# 4111, 4107 & 4037 MAPLE AVENUE - BRADDOCK DISTRICT - FAIRFAX COUNTY, VIRGINIA

SPECIAL EXCEPTION PLAT

### **NOTES**

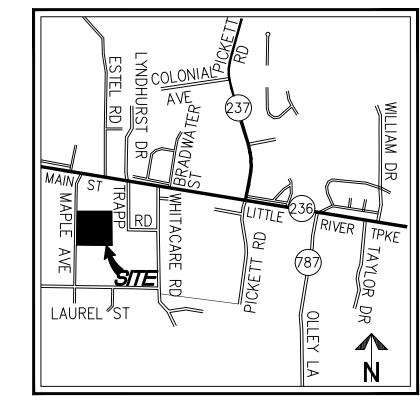
1. OWNER/APPLICANT:

CLASSIC COTTAGES LLC 1000 PENDLETON ST ALEXANDRIA, VA 22314

- 2. THE PROPERTY SHOWN HEREON APPEARS ON FAIRFAX COUNTY TAX MAP 0583-06, PARCELS 37, 38, AND 38A, IT IS ZONED
- 3. THE TOTAL AREA OF THE PROPERTY IS 352,228 SQUARE FEET OR 8.0860 ACRES.
- 4. THE PROPERTY IS PROPOSED TO BE A CLUSTER DEVELOPMENT IN THE EXISTING R-1 ZONE.
- 5. THE BOUNDARY AND TOPOGRAPHIC INFORMATION IS BASED ON A FIELD RUN SURVEY BY THIS FIRM DATED 04/08/2019. CONTOUR INTERVAL IS TWO (2) FEET AND IS REFERENCED TO VERTICAL DATUM OF 1929.
- 6. TO THE BEST OF OUR KNOWLEDGE, THE PROPOSED DEVELOPMENT WILL NOT POSE ANY ADVERSE IMPACTS ON ADJACENT
- 7. DEVELOPMENT IS EXPECTED TO COMMENCE UPON COMPLETION OF ALL FAIRFAX COUNTY PLAN PROCESSING AND APPROVALS,
- 8. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO HAZARDOUS OR TOXIC SUBSTANCES LOCATED ON THIS PROPERTY.
- 9. ALL NECESSARY PUBLIC UTILITIES, INCLUDING PUBLIC WATER AND SEWER, ARE READILY ACCESSIBLE TO THE SITE OR WILL BE DEVELOPMENT.
- NUMBER 51059C0260E, EFFECTIVE DATE SEPTEMBER 17, 2010, DESIGNATES THE PROPERTY AS BEING IN ZONE X, "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN"
- 11. THE SITE-SPECIFIC RPA BOUNDARY SHOWN HEREON IS PER PLANS PROVIDED TO THIS FIRM BY TNT ENVIRONMENTAL, DATED APRIL 24, 2015 AND IS PRELIMINARY WITHOUT COUNTY APPROVAL. ACCORDING TO FAIRFAX COUNTY MAPS, NO FLOODPLAIN EXISTS ON THE SITE. ADDITIONALLY, TO OUR KNOWLEDGE, NO ENVIRONMENTAL QUALITY CORRIDORS EXIST ON THE SITE PER
- 12. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO GRAVES LOCATED ON THE SITE.
- 13. PROPOSED SIGNAGE WILL BE IN ACCORDANCE WITH ARTICLE 12 OF THE THE ZONING ORDINANCE
- 14. TO THE BEST OF OUR KNOWLEDGE, ALL UTILITY EASEMENTS HAVING A WIDTH OF 25 FEET OR MORE ON THE PROPERTY HAVE BEEN SHOWN ON THIS PLAN, SEE SHEET P-0201 OR P-0301.
- 15. DEVELOPMENT WILL CONFORM TO THE PROVISIONS OF ALL APPLICABLE STANDARDS OF THE ZONING ORDINANCE AND COMPLIANCE WITH THE DEVELOPMENT CRITERIA OF THE COMPREHENSIVE PLAN WITH THE EXCEPTION OF WAIVERS AND MODIFICATIONS REQUESTED WITH THIS APPLICATION.
- 16. THIS PLAN IS CONCEPTUAL AND IS INTENDED TO BE USED IN CONJUNCTION WITH THE LAND USE APPROVAL PROCESS ONLY. IT IS NOT AN ENGINEERING CONSTRUCTION DRAWING, AND MINOR DEVIATIONS AND ADJUSTMENTS MAY BE REQUIRED, AND ARE PERMITTED, AS PART OF THE FINAL DESIGN AND SITE PLAN APPROVAL PROCESS; HOWEVER, THE FINAL CONSTRUCTION DRAWINGS SHALL BE IN SUBSTANTIAL CONFORMANCE WITH THIS PLAN.
- 17. THERE ARE NO SCENIC ASSETS OR NATURAL FEATURES ON THIS PROPERTY DESERVING OF PROTECTION AND/OR
- 18. THE APPLICANT RESERVES THE RIGHT TO PROVIDE MORE OR FEWER PARKING SPACES THAN SHOWN ON THE PLAN SO LONG AS THE MINIMUM NUMBER OF PARKING SPACES REQUIRED BY THE ZONING ORDINANCE ARE PROVIDED.
- 19. NO SEPTIC FIELD LOCATION RECORDS FOR THE SUBJECT PROPERTIES WERE AVAILABLE AT THE FAIRFAX COUNTY HEALTH DEPARTMENT. ONSITE SEPTIC SYSTEMS AND WELLS LOCATED ON SITE WILL BE ABANDONED PER FAIRFAX COUNTY HEALTH DEPARTMENT AND VIRGINIA STATE REQUIREMENTS.

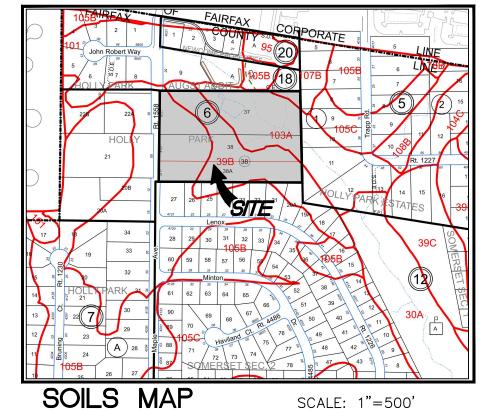
### **WAIVER REQUEST**

1. REQUEST TO WAIVE THE MINIMUM DISTRICT SIZE FOR CLUSTER SUBDIVISIONS, PURSUANT TO SECTION 9-610 OF THE FAIRFAX COUNTY ZONING ORDINANCE.



VICINITY MAP

SCALE: 1"=2000'



**ZONING TABULATION** 

**EXISTING ZONE: R-1, RESIDENTIAL DISTRICTS** PROPOSED ZONE: R-1, RESIDENTIAL DISTRICTS (CLUSTERED)

SITE AREA: 352,228 SF (8.0860 AC)

	R-1 REQUIRED	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5	LOT 6	LOT 7	OUTLOT A	ROW	TOTAL
MINIMUM LOT AREA	25,000	25,156	25,388	28,308	29,488	25,513	25,953	29,522	133,064	29,836	352,228
MINIMUM LOT WIDTH	125' (CORNER)	135'	N/A	N/A	N/A	N/A	N/A	125'			
MAXIMUM BUILDING HEIGHT	35'	35'	35'	35'	35'	35'	35'	35'			
MINIMUM YARD REQUIRMENTS											
FRONT	30'	30';30'	30'	30'	30'	30'	30'	30';30'			
SIDE*	12'; 40' TOTAL	20'*	20';20'*	<sup>*</sup> 20';20'	20';20'*	20';20'	20';20'*	20'*			
REAR	25'	25'	25'	25'	25'	25'	25'	25'			
											(

16.03 | 17.58 | 17.91 | 32.90 | 18.23 | 18.19 | 17.22

### **DENSITY**

SHAPE FACTOR

**MAX DENSITY** 

**OPEN SPACE** 

THIS DEVELOPMENT PROPOSES A TOTAL MAXIMUM OF 7 DWELLING UNITS AND A DENSITY OF 0.87 DWELLING UNITS PER ACRE TOTAL DENSITY HAS BEEN COMPUTED IN CONFORMANCE WITH SECTION 2-308 OF THE FAIRFAX COUNTY ZONING ORDINANCE.

