THE LOFTS AT CREEKSIDE CONDOMINIUM
3131 VALLEY AVENUE (ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

SITE DEVELOPMENT PLAN

GENERAL NOTES

1. The property delineated on this plan is owned by OakCrest Builders, Inc. and located adjacent to and is part of the Creekside Village and the Creekside Station Commercial developments fronting Valley Avenue within the limits of the City of Winchester, Virginia. The developer intends to construct 45 multi-family townhouse style condominium dwelling units on this site.

2. Property Owner :
OakCrest Builders, Inc. — Contact: Ms. Nameeta Sahni
126 North Kent Street
Winchester, Virginia 22601 — Telephone: (540) 504-0719

3. Engineer: — Contact: Mr. Timothy G. Painter, P.E.
PAINTER-LEWIS, P.L.C.
817 Cedar Creek Grade, Suite 120
Winchester, Virginia 22601 — Telephone: (540) 662-5792

4. Surveyor: — Contact: Mr. David F. Spriggs
PAINTER-LEWIS, P.L.C.
817 Cedar Creek Grade, Suite 120
Winchester, Virginia 22601 — Telephone: (540) 662-5792

5. The existing topographic and existing features information, shown on these plans, was taken from a series of field surveys performed by the Survey Division of Painter-Lewis, P.L.C. and compiled together to provide a general existing conditions plan for the rezoning of the parcel. A complete and current field survey will be performed, prior to the design of this project, to verify and establish the boundary and as-built conditions for the development of this site.

6. Site Data:

Tax Map:	329-1--21
Parcel Area:	4.4449 Acres
Zoning (Existing):	B-2 & Conditional B-2
Zoning (Proposed):	B-2 with PUD Overlay
Existing Use:	Vacant
Proposed Use:	Residential Condominium Townhouse Complex

7. Zoning Requirements:
B-2 Highway Commercial District:

Lot Size:		10,000 Sq. Ft. (Minimum)	4.4449 Ac. Provided
Lot Width:		100 Ft. (Minimum)	141.83 Ft. Provided
Setbacks:	Front:	35 Ft. (Minimum)	
	Side:	50 Ft. (LR & MR)	for Multi-family
	Side:	15 Ft. (Commercial)	
	Rear:	75 Ft. (LR & MR)	for Multi-family
	Rear:	25 Ft. (Commercial)	
Height:		35 Ft.	
	Upto	55 Ft. (with 1' side and rear yard increases)	

PUD Planned Urban District:

Lot Size:	5 Contiguous Acres (Special Exception is hereby requested.)	4.4449 Ac. Provided
Density:	18 Units per Acre (18 x 4.4449 = 80 Units)	45 Proposed
Common Open Space:	Determined by Density with Recreational Amenities Battlefield viewshed with a Town Center design has been provided supplemented with walking trails, fire pits & a pavilion.	

8. PROJECT SITE DEVELOPMENT DATA:
TOTAL PROJECT AREA: 4.4449 Ac.

NINE RESIDENTIAL CONDOMINIUM TOWNHOUSE STYLE BUILDINGS:
SIX (6) FOUR-STORY BUILDINGS: (BLDGS.: A, B, C, D, E, F) — 31 D.U. TOTAL IN THESE BUILDING TYPES
THREE (3) THREE-STORY BUILDINGS: (BLDGS.: G, H I) — 14 D.U. TOTAL IN THESE BUILDING TYPES

TOTAL DWELLING UNITS: 45 DWELLING UNITS

BUILDING HEIGHTS:
FOUR-STORY BUILDINGS: 42'-0" MAXIMUM ROOF HEIGHT
THREE-STORY BUILDINGS: 35'-7" MEAN ROOF HEIGHT

PARCEL COVERAGE:

BUILDINGS:	33,315 Sq. Ft. (0.76 Ac.)
ROADWAYS & AISLE AREAS:	54,481 Sq. Ft. (1.25 Ac.)
CONCRETE DRIVEWAYS:	10,820 Sq. Ft. (0.25 Ac.)
PAVED WALKWAYS & TRAILS:	14,165 Sq. Ft. (0.33 Ac.)
GREEN SPACE	80,840 Sq. Ft. (1.85 Ac.)
GREEN SPACE AREA (PERVIOUS):	41.8% of the SITE
w/ TRAILS:	49.1% of the SITE

COMMON OPEN SPACE:	35% REQUIRED COMMON OPEN SPACE
TOTAL SITE GREEN SPACE:	95,005 Sq. Ft.
NON-CONFORMING AREAS:	26,936 Sq. Ft.
TOTAL COMMON OPEN SPACE:	68,069 Sq. Ft. (1.56 Ac.)
COMMON OPEN SPACE:	35.2 % of the SITE

PROPERTY RESTRICTIONS:
PROFFERED RESTRICTIONS OR COVENANTS WILL APPLY TO AND BECOME PART OF THIS PROJECT AND THE RELATED PROPERTY DOCUMENTS, AS SPECIFIED IN ACCORDANCE WITH THE APPROVED REZONING APPLICATION.

