

DATE	REVISION
2016-05-17	REVISED PER COUNTY COMMENTS 16-05-11
2016-07-21	REVISED PER UPDATED DART DR AND RT 1 ROAD SECTIONS
2016-08-29	REVISED PER COUNTY COMMENTS 16-08-01
2016-09-28	REVISED PER COUNTY COMMENTS 16-09-04
2016-11-16	REVISED PER COUNTY COMMENTS 16-10-19
2016-12-19	REVISED PER COUNTY COMMENTS 16-11-30 THRU 12-02
2017-01-27	MINOR REVISIONS TO LAYOUT

**ZONING TABULATION REQUIREMENTS
PDH-20 (PLANNED DEVELOPMENT HOUSING DISTRICT)**

ZONING REGULATIONS REQUIREMENTS:

LOT SIZE REQUIREMENTS:
 MINIMUM DISTRICT SIZE: 2 ACRES
 MINIMUM LOT AREA: NO REQUIREMENT, 200 SF PRIVACY YARD FOR SINGLE FAMILY ATTACHED
 MINIMUM LOT WIDTH: NO REQUIREMENT

BULK REGULATION REQUIREMENTS:
 WITHIN THE PDH ZONING DISTRICT, THERE ARE NO BULK REGULATION REQUIREMENTS, EXCEPT AT THE PERIPHERAL BOUNDARIES OF THE PROPOSED DEVELOPMENT, WHERE THE MAXIMUM BUILDING HEIGHT AND MINIMUM YARD REQUIREMENTS ARE CONTROLLED BY THE STANDARDS SET FORTH IN PART I OF ARTICLE 16 OF THE ZONING ORDINANCE. WITHIN THAT SECTION, IT OUTLINES THAT THE BULK REGULATIONS AND MAXIMUM HEIGHT AT ALL PERIPHERAL BOUNDARIES OF THE PROPOSED DEVELOPMENT SHALL GENERALLY CONFORM TO THE PROVISIONS OF THE CONVENTIONAL ZONING DISTRICT WHICH MOST CLOSELY RESEMBLES THE PROPOSED DEVELOPMENT. BASED ON THE PROPOSED ZONING OF PDH-20 FOR THIS DEVELOPMENT, R-20 CONVENTIONAL ZONING MOST CLOSELY RESEMBLES PDH-20. IN GENERALLY APPLYING THE R-20 REGULATIONS AT THE PERIPHERAL BOUNDARIES ONLY FOR THE ENTIRE DEVELOPMENT, THE FRONT YARDS WILL NOT BE LESS THAN 5 FEET, THE SIDE YARDS NOT LESS THAN 5 FEET AND THE REAR YARDS NOT LESS THAN 10 FEET. AS WELL, AT THE PERIPHERAL BOUNDARIES ONLY OF THIS PROPOSED DEVELOPMENT, THE MAXIMUM HEIGHT PERMITTED WILL BE BASED ON THE ANGLE OF BULK PLANE DETAILS AS SHOWN ON SHEET 2 OF THIS PLAN SET SUBMISSION.

DENSITY: SINCE 100% OF THE PROPERTY IS COMPRISED OF MARINE CLAY, AND THERE IS A DENSITY BONUS PROVISION FOR INDEPENDENT LIVING FACILITIES, THE MAXIMUM DENSITY PERMITTED UNDER PROPOSED PDH-20 IS AS FOLLOWS:

PROPOSED 60 INDEPENDENT LIVING FACILITY UNITS ARE PERMITTED AT 4 * COMPREHENSIVE PLAN DENSITY AND 20% BONUS DENSITY BASED ON 100% ADUs (SECTION 9-306.6)

20 DU/AC * 4 = 80 DU/AC
 WITH 20% ADU BONUS = 96 DU/AC
 BASED ON 96 DU/AC, THE 60 INDEPENDENT LIVING FACILITY UNITS WILL REQUIRE 0.62 AC OF THE PROPERTY

BASED ON THE PRESENCE OF 100% MARINE CLAY, 100% DENSITY IS PERMITTED ON THE FIRST 30% OF THE PROPERTY AREA (10.46 AC), BUT NEED TO SUBTRACT 0.62 AC FROM THIS AREA PER THE INDEPENDENT LIVING FACILITY BONUS DENSITY CALCULATION ABOVE

9.84 AC * 20 DU/AC = 196 UNITS PERMITTED

BASED ON THE PRESENCE OF 100% MARINE CLAY, 50% DENSITY IS PERMITTED ON THE REMAINING 70% OF THE PROPERTY (SECTION 2-308.2)

24.42 * 10 DU/AC = 244 UNITS PERMITTED

THEREFORE, TOTAL NUMBER OF UNITS PERMITTED ON THE PROPERTY: 60 + 196 + 244 = 500 UNITS (14.3 DU/AC)

OPEN SPACE: MINIMUM 35%

TREE COVER: 10%

PARKING:
 • SINGLE-FAMILY ATTACHED - 2.7 / UNIT
 175 UNITS * 2.7 = 473 SPACES
 • MULTI-FAMILY - 1.6 / UNIT
 219 UNITS * 1.6 = 350 SPACES
 • INDEPENDENT LIVING FACILITY - 1 / 4 UNITS, PLUS 1 EMPLOYEE
 60 UNITS / 4 + 1 * 2 EMPLOYEES = 17

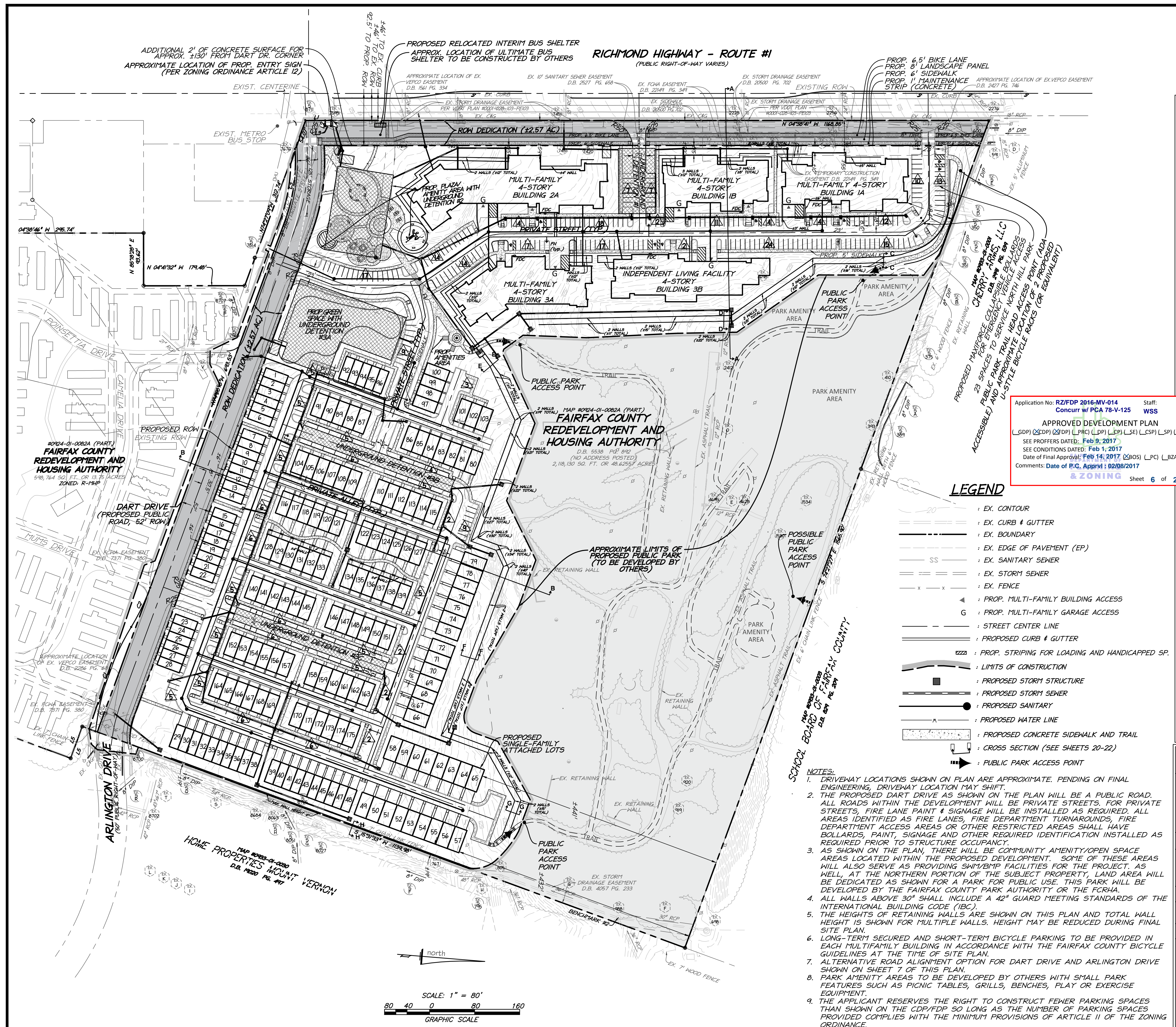
LOADING: 1 FOR FIRST 25,000 SF GROSS FLOOR AREA, PLUS 1 FOR EACH 100,000 SF OR MAJOR FRACTION THEREOF - 5 SPACES

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 (L_GDP) (L_XDP) (L_ZDP) (L_PR) (L_DP) (L_SP) (L_SF) (L_CSP) (L_SP) (L_V)
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 Comments: Date of P.C. Approval: 02/08/2017
ZONING Sheet 6 of 26

LEGEND

- : EX. CONTOUR
- : EX. CURB & GUTTER
- : EX. BOUNDARY
- : EX. EDGE OF PAVEMENT (EP)
- SS : EX. SANITARY SEWER
- : EX. STORM SEWER
- x x : EX. FENCE
- ▲ : PROP. MULTI-FAMILY BUILDING ACCESS
- G : PROP. MULTI-FAMILY GARAGE ACCESS
- : STREET CENTER LINE
- : PROPOSED CURB & GUTTER
- : PROP. STRIPING FOR LOADING AND HANDICAPPED SP.
- : LIMITS OF CONSTRUCTION
- : PROPOSED STORM STRUCTURE
- : PROPOSED STORM SEWER
- : PROPOSED SANITARY
- : PROPOSED WATER LINE
- : PROPOSED CONCRETE SIDEWALK AND TRAIL
- : CROSS SECTION (SEE SHEETS 20-22)
- : PUBLIC PARK ACCESS POINT

- NOTES:**
- DRIVEWAY LOCATIONS SHOWN ON PLAN ARE APPROXIMATE. PENDING ON FINAL ENGINEERING, DRIVEWAY LOCATION MAY SHIFT.
 - THE PROPOSED DART DRIVE AS SHOWN ON THE PLAN WILL BE A PUBLIC ROAD. ALL ROADS WITHIN THE DEVELOPMENT WILL BE PRIVATE STREETS. FOR PRIVATE STREETS, FIRE LANE PAINT & SIGNAGE WILL BE INSTALLED AS REQUIRED. ALL AREAS IDENTIFIED AS FIRE LANES, FIRE DEPARTMENT TURNAROUNDS, FIRE DEPARTMENT ACCESS AREAS OR OTHER RESTRICTED AREAS SHALL HAVE BOLLARDS, PAINT, SIGNAGE AND OTHER REQUIRED IDENTIFICATION INSTALLED AS REQUIRED PRIOR TO STRUCTURE OCCUPANCY.
 - AS SHOWN ON THE PLAN, THERE WILL BE COMMUNITY AMENITY/OPEN SPACE AREAS LOCATED WITHIN THE PROPOSED DEVELOPMENT. SOME OF THESE AREAS WILL ALSO SERVE AS PROVIDING SW/BMP FACILITIES FOR THE PROJECT. AS WELL, AT THE NORTHERN PORTION OF THE SUBJECT PROPERTY, LAND AREA WILL BE DEDICATED AS SHOWN FOR A PARK FOR PUBLIC USE. THIS PARK WILL BE DEVELOPED BY THE FAIRFAX COUNTY PARK AUTHORITY OR THE FCRA.
 - ALL WALLS ABOVE 30" SHALL INCLUDE A 42" GUARD MEETING STANDARDS OF THE INTERNATIONAL BUILDING CODE (IBC).
 - THE HEIGHTS OF RETAINING WALLS ARE SHOWN ON THIS PLAN AND TOTAL WALL HEIGHT IS SHOWN FOR MULTIPLE WALLS. HEIGHT MAY BE REDUCED DURING FINAL SITE PLAN.
 - LONG-TERM SECURED AND SHORT-TERM BICYCLE PARKING TO BE PROVIDED IN EACH MULTIFAMILY BUILDING IN ACCORDANCE WITH THE FAIRFAX COUNTY BICYCLE GUIDELINES AT THE TIME OF SITE PLAN.
 - ALTERNATIVE ROAD ALIGNMENT OPTION FOR DART DRIVE AND ARLINGTON DRIVE SHOWN ON SHEET 7 OF THIS PLAN.
 - PARK AMENITY AREAS TO BE DEVELOPED BY OTHERS WITH SMALL PARK FEATURES SUCH AS PICNIC TABLES, GRILLS, BENCHES, PLAY OR EXERCISE EQUIPMENT.
 - THE APPLICANT RESERVES THE RIGHT TO CONSTRUCT FEWER PARKING SPACES THAN SHOWN ON THE CDP/FDP SO LONG AS THE NUMBER OF PARKING SPACES PROVIDED COMPLIES WITH THE MINIMUM PROVISIONS OF ARTICLE 11 OF THE ZONING ORDINANCE.



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COMMONWEALTH OF VIRGINIA
 JOHN C. LEVTOV
 Lic. No. 35635
 1/27/17
 PROFESSIONAL ENGINEER

CONCEPTUAL AND FINAL DEVELOPMENT PLAN

NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

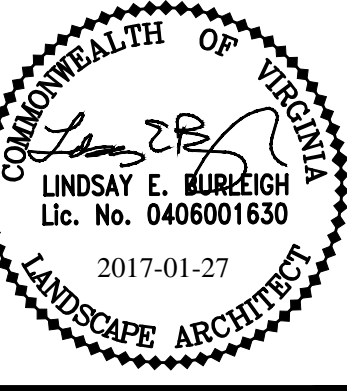
CDP / FDP

PROJECT NO: 15014.001.00
 SCALE: 1"=80'
 DATE: 05-02-2016
 DESIGN: JR, JM
 DRAWN: JM
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 SHEET No. **19.6** OF 22

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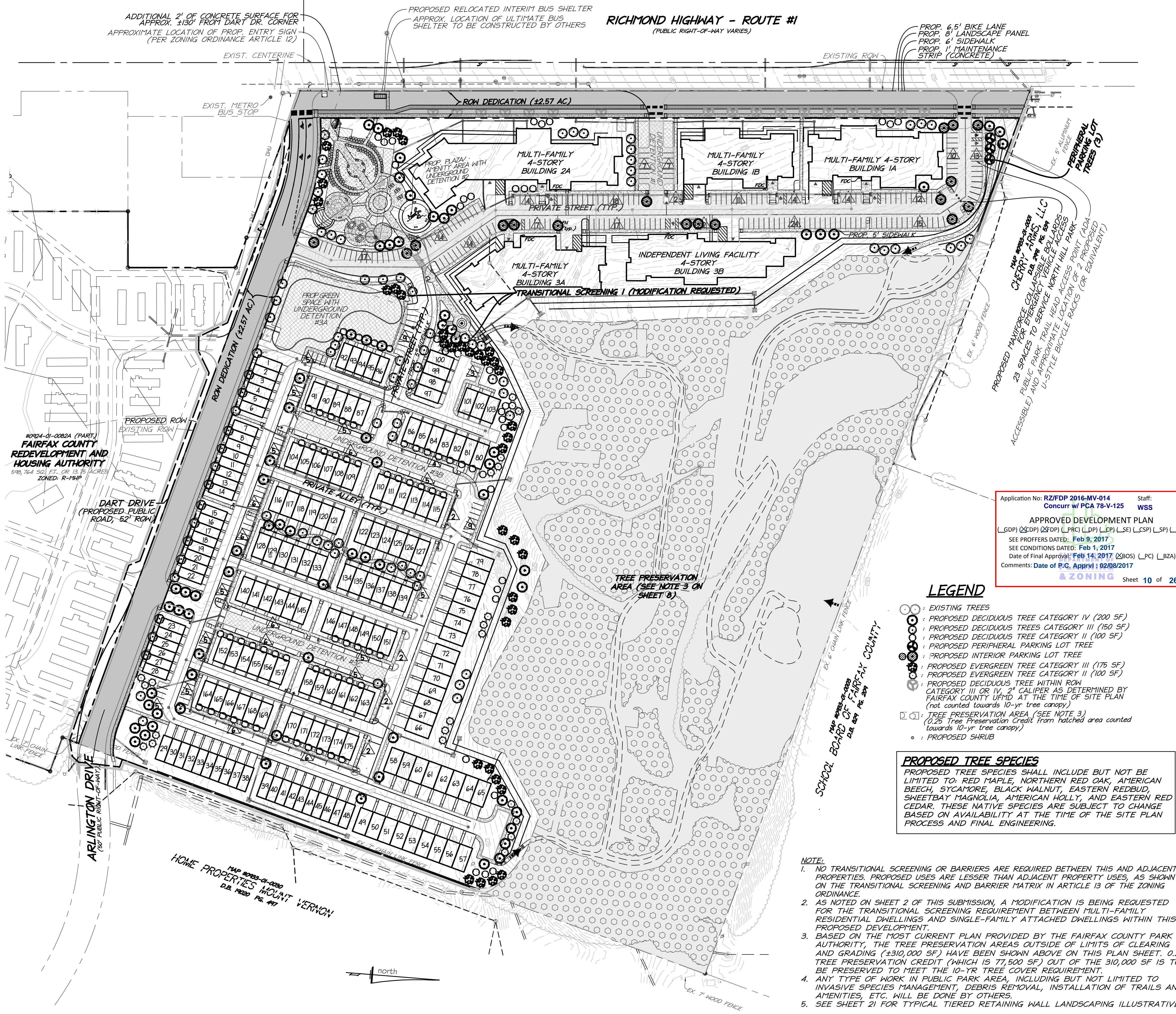
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LANDSCAPE PLAN
 NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

GDP / FDP
 NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 15014.001.00
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Application No: RZ/FDP 2016-MV-014 Staff: WSS
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 & ZONING Sheet 10 of 26

- LEGEND**
- EXISTING TREES
 - PROPOSED DECIDUOUS TREE CATEGORY IV (200 SF)
 - PROPOSED DECIDUOUS TREES CATEGORY III (150 SF)
 - PROPOSED DECIDUOUS TREE CATEGORY II (100 SF)
 - PROPOSED PERIPHERAL PARKING LOT TREE
 - PROPOSED INTERIOR PARKING LOT TREE
 - PROPOSED EVERGREEN TREE CATEGORY III (175 SF)
 - PROPOSED EVERGREEN TREE CATEGORY II (100 SF)
 - PROPOSED DECIDUOUS TREE WITHIN ROW CATEGORY III OR IV, 2" CALIBER AS DETERMINED BY FAIRFAX COUNTY UFWD AT THE TIME OF SITE PLAN (not counted towards 10-yr tree canopy)
 - TREE PRESERVATION AREA (SEE NOTE 3) (0.25 Tree Preservation Credit from hatched area counted towards 10-yr tree canopy)
 - PROPOSED SHRUB

PROPOSED TREE SPECIES
 PROPOSED TREE SPECIES SHALL INCLUDE BUT NOT BE LIMITED TO: RED MAPLE, NORTHERN RED OAK, AMERICAN BEECH, SYCAMORE, BLACK WALNUT, EASTERN REDBUD, SHEETBAY MAGNOLIA, AMERICAN HOLLY, AND EASTERN RED CEDAR. THESE NATIVE SPECIES ARE SUBJECT TO CHANGE BASED ON AVAILABILITY AT THE TIME OF THE SITE PLAN PROCESS AND FINAL ENGINEERING.

