IMMEDIATELY OF CONFLICTS.

FINAL GREASE TRAP DETAIL TO BE CHOSEN PRIOR TO CONSTRUCTION. CONTRACTOR TO CONFIRM WITH DEVELOPER PRIOR TO PURCHASE.

NOTES :
1. FOR DETAILS AND DIMENSIONS NOT SHOWN SEE STANDARD DETAIL S-1.
2. CLASS B CONCRETE TO FILL DROP CONNECTION TRENCH. DROP CONNECTION TRENCH WIDTH TO BE THE SAME AS APPROACH TRENCH
3. MANHOLE TOP CASTINGS IN PUBLIC OR PRIVATE STREET PAVEMENT ARE NOT TO BE ANCHORED
4. DROP CONNECTION MAY NOT INTERFERE WITH STEPS
5. ALL INVERTS AND CHANNELS SHALL CONFORM TO S-8.
6. FOR NOTES AND DETAILS NOT SHOWN SEE STANDARD DETAIL S-2.



USE DROP CONN. WHEN DROP EXCEEDS THE FOLLOWING

SEWER DIA	MIN. DROP
8"	2.5'
10"	2.5'
12"	2.5'
15"	2.8'

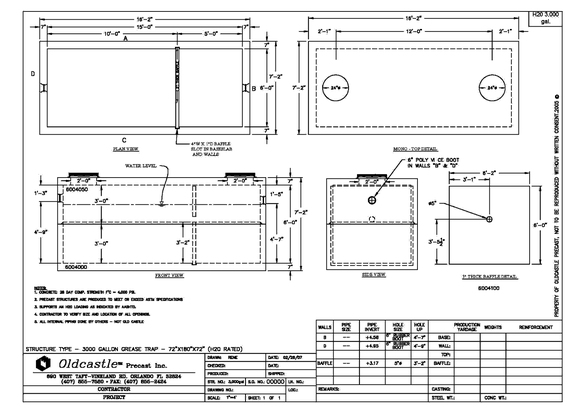
SCALE: N.T.S.

CODE:	6/12/14	
REVISED:	0	
REVISED:	6/12/14	
APPROVED:	MAH	

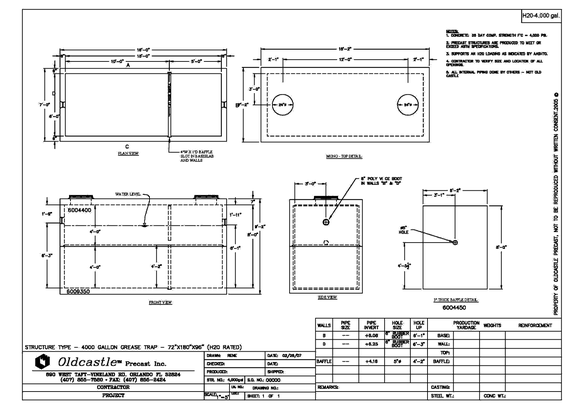
STANDARD DETAIL
TYPICAL 4' MANHOLE
OUTSIDE DROP CONNECTION

DRAWING NO. S 7

CITY OF FALLS CHURCH VA PUBLIC FACILITIES MANUAL



WALLS	PIPE INCH	PIPE INVERT	HOLE SIZE	HOLE LOC.	PRODUCTION VARIANCE	WEIGHTS	REINFORCEMENT
B	---	+4.58	8" BOTTOM BOOT	4'-7"	BASE:		
D	---	+4.55	8" BOTTOM BOOT	4'-6"	WALL:		
					TOP:		
BAFFLE:	---	+3.17	2"ø	2'-2"	BAFFLE:		
REMARKS:					CASTING:		
					STEEL WT.:	CONC WT.:	



WALLS	PIPE INCH	PIPE INVERT	HOLE SIZE	HOLE LOC.	PRODUCTION VARIANCE	WEIGHTS	REINFORCEMENT
B	---	+4.58	8" BOTTOM BOOT	4'-7"	BASE:		
D	---	+5.33	8" BOTTOM BOOT	4'-3"	WALL:		
					TOP:		
BAFFLE:	---	+4.16	2"ø	4'-2"	BAFFLE:		
REMARKS:					CASTING:		
					STEEL WT.:	CONC WT.:	