### **OPEN SPACE**

OPEN SPACE REQUIRED: 30% OR 105,668 SQ. FT. (2.43 ACRES) OPEN SPACE PROVIDED 37.8% OR 133,064 SQ. FT. (3.05 ACRES)

OPEN SPACE TYPE: COMMON OPEN SPACE

OPEN SPACE USE: PRESERVATION OF ENVIRONMENTALLY SENSITIVE AREAS

1.1 DU/ACRE

\*THE PROPOSED OPEN SPACE MEETS THE REQUIREMENTS SET FORTH IN SECTION 2-309 OF THE FAIRFAX COUNTY ZONING

### PARKING/LOADING TABULATION

USE: RESIDENTIAL DWELLING, SINGLE FAMILY DETACHED

RATE: 2 SPACES PER UNIT

 $(7 \text{ UNITS } \times 2 \text{ SPACES} / \text{UNIT} = 14 \text{ SPACES})$ 

TOTAL PARKING REQUIRED: 14 SPACES

PARKING PROVIDED: 14 SPACES (GARAGE/DRIVEWAYS)

LOADING REQUIRED/PROVIDED: N/A

# SHEET INDEX

P-0101 COVER SHEET

P-0201 EXISTING CONDITIONS PLAN & EXISTING VEGETATION MAP

P-0301 PRELIMINARY SUBDIVISION PLAT

P-0302 SPECIAL EXCEPTION PLAT

P-0303 PRELIMINARY UTILITY & GRADING PLAN

P-0401 CONCEPTUAL LANDSCAPE PLAN

P-0402 LANDSCAPE TABULATIONS

P-0501 PRELIMINARY ADEQUATE OUTFALL ANALYSIS

P-0502 PRELIMINARY STORMWATER MANAGEMENT PLAN

P-0503 PRELIMINARY STORMWATER MANAGEMENT PLAN

P-1101 SIGHT DISTANCE PROFILE

0.87 DU/ACRE

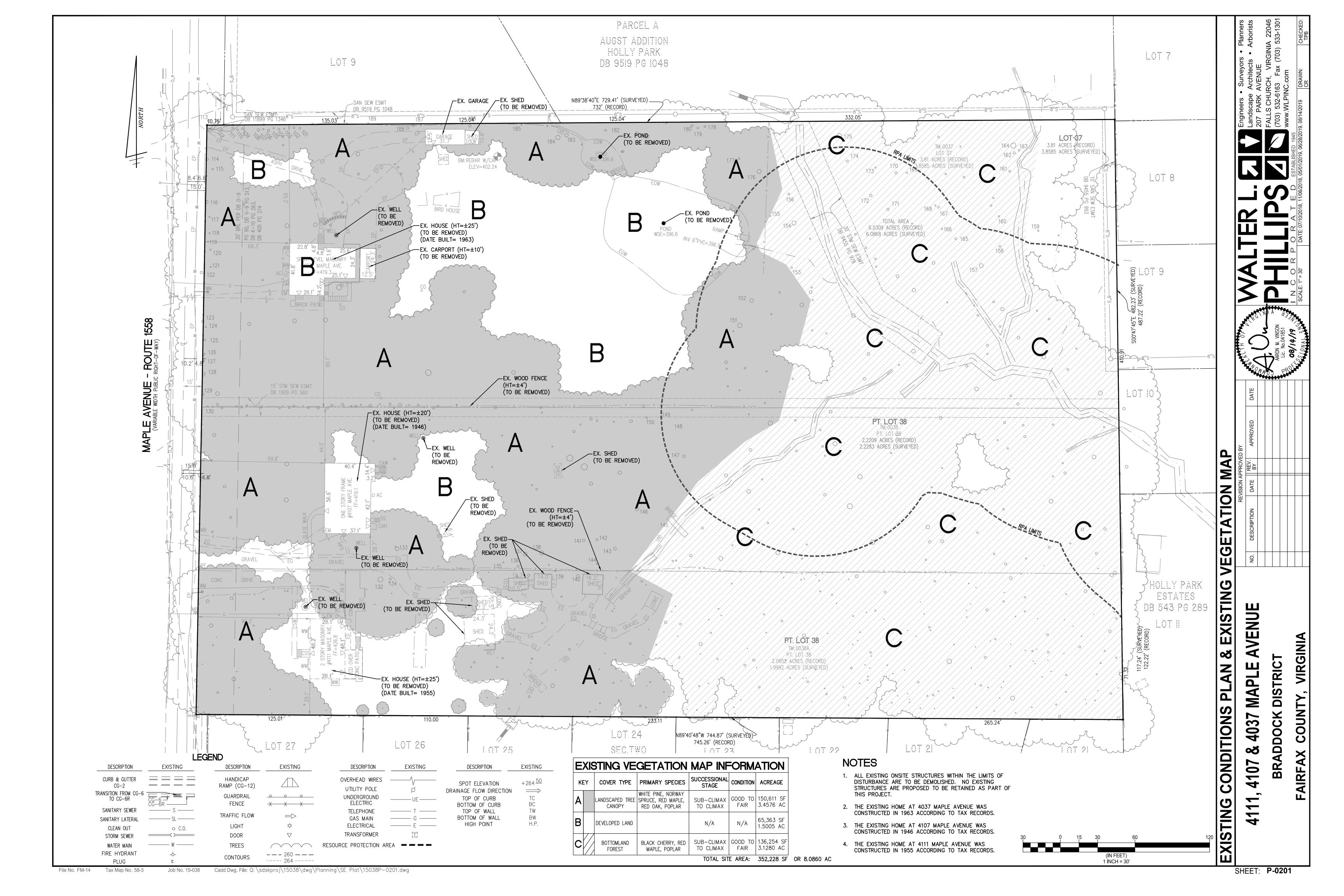
37.8%

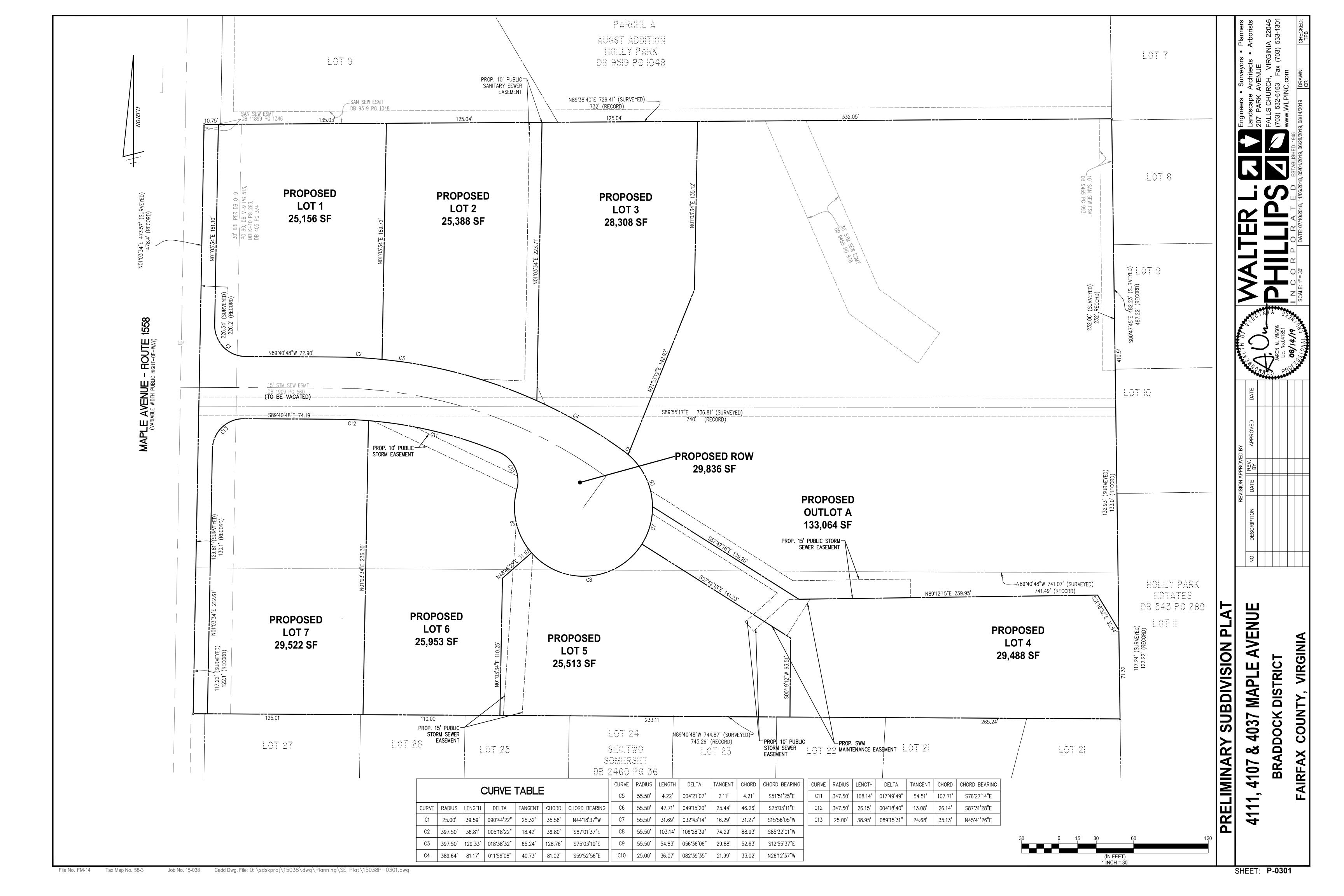
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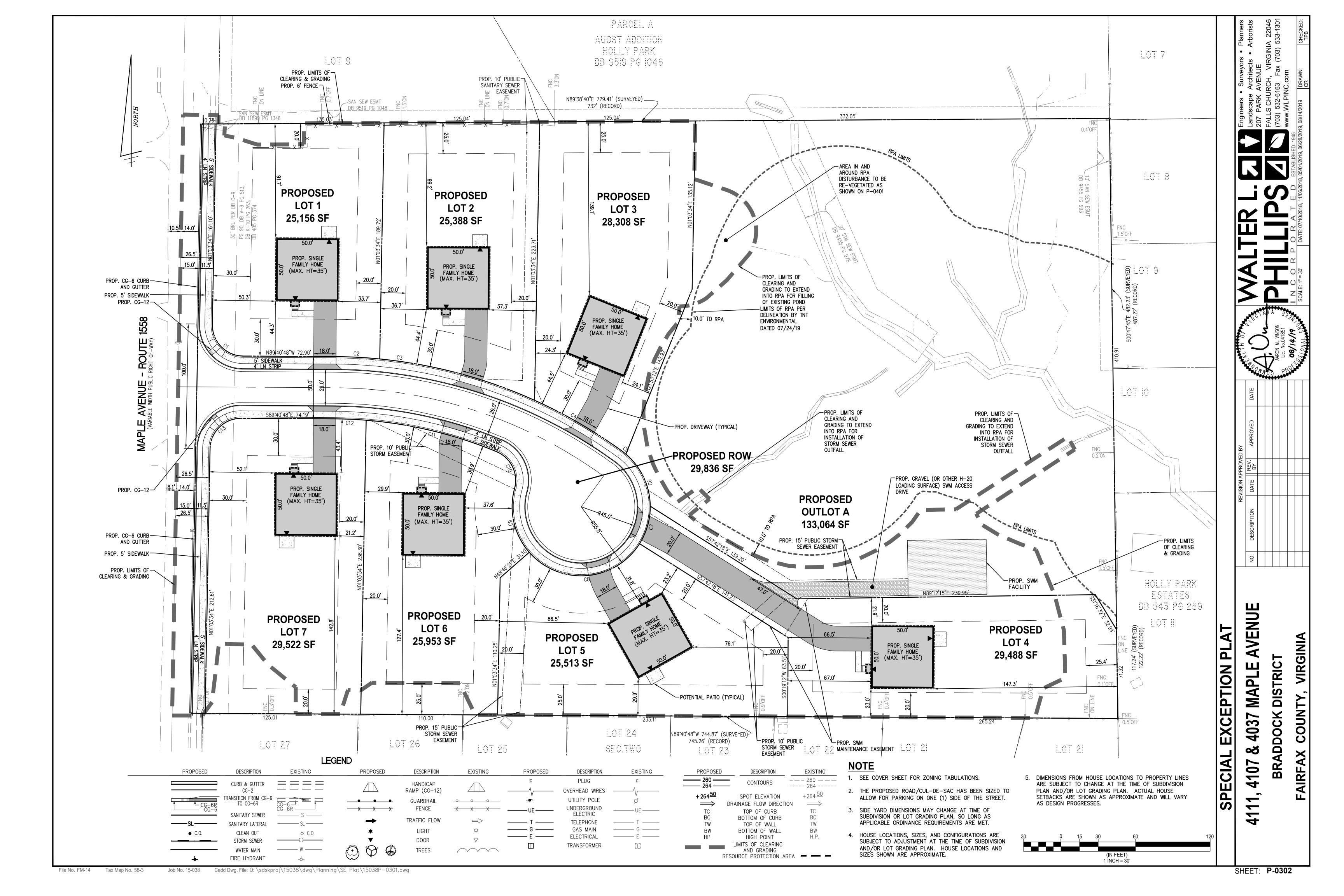
VENUE