- NOTE:**
- NO TRANSITIONAL SCREENING OR BARRIERS ARE REQUIRED BETWEEN THIS AND ADJACENT PROPERTIES. PROPOSED USES ARE LESSER THAN ADJACENT PROPERTY USES, AS SHOWN ON THE TRANSITIONAL SCREENING AND BARRIER MATRIX IN ARTICLE 13 OF THE ZONING ORDINANCE.
 - AS NOTED ON SHEET 2 OF THIS SUBMISSION, A MODIFICATION IS BEING REQUESTED FOR THE TRANSITIONAL SCREENING REQUIREMENT BETWEEN MULTI-FAMILY RESIDENTIAL DWELLINGS AND SINGLE-FAMILY ATTACHED DWELLINGS WITHIN THIS PROPOSED DEVELOPMENT.
 - BASED ON THE MOST CURRENT PLAN PROVIDED BY THE FAIRFAX COUNTY PARK AUTHORITY, THE TREE PRESERVATION AREAS OUTSIDE OF LIMITS OF CLEARING AND GRADING (±310,000 SF) HAVE BEEN SHOWN ABOVE ON THIS PLAN SHEET. 0.25 TREE PRESERVATION CREDIT (WHICH IS 77,500 SF) OUT OF THE 310,000 SF IS TO BE PRESERVED TO MEET THE 10-YR TREE COVER REQUIREMENT.
 - ANY TYPE OF WORK IN PUBLIC PARK AREA, INCLUDING BUT NOT LIMITED TO INVASIVE SPECIES MANAGEMENT, DEBRIS REMOVAL, INSTALLATION OF TRAILS AND AMENITIES, ETC. WILL BE DONE BY OTHERS.
 - SEE SHEET 21 FOR TYPICAL TIERED RETAINING WALL LANDSCAPING ILLUSTRATIVE.

Table 12.10 10-year Tree Canopy Calculation Worksheet

	Totals
A. Tree Preservation Target and Statement	
A1 Place the Tree Preservation Target calculations and statement here preceding the 10-year tree canopy calculations	8%
B. Tree Canopy Requirement	
B1 Identify gross site area (sf) =	1,519,368
B2 Subtract area dedicated to parks, road frontage, and	634,644
B3 Subtract area of exemptions =	0
B4 Adjusted gross site area (B1 - B2) =	884,724
B5 Identify site's zoning and/or use	PDH-20
B6 Percentage of 10-year tree canopy required =	10%
B7 Area of 10-year tree canopy required (B4 x B6) (sf) =	88,472
B8 Modification of 10-year Tree Canopy Requirements requested?	no
B9 If B8 is yes, then list plan sheet where modification request is located	N/A
C. Tree Preservation	
C1 Tree Preservation Target Area (sf) (8% of B4)	70,778
C2 Total canopy area meeting standards of § 12.0-400 =	310,000
C3 C2 x 1.25 = 0.25 Preservation Credit as per UFMD →	77,500
C4 Total canopy area provided by unique or valuable forest or woodland communities =	0
C5 C4 x 1.5 =	0
C6 Total of canopy area provided by "Heritage," "Memorial," "Specimen," or "Street" trees =	0
C7 C6 x 1.5 to 3.0 =	0
C8 Canopy area of trees within Resource Protection Areas and 100-year floodplains =	0
C9 C8 x 1.0 =	0
C10 Area of tree preservation without multiplier credit =	310,000
C11 Total of C3, C5, C7 and C9 =	77,500
D. Tree Planting	
D1 Area of canopy to be met through tree planting (B7-C10) =	10,972
D2 Area of canopy planted for air quality benefits =	0
D3 x 1.5 =	0
D4 Area of canopy planted for energy conservation =	0
D5 x 1.5 =	0
D6 Area of canopy planted for water quality benefits =	0
D7 x 1.25 =	0
D8 Area of canopy planted for wildlife benefits =	0
D9 x 1.5 =	0
D10 Area of canopy provided by native trees =	0
D11 x 1.5 =	0
D12 Area of canopy provided by improved cultivars and varieties =	0
D13 x 1.25 =	0
D14 Area of canopy provided through tree seedlings =	0
x 1.0	0
D15 Area of canopy provided through native shrubs =	0
x 1.0	0
D16 Percentage of D14 represented by D15 =	44,800
D17 Area of canopy provided by trees without multiplier credit =	44,800
Total of canopy area provided through tree planting =	44,800
D18 Is an off-site planting relief requested?	No
D19 Tree Bank or Tree Fund?	No
D20 Canopy area requested to be provided through off-site banking or tree fund	0
D21 Amount to be deposited into the Tree Preservation and Planting Fund	0
E. Total of 10-year Tree Canopy Provided	
E1 Total of canopy area provided through tree preservation (C11) =	77,500
E2 Total of canopy area provided through tree planting (D17) =	44,800
E3 Total of canopy area provided through off-site mechanism (D19) =	0
E4 Total of 10-year Tree Canopy Provided = (E1+E2+E3)	122,300

Interior Parking Lot Calculations

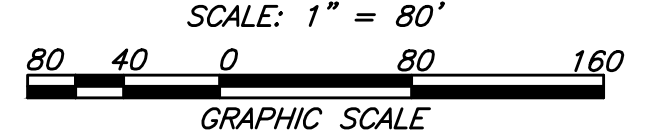
Tree Cover Required:	
Area to be Counted:	65,702 SF
Interior Landscaping Required (5%):	3,285 SF
Tree Cover Provided:	
17 - 2" Caliper Deciduous Category IV (200 SF):	3,400 SF
Total Proposed Tree Planting:	3,400 SF

10-Year Tree Cover Calculations

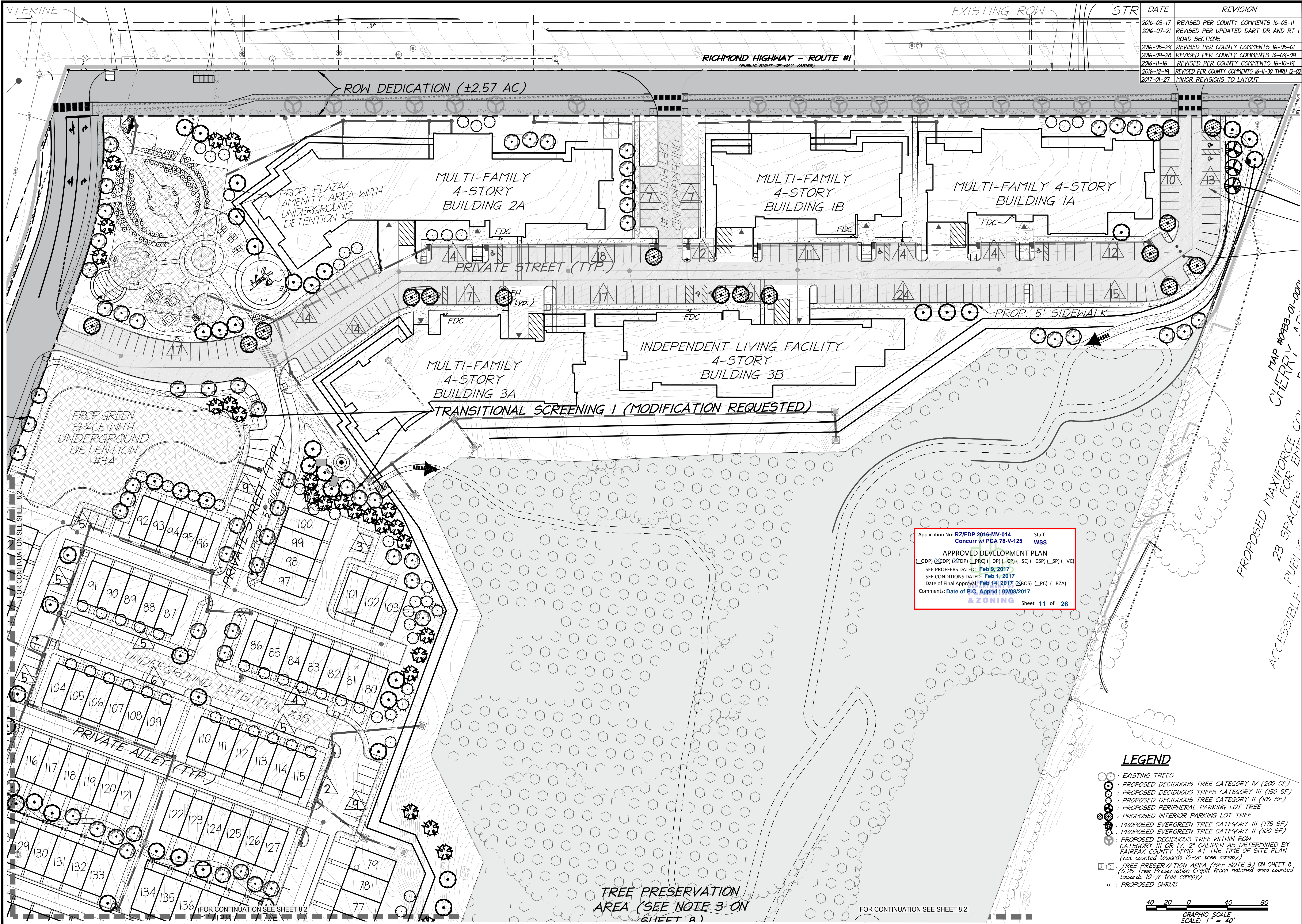
Tree Cover Provided:	
73 - 2" Caliper Deciduous Category IV (200 SF):	14,600
84 - 2" Caliper Deciduous Category III (150 SF):	12,600
91 - 2" Caliper Deciduous Category II (100 SF):	9,100
36 - 10'-12" Height Evergreen Category III (175 SF):	6,300
22 - 8'-10" Height Evergreen Category II (100 SF):	2,200
130 - 24"-30" Height Shrubs:	0
Total Proposed Tree Planting:	44,800 SF

Peripheral Parking Lot Calculations

Tree Cover Required:	
Linear Feet or property line adjacent to parking lot:	135
Total number of plant units required (1 tree for 50 feet):	3
Tree Cover Provided:	
3 - 2" Caliper Deciduous Category IV (200 SF):	600 SF



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 - : PROPOSED SHRUB

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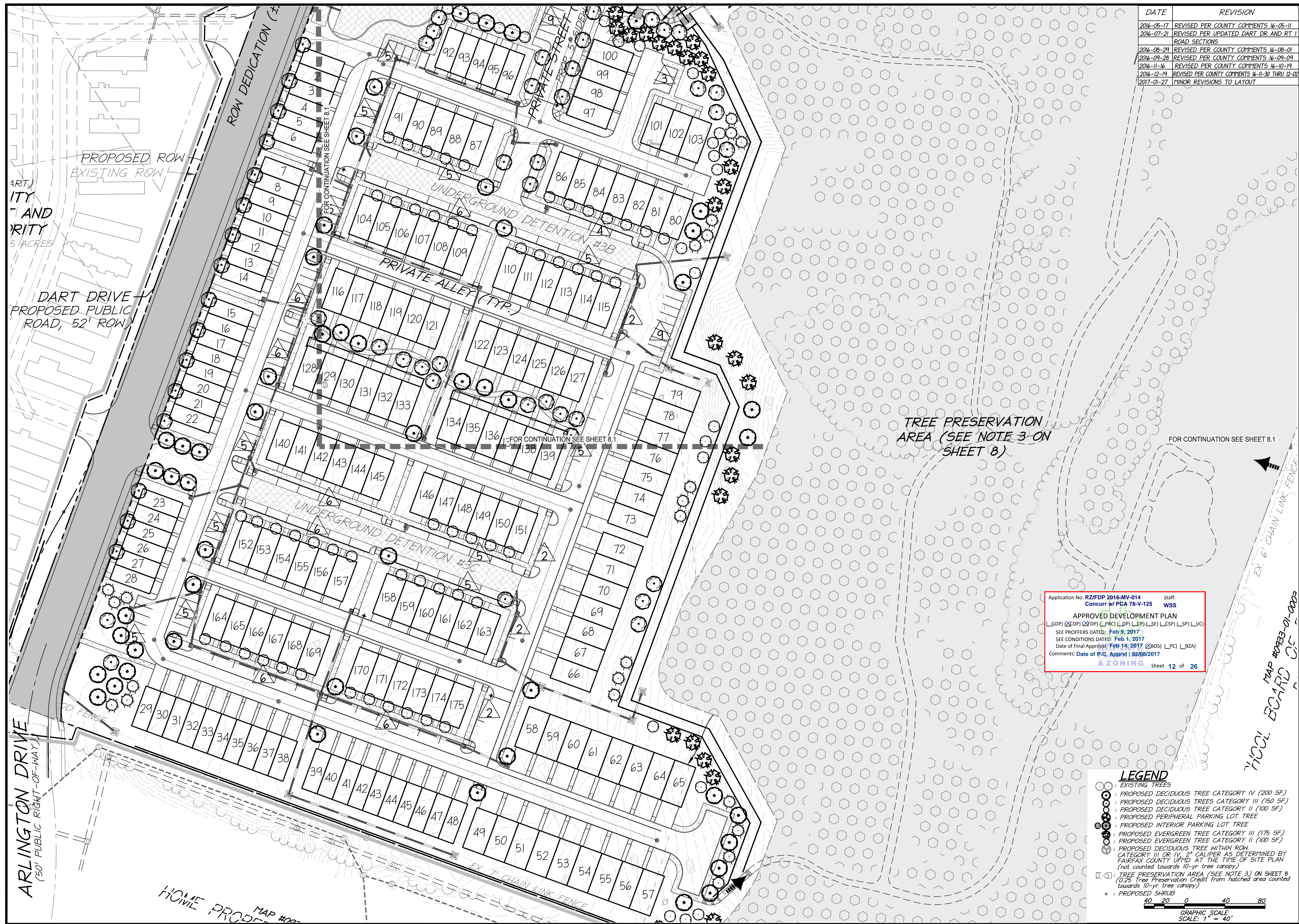
LANDSCAPE ARCHITECT
 LINDSAY E. BURKEISH
 Lic. No. 0406001630
 2017-01-27

LANDSCAPE PLAN

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NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

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40 20 0 40 80
 GRAPHIC SCALE
 SCALE: 1" = 40'

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COMMONWEALTH OF VIRGINIA
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 2017-01-27
 LANDSCAPE ARCHITECT