9. SITE DEVELOPMENT - PARKING CALCULATION:
PARKING REQUIRED:
ONE & TWO BEDROOM DWELLING UNITS:
1 SPACE PER DWELLING UNIT

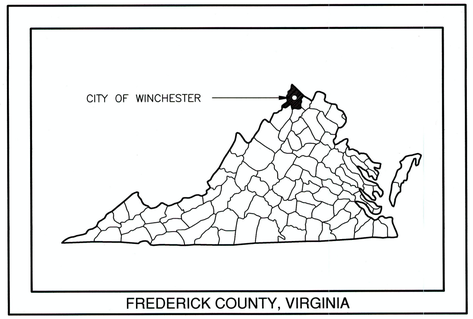
BUILDINGS: G, H, & I:	14 UNITS
1x14 DWELLING UNITS =	14 SPACES

THREE BEDROOM DWELLING UNITS:
2 SPACES PER DWELLING UNIT

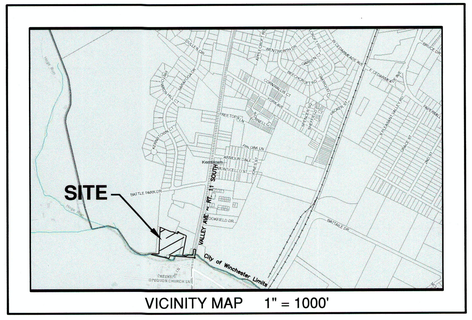
BUILDINGS: A, B, C, D, E, & F:	31 UNITS
2x31 DWELLING UNITS =	62 SPACES
TOTAL ON-SITE PARKING REQUIRED:	76 SPACES

PARKING PROVIDED:

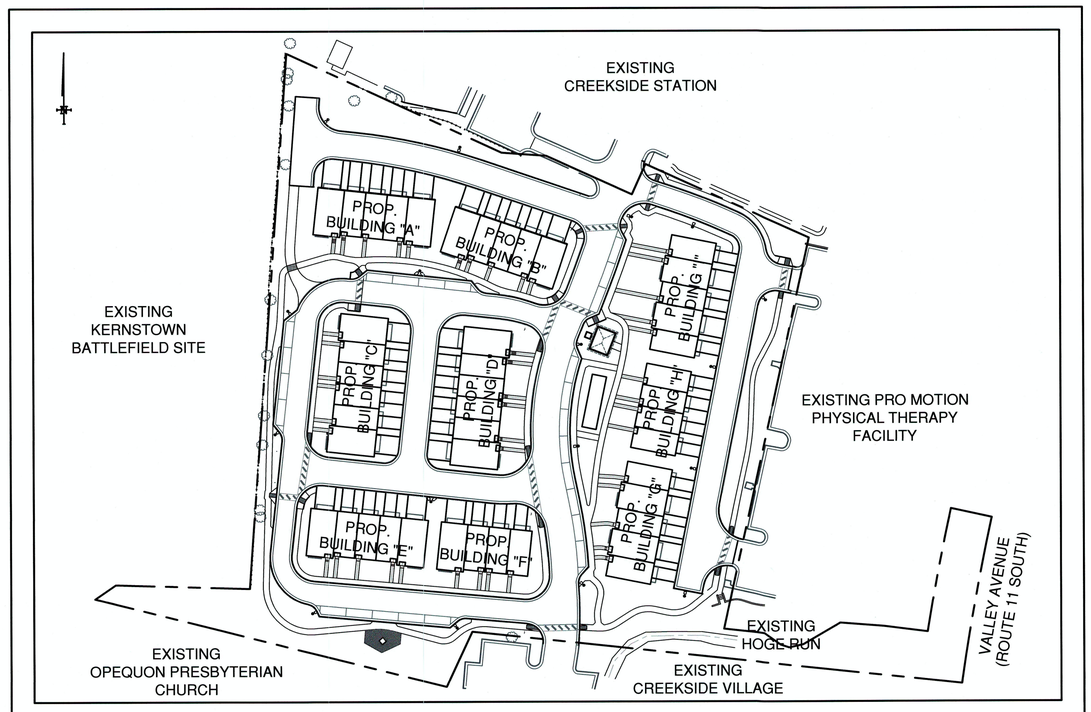
15 EA. TWO-CAR GARAGE UNITS:	30 SPACES
30 EX. ONE-CAR GARAGE UNITS:	30 SPACES
SITE PARKING (PARALLEL SPACES):	24 SPACES
TOTAL ON-SITE PARKING PROVIDED:	84 SPACES



FREDERICK COUNTY, VIRGINIA



VICINITY MAP 1" = 1000'



PROJECT OVERVIEW
1" = 60.0'

CITY OF WINCHESTER, VIRGINIA
SITE PLAN: SP-19-xxx

LIST OF DRAWINGS:

LAND DISTURBANCE PERMIT RESPONSIBLE PARTY:

RESPONSIBLE LAND DISTURBER
NAME: _____
CERTIFICATION #: _____
DATE: _____
THE RESPONSIBLE LAND DISTURBER IS THE PARTY RESPONSIBLE FOR CONSTRUCTION & MAINTENANCE OF ALL THE LAND DISTURBING ACTIVITIES AS SET FORTH IN THESE PLANS.