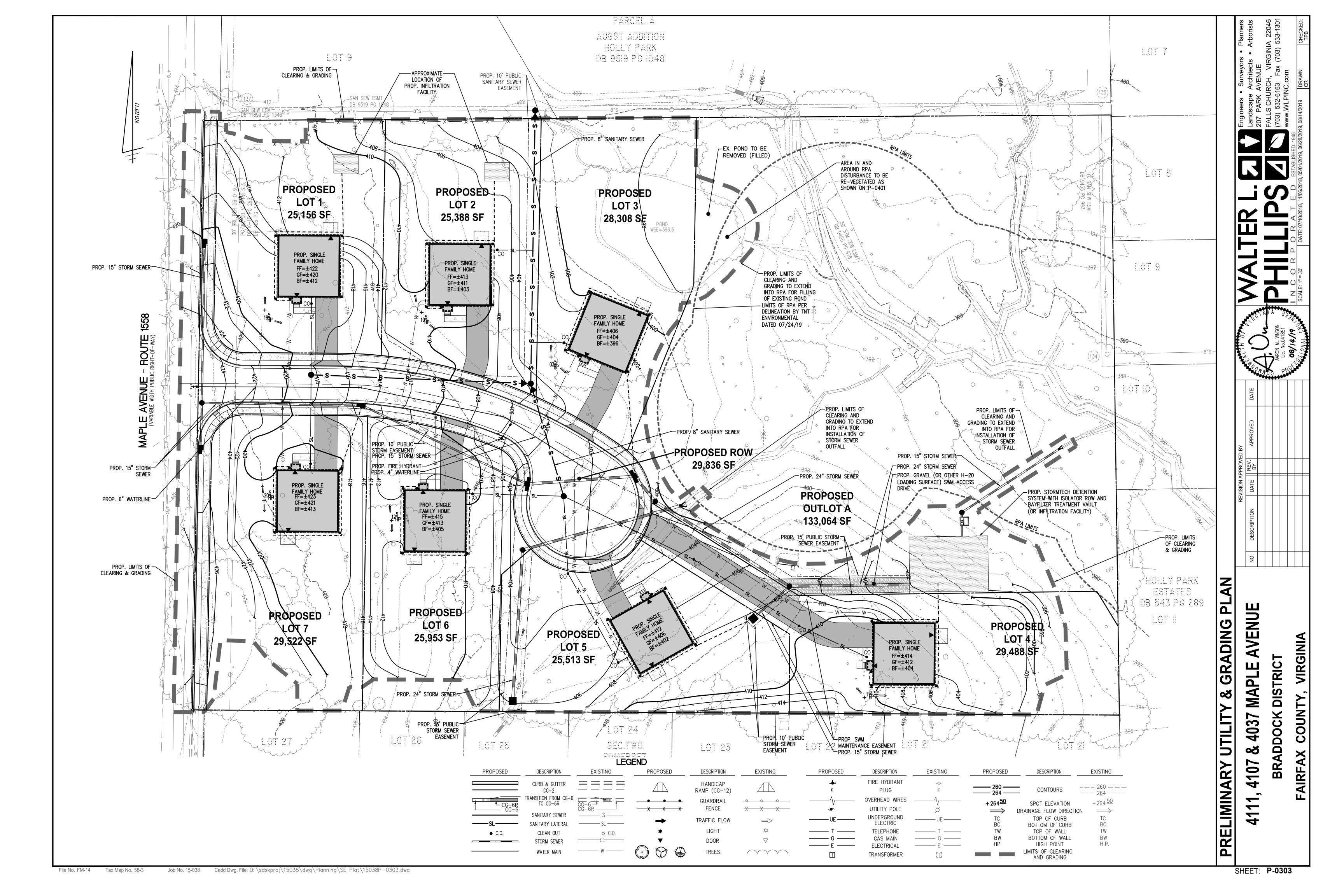
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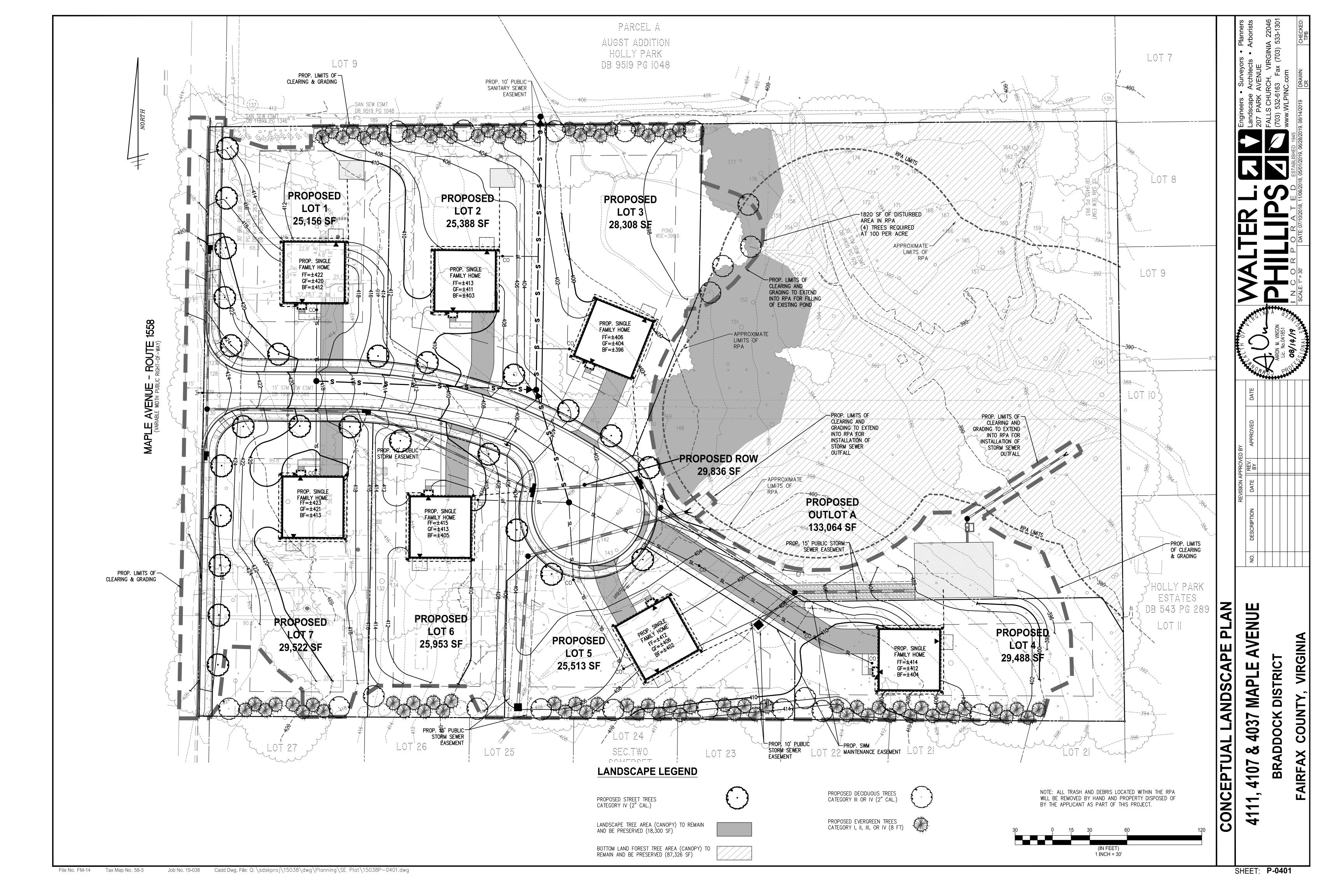
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### TREE COVER CALCULATIONS

SITE AREA ±352,228 S.F. RIGHT-OF-WAY DEDICATION – 29,836 S.F. TREE COVER REQUIRED ±322,392 S.F. PERCENT REQUIRED X 30 % TREE COVER REQUIRED ±96,718 S.F.