LANDSCAPE PLAN

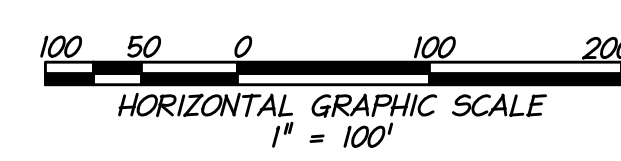
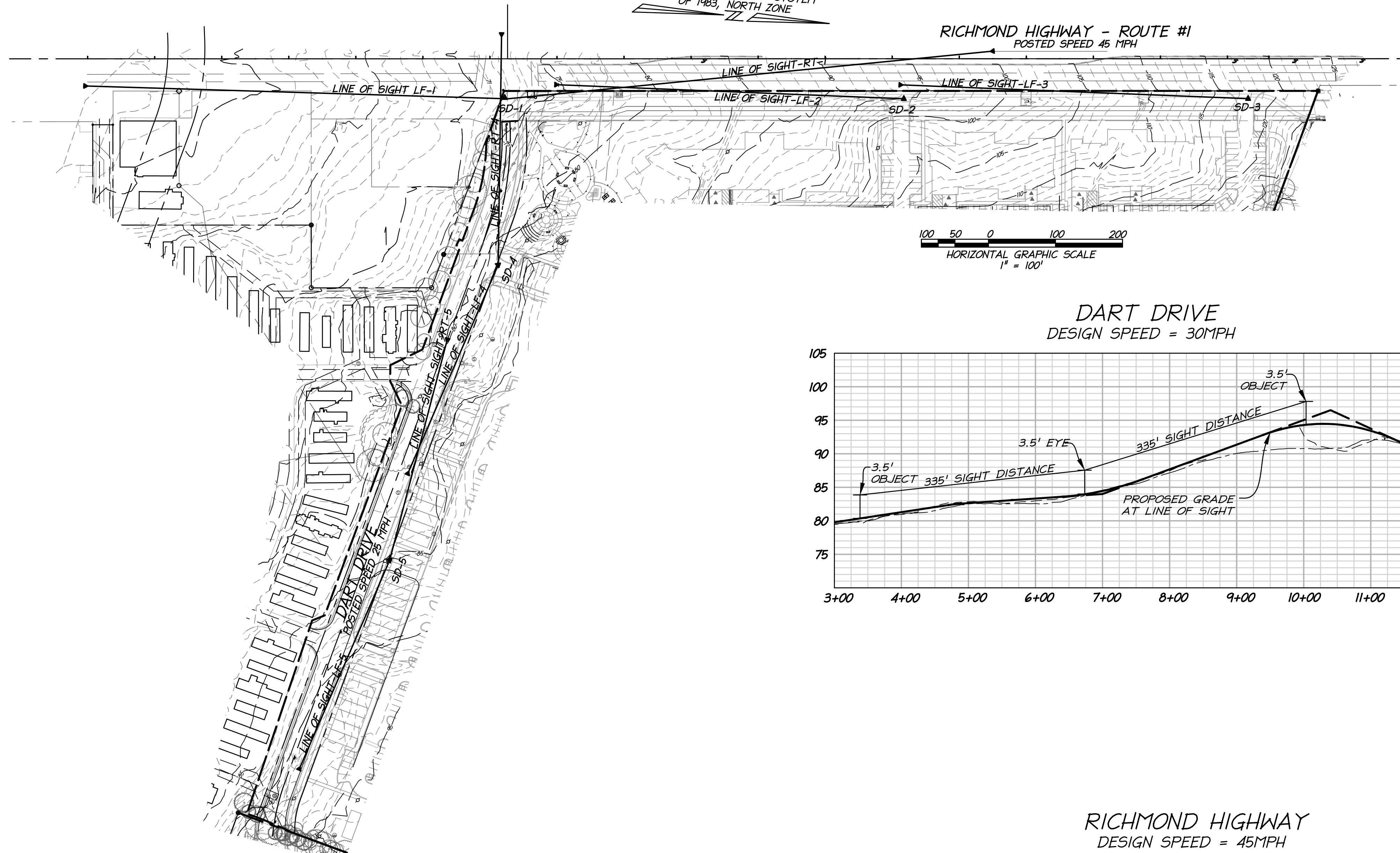
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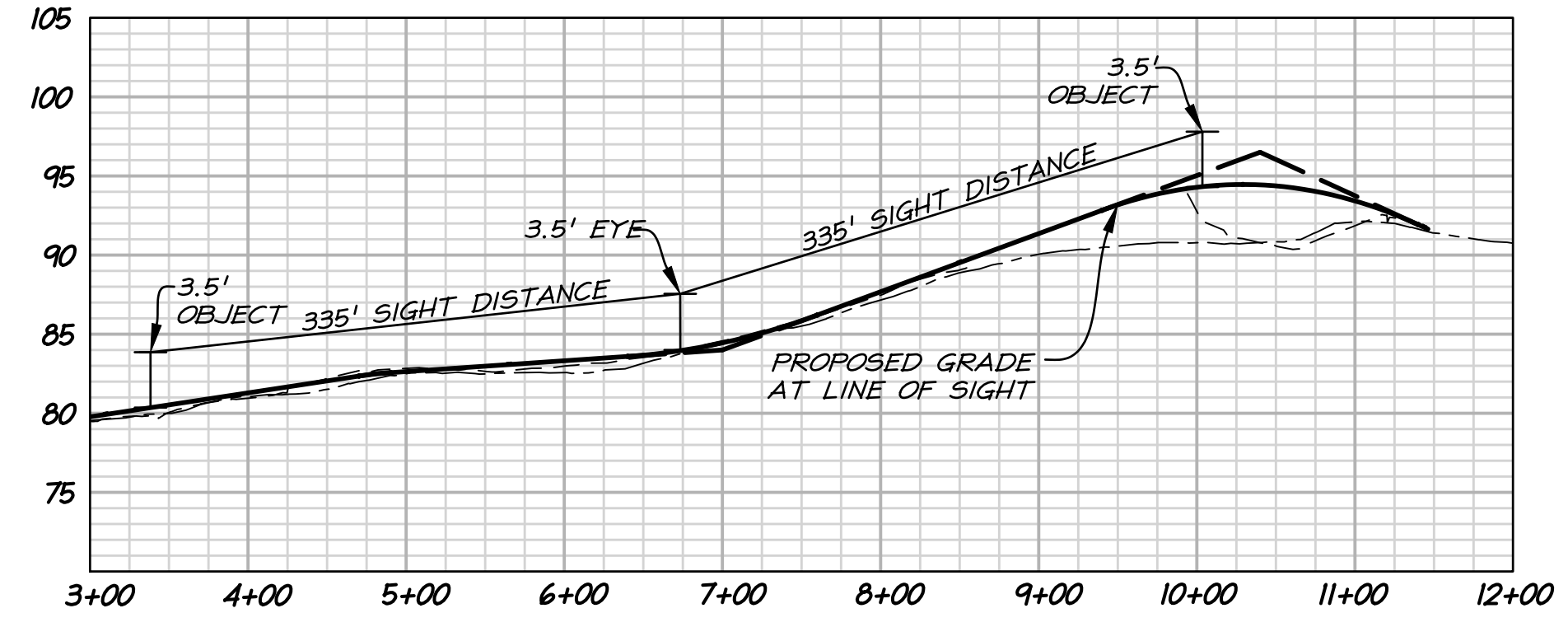
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VIRGINIA COORDINATE SYSTEM OF 1983, NORTH ZONE

RICHMOND HIGHWAY - ROUTE #1
POSTED SPEED 45 MPH

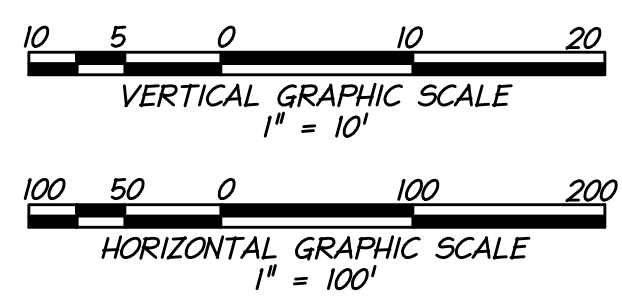
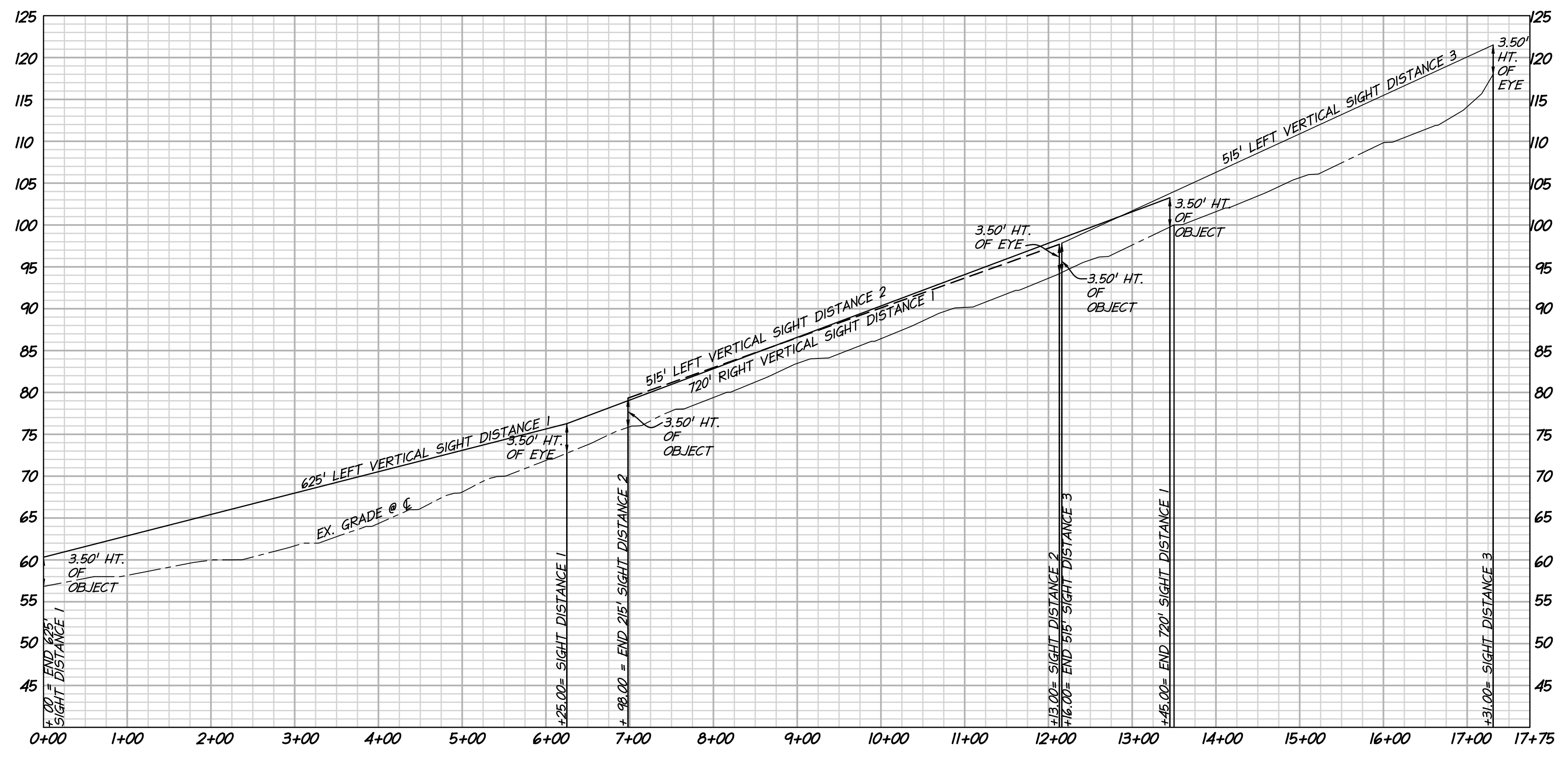


DART DRIVE
DESIGN SPEED = 30MPH

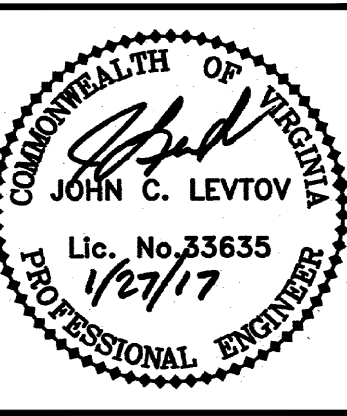


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RICHMOND HIGHWAY
DESIGN SPEED = 45MPH



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SIGHT DISTANCE

CDP / FDP
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DESIGN: TET
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SHEET No. **19.13**

9 OF 22

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P:\Projects\15014\001\001\06819 CDP FDP\09 SIGHT DISTANCE.dwg, 1/26/2017 5:31:54 PM, ericbogumil, i.t., christopher consultants, ltd

2011 BMP Standards and Specifications | 2013 Draft BMP Standards and Specifications

Project Name: **North Hill**
Date: **11/11/2016**

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data input cells
constant values
calculation cells
final results

BMP Design Specifications List: 2013 Draft Stds & Specs

Site Information

Post-Development Project (Treatment Volume and Loads)

Land Cover (acres)	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				8.77	8.77
Impervious Cover (acres)				13.39	13.39
					22.16

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

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	24.93
------------------------------------	-------

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary	Treatment Volume and Nutrient Loads
Forest/Open Space Cover (acres)	0.00
Weighted Rv (forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	8.77
Weighted Rv (turf)	0.25
% Managed Turf	40%
Impervious Cover (acres)	13.39
Rv (impervious)	0.95
% Impervious	60%
Site Area (acres)	22.16
Site Rv	0.67
Treatment Volume (acre-ft)	1.2428
Treatment Volume (cubic feet)	54,134
TP Load (lb/yr)	34.01
TN Load (lb/yr)	243.32
(Informational Purposes Only)	

STORMWATER MANAGEMENT / WATER QUALITY NARRATIVE:
WATER QUANTITY AND QUALITY TREATMENT OF STORMWATER RUNOFF FROM THE SUBJECT SITE IS PROVIDED BY 3 CONTECH STORMFILTERS AND 5 ISOLATOR ROW MANUFACTURED TREATMENT DEVICES THAT ARE FITTED WITH EXTRA STORAGE CHAMBERS TO PROVIDE THE DETENTION REQUIRED. ANY REMAINING PHOSPHORUS REDUCTION NEEDED WILL BE PROVIDED BY PURCHASING OFFSITE NUTRIENT CREDITS.

THE LAYOUT OF THESE FACILITIES IS SHOWN ON SHEET 10. THE GOAL OF THIS LAYOUT IS TO DIRECT A MAJORITY OF THE SITE TO THE ISOLATOR ROW FACILITIES FOR WATER QUALITY AS WELL AS DETENTION. THEN RUNOFF RECEIVES ADDITIONAL TREATMENT IN THE STORMFILTER FACILITIES AT A LOWER FLOW RATE. THE "OVERALL BMP MAP" ON SHEET 10 DEPICTS THE OVERALL DRAINAGE AREAS TO EACH BMP FACILITY AS WELL AS THE LAND COVER CONDITIONS FOR THE SUBJECT SITE (WITHIN THE PROPOSED LIMITS OF DISTURBANCE). SHEETS 12 AND 13 OF THIS APPLICATION SHOW THE PRE-DEVELOPMENT AND POST-DEVELOPMENT DRAINAGE DIVIDES AS WELL AS HYDROLOGIC INFORMATION (CN-VALUES, DRAINAGE AREAS, Tc, etc.). THIS WAS USED TO CREATE A HYDROLOGIC MODEL OF SITE RUNOFF USING THE NRCS HYDROLOGY METHODS OUTLINED IN 6-0802 OF THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL (PFM).

THE ON-SITE UNDERGROUND DETENTION FACILITIES WITH ISOLATOR ROWS ARE MANUFACTURED TREATMENT DEVICES AND SHALL BE DESIGNED IN ACCORDANCE WITH THE FAIRFAX COUNTY PFM REQUIREMENTS FOR DETENTION FACILITIES AND THE MANUFACTURER'S GUIDELINES. FINAL CONSTRUCTION PLANS SHALL INCLUDE THE MANUFACTURER'S INSTALLATION AND MAINTENANCE RECOMMENDATIONS, INCLUDING THE INTERVALS FOR INSPECTIONS AND ROUTINE MAINTENANCE.

IN ACCORDANCE WITH THE VIRGINIA RUNOFF REDUCTION METHOD (VARRM) FOR NEW DEVELOPMENT (AS SHOWN IN THE SPREADSHEETS ON SHEET 11 OF THIS APPLICATION), THE COMBINATION OF BMP SYSTEMS ON-SITE DOES NOT EXCEED THE REQUIRED PHOSPHORUS LOAD REDUCTION, AND THEREFORE, OFFSITE NUTRIENT CREDITS SHALL BE PURCHASED.

CHANNEL PROTECTION NARRATIVE:

FOR THE MULTI-FAMILY PORTION, THE SITE DISCHARGES CONCENTRATED STORMWATER RUNOFF TO MULTIPLE EXISTING STORM SEWER OUTFALLS ALONG ROUTE 1. THE CHANNEL PROTECTION REQUIREMENTS FOR THIS PORTION OF THE SITE ARE MET VIA THE "DETENTION METHOD". THE PROPOSED DEVELOPMENT PROVIDES SUFFICIENT DETENTION/RUNOFF REDUCTION SUCH THAT THE POST-DEVELOPMENT PEAK FLOWS FOR THE 1-YEAR 24-HOUR STORM EVENT, THE 2-YEAR 24-HOUR STORM EVENT AND THE 10-YEAR 24-HOUR STORM EVENT ARE BELOW THE ALLOWABLE RELEASE RATES FOR EACH EXISTING OUTFALL. THESE ALLOWABLE RELEASE RATES WERE DETERMINED USING THE METHOD OUTLINED IN SECTION 124-4-4(b)(3)A OF THE VIRGINIA STORMWATER ORDINANCE (SEE SHEET 14 FOR ALLOWABLE RELEASE RATES). A COMBINATION OF REDUCING POST DEVELOPED DRAINAGE AREAS THAT RESULT IN A REDUCTION THAT'S WITHIN THE ALLOWABLE RELEASE RATES AND DETAINING WATER INTO TWO UNDERGROUND DETENTION FACILITIES THAT ALSO RESULTS IN A REDUCTION THAT'S WITHIN THE ALLOWABLE RELEASE RATE HAVE BEEN UTILIZED.

FOR THE SINGLE-FAMILY PORTION, THE SITE DISCHARGES CONCENTRATED STORMWATER RUNOFF TO THREE EXISTING OUTFALLS ALONG DART DRIVE. THE CHANNEL PROTECTION REQUIREMENTS FOR THIS PORTION OF THE SITE ARE MET VIA THE "DETENTION METHOD". THE PROPOSED DEVELOPMENT PROVIDES SUFFICIENT DETENTION/RUNOFF REDUCTION SUCH THAT THE POST-DEVELOPMENT PEAK FLOWS FOR THE 1-YEAR 24-HOUR STORM EVENT, THE 2-YEAR 24-HOUR STORM EVENT AND THE 10-YEAR 24-HOUR STORM EVENT ARE BELOW THE ALLOWABLE RELEASE RATES FOR EACH EXISTING OUTFALL. THESE ALLOWABLE RELEASE RATES WERE DETERMINED USING THE METHOD OUTLINED IN SECTION 124-4-4(b)(3)A OF THE VIRGINIA STORMWATER ORDINANCE (SEE SHEET 14 FOR ALLOWABLE RELEASE RATES). OUTFALLS A & B BOTH RELEASE INTO AN ENCLOSED STORM SEWER THAT CONVERGE JUST BELOW THE DART DRIVE. OUTFALLS # B HAVE BEEN COMBINED WITH POST DEVELOPMENT AND RUNOFF IS DETAINED INTO AN UNDERGROUND DETENTION FACILITIES THAT RESULTS IN A REDUCTION THAT'S WITHIN THE ALLOWABLE RELEASE RATE. A REDUCTION OF DEVELOPED DRAINAGE FOR OUTFALL C RESULTS IN A RUNOFF REDUCTION THAT'S WITHIN THE ALLOWABLE RELEASE RATE.