SITE PLAN APPROVAL BLOCK:

APPROVED

PLANNING DIRECTOR — DATE

SITE PLAN EXPIRES FIVE (5) YEARS FROM DATE OF APPROVAL

OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE (ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

CONSULTING ENGINEERS

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com

JOB NO.: 1802043
September 09, 2019
SHEET: 1/20

ABBREVIATIONS

ASSY.	ASSEMBLY
B.F.	BASEMENT FLOOR
BLK.	BLOCK
BC	BOTTOM OF CURB
BP	BREAK POINT
BSBD.	BASEBOARD
CG-2	VDOT CURB
CG-6	VDOT CURB & GUTTER
CIP	CAST-IN-PLACE CONCRETE
CL.	CLASS
CMF	CONCRETE MONUMENT FOUND
CPP	CORRUGATED POLYETHYLENE PIPE
CMP	CORRUGATED METAL PIPE
CMPA	CORRUGATED METAL PIPE ARCH
CO	CLEAN OUT
DIA. or ø	DIAMETER
DS	DOWNSPOUT
EOP	EDGE OF PAVEMENT
EOG	EDGE OF GRAVEL
EX.	EXISTING
F.F.	FIRST FLOOR
F.F.E.	FINISHED FLOOR ELEVATION
FDC	FIRE DEPARTMENT CONNECTION
FG	FACE OF GUTTER
FH or F.H.	FIRE HYDRANT
F.L.S.	FIRE LANE SIGN
F.LT.	FLOOD LIGHT
Ga.	GAUGE
GM	GAS METER
GV	GAS VALVE or GATE VALVE
HCR	HANDICAP RAMP
HB	HOSE BIB
HDCP	HANDICAPPED
HDR CURB	6" HEADER CURB
HP or H.P.	HIGH POINT
HTR.	HEATER
INC.	INCREASER
INV	INVERT
IPF	IRON PIPE FOUND
IPS	IRON PIPE SET
LP or L.P.	LOW POINT
LT.	LIGHT
MLP	METAL LIGHT POLE
MPD	MULTI-PRODUCT DISPENSER
MP	METAL POST
MH or M.H.	MANHOLE
NDC	NOSE DOWN CURB
N.P.S.	NO PARKING SIGN
NLT	NO LEFT TURN
NRT	NO RIGHT TURN
N.T.S.	NOT TO SCALE
OHE	OVERHEAD ELECTRIC
OHT	OVERHEAD TELEPHONE
PIV	POST INDICATOR VALVE
PL	PROPERTY LINE
PP	POWER POLE
PR or PROP.	PROPOSED
PVMT	PAVEMENT
RCP	REINFORCED CONCRETE PIPE
R.D.	ROOF DRAIN
RED.	REDUCER
R.O.	ROCK OUTCROP
SAN.	SANITARY
SEW.	SEWER
STD.	STANDARD
T.B.D.	TO BE DEMOLISHED
T.B.R.	TO BE REMOVED or TO BE REMOVED & RELOCATED
T.B.P.	TO BE PRESERVED or PROTECTED
TB or T.B.	THRUST BLOCK
TC	TOP OF CURB
TEL. or TELE	TELEPHONE
TRB	TELEPHONE RISER BOX
TVRB	TELEVISION RISER BOX
TYP or TYP.	TYPICAL
UGE	UNDERGROUND ELECTRIC
UGG	UNDERGROUND GAS
UG CATV	UNDERGROUND CABLE T.V.
UGT	UNDERGROUND TELEPHONE
USWMF or USWMS	UNDERGROUND STORM WATER MANAGEMENT FACILITY/SYSTEM
XFMR	ELECTRIC TRANSFORMER
WL or W.L.	WATERLINE
WM or W.M.	WATER METER
WPP	WOOD POWER POLE
WTP	WOOD TELEPHONE POLE
WV or W.V.	WATER VALVE
5'R	RADIUS IN FEET
*00.00	PROPOSED SPOT ELEVATION
x00.00 or x(0.00)	EXISTING SPOT ELEVATION
	HATCHING INDICATES REVERSED PITCH IN THE GUTTER PAN: PITCH TO BE 1/2" PER FOOT. TRANSITION THE GUTTER OVER A 10' LENGTH (TYP).

REZONING APPROVAL LETTER:

Winchester planning Virginia

COPY

Rouss City Hall
15 North Cameron Street
Winchester, VA 22601

Telephone: (540) 667-1815
FAX: (540) 722-3618
TDD: (540) 722-0782
Website: www.winchesterva.gov

March 4, 2019

Oakcrest Builders Inc.
126 N. Kent St.
Winchester, VA 22601

Dear Mr. Painter:

On Tuesday, February 26, 2019, the Winchester City Council acted on the following:

RZ-18-893 AN ORDINANCE TO REZONE 4.45 ACRES OF LAND AT 3131 VALLEY AVENUE (Map Number 329-01-21) HIGHWAY COMMERCIAL (B-2) DISTRICT TO HIGHWAY COMMERCIAL (B-2) DISTRICT WITH PLANNED UNIT DEVELOPMENT (PUD) OVERLAY

City Council approved the request because the 4.45 acre rezoning is consistent with the Comprehensive Plan which calls for mixed-use development in proximity to transit along Valley Avenue and appears to represent good planning practice. The recommended approval includes support of a PUD that comprises fewer than 5 contiguous acres and is subject to adherence with the Site Development Plan dated December 3, 2018, general conformity with the submitted floor plans and building elevations, the submitted HOA documents, and the rezoning exhibit titled "REZONING EXHIBIT RZ-18-893" prepared by the Winchester Planning Department on January 4, 2019.