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COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

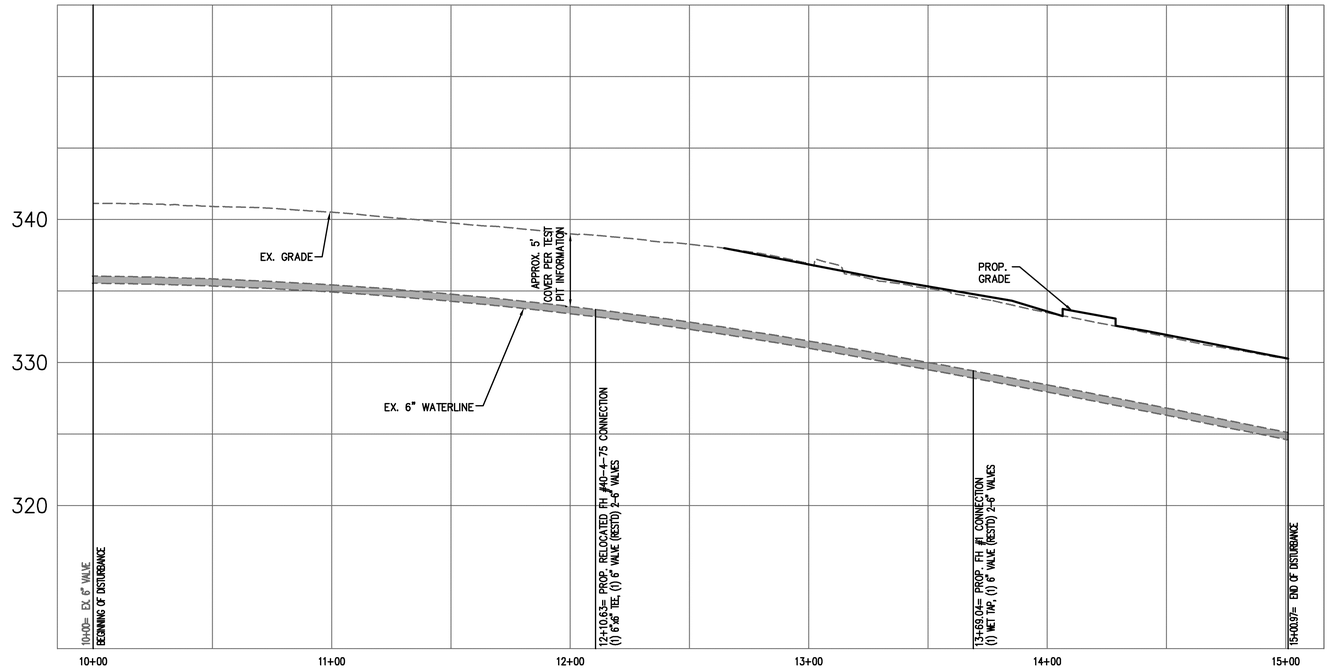
NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

DATE: 8/21/2018, SUB03 7/10/2018 | DRAWN: AL KW, DM, BP, JT | CHECKED: KW
DATE: 8/21/2018, SUB01 9/23/2015, SUB02 2/26/2016, GMP ADDENDUM01 7/27/2018, SUB04 8/14/18
SCALE: HOR. 1"=20' VERT. 1"=5'