THERE ARE SOME AREAS OF THE SUBJECT SITE ALONG THE STREET FRONTAGE THAT DRAIN BY WAY OF SHEET FLOW TO THE EXISTING CURB INLETS. THEY WERE EVALUATED AND DETERMINED NO IMPACT ON DOWN-GRADIENT PROPERTIES AND THERE IS NO ANTICIPATED INCREASE IN VOLUME OF SHEET FLOW AND SINCE THEY DRAIN TO EXISTING PAVED ROAD THERE WILL NOT CAUSE OR CONTRIBUTE TO EROSION, SEDIMENTATION, OR FLOODING OF DOWN GRADIENT PROPERTIES OR RESOURCES.

FLOOD PROTECTION AND EXTENT OF REVIEW NARRATIVE:

IN ACCORDANCE WITH THE "DETENTION METHOD" OUTLINED IN 124-4-4(c)(4) OF THE VIRGINIA STORMWATER ORDINANCE AND SECTION 6-0203.4A OF THE FAIRFAX COUNTY PFM, THE DOWNSTREAM REVIEW ANALYSIS IS LIMITED TO PROVIDING CROSS-SECTIONS SHOWING A DEFINED CHANNEL AND CHECKING FOR FLOODING OF EXISTING BUILDINGS OR DWELLINGS FROM THE 100-YEAR STORM EVENT. THE EXTENT OF REVIEW EXTENDS TO A POINT THAT IS AT LEAST 150 FEET DOWNSTREAM OF A POINT WHERE THE DRAINAGE AREA IS 360 ACRES OR GREATER IN ACCORDANCE WITH SECTION 6-0203.2 OF THE PFM.

BOTH OUTFALL STUDY POINTS OF THE SUBJECT SITE OUTFALLS INTO AN ENCLOSED STORM SEWER PIPE SYSTEM THAT CONVERGE TOGETHER JUST DOWNS STREAM OF THE SITE. THE EXISTING STORM PIPE SYSTEM RUNS SOUTH ADJACENT TO ROUTE 1 FOR APPROXIMATELY 1,800' BEFORE DISCHARGING INTO AN EXISTING CHANNEL. THE EXISTING CHANNEL CARRIES THE DISCHARGE FOR APPROXIMATELY 800' BEFORE CONNECTING TO LITTLE HUNTING CREEK AT WHICH POINT IS THE EXTENT OF THE REVIEW FOR THIS PROJECT. SEE SHEET 15 FOR OUTFALL PLAN VIEW.

Drainage Area A

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)				3.62	3.62	0.25
Impervious Cover (acres)				4.63	4.63	0.95
Total					8.25	

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr)	12.10
Post Development Treatment Volume in D.A. A (ft³)	19,252

Stormwater Best Management Practices (RR = Runoff Reduction)

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft³)	Runoff Reduction (ft³)	Remaining Runoff Volume (ft³)	Total BMP Treatment Volume (ft³)	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
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device- (ISOLATOR ROW)	0	3.62	4.63	0	0	19,252	19,252	40	0.00	12.08	4.83	7.25	14.b. MTD - Filtering
14.b. Manufactured Treatment Device-Filtering (CONTECH STORMFILTER)	0			19,252	0	19,252	19,252	50	7.25	0.00	3.62	3.62	

Application No: RZ/FDP 2016-MV-014 Staff: **WSS**
Concurr w/ PGA 78-V-125
APPROVED DEVELOPMENT PLAN
(L_GDP) (X_CDP) (X_FDP) (L_PRC) (L_DP) (L_CP) (L_SE) (L_CSP) (L_SP) (L_VC)
SEE PROFFERS DATED: Feb 9, 2017
SEE CONDITIONS DATED: Feb 1, 2017
Date of Final Approval: Feb 14, 2017 (X_BOS) (L_PC) (L_BZA)
Comments: Date of P.C. Approval: 02/08/2017
& ZONING Sheet 15 of 26

Drainage Area B

Drainage Area B 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)				3.57	3.57	0.25
Impervious Cover (acres)				6.71	6.71	0.95
Total					10.28	

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. B (lb/yr)	16.57
Post Development Treatment Volume in D.A. B (ft³)	26,379

Stormwater Best Management Practices (RR = Runoff Reduction)

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft³)	Runoff Reduction (ft³)	Remaining Runoff Volume (ft³)	Total BMP Treatment Volume (ft³)	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
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device- (ISOLATOR ROW)	0	3.57	6.71	0	0	26,379	26,379	40	0.00	16.56	6.62	9.93	14.b. MTD - Filtering
14.b. Manufactured Treatment Device-Filtering (CONTECH STORMFILTER)	0			26,379	0	26,379	26,379	50	9.93	0.00	4.97	4.97	

DRAINAGE AREA A - SUMMARY

TOTAL IMPERVIOUS COVER TREATED (ac)	4.63	AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac)	3.62	AREA CHECK: OK.

TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr)	24.93
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TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr)	12.10
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	8.46
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.00
TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. A (lb/yr)	8.46
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. A (lb/yr)	3.64

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.00
NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.00
TOTAL NITROGEN REMOVED IN D.A. A (lb/yr)	0.00

DRAINAGE AREA B - SUMMARY

TOTAL IMPERVIOUS COVER TREATED (ac)	6.71	AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac)	3.57	AREA CHECK: OK.

TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr)	24.93
---	-------

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. B (lb/yr)	16.57
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. B (lb/yr)	11.59
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. B (lb/yr)	0.00
TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. B (lb/yr)	11.59
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. B (lb/yr)	4.99

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. B (lb/yr)	0.00
NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. B (lb/yr)	0.00
TOTAL NITROGEN REMOVED IN D.A. B (lb/yr)	0.00

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)	4.63	6.71	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	4.63	6.71	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	3.62	3.57	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	3.62	3.57	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft³)	1
-----------------------------	---

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 (ft³)	0	0	0	0	0	0
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	12.10	16.57	0.00	0.00	0.00	28.67
TP LOAD REDUCTION ACHIEVED (lb/yr)	8.46	11.59	0.00	0.00	0.00	20.05
TP LOAD REMAINING (lb/yr)	3.64	4.99	0.00	0.00	0.00	8.62

NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00
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Total Phosphorus

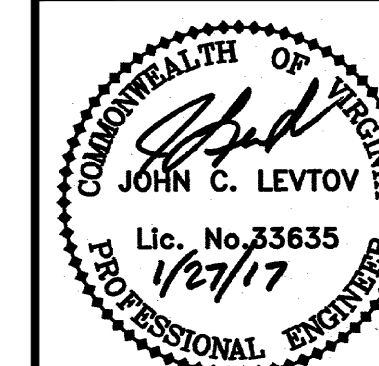
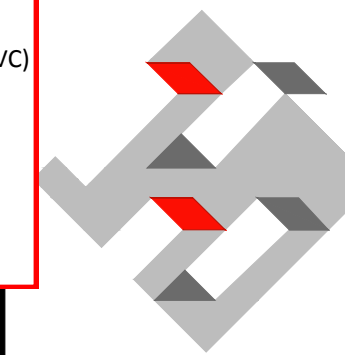
FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	34.01
TP LOAD REDUCTION REQUIRED (lb/yr)	24.93
TP LOAD REDUCTION ACHIEVED (lb/yr)	20.05
TP LOAD REMAINING (lb/yr)	13.97
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	4.88

NOTE: OFFSITE NUTRIENTS WILL BE PURCHASED FOR REMAINING PHOSPHORUS LOAD NEEDED.

Total Nitrogen (For Informational Purposes)

POST-DEVELOPMENT LOAD (lb/yr)	243.32
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	243.32

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9900 main street (suite 400) · fairfax, va 22031
phone 703.273.6820 · fax 703.273.6820



BMP CALCULATIONS AND NARRATIVE

GDP / FDP
NORTH HILL
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 15014.001.00

SCALE: NONE

DATE: 05-02-2016

DESIGN: TET
DRAWN: TET
CHECKED: JCL

SHEET No: **19.15**

of 22

P:\Projects\15014\001001\106819 CDP FDP\12 PREDEVELOPMENT DIVIDES.dwg, 1/26/2017 5:35:03 PM, ericbogumil, 11, christopher consultants, ltd

D.A. = 0.34
CN = 98
OFFSITE TO 2256

D.A. = 0.21
CN = 98
OFFSITE TO 2228

D.A. = 0.37
CN = 77
ONSITE TO 2228

D.A. = 0.29
CN = 98
OFFSITE TO 7451

D.A. = 0.23
CN = 98
OFFSITE TO 7629

D.A. = 0.78
CN = 77
ONSITE TO 7614

D.A. = 0.12
CN = 98
OFFSITE TO 7614

D.A. = 1.70
CN = 77
ONSITE TO 2256

D.A. = 1.48
CN = 177
OFFSITE TO 2256

D.A. = 0.36
CN = 77
OFFSITE TO 7451

D.A. = 0.66
CN = 77
OFFSITE TO 7629

D.A. = 1.42
CN = 77
ONSITE TO 7451

D.A. = 4.08
CN = 80
OFFSITE TO 7595

D.A. = 1.80
CN = 77
ONSITE TO 7629

D.A. = 1.50
CN = 80
OFFSITE TO OUTFALL A

D.A. = 3.19
CN = 79
OFFSITE TO OUTFALL B

D.A. = 2.31
CN = 77
ONSITE TO 7595

D.A. = 2.64
CN = 77
ONSITE TO OUTFALL A

D.A. = 0.03
CN = 77
OFFSITE TO 7676

D.A. = 6.58
CN = 77
ONSITE TO OUTFALL B

D.A. = 2.04
CN = 77
ONSITE TO 7676

D.A. = 0.05
CN = 77
ONSITE TO 8684

D.A. = 0.11
CN = 77
ONSITE TO 8687

D.A. = 2.00
CN = 77
ONSITE TO OUTFALL C

VIRGINIA COORDINATE SYSTEM
OF 1983, NORTH ZONE

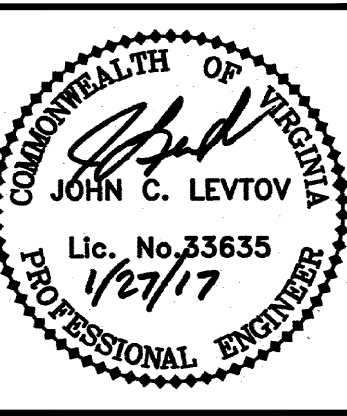
Application No: RZ/FDP 2016-MV-014 Staff: WSS
Concurr w/ PCA 78-V-125
APPROVED DEVELOPMENT PLAN
(L_GDP) (X_CDP) (X_FDP) (L_PRC) (L_DP) (L_EP) (L_SE) (L_CSP) (L_SP) (L_VC)
SEE PROFFERS DATED: Feb 9, 2017
SEE CONDITIONS DATED: Feb 1, 2017
Date of Final Approval: Feb 14, 2017 (X_BOS) (L_PC) (L_BZA)
Comments: Date of P.C. Approval: 02/08/2017
ZONING Sheet 16 of 26

LEGEND

..... PRE-DEVELOPED DRAINAGE DIVIDE

80 40 0 80 160
HORIZONTAL GRAPHIC SCALE
1" = 80'

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PRE-DEVELOPMENT DRAINAGE DIVIDES

CDP / FDP
NORTH HILL
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 15014.001.00
SCALE: 1" = 80'
DATE: 05-02-2016
DESIGN: TET
DRAWN: TET
CHECKED: JCL
SHEET No. **19.16**

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107768 106819

P:\Projects\15014\001001\06819 CDP FDP\13 POSTDEVELOPMENT DIVIDES.dwg, 1/26/2017 5:35:33 PM, ericbogumil, 1.1, christopher consultants, ltd

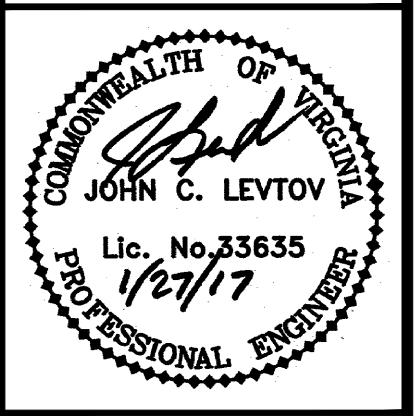


Application No: RZ/FDP 2016-MV-014 Staff:
 Concurr w/ PCA 78-V-125 WSS
 APPROVED DEVELOPMENT PLAN
 (L_GOP) (X_CDP) (X_FDP) (L_PRC) (L_DP) (L_EP) (L_SE) (L_CSP) (L_SP) (L_VG)
 SEE PROFFERS DATED: Feb 9, 2017
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 Date of Final Approval: Feb 14, 2017 (X_BOS) (L_PC) (L_BZA)
 Comments: Date of P.C. Appr'l: 02/08/2017
 & ZONING Sheet 17 of 26

LEGEND

- [Cross-hatched box] ISOLATOR ROW/UNDERGROUND DETENTION PONDS
- [Diagonal lines box] CONTECH STORM FILTER
- [Dashed line] POST-DEVELOPED DRAINAGE DIVIDE

80 40 0 80 160
 HORIZONTAL GRAPHIC SCALE
 1" = 80'



POST-DEVELOPMENT DRAINAGE DIVIDES

CDP / FDP
NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 15014.001.00
 SCALE: 1" = 80'
 DATE: 05-02-2016
 DESIGN: TET
 DRAWN: TET
 CHECKED: JCL
 SHEET No. **19.17**

PRE-DEVELOPMENT(FORESTED)					RV and Q		
DRAINAGE AREA (ONSITE):	DESCRIPTION	AREA (Ac.)	CN	WEIGHTED CN	1-yr	2-yr	10-yr
ON-SITE TO EXISTING STRUCTURE 2256	WOODED (D SOILS)	1.70	77				
	TOTAL	1.70		77	5,197	7,576	16,003
ON-SITE TO EXISTING STRUCTURE 2228	WOODED (D SOILS)	0.37	77				
	TOTAL	0.37		77	1,131	1,649	3,483
ON-SITE TO EXISTING STRUCTURE 7451	WOODED (D SOILS)	1.42	77				
	TOTAL	1.42		77	4,341	6,328	13,367
ON-SITE TO EXISTING STRUCTURE 7629	WOODED (D SOILS)	1.80	77				
	TOTAL	1.80		77	5,336	7,778	16,430
ON-SITE TO EXISTING STRUCTURE 7614	WOODED (D SOILS)	0.78	77				
	TOTAL	0.78		77	2,312	3,371	7,120
ON-SITE TO EXISTING STRUCTURE 7595	WOODED (D SOILS)	2.31	77				
	TOTAL	2.31		77	6,848	9,982	21,086
ON-SITE TO EXISTING STRUCTURE 7676	WOODED (D SOILS)	2.04	77				
	TOTAL	2.04		77	6,047	8,815	18,621
ON-SITE TO OUTFALL A	WOODED (D SOILS)	2.64	77				
	TOTAL	2.64		77	7,826	11,408	24,098
ON-SITE TO OUTFALL B	WOODED (D SOILS)	6.58	77				
	TOTAL	6.58		77	19,505	28,434	60,062
ON-SITE TO OUTFALL C	WOODED (D SOILS)	2.00	77				
	TOTAL	2.00		77	5,929	8,642	18,256

OFF-SITE TO EXISTING STRUCTURE					RV and Q		
DRAINAGE AREA (OFFSITE/BY-PASS):	DESCRIPTION	AREA (Ac.)	CN	WEIGHTED CN	1-yr	2-yr	10-yr
OFF-SITE TO EXISTING STRUCTURE 2256	WOODED (D SOILS)	1.48	77				
	IMPERVIOUS (D SOILS)	0.34	98				
TOTAL		1.82		81			
OFF-SITE TO EXISTING STRUCTURE 2228	IMPERVIOUS (D SOILS)	0.21	98				
	TOTAL	0.21		98	2.53	3.57	7.04
OFF-SITE TO EXISTING STRUCTURE 7451	WOODED (D SOILS)	0.36	77				
	IMPERVIOUS (D SOILS)	0.29	98				
TOTAL		0.65		86			
OFF-SITE TO EXISTING STRUCTURE 7629	WOODED (D SOILS)	0.66	77				
	IMPERVIOUS (D SOILS)	0.23	98				
TOTAL		0.89		82	1.31	1.83	3.54
OFF-SITE TO EXISTING STRUCTURE 7614	IMPERVIOUS (D SOILS)	0.12	98				
	TOTAL	0.12		98	0.34	0.41	0.64
OFF-SITE TO EXISTING STRUCTURE 7595	WOODED (D SOILS)	3.51	77				
	IMPERVIOUS (D SOILS)	0.51	98				
TOTAL		4.02		80	5.25	7.52	15.09
OFF-SITE TO EXISTING STRUCTURE 7676	WOODED (D SOILS)	0.03	77				
	IMPERVIOUS (D SOILS)	0.03	98				
TOTAL		0.06		77	0.03	0.05	0.10
OFF-SITE TO OUTFALL A	WOODED (D SOILS)	1.28	77				
	IMPERVIOUS (D SOILS)	0.22	98				
TOTAL		1.50		80	1.96	2.81	5.63
OFF-SITE TO OUTFALL B	WOODED (D SOILS)	2.89	77				
	IMPERVIOUS (D SOILS)	0.29	98				
TOTAL		3.18		79	3.90	5.66	11.58