Please call if you have any questions, 540-667-1815 ext. 1415.

Sincerely,

Timothy A. Youmans
Planning Director

cab

"To be a financially sound City providing top quality municipal services while focusing on the customer and engaging our community."

GENERAL CONSTRUCTION NOTES

GENERAL CONSTRUCTION NOTES:

1. All work and materials shall conform to the current standards of the City of Winchester, Virginia, the Virginia Department of Transportation (V.D.O.T.), the Virginia Uniform Statewide Building Code, and the rules and regulations of the Americans with Disabilities Act, where applicable.

2. Erosion and sediment control shall conform to the standards and specification of the Commonwealth of Virginia and the City of Winchester, Virginia, where applicable.

3. It shall be the responsibility of the contractor to notify "Miss Utility" at 811 at least two (2) working days prior to commencement of any land disturbing activity.

4. All existing utilities have been shown based upon the best available information. However, there may be existing utilities which are not shown and should be located. Therefore, it shall be the responsibility of the contractor to verify the location of all existing utilities prior to construction. Verification shall be done by way of a field survey or excavated test pits. Any discrepancies between these plans and the actual field conditions shall be reported immediately to the engineer or the City of Winchester, Virginia.

5. All proposed utilities shall be installed underground.

6. It shall be the responsibility of the contractor to obtain all permits necessary for construction prior to commencement of work. An approved set of construction documents shall be present on the site at all times.

7. Topographic information was derived based upon U.S.G.S. datum by a field survey performed by Survey Division of Painter-Lewis, P.L.C. with an established two foot (2') contour interval. Confirm vertical elevation benchmark information with the project surveyor.

8. No Geo-technical report has been furnished for this project.

9. All radii designations indicate the face of curb, edge of pavement, or edge of stone pavement, where applicable.

10. The contractor shall coordinate the relocation of and the connection to all existing utilities with the appropriate utility company, if applicable.

UTILITY COMPANIES:

Verizon:	(540) 665-3156
Shenandoah Valley Electric Cooperative:	(540) 722-5830
Shenandoah Gas Company:	(540) 869-1111
Water and Sewer (City of Winchester):	(540) 667-1815

11. Where plans call for matching existing concrete or pavement, the contractor shall provide cut joint or asphalt overlay as required to provide a smooth transition.

12. All property corner markers disturbed or otherwise obscured by construction are to be replaced and verified by a certified land surveyor at the contractor's expense.

13. Pavement construction and material items called for on the plans refer to VDOT standards and specifications.

14. Fire lanes shall be delineated as directed by the Winchester Fire Marshal.

15. The contractor shall obtain permission from adjoining property owners prior to conducting any off-site construction activities.

16. The contractor shall coordinate the relocation of the existing utilities with the appropriate utility company as necessary.

17. The contractor shall obtain a Land Disturbance Permit from the Winchester Public Utilities Department prior to initiating any site work.

18. All exterior lights shall be positioned to preclude direct illumination off site.

19. Add topsoil adjacent to the trail and sidewalks as required to account for soil settlement.

20. Provide a separation of at least three feet from any site feature more than six inches above or below the elevation of the closest point in any parking area.

21. Provide traffic controls during construction activities in the public rights-of-way.

22. Provide "as-built" drawings for all improvements as required by the City of Winchester. Coordinate the scope and format of the as-builts with the City of Winchester Utility Department prior to beginning construction.

23. Construction of this project may not begin until plans have been approved and a pre-construction meeting has been held.

REZONING NOTES and SITE DEVELOPMENT INFORMATION:

PROJECT SITE DEVELOPMENT DATA:
TOTAL PROJECT AREA: 4.4449 Ac.

NINE RESIDENTIAL CONDOMINIUM TOWNHOUSE STYLE BUILDINGS:
SIX (6) FOUR-STORY BUILDINGS: 31 D.U. TOTAL IN THESE BUILDING TYPES (BLDGS.: A, B, C, D, E, F)
THREE (3) THREE-STORY BUILDINGS: 14 D.U. TOTAL IN THESE BUILDING TYPES (BLDGS.: G, H I)

TOTAL DWELLING UNITS: 45 DWELLING UNITS

BUILDING HEIGHTS:
FOUR-STORY BUILDINGS: 42'-0" MAXIMUM ROOF HEIGHT
THREE-STORY BUILDINGS: 35'-7" MEAN ROOF HEIGHT

PARCEL COVERAGE:
BUILDINGS: 33,315 Sq. Ft. (0.76 Ac.)
ROADWAYS & AISLE AREAS: 54,481 Sq. Ft. (1.25 Ac.)
CONCRETE DRIVEWAYS: 10,820 Sq. Ft. (0.25 Ac.)
PAVED WALKWAYS & TRAILS: 14,165 Sq. Ft. (0.33 Ac.)
GREEN SPACE 80,840 Sq. Ft. (1.85 Ac.)