EXISTING TREE COVERAGE TO REMAIN

(1.00 MULTIPLIER APPLIED TO UPLAND FOREST COVER)  $87,326 \times 1.00 = \pm 87,326 \times 1.00 =$ (1.00 MULTIPLIER APPLIED TO LANDSCAPE COVER)  $18,300 \times 1.00 = \pm 18,300 \text{ S.f.}$ 

TOTAL EXISTING TREE COVERAGE TO REMAIN

±105,626 S.F.

### PROPOSED TREE CANOPY CALCULATIONS

TYPE CANOPY	CATEGORY III & IV	SIZE 2" CAL	QTY 46	UNIT (SF) 200	TOTAL (SF 9,200	)
EVERGREEN	I, II, III & IV	8' HT	77	100	<u>7,700</u>	
				TOTAL:	= 16 900	

1. UNIT AREA IS SHOWN TO DEMONSTRATE POSSIBLE CANOPY COVERAGE.

- 2. THE PROPOSED LANDSCAPING SHOWN ON THIS PLAN IS PRELIMINARY AND SUBJECT TO MINOR ADJUSTMENTS AT TIME OF FINAL SITE OR SUBDIVISION PLAN. ADJUSTMENTS MAY INCLUDE REVISED PLACEMENT OF TREES IN RESPONSE TO SITE AND DESIGN CONSTRAINTS, MINOR MODIFICATIONS TO THE QUANTITY OF TREES IN ORDER TO PROVIDE AN EQUIVALENT CANOPY COVERAGE TO THAT SHOWN ON THIS PLAN THROUGH THE USE OF AN INCREASED NUMBER OF SMALLER TREES AND/OR DECREASED NUMBER OF LARGER TREES, VARIATION IN THE CATEGORY OF PROPOSED TREE, OR SIMILAR ADJUSTMENTS. NO MODIFICATIONS WILL RESULT IN A DECREASE IN THE OVERALL CANOPY COVERAGE SHOWN ON THIS PLAN.
- 3. ADDITIONAL CANOPY MULTIPLIERS MAY BE CLAIMED AT TIME OF SITE PLAN.

### RECOMMENDED PLANT POOL

CATEGORY III & IV TREES					
KEY	BOTANICAL NAME	COMMON NAME			
AR	Acer rubrum	Red Maple			
BN	Betula nigra	River Birch			
LS	Liquidambar styraciflua	Sweetgum			
NS	Nyssa sylvatica	Blackgum			
PO	Platanus occidentalis	American Sycamore			
QA	Quercus alba	White Oak			
QB	Quercus bicolor	Swamp White Oak			
QP	Quercus palustris	Pin Oak			
QW	Quercus phellos	Willow Oak			
QR	Quercus rubra	Red Oak			
QV	Quercus velutina	Black Oak			
TD	Taxodium distichum	Bald Cypress			
TA	Tilia americana	Basswood			

### EVERGREEN TREES

EVERGREEN TREES						
	KEY	BOTANICAL NAME	COMMON NAME			
	10	llex opaca	American Holly			
	JV	Juniperus virginiana	Eastern Redcedar			
	MG	Magnolia grandiflora	Southern Magnolia			
	PV	Pinus virginiana	Virginia pine			
	TO	Thuia occidentalis	Arborvitae			

PLANT SPECIES ARE RECOMMENDATIONS ONLY. SELECTIONS ARE SUBJECT TO CHANGE AT THE TIME OF SITE PLAN.

Step	12.10 10-year Tree Canopy Calculation Worksheet	Totals	Reference
	e Preservation Target and Statement	1 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 -	
A 1	Place the Tree Preservation Target calculations and		see § 12-0508.2 for
	statement here preceding the 10-year tree canopy		of required element
	calculations		worksheet
B. Tre	e Canopy Requirement		
B1	Identify gross site area =	352228 SF	§ 12-0511.1A
B2	Subtract area dedicated to parks, road frontage, and	29836 SF	§ 12-0511.1R
В3	Subtract area of exemptions =	0 SF	§ 12-0511.1C(1) through § 12-0511.
B4	Adjusted gross site area (B1 – B2) =	322392 SF	
B5 B6	Identify site's zoning and/or use  Percentage of 10-year tree canopy required =	R-1 30%	§ 12-0510.1 and Ta
Во	recentage of 10-year tiee canopy required –	3070	12.4
B7	Area of 10-year tree canopy required (B4 x B6) =	96718 SF	
B8	Modification of 10-year Tree Canopy Requirements	NO	Yes or No
	requested?		
B9	If B8 is yes, then list plan sheet where modification	N/A	Sheet number
	request is located		
	e Preservation		
C1	Tree Preservation Target Area =	78728 SF	
C2	Total canopy area meeting standards of § 12-0400 =	87326 SF	
C3	$C2 \times 1.00 =$	87326 SF	§ 12-0510.3B
C4	Total canopy area meeting standards of § 12-0400 =	18300	
C5	C4 x 1.0 =	18300	§ 12-0510.3B(1)
C6	Total of canopy area provided by "Heritage,"	0	
	"Memorial," "Specimen," or "Street" trees =		
C7	$C6 \times 1.5 \text{ to } 3.0 =$	0	§ 12-0510.3B(2)
C8	Canopy area of trees within Resource Protection Areas and 100-year floodplains =	0	
	· ·		0.10.0510.05(1)
C9	$C8 \times 1.0 =$	0	§ 12-0510.3C(1)
			than B7 then remai requirement must be through tree planting go to D
<b>D. Tre</b> D1	e Planting Area of canopy to be met through tree planting (B7-C10) =	0 SF	
D2	Area of canopy planted for air quality benefits =	0 SF	
D3	x 1.5 =	0 SF	§ 12-0510.4B(1)
D4	Area of canopy planted for energy conservation =	0 SF	0 12 0510 4D(2)
D5 D6	x 1.5 =  Area of canopy planted for water quality benefits =	0 SF 0 SF	§ 12-0510.4B(2)
D7	$x \cdot 1.25 =$	0 SF	§ 12-0510.4B(3)
D8	Area of canopy planted for wildlife benefits =	0 SF	0.12.0712
D9 D10	x 1.5 = Area of canopy provided by native trees =	0 SF 0 SF	§ 12-0510.4B(4)
D10	x 1.5 =	0 SF	§ 12-0510.4B(5)
D12	Area of canopy provided by improved cultivars and	0 SF	
_	varieties =	1	
D13 D14	x 1.25 Area of canopy with no multipliers =	0 SF 16900 SF	§ 12-0510.4B(6)
<i>D</i> 14	x 1.0	16900 SF 16900 SF	§ 12-0510.4D(1)
D15	Area of canopy provided through native shrubs =	0 SF	(1)
Dir	x1.0	0 SF	§ 12-0510.4D(1)
D16	Percentage of D14 represented by D15=	0%	Must not exceed 3: D14
D17 D18	Total of canopy area provided through tree planting =  Is an off-site planting relief requested?	16900 SF	Vec or No
D18	Tree Bank or Tree Fund?	N/A N/A	Yes or No § 12-0512
D20	Canopy area requested to be provided through off-site banking or tree fund	N/A	0
D21	Amount to be deposited into the Tree Preservation and Planting Fund	N/A	
E. Tota	of 10-year Tree Canopy Provided		
E1	Total of canopy area provided through tree preservation	105626 SF	
	(C10) =		
E2	Total of canopy area provided through tree planting (D17) =	16900 SF	
		1	1

(E1+E2+E3)

Total of 10-year Tree Canopy Provided =

A	Pre-development area of existing tree canopy (from Existing Vegetation Map) =		286865 SF
В	Percentage of gross site area covered by existing tree canopy =	(286865 sf / 352228 sf)	81.4%
С	Percentage of 10-year tree canopy required for site (see Table 12.4) =	(352228 sf * 0.3 = 96718 sf)	30%
D	Percentage of the 10-year tree canopy requirement that should be met through tree preservation =	(96718 sf * 0.814 = 78728 sf)	81.4%
Е	Proposed percentage of canopy requirement that will be met through tree preservation =	(105626 sf / 96718 sf)	109.2%
F	Has the Tree Preservation Target minimum been met?		YES

Total of E1 through E3.

Area should meet or exceed area required by B7

ANDSCAPE

**AVENUE** MAPLE **DISTRIC** 4037 4107 411

File No. FM-14 Tax Map No. 58-3 Job No. 15-038 Cadd Dwg. File: Q: \sdskproj\15038\dwg\Planning\SE Plat\15038P-0401.dwg

SHEET: **P-0402** 

### STORMWATER OUTFALL NARRATIVE

THE ANALYSIS BELOW IS PRELIMINARY AND SUBJECT TO ADJUSTMENT AT THE TIME OF SITE PLAN.