POST-DEVELOPMENT					RV and Q		
DRAINAGE AREA (ONSITE):	DESCRIPTION	AREA (Ac.)	CN	WEIGHTED CN	1-yr	2-yr	10-yr
ON-SITE TO EXISTING STRUCTURE 2256	MANAGED TURF	0.70	80				
	IMPERVIOUS (D SOILS)	1.00	98				
TOTAL		1.70		91	10,945	14,192	24,539
ON-SITE TO EXISTING STRUCTURE 2228	MANAGED TURF	0.18	80				
	IMPERVIOUS (D SOILS)	0.19	98				
TOTAL		0.37		89	2,161	2,845	5,052
ON-SITE TO EXISTING STRUCTURE 7451	MANAGED TURF	0.67	80				
	IMPERVIOUS (D SOILS)	0.75	98				
TOTAL		1.42		90	8,710	11,380	19,939
ON-SITE TO EXISTING STRUCTURE 7629	MANAGED TURF	0.77	80				
	IMPERVIOUS (D SOILS)	1.03	98				
TOTAL		1.80		90	11,041	14,425	25,275
ON-SITE TO EXISTING STRUCTURE 7614	MANAGED TURF	0.30	80				
	IMPERVIOUS (D SOILS)	0.48	98				
TOTAL		0.78		91	5,022	6,512	11,259
ON-SITE TO EXISTING STRUCTURE 7595	MANAGED TURF	1.37	80				
	IMPERVIOUS (D SOILS)	0.94	98				
TOTAL		2.31		87	12,211	16,329	29,790
ON-SITE TO EXISTING STRUCTURE 7676	MANAGED TURF	1.00	80				
	IMPERVIOUS (D SOILS)	1.04	98				
TOTAL		2.04		89	11,914	15,687	27,855
ON-SITE TO OUTFALL A	MANAGED TURF	0.58	80				
	IMPERVIOUS (D SOILS)	2.06	98				
TOTAL		2.64		94	19,609	24,852	41,307
ON-SITE TO OUTFALL B	MANAGED TURF	1.55	80				
	IMPERVIOUS (D SOILS)	5.03	98				
TOTAL		6.58		94	48,874	61,943	102,955
ON-SITE TO OUTFALL C	MANAGED TURF	0.46	80				
	IMPERVIOUS (D SOILS)	1.54	98				
TOTAL		2.00		94	14,855	18,828	31,293

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO EXISTING STRUCTURE 2256		
$Q_{DEVELOPED} \leq I.F. * ((Q_{PRE-DEVELOPED} * RV_{PRE-DEVELOPED}) / RV_{DEVELOPED}) + \text{Offsite/By-Pass}$		
1-YR	Q1	(1.83 * 5,197) / 10,945 + 2.53 CFS
	Q1<	3.40 CFS
2-YR	Q2	(2.72 * 7,576) / 14,192 + 3.57 CFS
	Q2<	5.03 CFS
10-YR	Q10	(5.80 * 16,003) / 24,539 + 7.04 CFS
	Q10<	10.82 CFS

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO EXISTING STRUCTURE 2228		
$Q_{DEVELOPED} \leq I.F. * ((Q_{PRE-DEVELOPED} * RV_{PRE-DEVELOPED}) / RV_{DEVELOPED}) + \text{Offsite/By-Pass}$		
1-YR	Q1	(0.40 * 1,131) / 2,161 + 0.60 CFS
	Q1<	0.80 CFS
2-YR	Q2	(0.59 * 1,649) / 2,845 + 0.72 CFS
	Q2<	1.07 CFS
10-YR	Q10	(1.26 * 3,483) / 5,052 + 1.12 CFS
	Q10<	1.99 CFS

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO EXISTING STRUCTURE 7451		
$Q_{DEVELOPED} \leq I.F. * ((Q_{PRE-DEVELOPED} * RV_{PRE-DEVELOPED}) / RV_{DEVELOPED}) + \text{Offsite/By-Pass}$		
1-YR	Q1	(1.53 * 4,341) / 8,710 + 1.18 CFS
	Q1<	1.94 CFS
2-YR	Q2	(2.27 * 6,328) / 11,380 + 1.59 CFS
	Q2<	2.85 CFS
10-YR	Q10	(4.85 * 7,120) / 19,939 + 2.87 CFS
	Q10<	4.60 CFS

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO EXISTING STRUCTURE 7629		
$Q_{DEVELOPED} \leq I.F. * ((Q_{PRE-DEVELOPED} * RV_{PRE-DEVELOPED}) / RV_{DEVELOPED}) + \text{Offsite/By-Pass}$		
1-YR	Q1	(1.65 * 5,336) / 11,041 + 1.31 CFS
	Q1<	2.11 CFS
2-YR	Q2	(2.47 * 7,778) / 14,425 + 1.83 CFS
	Q2<	3.16 CFS
10-YR	Q10	(5.29 * 16,430) / 25,275 + 3.54 CFS
	Q10<	6.98 CFS

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO EXISTING STRUCTURE 7614		
$Q_{DEVELOPED} \leq I.F. * ((Q_{PRE-DEVELOPED} * RV_{PRE-DEVELOPED}) / RV_{DEVELOPED}) + \text{Offsite/By-Pass}$		
1-YR	Q1	(0.72 * 2,312) / 5,022 + 0.34 CFS
	Q1<	0.67 CFS
2-YR	Q2	(1.07 * 3,371) / 6,512 + 0.41 CFS
	Q2<	0.97 CFS
10-YR	Q10	(2.29 * 7,120) / 11,259 + 0.64 CFS
	Q10<	2.09 CFS

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO EXISTING STRUCTURE 7595		
$Q_{DEVELOPED} \leq I.F. * ((Q_{PRE-DEVELOPED} * RV_{PRE-DEVELOPED}) / RV_{DEVELOPED}) + \text{Offsite/By-Pass}$		
1-YR	Q1	(2.12 * 6,848) / 12,211 + 5.25 CFS
	Q1<	6.44 CFS
2-YR	Q2	(3.17 * 9,982) / 16,329 + 5.87 CFS
	Q2<	7.81 CFS
10-YR	Q10	(6.79 * 21,086) / 29,790 + 15.09 CFS
	Q10<	19.90 CFS

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO EXISTING STRUCTURE 7676		
$Q_{DEVELOPED} \leq I.F. * ((Q_{PRE-DEVELOPED} * RV_{PRE-DEVELOPED}) / RV_{DEVELOPED}) + \text{Offsite/By-Pass}$		
1-YR	Q1	(1.87 * 6,047) / 11,914 + 0.03 CFS
	Q1<	0.98 CFS
2-YR	Q2	(2.80 * 8,815) / 15,687 + 0.05 CFS
	Q2<	1.62 CFS
10-YR	Q10	(6.00 * 8,815) / 27,855 + 0.10 CFS
	Q10<	2.00 CFS

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO EXISTING OUTFALL A		
$Q_{DEVELOPED} \leq I.F. * ((Q_{PRE-DEVELOPED} * RV_{PRE-DEVELOPED}) / RV_{DEVELOPED}) + \text{Offsite/By-Pass}$		
1-YR	Q1	(2.42 * 7,826) / 19,609 + 1.96 CFS
	Q1<	2.93 CFS
2-YR	Q2	(3.62 * 7,826) / 24,852 + 2.81 CFS
	Q2<	3.95 CFS
10-YR	Q10	(7.76 * 24,098) / 41,307 + 5.63 CFS
	Q10<	10.16 CFS

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO EXISTING OUTFALL B		
$Q_{DEVELOPED} \leq I.F. * ((Q_{PRE-DEVELOPED} * RV_{PRE-DEVELOPED}) / RV_{DEVELOPED}) + \text{Offsite/By-Pass}$		
1-YR	Q1	(6.04 * 19,505) / 48,874 + 3.90 CFS
	Q1<	6.31 CFS
2-YR	Q2	(9.03 * 28,434) / 61,943 + 5.66 CFS
	Q2<	9.81 CFS
10-YR	Q10	(19.34 * 60,062) / 102,955 + 11.58 CFS
	Q10<	22.86 CFS

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO EXISTING OUTFALL C		
$Q_{DEVELOPED} \leq I.F. * ((Q_{PRE-DEVELOPED} * RV_{PRE-DEVELOPED}) / RV_{DEVELOPED}) + \text{Offsite/By-Pass}$		
1-YR	Q1	(1.84 * 5,929) / 14,855
	Q1<	0.73 CFS
2-YR	Q2	(2.75 * 8,642) / 18,828
	Q2<	1.26 CFS
10-YR	Q10	(5.88 * 18,256) / 31,293
	Q10<	3.43 CFS

MULTI-FAMILY RELEASE RATES AND STORAGE REQUIREMENTS

****OUTFALL TO EXISTING STR 2256:**

ALLOWABLE RELEASE RATES:
1YR 3.40 CFS, 2YR 5.03 CFS, 10YR 10.82 CFS
POST DEVELOPMENT RATES (UNCONTROLLED):
1YR 3.27 CFS, 2YR 4.18 CFS, 10YR 7.00 CFS

****OUTFALL TO EXISTING STR 2228:**

ALLOWABLE RELEASE RATES:
1YR 0.80 CFS, 2YR 1.07 CFS, 10YR 1.99 CFS
POST DEVELOPMENT RATES (UNCONTROLLED):
1YR 0.79 CFS, 2YR 1.00 CFS, 10YR 1.64 CFS

***OUTFALL TO EXISTING STR 7451:**

ALLOWABLE RELEASE RATES:
1YR 1.94 CFS, 2YR 2.85 CFS, 10YR 4.60 CFS
POST DEVELOPMENT RATES (TO UNDERGROUND DETENTION 1):
1YR 5.68 CFS, 2YR 7.15 CFS, 10YR 11.64 CFS
POST DEVELOPMENT RATES (ONSITE UNCONTROLLED):
1YR 1.43 CFS, 2YR 1.81 CFS, 10YR 2.99 CFS
ESTIMATED STORAGE REQUIRED (UNDERGROUND DETENTION 1):
1 YR 14,805 CUFT, 2YR 17,756 CUFT, 10YR 30,146 CUFT

****OUTFALL TO EXISTING STR 7629:**

ALLOWABLE RELEASE RATES:
1YR 2.11 CFS, 2YR 3.16 CFS, 10YR 6.98 CFS
POST DEVELOPMENT RATES (UNCONTROLLED):
1YR 2.01 CFS, 2YR 2.63 CFS, 10YR 4.52 CFS

****OUTFALL TO EXISTING STR 7614:**

ALLOWABLE RELEASE RATES:
1YR 0.67 CFS, 2YR 0.97 CFS, 10YR 2.09 CFS
POST DEVELOPMENT RATES (UNCONTROLLED):
1YR 0.62 CFS, 2YR 0.82 CFS, 10YR 1.43 CFS

***OUTFALL TO EXISTING STR 7495:**

ALLOWABLE RELEASE RATES:
1YR 6.44 CFS, 2YR 7.81 CFS, 10YR 19.90 CFS
POST DEVELOPMENT RATES (TO UNDERGROUND DETENTION 2):
1YR 13.47 CFS, 2YR 19.04 CFS, 10YR 37.50 CFS
POST DEVELOPMENT RATES (ONSITE UNCONTROLLED):
1YR 0.80 CFS, 2YR 1.29 CFS, 10YR 2.22 CFS
ESTIMATED STORAGE REQUIRED (UNDERGROUND DETENTION 2):
1 YR 21,774 CUFT, 2YR 34,541 CUFT, 10YR 55,520 CUFT

****OUTFALL TO EXISTING STR 7676:**

ALLOWABLE RELEASE RATES:
1YR 0.98 CFS, 2YR 1.62 CFS, 10YR 2.00 CFS
POST DEVELOPMENT RATES (UNCONTROLLED):
1YR 0.98 CFS, 2YR 1.29 CFS, 10YR 2.00 CFS

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)
Development Plans PRC District (Sect. 16-302 3 & 4L)
FDP P Districts (Sect. 16-502 1A (6) & (17))

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

P:\Projects\15014\001001\06819 CDP FDP\15 OUTFALL MAP.dwg, 1/26/2017 5:38:11 PM, ericbogumil, 1:1, christopher consultants, ltd

Legend - Stormwater Features -		
Stormnet Nodes	Stormnet Arcs	Stormnet Facilities
○ AIR RELEASE MANHOLE	■ BIORETENTION	■ Bioretention
⊞ BIORETENTION	— BMP	■ Dry Pond
⊞ CONTROL STRUCTURE	— BRIDGE	■ Farm Pond
○ CURB INLET	— DOUBLE BOX CULVERT	■ Forebay
○ DRY POND	— DOUBLE PIPE CULVERT	■ FC-NONPL
○ DRY WELL	— DRY POND	■ FC-PL500
⊞ GRATED INLET	— FIVE BOX CULVERT	■ Government Facility
○ INFALL	— FIVE PIPE CULVERT	■ Green Roof
○ MANHOLE	— GABION WALL	■ Manufactured BMP
⊞ MANUFACTURED BMP	— GRASS DITCH	■ Parking Lot
○ MISSING INFO ERROR	— MISSING INFO ERROR	■ Pervious Pavement
○ OUTFALL	— NATURAL DITCH	■ Reforestation
○ PARKING LOT	— PAVED DITCH	■ Roof Top
○ ROOF TOP	— PERF PIPE	■ Sand Filter
○ SAND FILTER	— PERFDRAIN	■ Tree Box Filter
○ SOURCE DOC ERROR	— PIPE	■ Trench
○ SPECIAL STRUCTURES	— QUAD BOX CULVERT	■ Underground
○ TRENCH	— QUAD PIPE CULVERT	■ Vegetative Swale
○ UNDERGROUND	— RIPRAP	■ Wetland
○ UNKNOWN	— ROADSIDE DITCH	
○ WET POND	— SAND FILTER	
○ WETLAND	— SINGLE BOX CULVERT	
○ YARD INLET	— SINGLE PIPE CULVERT	
	— SIX BOX CULVERT	
	— SIX PIPE CULVERT	
	— SLOTTED DRAIN	
	— SOURCE DOC ERROR	
	— STREAM	
	— TRACK UNDERDRAINS	
	— TRENCH	
	— TRIPLE BOX CULVERT	
	— TRIPLE PIPE	
	— TRIPLE PIPE CULVERT	
	— U ELLIPTICAL CULVERT	
	— U ROUND CULVERT	
	— UNDERDRAIN	
	— UNDERGROUND	
	— UNK BOX CULVERT	
	— UNKNOWN	
	— VALLEY GUTTER	
	— WET POND	
	— WETLAND	



Application No: **RZ/FDP 2016-MV-014** Staff: **WSS**
 Concurr w/ **PCA 78-V-125**
APPROVED DEVELOPMENT PLAN
 (L_GDP) (X_CDP) (X_FDP) (L_PRC) (L_DP) (L_EP) (L_SF) (L_CSP) (L_SP) (L_VO)
 SEE PROFFERS DATED: **Feb 9, 2017**
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 Date of Final Approval: **Feb 14, 2017** (X_BOS) (L_PC) (L_BZA)
 Comments: **Date of P.C. Approval: 02/08/2017**
& ZONING Sheet **19** of **26**

VIRGINIA COORDINATE SYSTEM
 OF 1983, NORTH ZONE

christopher consultants
 9900 main street (suite 400) · Fairfax, VA 22031
 phone 703.273.6820 · fax 703.273.6820

COMMONWEALTH OF VIRGINIA
 JOHN C. LEVTOV
 Lic. No. 23635
 1/27/17
 PROFESSIONAL ENGINEER

OUTFALL MAP

CDP / FDP
NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 15014.001.00
 SCALE: 1"=1000'
 DATE: 05-02-2016
 DESIGN: TET
 DRAWN: TET
 CHECKED: JCL

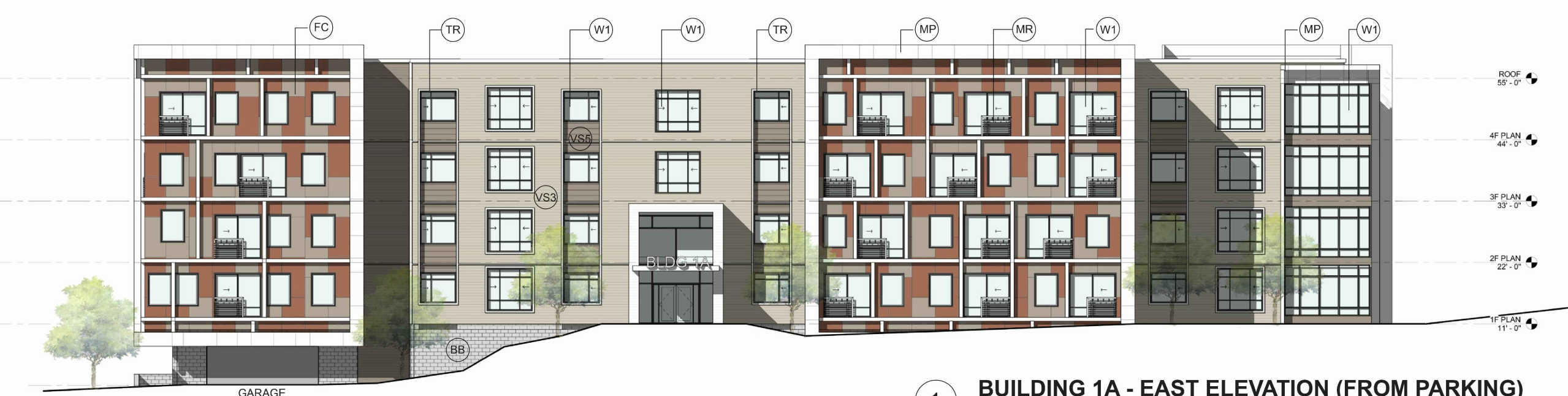
SHEET No. **19.19**
15 OF **22**

1000 500 0 1000 2000
 HORIZONTAL GRAPHIC SCALE
 1" = 100'

107768 106819

DATE	REVISION
2016-05-17	REVISED PER COUNTY COMMENTS 16-05-11
2016-07-21	REVISED PER UPDATED DART DR AND RT 1 ROAD SECTIONS
2016-08-29	REVISED PER COUNTY COMMENTS 16-08-01
2016-09-28	REVISED PER COUNTY COMMENTS 16-09-09
2016-11-16	REVISED PER COUNTY COMMENTS 16-10-19
2016-12-19	REVISED PER COUNTY COMMENTS 16-11-30 THRU 12-02
2017-01-27	MINOR REVISIONS TO LAYOUT

- (BB) 8X16 BURNISHED BLOCK
- (FC) FIBER CEMENT PANEL
- (MP) METAL PANEL
- (MR) METAL GUARDRAIL
- (TR) PVC WINDOW TRIM
- (VSS) 3" VINYL SIDING
- (VSS) 5" VINYL SIDING
- (W1) VINYL WINDOW
- (V2) ALUM. STOREFRONT



1 BUILDING 1A - EAST ELEVATION (FROM PARKING)



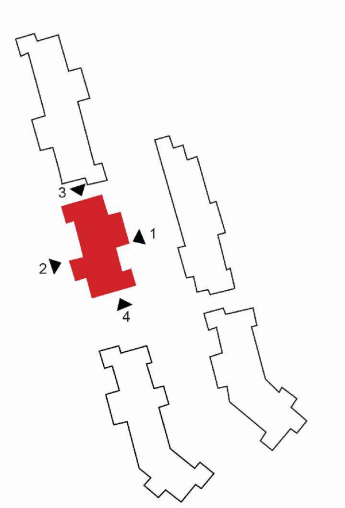
2 BUILDING 1A - WEST ELEVATION (ROUTE 1)



4 BUILDING 1A - NORTH ELEVATION



3 BUILDING 1A - SOUTH ELEVATION



1 BUILDING 1B - EAST ELEVATION (FROM PARKING)



2 BUILDING 1B - WEST ELEVATION (ROUTE 1)



3 BUILDING 1B - NORTH ELEVATION



4 BUILDING 1B - SOUTH ELEVATION

Application No: RZ/FDP 2016-MV-014 Staff: WSS
 Concurr w/ PCA 78-V-125
 APPROVED DEVELOPMENT PLAN
 (L_GDP) (X_CDP) (X_FDP) (L_PRC) (L_DP) (L_SP) (L_SE) (L_CSP) (L_SP) (L_VC)
 SEE PROFFERS DATED: Feb 9, 2017
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 & ZONING Sheet 20 of 26

NOTE: THESE DRAWINGS ARE CONCEPTUAL IN NATURE AND ARE INTENDED TO ILLUSTRATE THE GENERAL CHARACTER OF THE BUILDINGS. THE QUALITY OF CONSTRUCTION AND MATERIALS. THESE DRAWINGS ARE NOT INTENDED TO REPRESENT FINAL BUILDING DESIGN OR TO BE INTERPRETED AS A COMMITMENT TO SPECIFIC DIMENSIONS OR BUILDING ELEMENTS. FINAL DESIGN WILL BE DETERMINED AT THE TIME OF THE SITE PLAN SUBMISSION.