UTILITY PROFILES

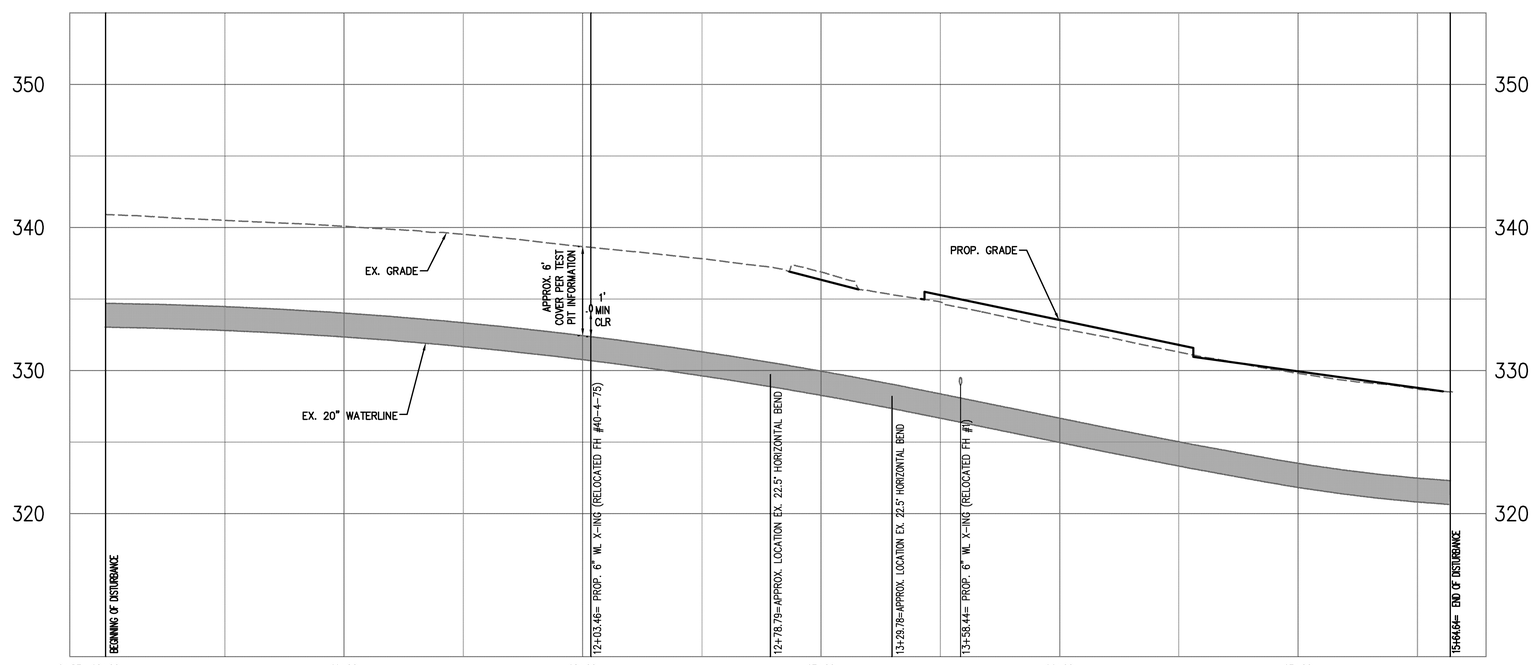
FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA



EX. 6" WATERLINE PARK AVE

SCALE: HOR. 1" = 30
VERT. 1" = 5'



EX. 20" DIP WATER MAIN PARK AVE

SCALE: HOR. 1" = 30
VERT. 1" = 5'

NOTE: PROFILES ARE PROVIDED AS REQUESTED FOR MINOR STREET RE-GRADING. EXISTING WATER LINES ARE TO REMAIN.

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DATE: SUB01 9/23/2016, SUB02 2/20/2018, GMP 6/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018; SUB04 8/14/18
SCALE: HOR. 1" = 30'
VERT. 1" = 5'
DRAWN: AL, KW, DM, BP, TT
CHECKED: KW

COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

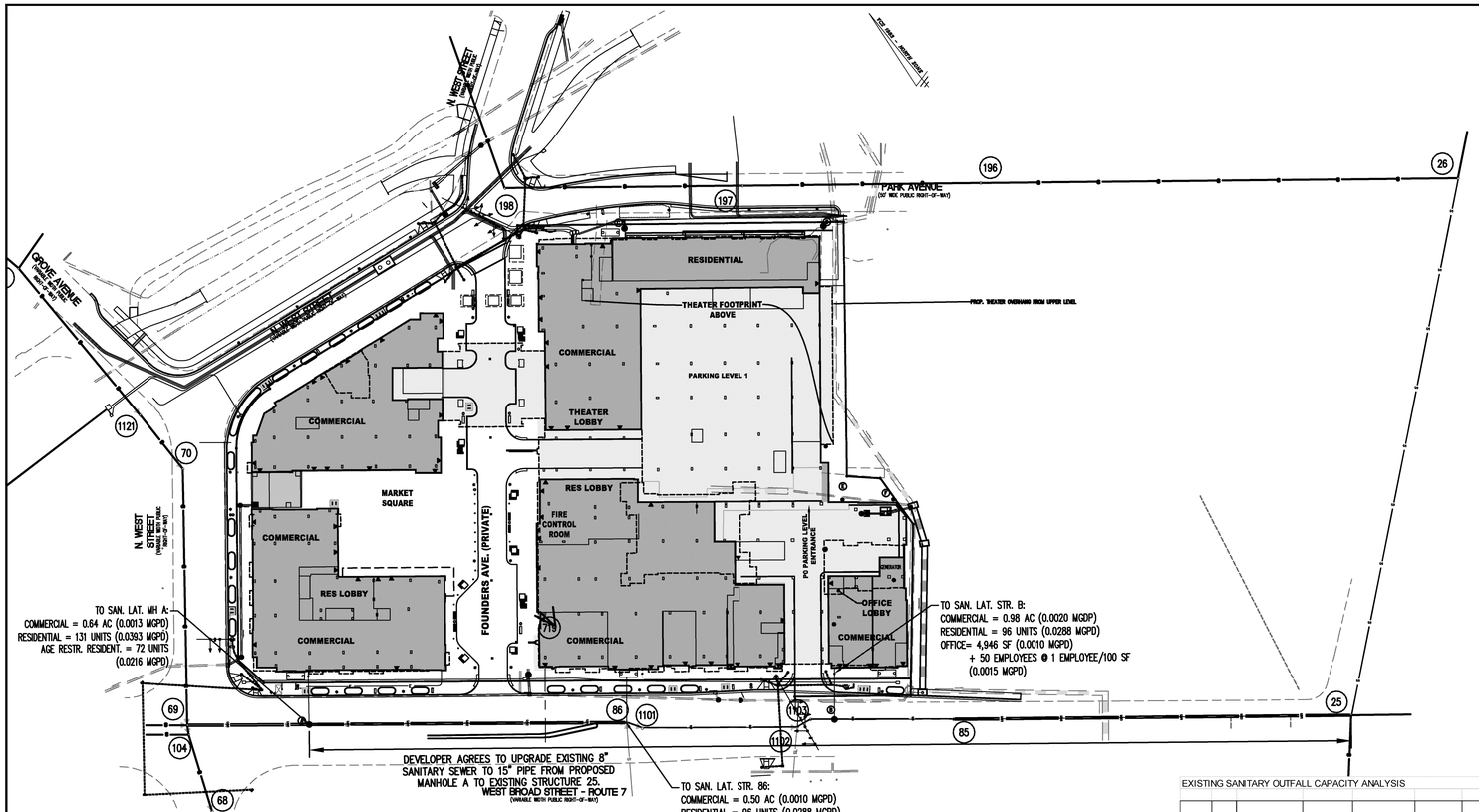
NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