### **EXISTING CONDITIONS**

CURRENTLY, THE SITE IS OCCUPIED BY THREE (3) SINGLE FAMILY HOMES, DRIVEWAYS, LANDSCAPED AND WOODED AREAS, AND A MAN-MADE POND. STORMWATER GENERALLY FLOWS FROM WEST TO EAST ALONG THE SITE VIA SHEET FLOW. STORMWATER FLOW FROM THE SITE IS DIRECTED TOWARD AN EXISTING NATURAL CHANNEL LOCATED ON-SITE. ALL OF THE STORMWATER FROM THE SITE ULTIMATELY DISCHARGES TOWARD ACCOTINK CREEK.

FOR THE PURPOSES OF STORMWATER MANAGEMENT, THE SITE AREA IS THE AREA WITHIN THE LIMITS OF DISTURBANCE WHICH IS APPROXIMATELY ±237,674 SF OR ±5.46 ACRES. THE SITE DRAINS TO THE ACCOTINK—LONG BRANCH CENTRAL WATERSHED AND ULTIMATELY INTO ACCOTINK CREEK.

### PROPOSED CONDITIONS

IN THE PROPOSED CONDITION, THE APPLICANT INTENDS TO CONSTRUCT SEVEN (7) SINGLE FAMILY HOMES, A NEW PUBLIC ROAD, DRIVEWAYS, UTILITY SERVICES, LANDSCAPING, AND STORMWATER MANAGEMENT FACILITIES. GENERALLY, THE EXISTING DRAINAGE DIVIDES FOR THE SITE WILL BE HONORED. AGAIN, FOR THE PURPOSES OF STORMWATER MANAGEMENT, THE SITE AREA IS THE LIMITS OF DISTURBANCE WHICH ARE APPROXIMATELY ±5.46 ACRES.

### EXTENT OF REVIEW

IN ACCORDANCE WITH THE ZONING ORDINANCE, THE EXTENT OF OUTFALL REVIEW FOR THIS SPECIAL EXCEPTION PLAT EXTENDS TO A POINT WHERE THE OUTFALL'S DRAINAGE AREA EXCEEDS 100 TIMES THE SITE AREA DRAINING TO THE OUTFALL. THE SAME IS TRUE TO DETERMINE WHAT TYPE STORMWATER CONVEYANCE SYSTEMS (NATURAL STREAM, MANMADE CONVEYANCE, AND/OR RESTORED CHANNEL) EXIST IN THE OUTFALL IN ACCORDANCE WITH COUNTY CODE CHAPTER 124. THE EXTENT OF REVIEW FOR THIS PROJECT ENDS WITHIN THE NATURAL CHANNEL THE EXTENDS FROM THE SITE AND RUNS DOWNSTREAM TOWARD ACCOTINK CREEK (SEE OUTFALL MAP THIS SHEET). THE EXTENT OF REVIEW FOR ASSESSING THE ADEQUACY OF THE OUTFALLS WILL BE SHOWN ON THE PROJECT SITE PLAN AND WILL BE DETERMINED IN ACCORDANCE WITH COUNTY CODE CHAPTER 124 AND THE PFM.

### **OUTFALL ANALYSIS**

STORMWATER FROM THE STORMWATER MANAGEMENT SITE AREA, APPROXIMATELY ±5.46 ACRES, WILL DISCHARGE DIRECTLY INTO THE NATURAL CHANNEL ON SITE VIA PROPOSED STORM SEWERS OR VIA SHEETFLOW. STORMWATER THEN FLOWS THROUGH THROUGH THE EXISTING CHANNEL UP TO THE LIMITS OF ANALYSIS.

SEE THE STORMWATER OUTFALL MAP ON THIS SHEET FOR LOCATION OF OUTFALL AND LIMITS OF ANALYSIS.

### CHANNEL PROTECTION

THE PROJECT OUTFALL IS A NATURAL CHANNEL. THEREFORE, PER SECTION 124-4-4.B(3)a OF THE COUNTY CODE, FLOW FOR THE 1-YEAR, 24-HOUR STORM MUST BE LIMITED IN ACCORDANCE WITH THE FAIRFAX COUNTY DETENTION METHOD EQUATION. A DETENTION FACILITY AND SEVERAL RUNOFF REDUCTION FACILITIES ARE PROPOSED FOR THE SITE IN ORDER TO LIMIT FLOW FOR THE 1-YEAR, 24-HOUR STORM. IF IT IS DETERMINED AT THE TIME OF SITE PLAN THAT THE CHANNEL DOES NOT EXPERIENCE EROSION WITHIN THE ALTERNATIVE LIMITS OF ANALYSIS, THE DETENTION VOLUME MAY BE COMPUTED USING THE STATE ENERGY BALANCE EQUATION.

### FLOOD PROTECTION

BASED ON PRELIMINARY ANALYSIS OF THE SITE OUTFALL UP TO THE LIMITS OF ANALYSIS, IT IS BELIEVED THAT THE EXISTING NATURAL CHANNEL IS ADEQUATE TO CONFINE THE 10—YEAR, 24—HOUR STORM WITHIN THE CONVEYANCE SYSTEM FOR THE OUTFALL UP TO THE LIMITS OF ANALYSIS. THEREFORE, SECTION 124—4—4—C.1 APPLIES TO THIS OUTFALL AND THE SITE WILL MEET FLOOD CONTROL REQUIREMENTS. IN THE EVENT THAT THE OUTFALL IS DETERMINED TO BE INADEQUATE, ADDITIONAL DETENTION WILL BE PROVIDED WITHIN THE PROPOSED STORMWATER MANAGEMENT SYSTEMS.

### DETENTION

IN ORDER TO COMPLY WITH SECTION 124-4-4.D OF THE FAIRFAX COUNTY STORMWATER CODE, DETENTION WILL BE PROVIDED IN ORDER TO BRING POST-DEVELOPMENT FLOW RATES DOWN TO PRE-DEVELOPMENT LEVELS. DETENTION WILL BE PROVIDED IN THE PROPOSED STORMWATER DETENTION SYSTEM AND RUNOFF REDUCTION BMPS. SEE SHEET P-0502 FOR BMP SCHEMATIC.

### **OUTFALL ADEQUACY**

IN THE OPINION OF THE SUBMITTING ENGINEER 1) THE OUTFALL IS ADEQUATE, 2) THERE WILL BE NO ADVERSE IMPACT FROM THE DEVELOPMENT BECAUSE THE 2 AND 10—YEAR PEAK RATES OF STORMWATER RUNOFF WILL BE REDUCED TO PRE—DEVELOPMENT LEVELS AND THE OUTFALLS ARE ADEQUATE FOR CHANNEL AND FLOOD PROTECTION AS DESCRIBED IN THE NARRATIVE ABOVE, 3) THERE WILL BE NO FLOODING OF EXISTING DOWNSTREAM DWELLINGS, OR BUILDINGS CONSTRUCTED UNDER AN APPROVED BUILDING PERMIT, BY THE 100—YEAR STORM EVENT, AND 4) ANY EXISTING FLOODING CONDITION WILL NOT BE AGGRAVATED BY DRAINAGE FROM THE DEVELOPMENT SITE

THE COUNTY'S ADEQUATE OUTFALL REQUIREMENTS WILL BE MET BY CONFIRMING THE ADEQUACY OF THE SITE OUTFALLS AT THE TIME OF SITE PLAN. IF AN OUTFALL IS INADEQUATE, THE OUTFALL WILL BE MADE ADEQUATE BY REPLACING ANY UNDERSIZED PIPES AND/OR IMPROVING THE STREAM CHANNEL OR BY INSTALLING STORMWATER DETENTION FOR THAT OUTFALL DESIGNED IN ACCORDANCE WITH THE COUNTY'S DETENTION METHOD.

# DISCHARGE POINT FLOW PATH FAST OWNSO Lette ±550 ACRES (100X SITE AREA) S ELEWENTARY LIMITS OF ANALYSIS (EXTENT OF REVIEW) (100X SITE AREA) 4 Z PRE

300 0 150 300 600 1200 (IN FEET) 1 INCH = 300' NOTES:
1. "SITE AREA" REPRESENTS TOTAL DISTURBED
AREA FOR THE PROJECT.

2. THE "CONTRIBUTING DRAINAGE AREA" IS THE UPSTREAM AREA CONTRIBUTING FLOW TO THE LIMITS OF ANALYSIS (EXTENT OF REVIEW) FOR CHANNEL PROTECTION, FLOOD CONTROL, AND ADEQUATE OUTFALL ANALYSIS.