GREEN SPACE AREA (PERVIOUS): 41.8% of the SITE
w/ TRAILS: 49.1% of the SITE

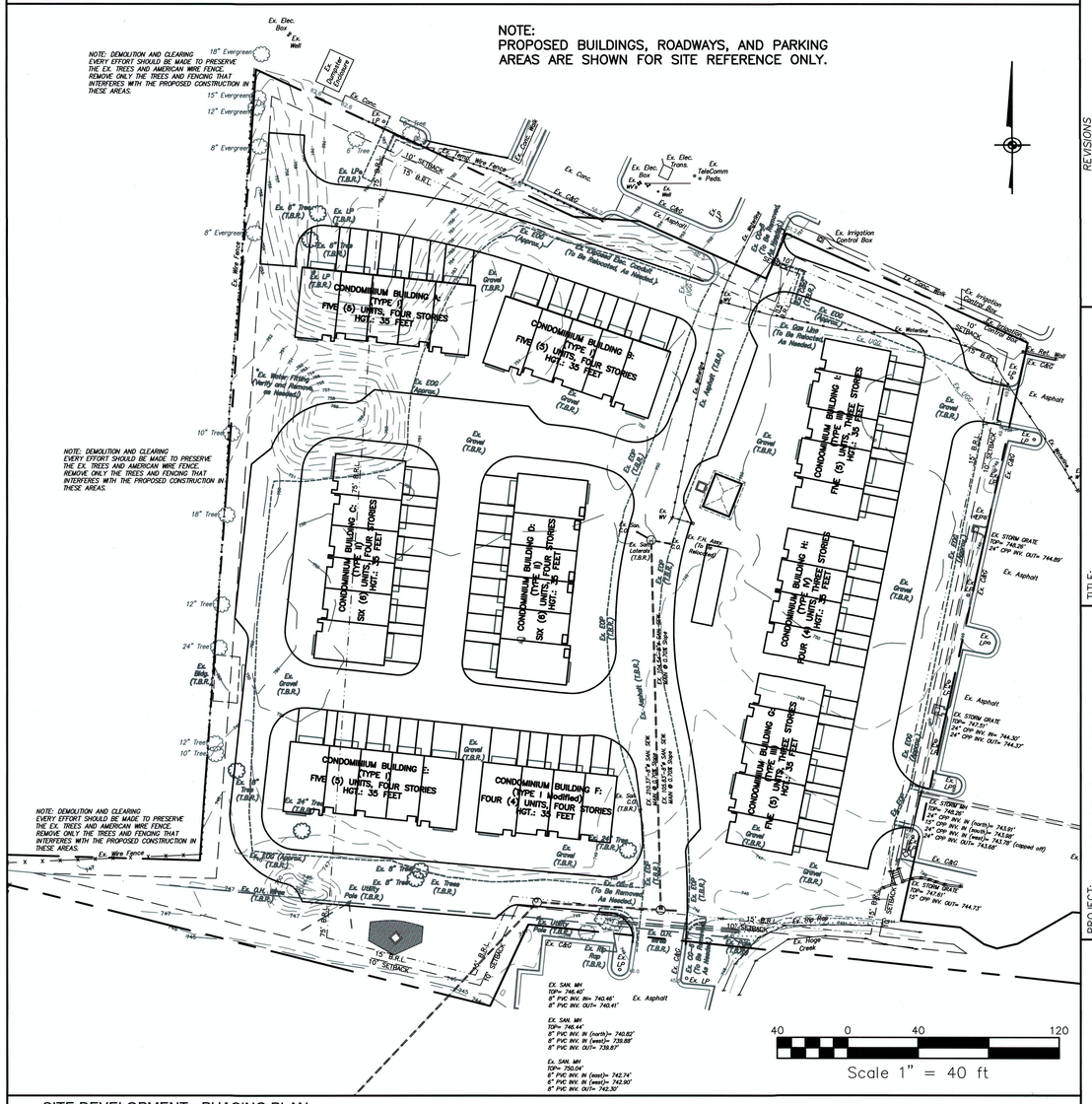
COMMON OPEN SPACE: 35% REQUIRED COMMON OPEN SPACE
TOTAL SITE GREEN SPACE: 95,005 Sq. Ft.
NON-CONFORMING AREAS: 26,936 Sq. Ft.
TOTAL COMMON OPEN SPACE: 68,069 Sq. Ft. (1.56 Ac.)

COMMON OPEN SPACE: 35.2 % of the SITE

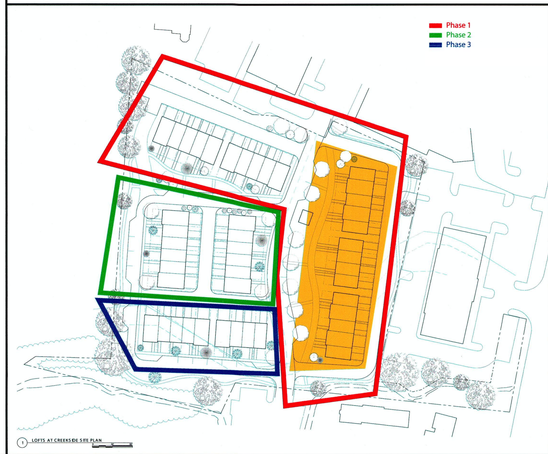
PROPERTY RESTRICTIONS: PROFFERED RESTRICTIONS OR COVENANTS WILL APPLY TO AND BECOME PART OF THIS PROJECT THE RELATED PROJECT DOCUMENTS, AS SPECIFIED IN ACCORDANCE WITH THE APPROVED REZONING APPLICATION.