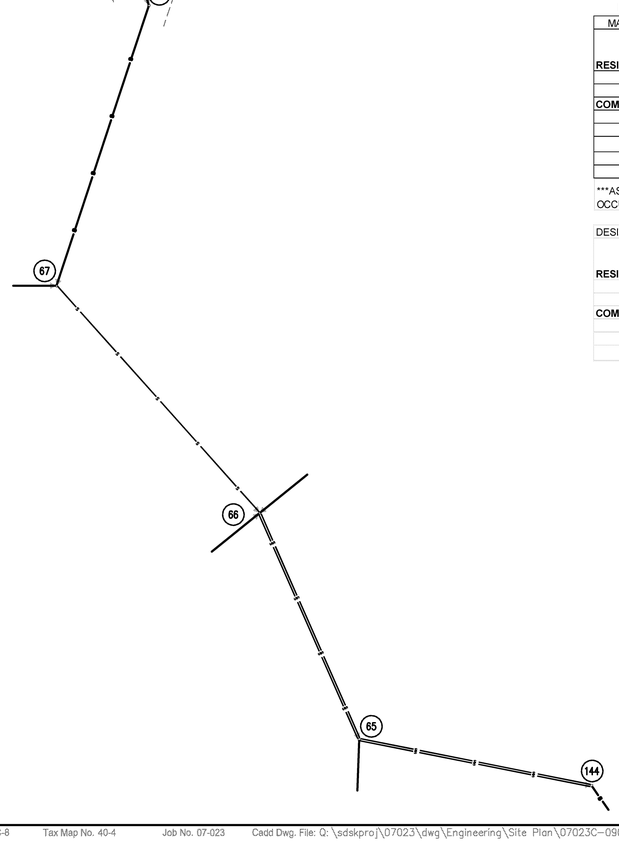
UTILITY PROFILES

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0902





SMH 70			SMH 86			SMH 198		
MANHOLE TOP =		340.45	MANHOLE TOP =		333.90	MANHOLE TOP =		337.17
8"INV IN	(SMH 1121)	331.75	8"INV IN	(S.WEST)	325.15	8"INV IN	(NORTH)	331.82
8"INV OUT	(SMH 69)	331.60	8"INV IN	(SMH 69)	324.90	8"INV OUT	(SMH 197)	329.92
			8"INV OUT	(SMH 1101)	324.80			
SMH 69						SMH 197		
MANHOLE TOP =		337.53	SMH 1101			MANHOLE TOP =		330.79
8"INV IN	(SMH 70)	327.93	MANHOLE TOP =		333.50	8"INV IN	(SMH 198)	323.56
8"INV IN	(N.WEST)	326.15	8"INV IN	(SMH 86)	324.50	8"INV OUT	(SMH 196)	323.54
8"INV OUT	(SMH 86)	326.10	8"INV OUT	(SMH 1102)	324.25			
10"INV OUT	(SMH 104)	326.05				SMH 196		
			SMH 1102			MANHOLE TOP =		330.39
SMH 104			MANHOLE TOP =		328.81	8"INV IN	(SMH 197)	322.69
MANHOLE TOP =		337.55	LATERAL IN	(S.WEST)	321.71	8"INV OUT	(SMH 26)	322.68
8"INV IN	(SMH 87)	326.00	8"INV IN	(SMH 1101)	320.77			
10"INV IN	(SMH 69)	325.90	8"INV OUT	(SMH 1103)	320.54	SMH 26		
10"INV OUT	(SMH 68)	325.80				MANHOLE TOP =		333.44
			SMH 1103			8"INV IN	(SMH 27)	321.34
SMH 68			MANHOLE TOP =		328.39	8"INV IN	(SMH 196)	321.04
MANHOLE TOP =		335.83	8"INV IN	(SMH 1102)	320.19	8"INV OUT	(SMH 25)	320.94
10"INV IN	(SMH 104)	324.23	8"INV OUT	(SMH 85)	320.15			
10"INV OUT	(SMH 67)	323.98				SMH 719		
			SMH 85			MANHOLE TOP =		335.14
SMH 67			MANHOLE TOP =		325.03	4"INV IN	(NORTH)	331.96
MANHOLE TOP =		325.86	8"INV IN	(SMH 1102)	316.73	4"INV IN (X2)	(NORTH)	331.98
10"INV IN	(SMH 68)	315.86	8"INV OUT	(SMH 25)	315.69	4"INV OUT	(WEST)	331.94
8"INV IN	(N.WEST)	315.81						
10"INV OUT	(SMH 66)	315.56	SMH 25					
			MANHOLE TOP =		324.92			
SMH 66			8"INV IN	(SMH 26)	318.82			
MANHOLE TOP =		326.55	DROP INVERT =		314.47			
8"INV IN	(N.EAST)	311.50	8"INV IN	(SMH 195)	316.14			
8"INV IN	(SMH 287)	311.10	8"INV IN	(SMH 85)	314.32			
10"INV IN	(SMH 67)	310.85	8"INV OUT	(SMH 24)	314.29			
10"INV OUT	(SMH 65)	310.75						
SMH 65								
MANHOLE TOP =		317.78						
10"INV IN	(SMH 66)	309.51						
10"INV OUT	(SMH 64)	309.48						
10"INV OUT	(SMH 144)	309.33						
SMH 144								
MANHOLE TOP =		316.10						
10"INV IN	(SMH 65)	307.30						
10"INV OUT	(SMH 388)	307.00						