VENUE

MAPLE

403

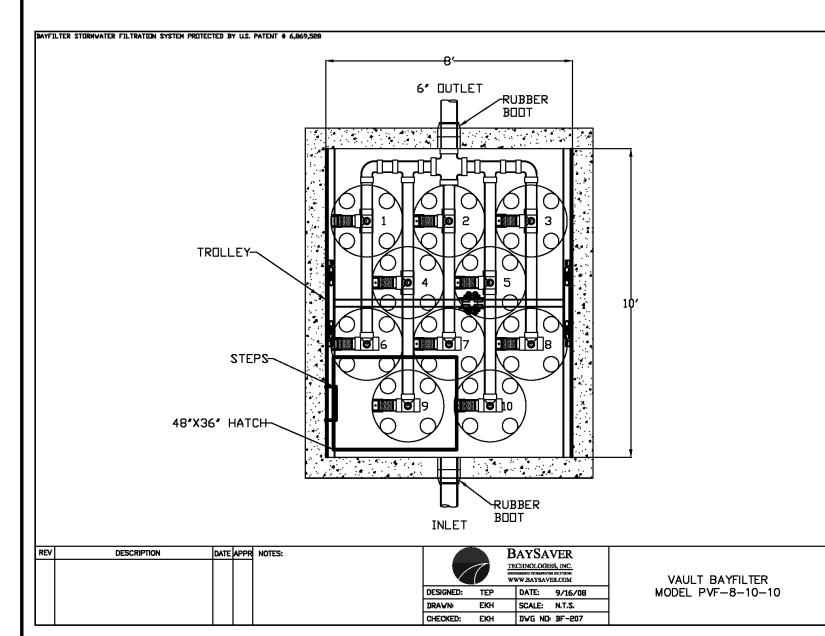
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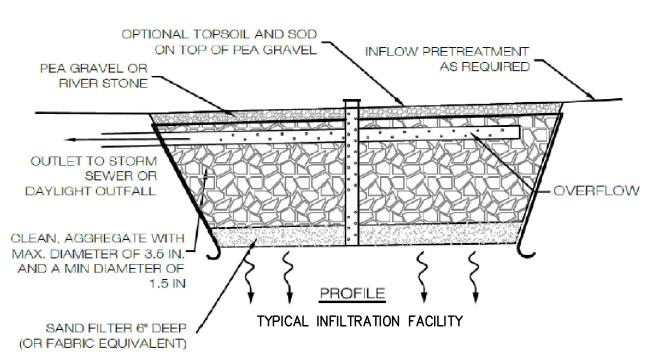
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### STORMWATER MANAGEMENT NARRATIVE

CURRENTLY. THE SITE IS OCCUPIED BY THREE (3) SINGLE FAMILY HOMES, DRIVEWAYS, LANDSCAPED AND WOODED AREAS, AND A MAN-MADE POND. STORMWATER GENERALLY FLOWS FROM WEST TO EAST ALONG THE SITE VIA SHEET FLOW. STORMWATER FLOW FROM THE SITE IS DIRECTED TOWARD AN EXISTING NATURAL CHANNEL LOCATED ON-SITE. ALL OF THE STORMWATER FROM THE SITE ULTIMATELY DISCHARGES TOWARD ACCOTINK CREEK.

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IN THE PROPOSED CONDITION, THE APPLICANT INTENDS TO CONSTRUCT SEVEN (7) SINGLE FAMILY HOMES, A NEW PUBLIC ROAD, DRIVEWAYS, UTILITY SERVICES, LANDSCAPING, AND STORMWATER MANAGEMENT FACILITIES. GENERALLY, THE EXISTING DRAINAGE DIVIDES FOR THE SITE WILL BE HONORED. AGAIN, FOR THE PURPOSES OF STORMWATER MANAGEMENT, THE SITE AREA IS THE LIMITS OF DISTURBANCE WHICH ARE APPROXIMATELY ±5.46 ACRES.

TWO (2) RUNOFF REDUCTION BMPS (INFILTRATION TRENCH OR BIO-RETENTION), A STORMTECH DETENTION SYSTEM WITH ISOLATOR ROW, AND BAYFILTER VAULT ARE PROPOSED WITH THIS SPECIAL EXCEPTION PLAT WHICH WILL BE PROVIDED IN ORDER TO MEET STORMWATER QUALITY AND QUANTITY REQUIREMENTS, AND TO COMPLY WITH ADEQUATE OUTFALL REQUIREMENTS (SEE BMP SCHEMATIC ON THIS SHEET).

THE DEVELOPMENT OF THE DISTURBED AREAS WILL INCREASE THE EXISTING CURVE NUMBER FROM 73 TO 78.

STORMWATER QUALITY

IN ACCORDANCE WITH THE FAIRFAX COUNTY STORMWATER MANAGEMENT ORDINANCE, THIS PROJECT IS CONSIDERED DEVELOPMENT ON PRIOR DEVELOPED LANDS FOR WATER QUALITY PURPOSES. SINCE LIMITS OF DISTURBANCE IS GREATER THAN 1 ACRE, A 20% REDUCTION IN THE PRE-DEVELOPMENT PHOSPHORUS LOAD MUST BE ACHIEVED. ADDITIONALLY, ALL NEW IMPERVIOUS MUST BE TREATED AT A RATE NECESSARY TO LIMIT THE POST DEVELOPMENT PHOSPHORUS LOAD TO 0.41 LBS/YEAR/ACRE. BASED ON THE SITE'S PROPOSED IMPERVIOUS AREA, THE PHOSPHORUS REDUCTION REQUIREMENT IS 2.49 LBS/YEAR.

IN ORDER TO PROVIDE THE REQUIRED PHOSPHORUS REDUCTION, STORMWATER FOR THE DISTURBED AREAS ON SITE WILL BE DIRECTED TOWARD ONE OF TWO (2) RUNOFF REDUCTION BMPS (INFILTRATION TRENCH OR BIO-RETENTION), A STORMTECH DETENTION SYSTEM WITH ISOLATOR ROW, AND/OR BAYFILTER VAULT. TOGETHER, THESE BMPS WILL PROVIDE ENOUGH TREATMENT EFFICIENCY TO EXCEED THE SITE'S PHOSPHORUS REDUCTION REQUIREMENT.

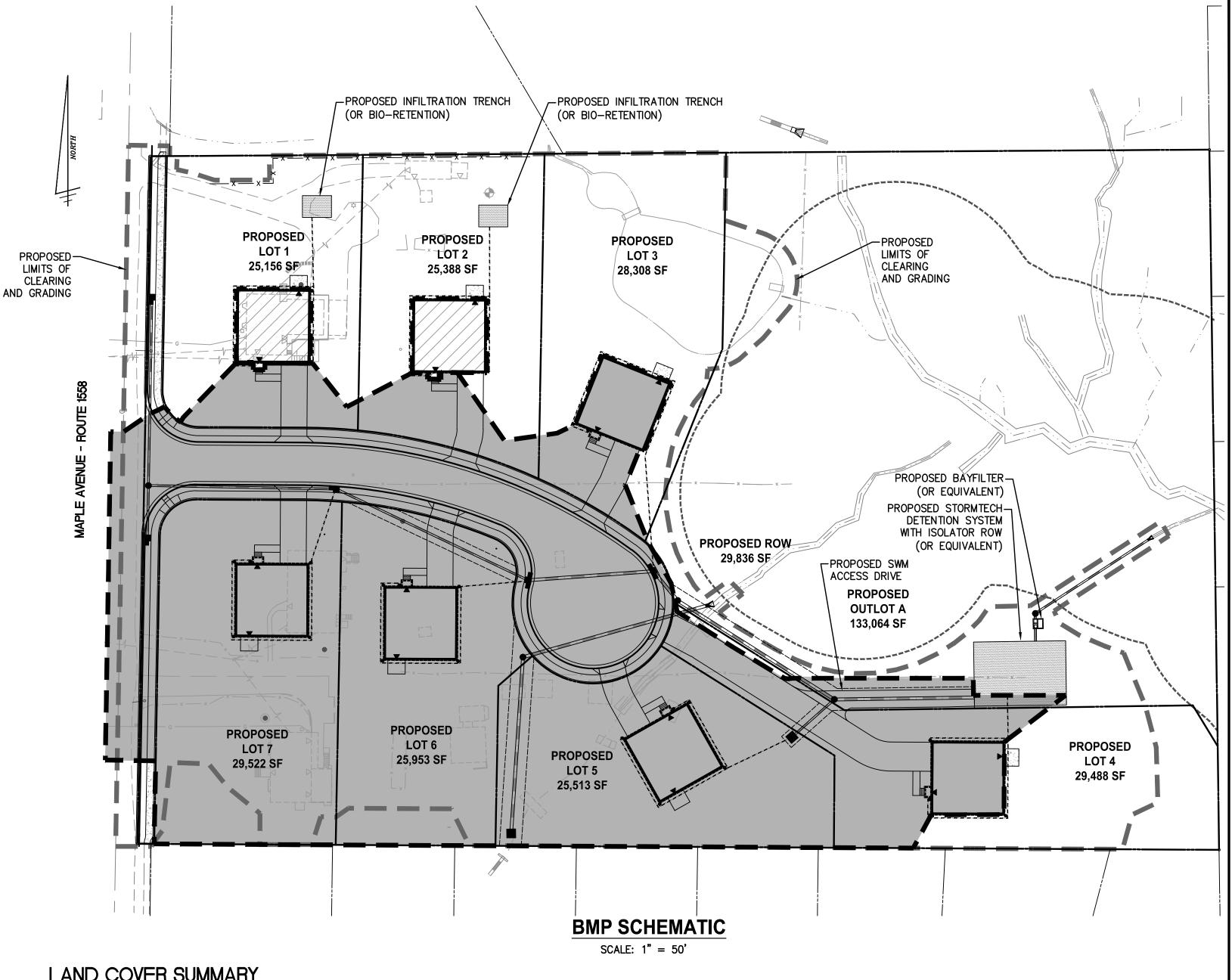
REFER TO THIS SHEET FOR PROPOSED TREATMENT DRAINAGE AREAS AND TYPICAL BMP DETAILS. REFER TO SHEET P-503 FOR STORMWATER MANAGEMENT QUALITY COMPUTATIONS. THE DESIGN IS SUBJECT TO ADJUSTMENT PENDING FINAL DESIGN.