PHASING:
– IT IS ANTICIPATED THAT THIS PROJECT WILL BE CONSTRUCTED CONTINUOUSLY OVER A 18 MONTH TIME FRAME. THE CONSTRUCTION WILL BE DIVIDED INTO THREE (3) PHASES, AS INDICATED ON THE PHASING PLAN. EACH PHASING BLOCK OF THIS DEVELOPMENT WILL BE BUILT IN ITS ENTIRETY THROUGH THE OCCUPANCY PERMIT PROCESS FOR THOSE BUILDINGS INCLUDED IN THAT BLOCK, PRIOR TO STARTING THE SUBSEQUENT PHASES. ALL PARKING, ACCESS, AND RECREATIONAL AMENITIES SHALL BE CONSTRUCTED AS IT RELATES TO THAT BUILDING PHASE, AS GENERALLY INDICATED ON THESE PLANS.
– THE RECREATIONAL AMENITIES FOR THE PHASE I DEVELOPMENT SHALL INCLUDE ALL WALKING TRAILS, THE PAVILION, AND THE ASSOCIATED FIRE PIT AT THE PAVILION. BY THE END OF THE THIRD PHASE, ALL REMAINING RECREATIONAL AMENITIES SHALL BE INSTALLED INCLUDING THE CREEK SIDE PATIO AREA AND FIRE PIT.
– PURSUANT TO THIS REZONING APPLICATION, WE ARE REQUESTING SOME FLEXIBILITY IN THE TIMING OF THE PROPOSED PHASING SCHEDULE. IT IS HEREBY REQUESTED THAT WITH APPROVAL OF THIS APPLICATION, THE DEVELOPER WILL HAVE THE FLEXIBILITY TO REVISE THE PHASING SCHEDULE, PENDING THE REVIEW AND APPROVAL OF ANY PHASE REVISIONS, WITH THE DIRECTOR OF PLANNING OF THE CITY OF WINCHESTER.

EXISTING CONDITIONS and DEMOLITION PLAN



SITE DEVELOPMENT - PHASING PLAN:



NO.	DATE	DESCRIPTION	BY
		REVISIONS	

TITLE: SITE DEVELOPMENT PLAN: REZONING NOTES, GENERAL NOTES, EXISTING CONDITIONS and DEMOLITION PLAN

PROJECT: OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=40.0'	DATE: 09-09-19
SHEET:	2/20

PROJECT TRAFFIC IMPACTS:
TRIP GENERATION:
REFERENCE: TRIP GENERATION MANUAL, 9th EDITION

BY-RIGHT USE: B-2 RETAIL
PARCEL: 4.4449 Ac.
POTENTIAL GROSS SQUARE FOOTAGE PER ACRE: 25%
RETAIL AREA: 4.4449 x 0.25 = 1.111 Ac => 48,405 Sq. Ft.
USE 48,000 Sq. Ft. GROSS LEASABLE RETAIL SPACE

TRIP GENERATION:
USE: RETAIL SPACE: 48,000 Sq. Ft.
TRIPS PER 1000 Sq. Ft. GROSS AREA

48,000 Sq. Ft./1000 Sq. Ft. = 48 => 48 (1000 Sq. Ft.)
WEEKDAY:
X = 48
Ln(T) = 0.65 Ln(X) + 5.83
Ln(T) = 0.65 Ln(48) +5.83
T = 4214.48 => (4215 Trips Weekday)
(50% Entering, 50% Exiting)

PROPOSED USE: B-2 with PUD OVERLAY: RESIDENTIAL CONDOMINIUM TOWNHOUSE
PARCEL: 4.4449 Ac.
DEVELOPMENT: 45 TOWNHOUSE STYLE CONDOMINIUMS

TRIP GENERATION:
USE: RESIDENTIAL CONDOMINIUM TOWNHOUSE: 45 UNITS
TRIPS PER DWELLING UNIT

RESIDENTIAL CONDOMINIUM TOWNHOUSE UNITS: 45 UNITS
WEEKDAY:
X = 45
Ln(T) = 0.87 Ln(X) + 2.46
Ln(T) = 0.87 Ln(45) +2.46
T = 321.11 => (321 Trips Weekday)
(50% Entering, 50% Exiting)

PROPOSED SITE DEVELOPMENT:
TOTAL NUMBER OF TRIPS FOR THE SITE: (MAXIMUM)
T = 321 TRIPS (WEEKDAY)

BY-RIGHT USE:
TOTAL NUMBER OF TRIPS FOR THE SITE: (MAXIMUM)
T = 4872 TRIPS (WEEKDAY)

PROPOSED USE RESULTS IN SUBSTANTIALLY LESS TRAFFIC ON THE AISLES, ROADWAYS, & CITY STREETS.