MASON ROW PROPOSED DEVELOPMENT FLOW ESTIMATE TO W. BROAD STREET (STR. 69-85)

		EST. TOTAL FLOW (GPD)	EST. TOTAL FLOW (MGPD)	EST. TOTAL FLOW W. PFF 2.5 (MGPD)	EST. TOTAL FLOW W. PFF 4.0 (MGPD)
RESIDENTIAL					
395	UNITS	118500	0.1185	0.29625	0.474
COMMERCIAL					
2.12	AC	4240	0.0042	0.0106	0.0170
50	EMPLOYEES***	1500	0.0015	0.0038	0.0060
4946	SF	989	0.0010	0.0025	0.0040
		TOTAL FLOW	**0.1252**	**0.3131**	**0.5009**

***ASSUMED NUMBER OF EMPLOYEES BASED ON 1 EMPLOYEE PER 100 SF OF OFFICE OCCUPANCY PER IBC TABLE 1004.1.2

DESIGN FLOWS:

RESIDENTIAL:		GPD
	APARTMENT UNIT	300 /UNIT
COMMERCIAL:		
	GENERAL	2000 /ACRE
	OFFICE	30 /EMPLOYEE
		0.2 /NET FT2

EXISTING SANITARY OUTFALL CAPACITY ANALYSIS

FROM	TO	AVERAGE FLOW (MGPD)	PEAK FLOW FACTOR	PEAK FLOW W. 2.5 PFF (MGPD)	PEAK FLOW FACTOR	PEAK FLOW W. 4.0 PFF (MGPD)	SIZE (IN.)	LENGTH (FT.)	INV. OUT (UPPER)	INV. IN (LOWER)	SLOPE (%)	MANNING'S n	CAPACITY (CFS)	CAPACITY (GPD)	CAPACITY (MGPD)	REMAINING CAPACITY (BASED ON 2.5 PFF) (MGPD)	REMAINING CAPACITY (BASED ON 4.0 PFF) (MGPD)
70	69	0.247	2.5	0.618	4.0	0.988	8	216	331.60	327.93	1.7%	0.011	1.85	1195686.23	1.20	0.58	0.21
69	104	0.551	2.5	1.378	4.0	2.204	10	8	326.05	325.90	1.8%	0.011	3.53	2281498.60	2.28	0.90	0.08
104	68	0.551	2.5	1.378	4.0	2.204	10	67	325.80	324.23	2.3%	0.011	3.94	2546488.52	2.55	1.17	0.34
68	67	0.582	2.5	1.455	4.0	2.328	10	247	323.98	315.86	3.3%	0.011	4.67	3018299.84	3.02	1.56	0.69
67	66	0.613	2.5	1.533	4.0	2.452	10	256	315.56	310.85	1.8%	0.011	3.49	2255645.92	2.26	0.72	-0.20
66	65	1.228	2.5	3.070	4.0	4.912	10	208	310.75	309.51	0.6%	0.011	1.99	1286170.60	1.29	-1.78	-3.63
65	144	1.228	2.5	3.070	4.0	4.912	10	199	309.33	307.30	1.0%	0.011	2.60	1680423.90	1.68	-1.39	-3.23
198	197	0.011	2.5	0.028	4.0	0.044	8	200	329.92	323.56	3.2%	0.011	2.53	1635181.71	1.64	1.61	1.59
197	196	0.021	2.5	0.053	4.0	0.084	8	200	323.54	322.69	0.4%	0.011	0.92	594611.53	0.59	0.54	0.51
196	26	0.032	2.5	0.080	4.0	0.128	8	401	322.68	321.04	0.4%	0.011	2.85	1842003.12	0.91	0.83	0.78
26	25	0.224	2.5	0.560	4.0	0.896	8	461	320.94	318.82	0.5%	0.011	0.96	620464.21	0.62	0.06	-0.28
69	86	0.428	2.5	1.070	4.0	1.712	8	370	326.10	324.90	0.3%	0.011	0.81	523516.68	0.52	-0.55	-1.19
86	1101	0.454	2.5	1.135	4.0	1.816	8	14	324.80	324.50	2.1%	0.011	2.07	1337875.95	1.34	0.20	-0.48
1101	1102	0.454	2.5	1.135	4.0	1.816	8	130	324.25	320.77	2.7%	0.011	2.32	1499455.17	1.50	0.36	-0.32
1102	1103	0.454	2.5	1.135	4.0	1.816	8	13	320.54	320.19	2.7%	0.011	2.32	1499455.17	1.50	0.36	-0.32
1103	85	0.457	2.5	1.143	4.0	1.828	8	120	320.15	316.73	2.9%	0.011	2.40	1551160.52	1.55	0.41	-0.28
85	25	0.465	2.5	1.163	4.0	1.860	8	335	315.69	314.32	0.4%	0.011	0.91	588148.36	0.59	-0.57	-1.27