STORMWATER QUANTITY

REFER TO SHEET P-0501 FOR THE SITE ADEQUATE OUTFALL NARRATIVE INCLUDING CHANNEL PROTECTION, FLOOD CONTROL, AND DETENTION ANALYSIS.

DETENTION FOR THE SITE WILL BE PROVIDE IN EACH PROPOSED BMP. FIRST, A STORMTECH DETENTION SYSTEM WILL BE INSTALLED AT SITE OUTFALL AND DISCHARGING INTO THE EXISTING CHANNEL. SECOND, ADDITIONAL DETENTION WILL BE PROVIDED WHERE NECESSARY IN THE PROPOSED RUNOFF REDUCTION BMPS LOCATED ON INDIVIDUAL LOTS. THE DETENTION SYSTEMS WILL BE SIZED TO REDUCE FLOW FOR THE OVERALL SITE AREA TO BELOW PRE-DEVELOPMENT LEVELS AND TO MEET CHANNEL PROTECTION AND FLOOD PROTECTION CRITERIA.

THE DESIGN IS SUBJECT TO ADJUSTMENT PENDING FINAL DESIGN.



### LAND COVER SUMMARY

TOTAL AREA OF LIMITS OF CLEARING AND GRADING: 237,674.21± SF (5.46± AC)

PRE DEVELOPMENT: IMPERVIOUS AREA: 22,069 SF (0.51 AC)

PERVIOUS AREA: 215,605 SF (4.95 AC)

POST DEVELOPMENT:

IMPERVIOUS AREA: 68,799 SF (1.58 AC) PERVIOUS AREA: 168,875 SF (3.88 AC)

### WATER QUANTITY COMPUTATIONS

PRE-DEVELOPMENT

AREA = 5.46 ACWEIGHTED CN = 73

TIME OF CONCENTRATION (TC) = 5 MINUTES Q1 = 4.35 CFS

Q2 = 6.90 CFS

Q10 = 16.16 CFS

POST-DEVELOPMENT

AREA = 5.46 ACWEIGHTED CN = 78

TIME OF CONCENTRATION (TC) = 5 MINUTES Q1 = 6.28 CFS

Q2 = 9.23 CFS

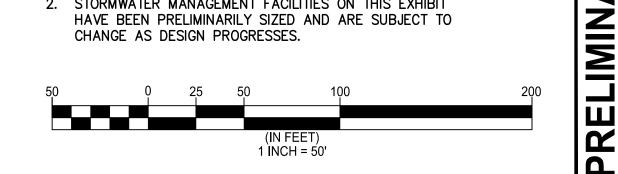
Q10 = 19.26 CFS

AREA DIRECTED TO STORMTECH/BAYFILTER

AREA DIRECTED TO INFILTRATION OR BIO-RETENTION

### **NOTES**

- 1. THE PRELIMINARY ENGINEERING AND CONCEPTUAL LAYOUT DEPICTED ON THIS PLAN ARE BASED ON A FIELD SURVEY PREPARED BY THIS FIRM.
- 2. STORMWATER MANAGEMENT FACILITIES ON THIS EXHIBIT HAVE BEEN PRELIMINARILY SIZED AND ARE SUBJECT TO CHANGE AS DESIGN PROGRESSES.



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data input cells constant values calculation cells final results

### Site Information

### Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area (acres) $\rightarrow$	5.46
Maximum reduction required:	20%
The site's net increase in impervious cover (acres) is:	1.07

Post-Development TP Load Reduction for Site (lb/yr):

Check: Stds & Specs

 BMP Design Specifications List:	2013 Draft S
Linear project?	No
Land cover areas entered correctly?	<b>~</b>
Total disturbed area entered?	<b>~</b>

### Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) undisturbed					0.00
forest/open space					0.00
Managed Turf (acres) disturbed, graded for					4.05
yards or other turf to be mowed/managed		2.41		2.54	4.95
I()					0.51
Impervious Cover (acres)		0.17		0.34	0.51
		-			5.46

### Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) undisturbed,					0.00
protected forest/open space or reforested land					0.00
Managed Turf (acres) disturbed, graded for					2.00
yards or other turf to be mowed/managed		2.13		1.75	3.88
Impervious Cover (acres)		0.45		1.13	1.58
Area Check	OK.	OK.	OK.	OK.	5.46

### Runoff Coefficients (Rv)

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

## 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

12%

4.39

amadi Namidii (menes)	73
arget Rainfall Event (inches)	1.00
otal Phosphorus (TP) EMC (mg/L)	0.26
otal Nitrogen (TN) EMC (mg/L)	1.86
arget TP Load (lb/acre/yr)	0.41
j (unitless correction factor)	0.90

Land Cover Summary-Pre			
Pre-ReDevelopment	Listed	Adjusted <sup>1</sup>	
Forest/Open Space Cover (acres)	0.00	0.00	
Weighted Rv(forest)	0.00	0.00	
% Forest	0%	0%	
Managed Turf Cover (acres)	4.95	3.88	
Weighted Rv(turf)	0.23	0.22	
% Managed Turf	91%	88%	
Impervious Cover (acres)	0.51	0.51	
Pulimpervious\	0.95	0.05	

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

# 0.29

5.46

Total Site Area (acres)

Treatment Volume and Nutrient Load			
Pre-ReDevelopment Treatment Volume (acre-ft)	0.1335	0.1123	
Pre-ReDevelopment Treatment Volume (cubic feet)	5,813	4,893	
Pre-ReDevelopment TP Load (lb/yr)  3.65		3.07	
	3.03	3.07	
	0.67	0.70	

<sup>1</sup> 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).

	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

### Post ReDev. & New Forest/Open Space Cover (acres) Weighted Rv(forest) % Forest Managed Turf Cover (acres)

Land Cover Summary-Post (Final)



Impervious	Post-ReDevelop	ment	Post-Development New	Impervio
0.00	Forest/Open Space Cover (acres)	0.00		
0.00	Weighted Rv(forest)	0.00		
0%	% Forest	0%		
3.88	Managed Turf Cover (acres)	3.88		
0.22	Weighted Rv (turf)	0.22		
71%	% Managed Turf	88%		
1.58	ReDev. Impervious Cover (acres)	0.51	New Impervious Cover (acres)	1.07
0.95	Rv(impervious)	0.95	Rv(impervious)	0.95
29%	% Impervious	12%		
5.46	Total ReDev. Site Area (acres)	4.39		
0.43	ReDev Site Rv	0.31		

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post

# **Treatment Volume and Nutrient Load**

(acre-ft)	0.1970
Final Post-Development Treatment Volume (cubic feet)	8,583
Final Post- Development TP Load (lb/yr)	5.39
Final Post-Development TP Load per acre	0.99

Final Post Dev Site Rv

(lb/acre/yr)

Post-ReDevelopment Treatment Volume (acre-ft)	0.1123	
Post-ReDevelopment Treatment Volume (cubic feet)	4,893	
Post-ReDevelopment Load (TP) (lb/yr)*	3.07	

Post-ReDevelopment Treatment Volume (cubic feet)	4,893	Post-Development Treatment Volume (cubic feet)
Post-ReDevelopment Load (TP) (lb/yr)*	3.07	Post-Development TP Load (lb/yr)
Post-ReDevelopment TP		<u> </u>

# Load per acre (lb/acre/yr)

		L
Max. Reduction Required (Below Pre- teDevelopment Load)	20%	

		-
Load Reduction Required for edeveloped Area (lb/yr)	0.61	

### **TP Load Reduction** Required for New 1.88 mpervious Area (lb/yr)

Post-Development

(acre-ft)

**Treatment Volume** 

0.0847

2.32

Land Cover Summary-Post

Post-Development Requirement for Site Area		
TP Load Reduction Required (lb/yr)	2.49	

### Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr) 26.1
--

Final Post-Development TN Load	
(Post-ReDevelopment & New Impervious)	38.58
(lb/yr)	

### Drainage Area A

14.b. Manufactured Treatment Device-Filtering

### 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)		2.13		1.75	3.88	0.22
Impervious Cover (acres)		0.45		1.13	1.58	0.95
				Total	5.46	

### CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr) Post Development Treatment Volume in D.A. A (ft<sup>3</sup>) 8,583

--Select from dropdown lists--Remaining **Downstream Practice to be** 

Managed Turf Impervious Volume from Remaining Phosphorus Load Untreated Runoff Volume Treatment Credit Area | Cover Credit **Practice** from Upstream | Phosphorus Load | Removed By 7. Infiltration (RR) 7.a. Infiltration #1 (Spec #8) 0.00 0.00 0.00 0.00 0.00 0.02 7.b. Infiltration #2 (Spec #8) 0.32 0.30 14. Manufactured Treatment Devices (no RR) 14.a. Manufactured Treatment Device-6,529 0.00 4.10 2.46 14.b. MTD - Filtering Hydrodynamic

6,529

6,529

### **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)	1.58	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	1.58	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	3.88	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	1.97	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft<sup>3</sup>) 8,583

### Runoff Reduction Volume and TP By Drainage Area

Stormwater Best Management Practices (RR = Runoff Reduction)

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft <sup>3</sup> )	460	0	0	0	0	460
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	5.39	0.00	0.00	0.00	0.00	5.39
TP LOAD REDUCTION ACHIEVED (lb/yr)	3.16	0.00	0.00	0.00	0.00	3.16
TP LOAD REMAINING (lb/yr)	2.23	0.00	0.00	0.00	0.00	2.23
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	2.10	0.00	0.00	0.00	0.00	2.10

### Total Phosphorus

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FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	5.39	
TP LOAD REDUCTION REQUIRED (lb/yr)	2.49	
TP LOAD REDUCTION ACHIEVED (lb/yr)	3.16	
TP LOAD REMAINING (lb/yr):	2.23	

REMAINING TP LOAD REDUCTION REQUIRED (lb/yr): 0.00 \*\* TARGET TP REDUCTION EXCEEDED BY 0.67 LB/YEAR \*\*

**Total Nitrogen (For Information Purposes)** POST-DEVELOPMENT LOAD (lb/yr) 38.58 NITROGEN LOAD REDUCTION ACHIEVED (lb/yr) REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)

### MINIMUM STORMWATER INFORMATION FOR REZONING, SPECIAL EXCEPTION, SPECIAL PERMIT AND DEVELOPMENT PLAN APPLICATIONS

The following information is required to be shown or provided in all zoning applications, or a waiver request of the submission requirement with justification shall be attached. Note: Waivers will be acted upon separately. Failure to adequately address the required submission information may result in a delay in processing this application.