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ARCHITECTURAL ELEVATIONS

CDP / FDP
NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 15014.001.00
 SCALE: NOT TO SCALE
 DATE: 05-02-2016
 DESIGN: JR, JM
 DRAWN: JM
 CHECKED:
 SHEET No. 19.20

16 of 22

107768 106819

DATE	REVISION
2016-05-17	REVISED PER COUNTY COMMENTS 16-05-11
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	ROAD SECTIONS
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2016-11-16	REVISED PER COUNTY COMMENTS 16-10-19
2016-12-19	REVISED PER COUNTY COMMENTS 16-11-30 THRU 12-02
2017-01-27	MINOR REVISIONS TO LAYOUT



1 BUILDING 2A - WEST ELEVATION (ROUTE 1)



2 BUILDING 2A - EAST ELEVATION (FROM PARKING)



4 BUILDING 2A - SOUTH ELEVATION (FACING PLAZA)



3 BUILDING 2A - NORTH ELEVATION

Application No: RZ/FDP 2016-MV-014 Staff: WSS
 Concurr w/ PCA 78-V-125
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 & ZONING Sheet 21 of 26



1 BUILDING 3A - WEST ELEVATION (FROM PARKING)



2 BUILDING 3A - EAST ELEVATION



3 BUILDING 3A - NORTH ELEVATION



4 BUILDING 3A - SOUTH ELEVATION

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ARCHITECTURAL ELEVATIONS

CDP / FDP
NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 15014.001.00
 SCALE: NOT TO SCALE
 DATE: 05-02-2016
 DESIGN: JR, JM
 DRAWN: JM
 CHECKED:
 SHEET No. 19.21

17 OF 22
 107768 106819

DATE	REVISION
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2016-12-19	REVISED PER COUNTY COMMENTS 16-11-30 THRU 12-02
2017-01-27	MINOR REVISIONS TO LAYOUT



1 BUILDING 3B - WEST ELEVATION (FROM PARKING)



2 BUILDING 3B - EAST ELEVATION



3 BUILDING 3B - NORTH ELEVATION



4 BUILDING 3B - SOUTH ELEVATION

Application No: RZ/FDP 2016-MV-014 Staff: WSS
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 & ZONING Sheet 22 of 26



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2017-01-27	MINOR REVISIONS TO LAYOUT

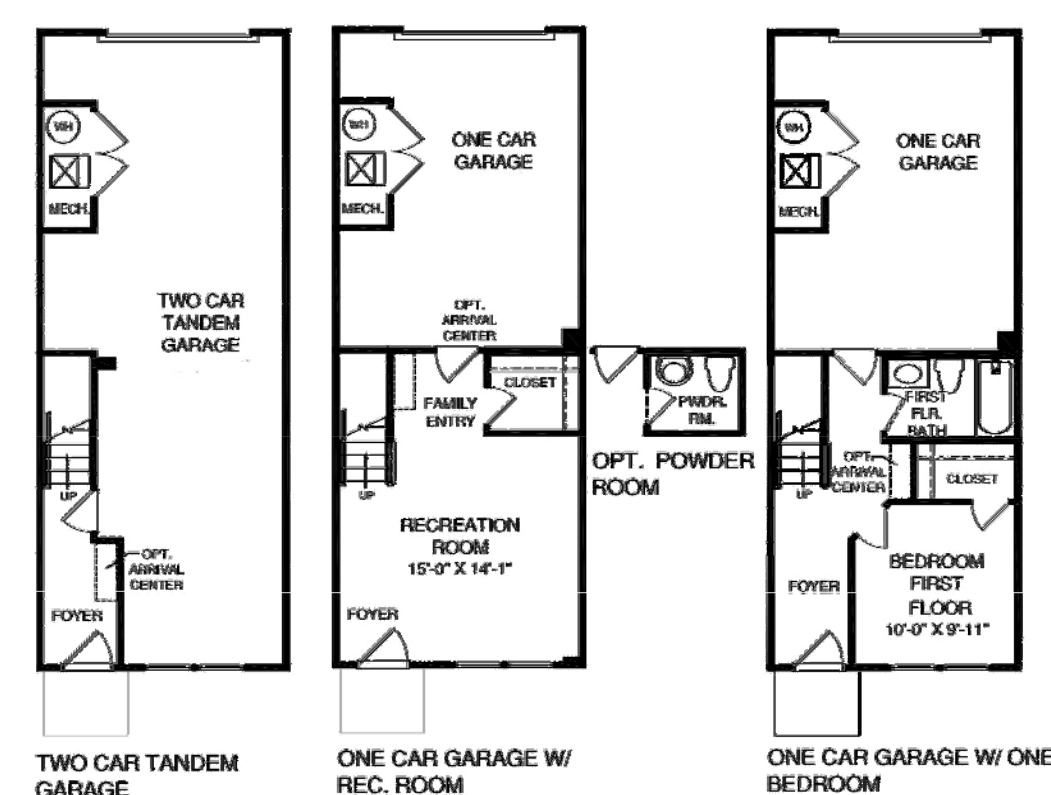
16' TOWNHOUSE



20' TOWNHOUSE

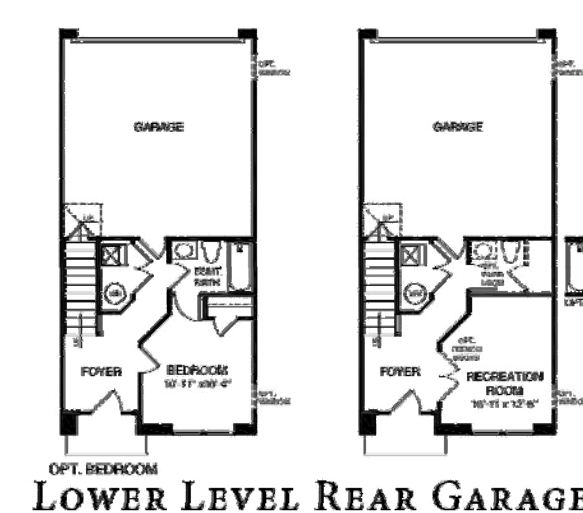


22' TOWNHOUSE

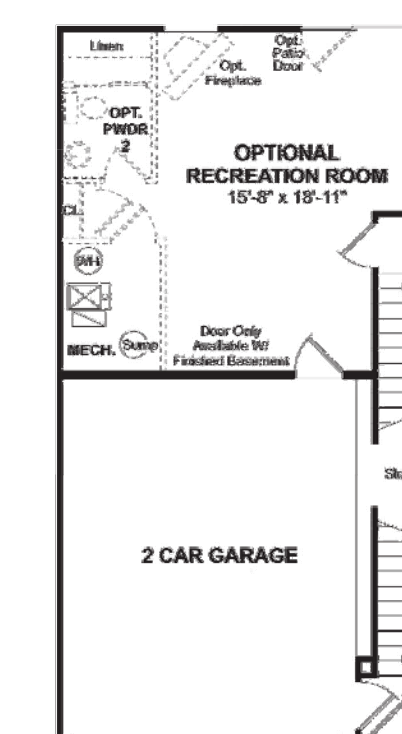


NOTE:
THESE ARE PRELIMINARY DIMENSIONS ONLY AND MAY BE SUBJECT TO CHANGE THROUGH THE REZONING PROCESS.

NOTE: THESE DRAWINGS ARE CONCEPTUAL IN NATURE AND ARE INTENDED TO ILLUSTRATE THE GENERAL CHARACTER OF THE BUILDINGS, THE QUALITY OF CONSTRUCTION AND MATERIALS. THESE DRAWINGS ARE NOT INTENDED TO REPRESENT FINAL BUILDING DESIGN OR TO BE INTERPRETED AS A COMMITMENT TO SPECIFIC DIMENSIONS OR BUILDING ELEMENTS. FINAL DESIGN WILL BE DETERMINED AT THE TIME OF THE SITE PLAN SUBMISSION.



NOTE:
THESE ARE PRELIMINARY DIMENSIONS ONLY AND MAY BE SUBJECT TO CHANGE THROUGH THE REZONING PROCESS.



NOTE:
THESE ARE PRELIMINARY DIMENSIONS ONLY AND MAY BE SUBJECT TO CHANGE THROUGH THE REZONING PROCESS.

Application No: RZ/FDP 2016-MV-014 Staff: WSS
 Concurr w/ PCA 78-V-125
 APPROVED DEVELOPMENT PLAN
 (L_GDP) (L_GDP) (L_GDP) (L_GDP) (L_GDP) (L_GDP) (L_GDP) (L_GDP) (L_GDP) (L_GDP)
 SEE PROFFERS DATED: Feb 9, 2017
 SEE CONDITIONS DATED: Feb 14, 2017
 Date of Final Approval: Feb 14, 2017
 Comments: Date of P.G. Approval: 02/08/2017
 & ZONING Sheet 23 of 26

christopher consultants
 9900 main street (suite 400) · fairfax, va 22031
 phone 703.273.6820 · fax 703.273.6820

ARCHITECTURAL ELEVATIONS

GDP / FDP
NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

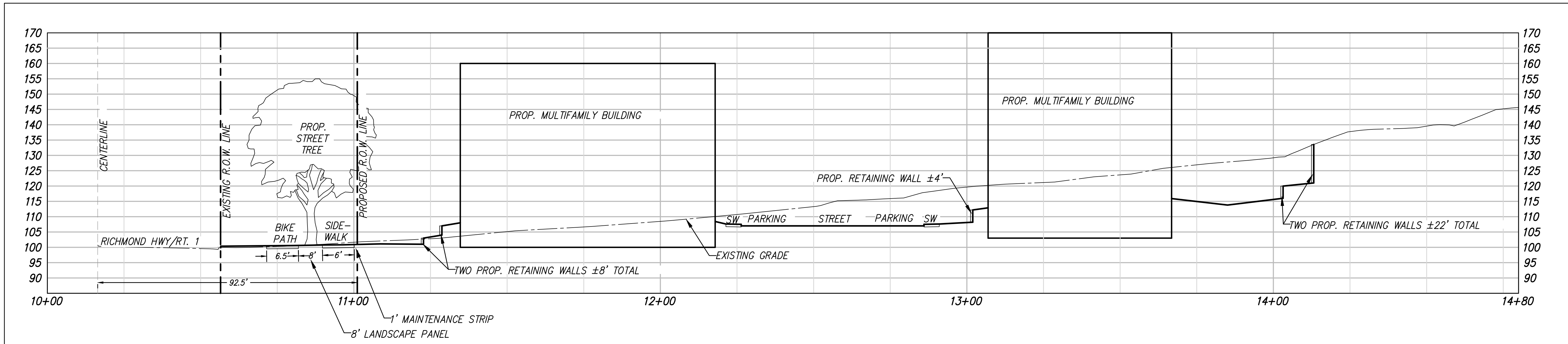
PROJECT NO: 15014.001.00
 SCALE: NOT TO SCALE
 DATE: 05-02-2016
 DESIGN: JR, JM
 DRAWN: JM
 CHECKED:
 SHEET No. **19.23**
 19 of 22

107768 106819

DATE	REVISION
2016-05-17	REVISED PER COUNTY COMMENTS 16-05-11
2016-07-21	REVISED PER UPDATED DART DR AND RT 1
ROAD SECTIONS	
2016-08-29	REVISED PER COUNTY COMMENTS 16-08-01
2016-09-28	REVISED PER COUNTY COMMENTS 16-09-09
2016-11-16	REVISED PER COUNTY COMMENTS 16-10-19
2016-12-19	REVISED PER COUNTY COMMENTS 16-11-30 THRU 12-02
2017-01-27	MINOR REVISIONS TO LAYOUT

NOTES:

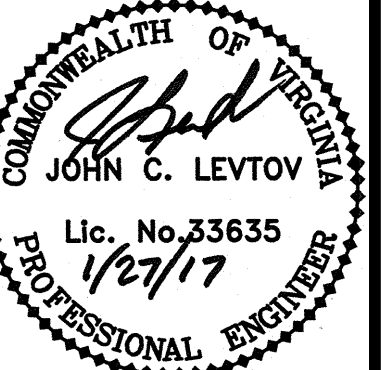
- SEE SHEET 6 FOR CROSS SECTION LOCATIONS.
- THESE DRAWINGS ARE CONCEPTUAL IN NATURE AND ARE INTENDED TO ILLUSTRATE THE GENERAL CHARACTER OF THE RETAINING WALLS. THE QUALITY OF CONSTRUCTION AND MATERIALS. THESE DRAWINGS ARE NOT INTENDED TO REPRESENT FINAL DESIGN OR TO BE INTERPRETED AS A COMMITMENT TO SPECIFIC DIMENSIONS. FINAL DESIGN WILL BE DETERMINED AT THE TIME OF FINAL SITE PLAN SUBMISSION.
- HEIGHTS SHOWN ON THE RETAINING WALL SECTIONS REPRESENT THE HIGHEST TOTAL WALL HEIGHT ALONG THE GIVEN SECTION OF WALL.
- SEE SHEET 21 FOR TYPICAL TIERED RETAINING WALL DETAIL.



RICHMOND HIGHWAY SECTION A-A

NOTE:
DIMENSIONS SHOWN ARE PRELIMINARY AND ARE SUBJECT TO CHANGE THROUGH THE REZONING PROCESS.

Application No: RZ/FDP 2016-MV-014 Staff: WSS
 Concurr w/ PCA 78-V-125
APPROVED DEVELOPMENT PLAN
 (L_GDP) (X_CDP) (Z_FDP) (L_PRC) (L_DP) (L_EP) (L_SE) (L_CSP) (L_SP) (L_VC)
 SEE PROFFERS DATED: Feb 9, 2017
 SEE CONDITIONS DATED: Feb 1, 2017
 Date of Final Approval: Feb 14, 2017 (X_BOS) (L_PC) (L_BZA)
 Comments: Date of P.C. Approval: 02/08/2017
ZONING Sheet 24 of 26



ILLUSTRATIVE ROAD CROSS SECTION

CDP / FDP
NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

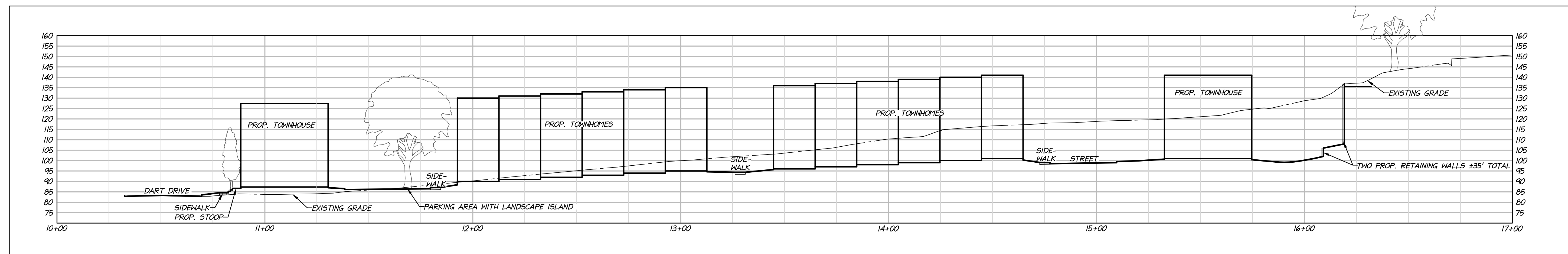
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SCALE:	1" = 17'
DATE:	05-02-2016
DESIGN:	CH, LB
DRAWN:	CH, LB
CHECKED:	
SHEET No.	19.24

20 of 22

DATE	REVISION
2016-05-17	REVISED PER COUNTY COMMENTS 16-05-11
2016-07-21	REVISED PER UPDATED DART DR AND RT 1 ROAD SECTIONS
2016-08-29	REVISED PER COUNTY COMMENTS 16-08-01
2016-09-28	REVISED PER COUNTY COMMENTS 16-09-09
2016-11-16	REVISED PER COUNTY COMMENTS 16-10-19
2016-12-19	REVISED PER COUNTY COMMENTS 16-11-30 THRU 12-02
2017-01-27	MINOR REVISIONS TO LAYOUT

Application No: RZ/FDP 2016-MV-014 Staff: WSS
 Concurr w/ PCA 78-V-125
APPROVED DEVELOPMENT PLAN
 (L_GDP) (X_CDP) (X_FDP) (L_PRC) (L_DP) (L_EP) (L_SE) (L_CSP) (L_SP) (L_VG)
 SEE PROFFERS DATED: Feb 9, 2017
 SEE CONDITIONS DATED: Feb 1, 2017
 Date of Final Approval: Feb 14, 2017 (X_BOS) (L_PC) (L_BZA)
 Comments: Date of R.C. Apprwl: 02/08/2017
ZONING Sheet 25 of 26

- NOTES:**
- SEE SHEET 6 FOR CROSS SECTION LOCATIONS.
 - THESE DRAWINGS ARE CONCEPTUAL IN NATURE AND ARE INTENDED TO ILLUSTRATE THE GENERAL CHARACTER OF THE RETAINING WALLS, THE QUALITY OF CONSTRUCTION AND MATERIALS. THESE DRAWINGS ARE NOT INTENDED TO REPRESENT FINAL DESIGN OR TO BE INTERPRETED AS A COMMITMENT TO SPECIFIC DIMENSIONS. FINAL DESIGN WILL BE DETERMINED AT THE TIME OF FINAL SITE PLAN SUBMISSION.
 - HEIGHTS SHOWN ON THE RETAINING WALL SECTIONS REPRESENT THE HIGHEST TOTAL WALL HEIGHT ALONG THE GIVEN SECTION OF WALL.
 - SEE BELOW FOR TYPICAL TIERED RETAINING WALL DETAIL.