PROPOSED SANITARY OUTFALL CAPACITY ANALYSIS

FROM	TO	AVERAGE FLOW	PEAK FLOW	PEAK FLOW W. 2.5 PFF	PEAK FLOW	PEAK FLOW W. 4.0 PFF	SIZE (IN.)	LENGTH (FT.)	INV. OUT (UPPER)	INV. IN (LOWER)	SLOPE (%)	MANNING'S n	CAPACITY (CFS)	CAPACITY (GPD)	CAPACITY (MGPD)	REMAINING CAPACITY	REMAINING CAPACITY
70	69	0.247	2.5	0.618	4.0	0.988	8	216	331.60	327.93	1.7%	0.011	1.85	1195686.23	1.20	0.58	0.21
69	104	0.551	2.5	1.378	4.0	2.204	10	8	326.05	325.90	1.8%	0.011	3.53	2281498.60	2.28	0.90	0.08
104	68	0.551	2.5	1.378	4.0	2.204	10	67	325.80	324.23	2.3%	0.011	3.94	2546488.52	2.55	1.17	0.34
68	67	0.582	2.5	1.455	4.0	2.328	10	247	323.98	315.86	3.3%	0.011	4.67	3018299.84	3.02	1.56	0.69
67	66	0.613	2.5	1.533	4.0	2.452	10	256	315.56	310.85	1.8%	0.011	3.49	2255645.92	2.26	0.72	-0.20
66	65	1.228	2.5	3.070	4.0	4.912	10	208	310.75	309.51	0.6%	0.011	1.99	1286170.60	1.29	-1.78	-3.63
65	144	1.228	2.5	3.070	4.0	4.912	10	199	309.33	307.30	1.0%	0.011	2.60	1680423.90	1.68	-1.39	-3.23
198	197	0.011	2.5	0.028	4.0	0.044	8	200	329.92	323.56	3.2%	0.011	2.53	1635181.71	1.64	1.61	1.59
197	196	0.021	2.5	0.053	4.0	0.084	8	200	323.54	322.69	0.4%	0.011	0.92	594611.53	0.59	0.54	0.51
196	26	0.032	2.5	0.080	4.0	0.128	8	401	322.68	321.04	0.4%	0.011	2.85	1842003.12	0.91	0.83	0.78
26	25	0.224	2.5	0.560	4.0	0.896	8	461	320.94	318.82	0.5%	0.011	0.96	620464.21	0.62	0.06	-0.28
69	86	0.490	2.5	1.226	4.0	1.961	8	370	326.10	324.90	0.3%	0.011	0.81	523516.68	0.52	-0.70	-1.44
86	1101	0.516	2.5	1.291	4.0	2.065	8	14	324.80	324.50	2.1%	0.011	2.07	1337875.95	1.34	0.05	-0.73
1101	1102	0.546	2.5	1.365	4.0	2.184	8	130	324.25	320.77	2.7%	0.011	2.32	1499455.17	1.50	0.13	-0.68
1102	1103	0.546	2.5	1.365	4.0	2.184	8	13	320.54	320.19	2.7%	0.011	2.32	1499455.17	1.50	0.13	-0.68
1103	85	0.582	2.5	1.456	4.0	2.329	8	120	320.15	316.73	2.9%	0.011	2.40	1551160.52	1.55	0.10	-0.78
85	25	0.590	2.5	1.476	4.0	2.361	8	335	315.69	314.32	0.4%	0.011	0.91	588148.36	0.59	-0.89	-1.77