This information is required under the following Zoning Ordinance Sections:

Special Permits (Sect. 8-011 2J & 2L) Cluster Subdivision (Sect. 9-615 1G & 1N)

Special Exceptions (Sect. 9-011 2J & 2L) Commercial Revitalization Districts (Sect. 9-622 2A (12) & (14)) PRC Plan (Sect. 16-303 1E & 1 O)

Development Plans PRC District (Sect. 16-302 3 & 4L) FDP P Districts (Sect. 16-502 1A (6) & (17)) Amendments (Sect. 18-202 10F & 10I)

■ 1. Plat is at a minimum scale of 1"=50' (Unless it is depicted on one sheet with a minimum scale of 1"=100')

■ 2. A graphic depicting the stormwater management facility(ies) and limits of clearing and grading accommodate the stormwater management facility(ies), storm drainage pipe systems and outlet protection, pond spillways, access roads, site outfalls, energy dissipation devices, and stream stabilization measures as shown on Sheet(s) P-303 If infiltration is proposed the soils should be tested for suitability prior to submission of the development plan and results

of the infiltration test provided as part of the description of the facility. ☑ 3. Provide:

### Facility Name/ On-site area Off-site area Drainage If pond, dam Type & No. volume (cf) height (ft.) served (acres) | served (acres) | area (acres) | area (sf) (E.g. dry pond, infiltration trench, underground vault, etc...) BAYFILTER VAULT 3.31 3.31 \_ STORMTECH CHAMBERS 3.31 3.31 1,500 -600 INFILTRATION TRENCH LOT 1 0.06 INFILTRATION TRENCH LOT 2 0.06 \_

- 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet(s) P-0303. Pond inlet and outlet pipe systems are shown on Sheet(s) P-0303
- Maintenance access (road) to stormwater management facility(ies) are shown on Sheet(s) P-0303 Type of maintenance access road surface noted on the plat is GRAVEL
- 6. Landscaping and tree preservation in and near the stormwater management facility is shown on Sheet(s) P-0401. ▼ 7. Stormwater management and BMP narratives including Virginia Runoff Reduction Spreadsheet and descriptions of how
- detention and best management practices requirements will be met are provided on Sheet(s) P-501, P-502, P-503 8. A description of existing conditions of each numbered site outfall extended downstream from the site to a point which is
- at least 100 times the site area or which has a drainage area of at least one square mile (640 acres) is provided on Sheet(s) P-501 ... If the outfall is proposed to be improved off-site it should be specifically noted.
- 9. A detailed description and analysis of how the channel protection requirements and flood protection requirements of each numbered outfall will be satisfied per Stormwater Management Ordinance and Public Facilities Manual are provided on Sheet(s) P-501, P-502
- 10. Existing topography with maximum contour intervals of two (2) feet and a note as to whether it is an air survey or field run is provided on Sheet(s) P-201
- 11. A submission waiver is required for \_\_\_\_\_ ☐ 12. Stormwater management is not required because N/A

Revised: 8/4/2015

### **NOTES**

0.00

2.46

STORMWATER MANAGEMENT FACILITIES ON THIS EXHIBIT HAVE BEEN PRELIMINARILY SIZED AND ARE SUBJECT TO CHANGE AS DESIGN PROGRESSES. APPLICANT RESERVES THE RIGHT TO REDUCE PHOSPHORUS REMOVAL TO MINIMUM REQUIREMENTS AT

1.23

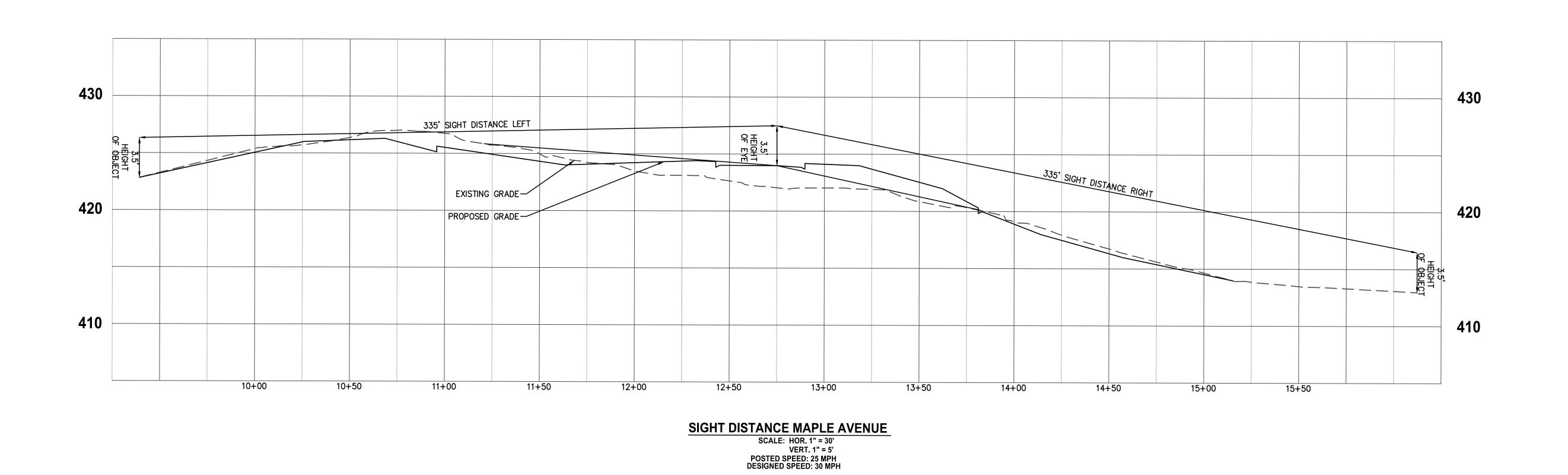
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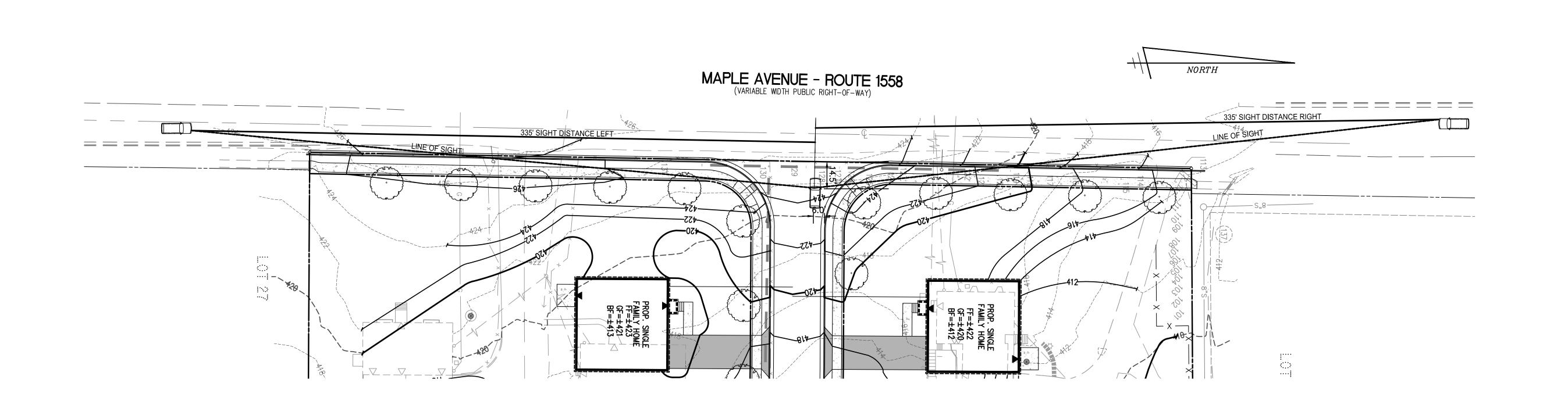
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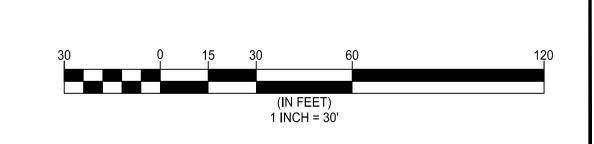
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VENUE

MAPLE TRIC 







SIGHT DISTANCE PROFILE

4111, 4107 & 4037 MAPLE AVENUE BRADDOCK DISTRICT

Job No. 15-038 Cadd Dwg. File: Q: \sdskproj\15038\dwg\Planning\SE Plat\15038P-1101.dwg

File No. FM-14 Tax Map No. 58-3

SHEET: **P-1101**