SITE DEVELOPMENT – PARKING CALCULATION:
PARKING REQUIRED:
ONE & TWO BEDROOM DWELLING UNITS:
1 SPACE PER DWELLING UNIT

BUILDINGS: G, H, & I:	14 UNITS
1x14 DWELLING UNITS =	14 SPACES
THREE BEDROOM DWELLING UNITS: 2 SPACES PER DWELLING UNIT	
BUILDINGS: A, B, C, D, E, & F:	31 UNITS
2x31 DWELLING UNITS =	62 SPACES
TOTAL ON-SITE PARKING REQUIRED:	76 SPACES
PARKING PROVIDED:	
15 EA. TWO-CAR GARAGE UNITS:	30 SPACES
30 EX. ONE-CAR GARAGE UNITS:	30 SPACES
SITE PARKING (PARALLEL SPACES):	24 SPACES
TOTAL ON-SITE PARKING PROVIDED:	84 SPACES

Scale 1" = 30 ft

UTILITY LEGEND

	EX. WATER LINE
	PR. WATER LINE
	STORM SEWER LINE
	SANITARY SEWER LINE
	GAS LINE
	UNDERGROUND ELECTRIC LINE
	OVERHEAD ELECTRIC AND TELEPHONE LINE

REVISIONS

NO.	DATE	DESCRIPTION	BY

TITLE: SITE DEVELOPMENT PLAN: SITE LAYOUT PLAN

PROJECT: OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
CONSULTING ENGINEERS
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com

COMMONWEALTH OF VIRGINIA
TIMOTHY S. PAINTER
Lic. No. 018260
09/18/19
PROFESSIONAL ENGINEER

SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET:	3/20

UTILITY LEGEND

	EX. WATER LINE
	PR. WATER LINE
	STORM SEWER LINE
	SANITARY SEWER LINE
	GAS LINE
	UNDERGROUND ELECTRIC LINE
	OVERHEAD ELECTRIC AND TELEPHONE LINE

30 0 30 90

Scale 1" = 30 ft

REVISIONS

NO.	DATE	DESCRIPTION	BY

TITLE:

SITE DEVELOPMENT PLAN:
SITE GRADING PLAN

PROJECT:

OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/9/19
PROFESSIONAL ENGINEER

SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET:	4/20

SITE SANITARY SEWER SYSTEM: SANITARY SEWER STRUCTURES SUMMARY

MxA EX. SAN. MH
TOP= 746.40'
8" PVC INV. IN = 740.46'
8" PVC INV. OUT = 740.41'
PR. 6"ø LATERAL IN= 740.63'
PR. 6"ø LATERAL IN= 740.63'

MxB EX. SAN. MH
TOP= 746.44'
8" PVC INV. IN (north)= 740.82'
8" PVC INV. IN (west)= 739.88'
8" PVC INV. OUT = 739.87'

MH1 PR. SAN. MH (DOGHOUSE MH)
TOP= 749.04'
PR. 6" PVC INV. IN = 741.77'
PR. 6" PVC INV. IN = 741.77'
PR. 8" PVC INV. IN = 741.60'
(EX. 8" PVC INV. CL = 741.565')
EX. 8" PVC INV. IN = 741.58'
EX. 8" PVC INV. OUT= 741.55'
(APPROX. 0.03' DROP ACROSS MH)

MH2 PR. SAN. MH
TOP= 750.52'
PR. 6" PVC INV. IN = 742.94'
PR. 8" PVC INV. IN = 742.77'
PR. 8" PVC INV. OUT= 742.52'

MH3 PR. SAN. MH
TOP= 752.03'
PR. 6" PVC INV. IN = 744.19'
PR. 6" PVC INV. IN = 744.19'
PR. 8" PVC INV. OUT= 744.03'

MxC Ex. SAN. MH
TOP= 750.04'
PR. 6" PVC INV. IN = 742.90'
EX. 6" PVC INV. IN (east)= 742.74' (TO BE REMOVED)
EX. 6" PVC INV. IN (west)= 742.90' (TO BE REMOVED)
EX. 8" PVC INV. OUT= 742.30'