PROPOSED SANITARY OUTFALL CAPACITY ANALYSIS - AFTER IMPROVEMENTS

FROM	TO	AVERAGE FLOW	PEAK FLOW	PEAK FLOW W. 2.5 PFF	PEAK FLOW	PEAK FLOW W. 4.0 PFF	SIZE (IN.)	LENGTH (FT.)	INV. OUT (UPPER)	INV. IN (LOWER)	SLOPE (%)	MANNING'S n	CAPACITY (CFS)	CAPACITY (GPD)	CAPACITY (MGPD)	REMAINING CAPACITY	REMAINING CAPACITY
69	86	0.490	2.5	1.226	4.0	1.961	15	370	326.10	324.90	0.3%	0.011	4.33	2798552.10	2.80	1.57	0.84
86	1101	0.516	2.5	1.291	4.0	2.065	15	14	324.80	324.50	2.1%	0.011	11.11	7180580.57	7.18	5.89	5.12
1101	1102	0.546	2.5	1.365	4.0	2.184	15	130	324.25	320.77	2.7%	0.011	12.42	8027255.69	8.03	6.66	5.84
1102	1103	0.546	2.5	1.365	4.0	2.184	15	13	320.54	320.19	2.7%	0.011	12.41	8020792.52	8.02	6.66	5.84
1103	85	0.582	2.5	1.456	4.0	2.329	15	120	320.15	316.73	2.9%	0.011	12.83	8292245.61	8.29	6.84	5.96
85	25	0.590	2.5	1.476	4.0	2.361	15	335	315.69	314.32	0.4%	0.011	4.86	3141100.05	3.14	1.67	0.78

NOTES:
1. LINE ITEMS HIGHLIGHTED IN GRAY ARE SANITARY NETWORKS WITH ADDITIONAL FLOW FROM PROPOSED DEVELOPMENT.
2. NETWORKS 69-->104 AND 69-->86 WERE NOTED AS "PRESSURIZED FLOW TYPE" FROM CITY OF FALLS CHURCH INFORMATION.
3. ALL VALUES FOR EXISTING AVERAGE FLOW PROVIDED BY THE CITY OF FALLS CHURCH.
4. PEAK FLOW FACTORS (PFF) OF 2.5 AND 4.0 WERE AT THE DIRECTION OF THE PUBLIC WORKS DEPARTMENT AT THE CITY OF FALLS CHURCH.
5. MANNING'S 'N' REFLECTS PVC PIPING; PIPE MATERIAL WAS NOT CONFIRMED WITH SURVEY.
6. AS PART OF THIS SITE PLAN, THE DEVELOPER AGREES TO UPGRADE THE EXISTING 8" SANITARY SEWER TO A 15" PIPE BETWEEN PROPOSED MANHOLE STRUCTURE "A" AND EXISTING SANITARY STRUCTURE 25 IN WEST BROAD STREET FOR APPROXIMATELY 880 LF

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COMMONWEALTH OF VIRGINIA
KAREN L. S. WHITE
Lic. No.041850
8/14/18
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
	GMP SET	6/21/18

DATE-SUBD1 9/23/2015, SUB02 2/26/2016, GMP 8/21/2018, SUB03 7/10/2018
GMP ADDENDUM01 7/27/2018, SUB04 8/14/18
SCALE: HOR. 1"=20' VERT. 1"=5'
DRAWN: AL KW, DM, BP, JT
CHECKED: KW

SANITARY CAPACITY STUDY

FOUNDERS ROW

AT THE INTER SECTION OF WEST BROAD STREET, NORTH WEST STREET & PARK AVENUE
CITY OF FALLS CHURCH, VIRGINIA

SHEET: C-0903