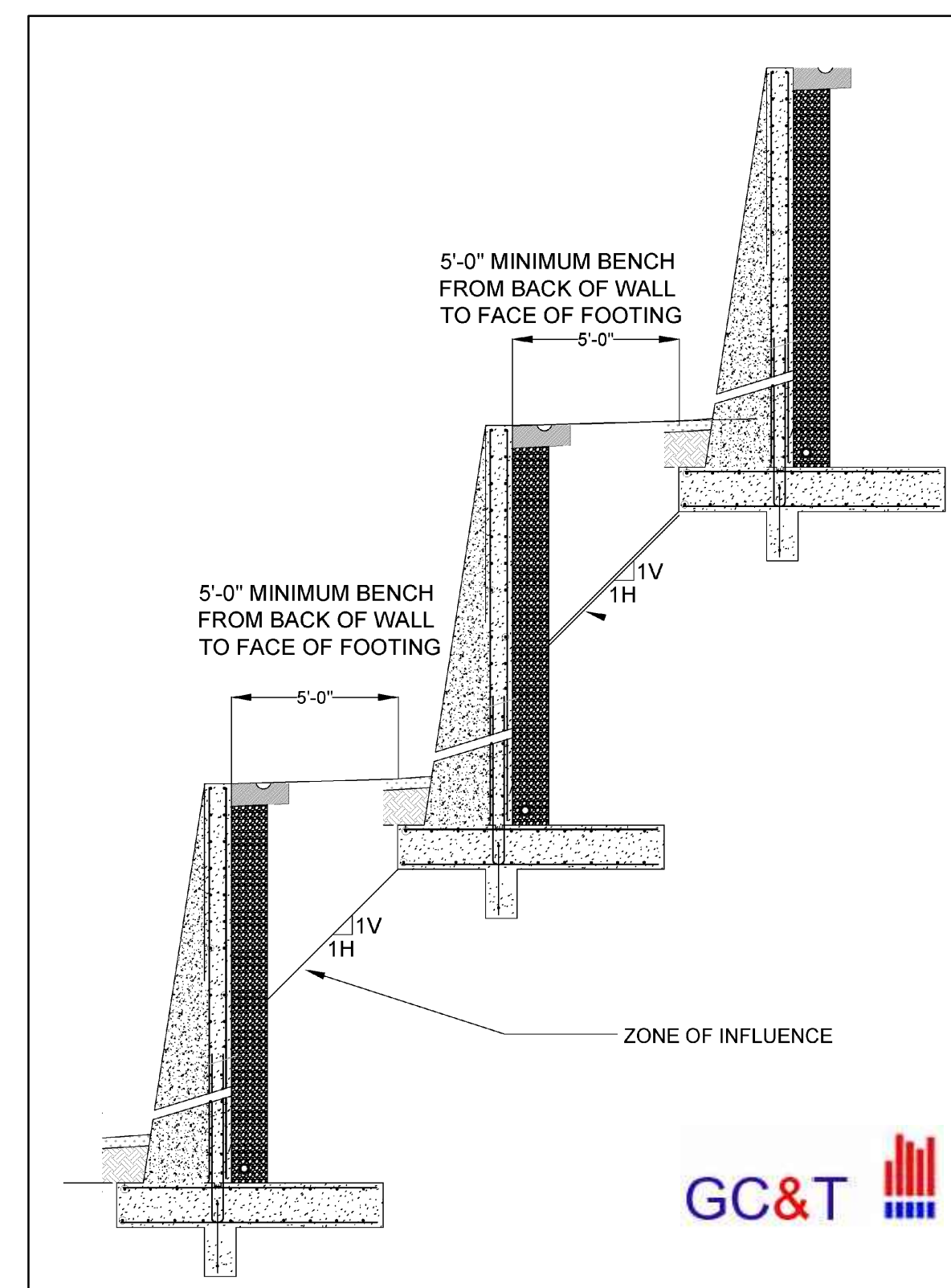
DART DRIVE CROSS SECTION B-B

NOTE:
 DIMENSIONS SHOWN ARE PRELIMINARY AND ARE SUBJECT TO CHANGE THROUGH THE REZONING PROCESS.



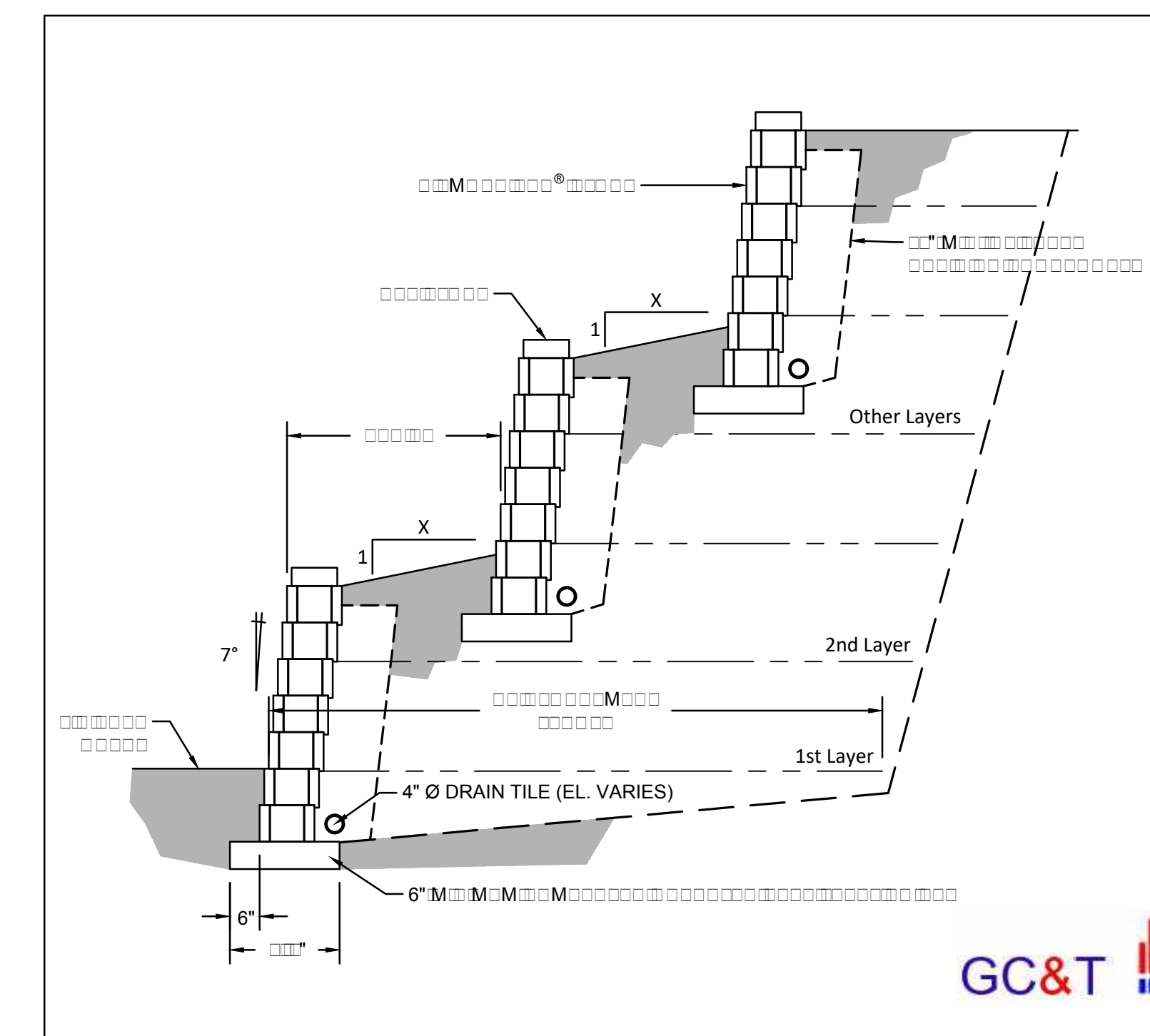
TYPICAL TIERED RETAINING WALL LANDSCAPING ILLUSTRATIVE
 NOT TO SCALE

THE RETAINING WALLS AND SHRUBS SHOWN ON THIS EXHIBIT ABOVE ARE FOR ILLUSTRATIVE PURPOSES ONLY AND WILL BE DETERMINED AT THE TIME OF FINAL ENGINEERING.



TIERED RETAINING WALL DETAIL, GRAVITY TYPE WALL
 NOT TO SCALE

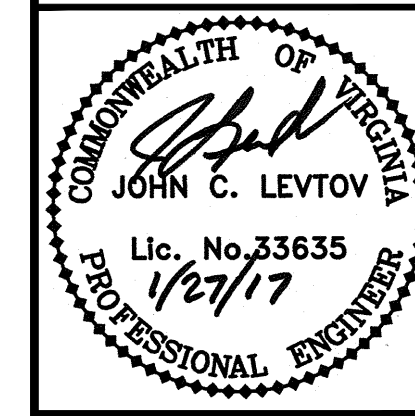
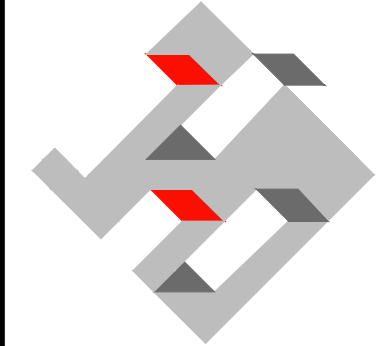
THE RETAINING WALLS SHOWN ON THIS EXHIBIT ABOVE ARE FOR ILLUSTRATIVE PURPOSES ONLY AND WILL BE DETERMINED AT THE TIME OF FINAL ENGINEERING.



TIERED RETAINING WALL DETAIL, MSE TYPE WALL (MECHANICALLY STABILIZED EARTH)
 NOT TO SCALE

THE RETAINING WALLS SHOWN ON THIS EXHIBIT ABOVE ARE FOR ILLUSTRATIVE PURPOSES ONLY AND WILL BE DETERMINED AT THE TIME OF FINAL ENGINEERING.

christopher consultants
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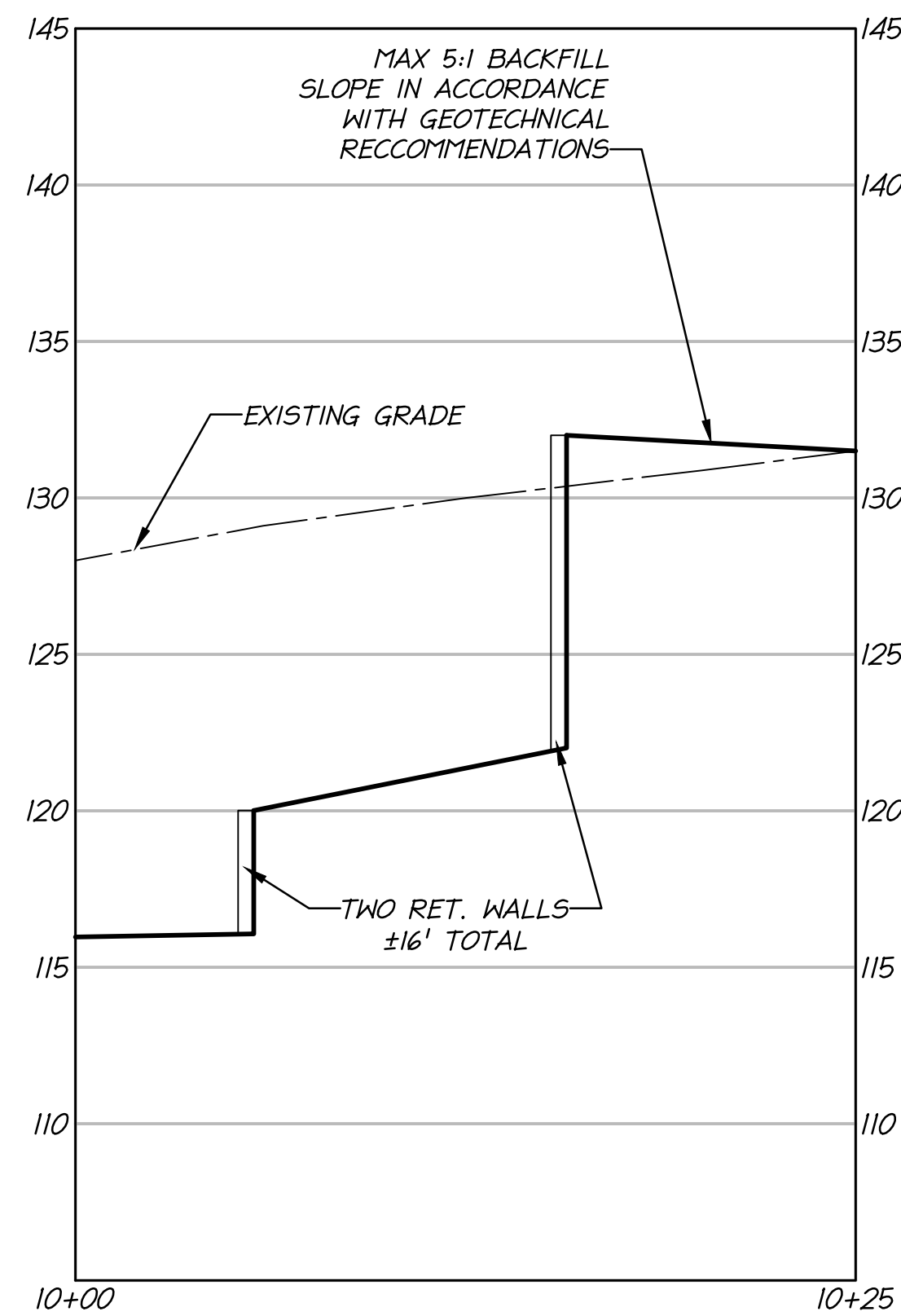


ILLUSTRATIVE ROAD CROSS SECTION

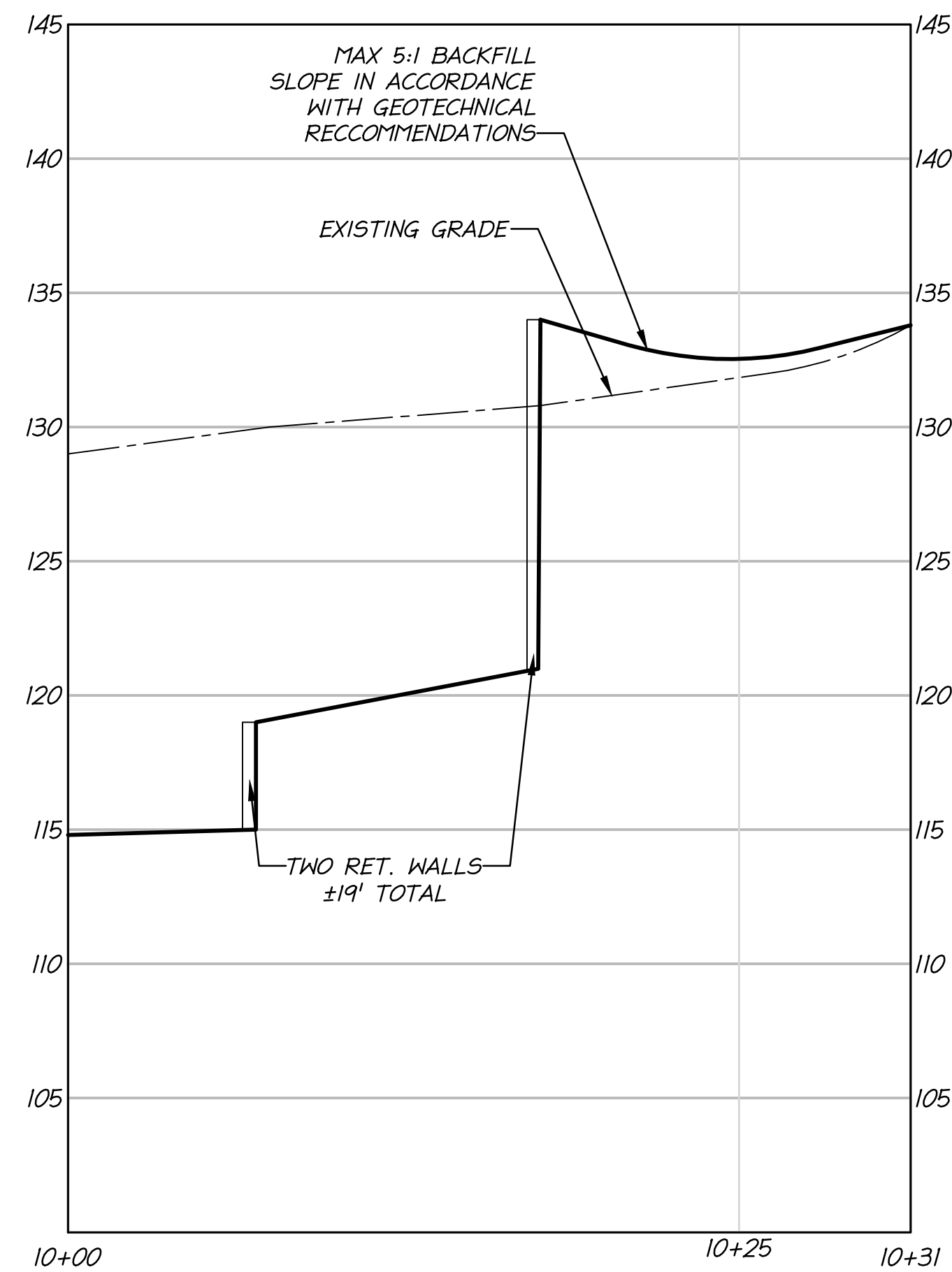
CDP / FDP
NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 15014.001.00
 SCALE: 1" = 25'
 DATE: 05-02-2016
 DESIGN: CH, LB
 DRAWN: CH, LB
 CHECKED:
 SHEET No. **19.25**

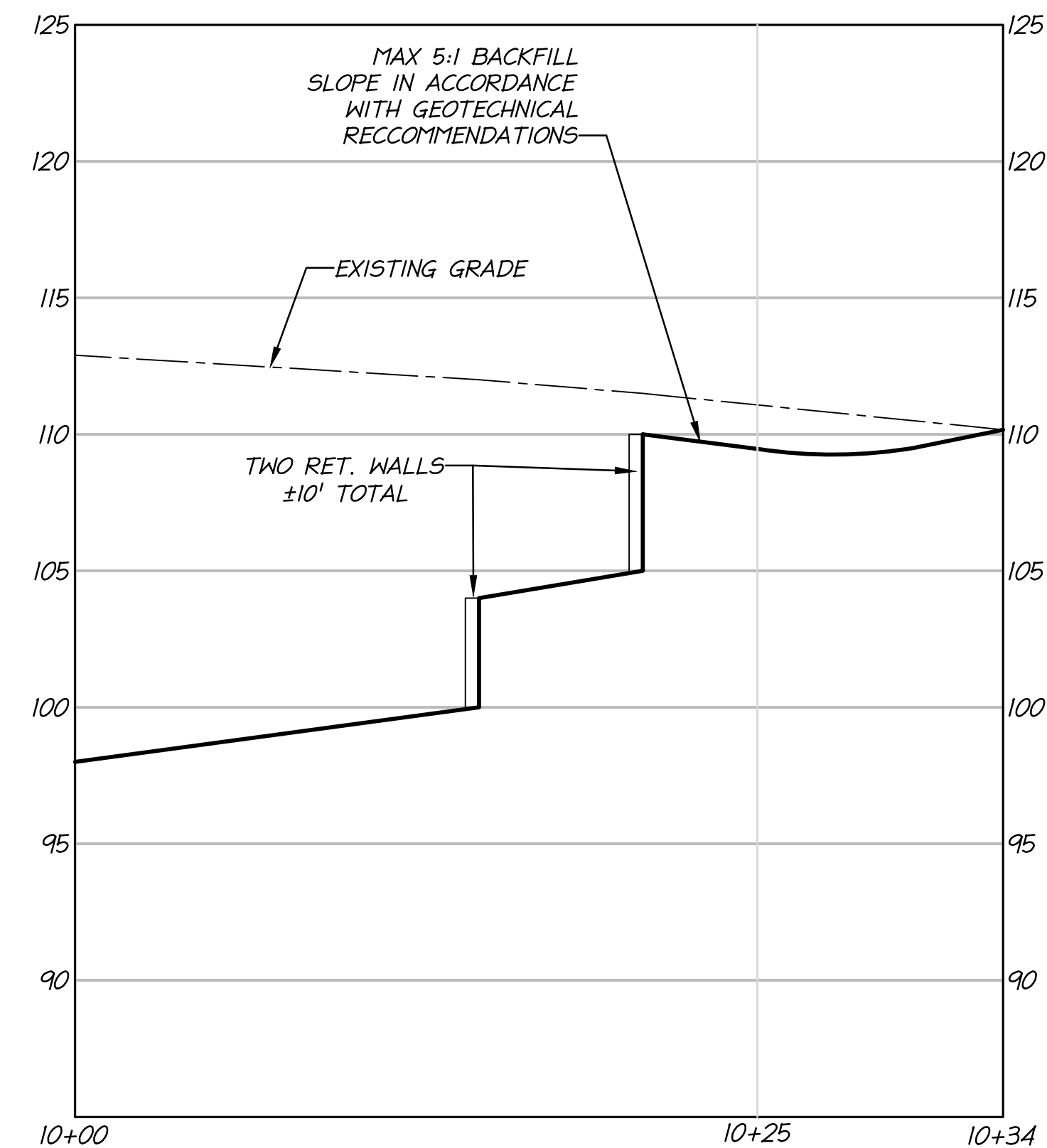
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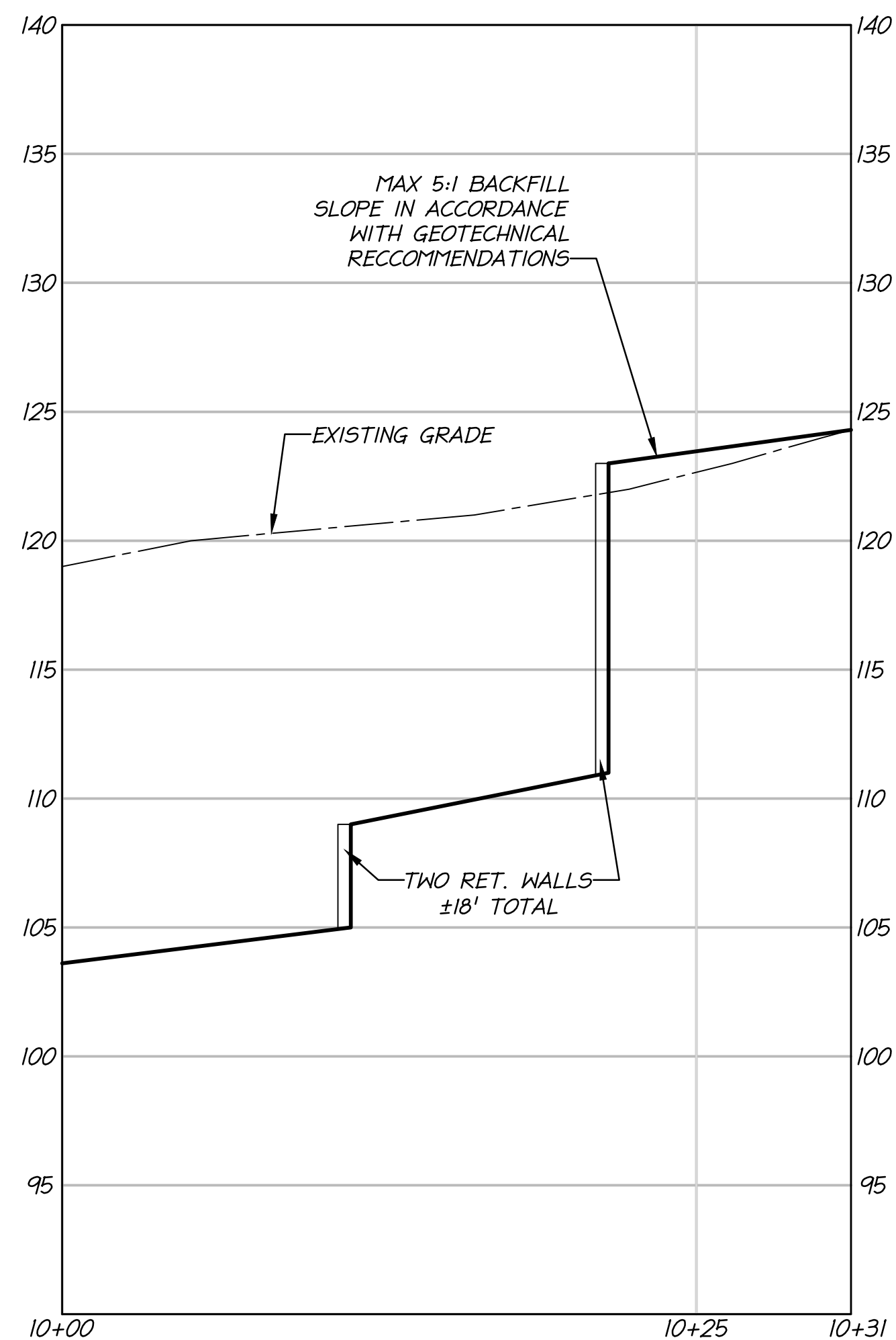
CROSS SECTION C-C



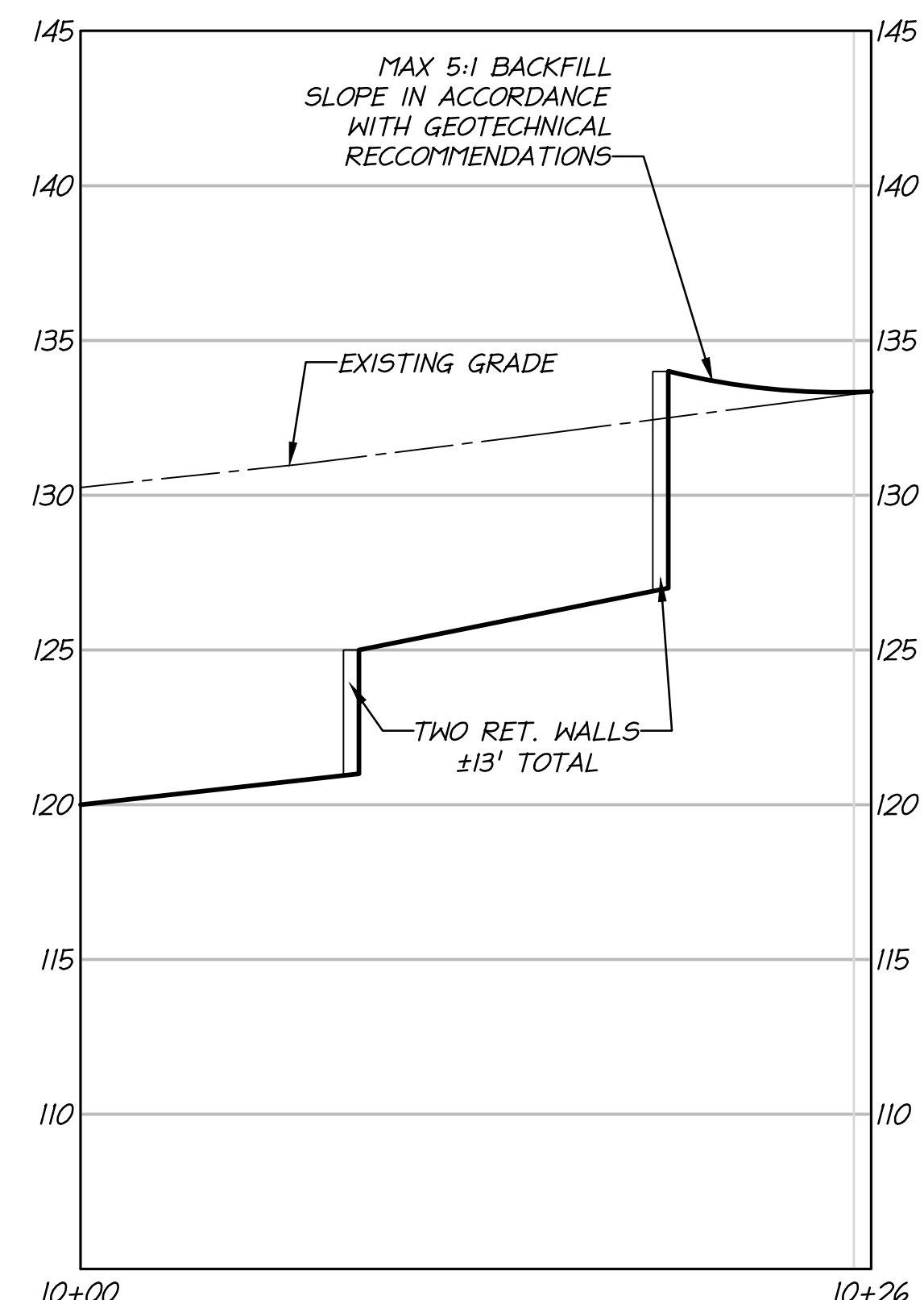
CROSS SECTION D-D



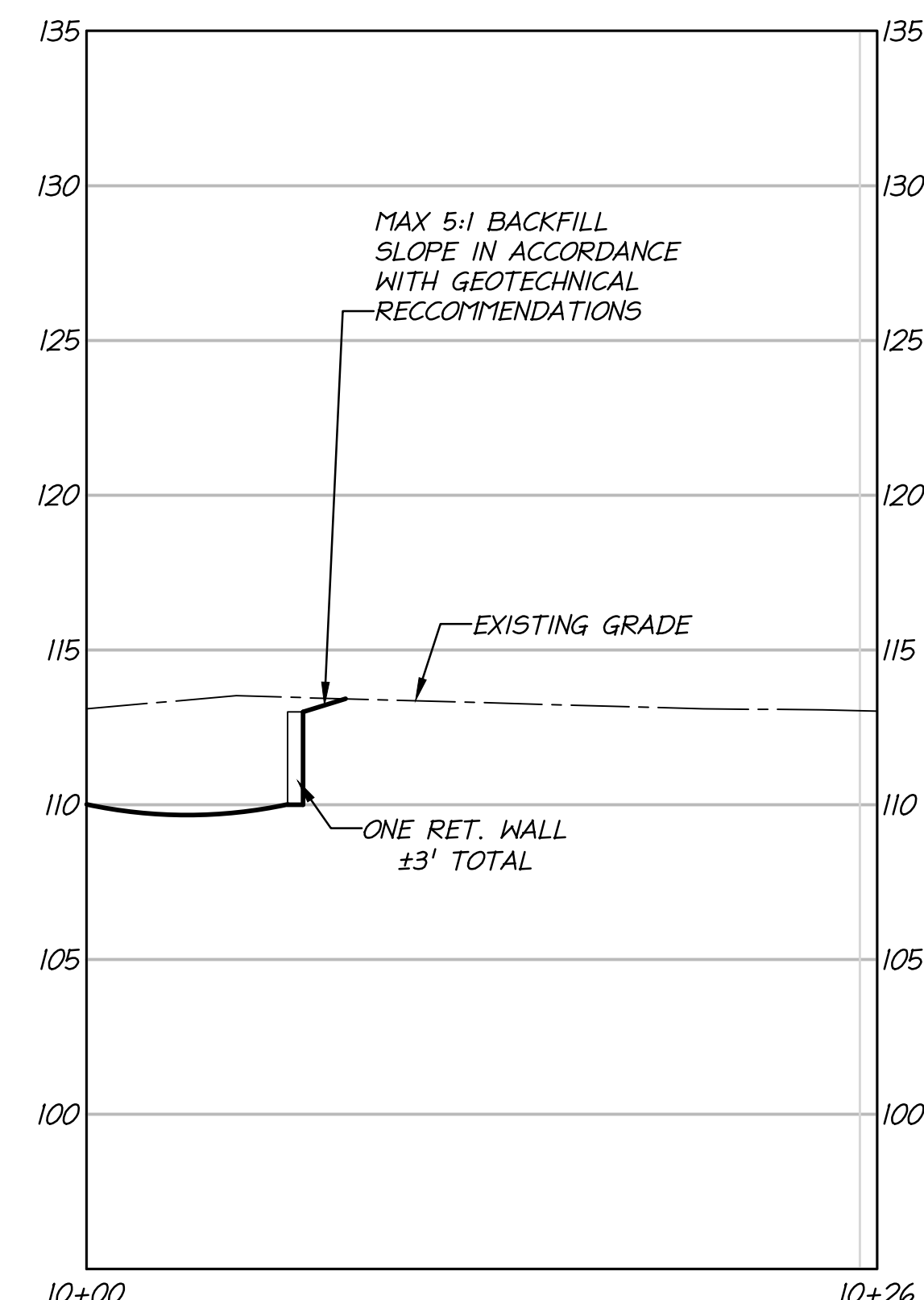
CROSS SECTION E-E



CROSS SECTION F-F



CROSS SECTION G-G



CROSS SECTION H-H

DATE	REVISION
2016-05-17	REVISED PER COUNTY COMMENTS 16-05-11
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NOTES:

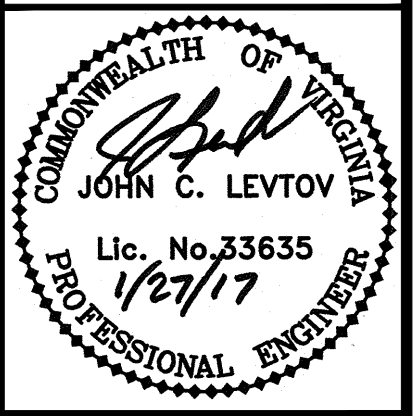
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- HEIGHTS SHOWN ON THE RETAINING WALL SECTIONS REPRESENT THE HIGHEST TOTAL WALL HEIGHT ALONG THE GIVEN SECTION OF WALL.
- NUMBER OF WALL TIERS MAY CHANGE WITH FINAL ENGINEERING BUT TOTAL COMBINED WALL HEIGHT WILL NOT EXCEED THAT SHOWN IN THIS CONCEPTUAL PLAN.
- SEE SHEET 21 FOR TYPICAL TIERED RETAINING WALL DETAIL.

Application No: **RZ/FDP 2016-MV-014** Staff: **WSS**
 Concur w/ **PCA 78-V-125**
APPROVED DEVELOPMENT PLAN
 (L_GDP) (X_CDP) (X_FDP) (L_PRC) (L_DP) (L_EP) (L_SE) (L_CSP) (L_SP) (L_VC)
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 Comments: **Date of P.C. Approval: 02/08/2017**
ZONING Sheet **26** of **26**

5 2.5 0 5
 VERTICAL SCALE
 SCALE: 1" = 5'

5 2.5 0 5
 HORIZONTAL SCALE
 SCALE: 1" = 5'

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 phone 703.273.6820 · fax 703.273.6820



ILLUSTRATIVE
 RETAINING WALL
 CROSS SECTIONS

GDP / FDP
NORTH HILL
 FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 15014.001.00
 SCALE: VERT = 1"=5'
 HORIZ = 1"=5'
 DATE: 05-02-2016
 DESIGN: CH, LB
 DRAWN: CH, LB
 CHECKED:
 SHEET No. **19.26**