SITE STORM SEWER SYSTEM: PROPOSED STORM STRUCTURES SUMMARY

A PR. 30"x19" ES-1A
PR. 30"x19" INV. OUT=743.50

A1 PR. DI-3B, L=6'
Top = 748.60
PR. 21"Ø INV. IN = 743.90
PR. 30"x19" INV. OUT=743.80

A2 PR. DI-3B, L=16'
Top = 749.00
PR. 18"Ø INV. IN = 744.35
PR. 21"Ø INV. OUT=744.10

A3 PR. DI-3B, L=8'
Top = 749.60
PR. 15"Ø INV. IN = 745.15
PR. 18"Ø INV. OUT=744.90

A4 PR. DI-3B, L=8'
Top = 749.80
PR. 15"Ø INV. IN = 746.00
PR. 15"Ø INV. OUT=745.90

A5 PR. DI-3B, L=8'
Top = 750.50
PR. 15"Ø INV. OUT=746.50

B PR. 15"Ø ES-1
PR. 15"Ø INV. OUT = 743.50

B1 PR. DI-3B, L=6'
Top = 746.75
PR. 15"Ø INV. IN = 743.75
PR. 15"Ø INV. OUT=743.65

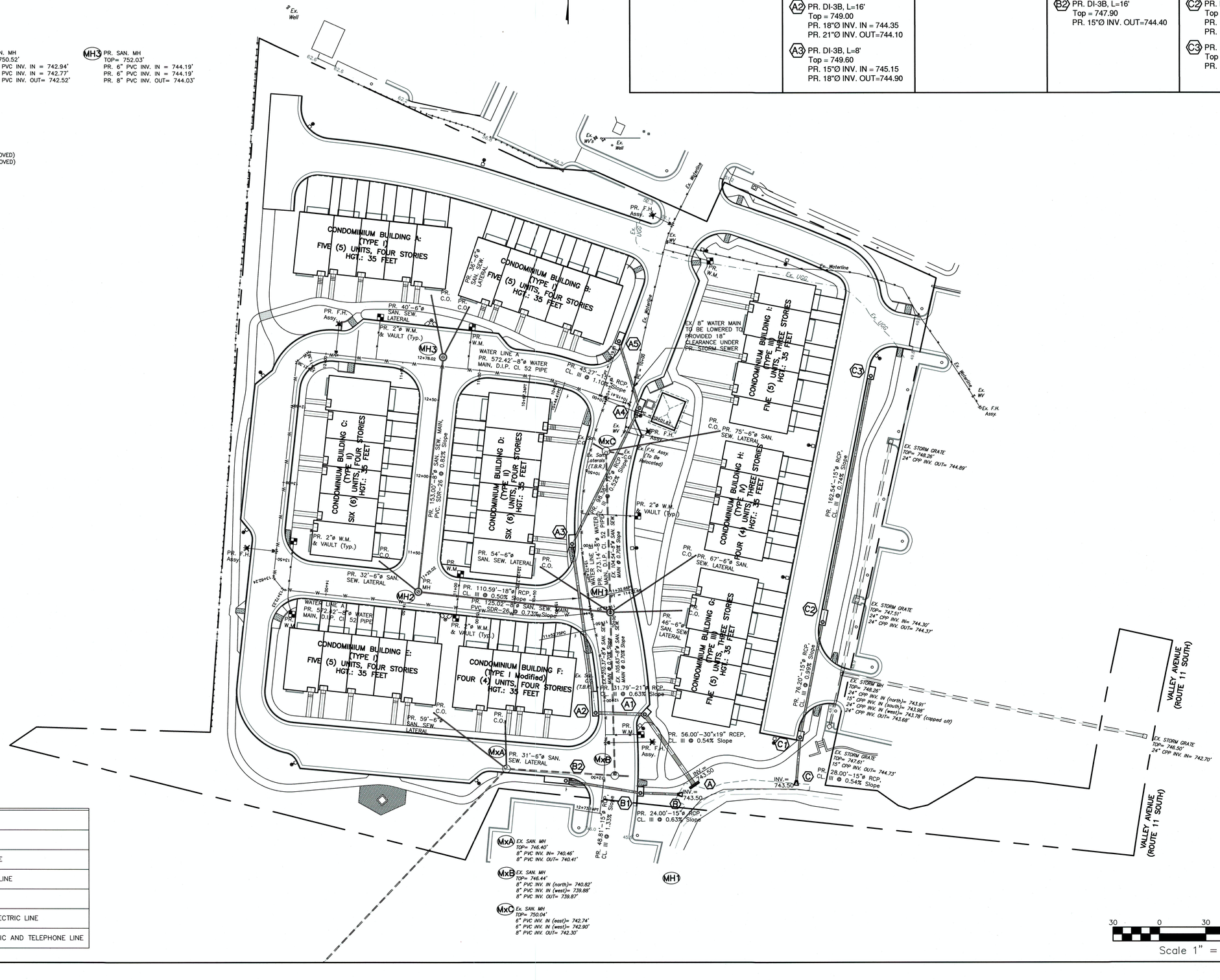
B2 PR. DI-3B, L=16'
Top = 747.90
PR. 15"Ø INV. OUT=744.40

C PR. 15"Ø ES-1
PR. 15"Ø INV. OUT = 743.50

C1 PR. DI-3B, L=10'
Top = 748.00
PR. 15"Ø INV. IN = 743.75
PR. 15"Ø INV. OUT=743.65

C2 PR. DI-3B, L=10'
Top = 749.00
PR. 15"Ø INV. IN = 744.70
PR. 15"Ø INV. OUT=744.50

C3 PR. DI-3B, L=8'
Top = 749.90
PR. 15"Ø INV. OUT=745.90



UTILITY LEGEND

	EX. WATER LINE
	PR. WATER LINE
	STORM SEWER LINE
	SANITARY SEWER LINE
	GAS LINE
	UNDERGROUND ELECTRIC LINE
	OVERHEAD ELECTRIC AND TELEPHONE LINE

30 0 30 90
Scale 1" = 30 ft

NO.	DATE	DESCRIPTION	BY
		REVISIONS	

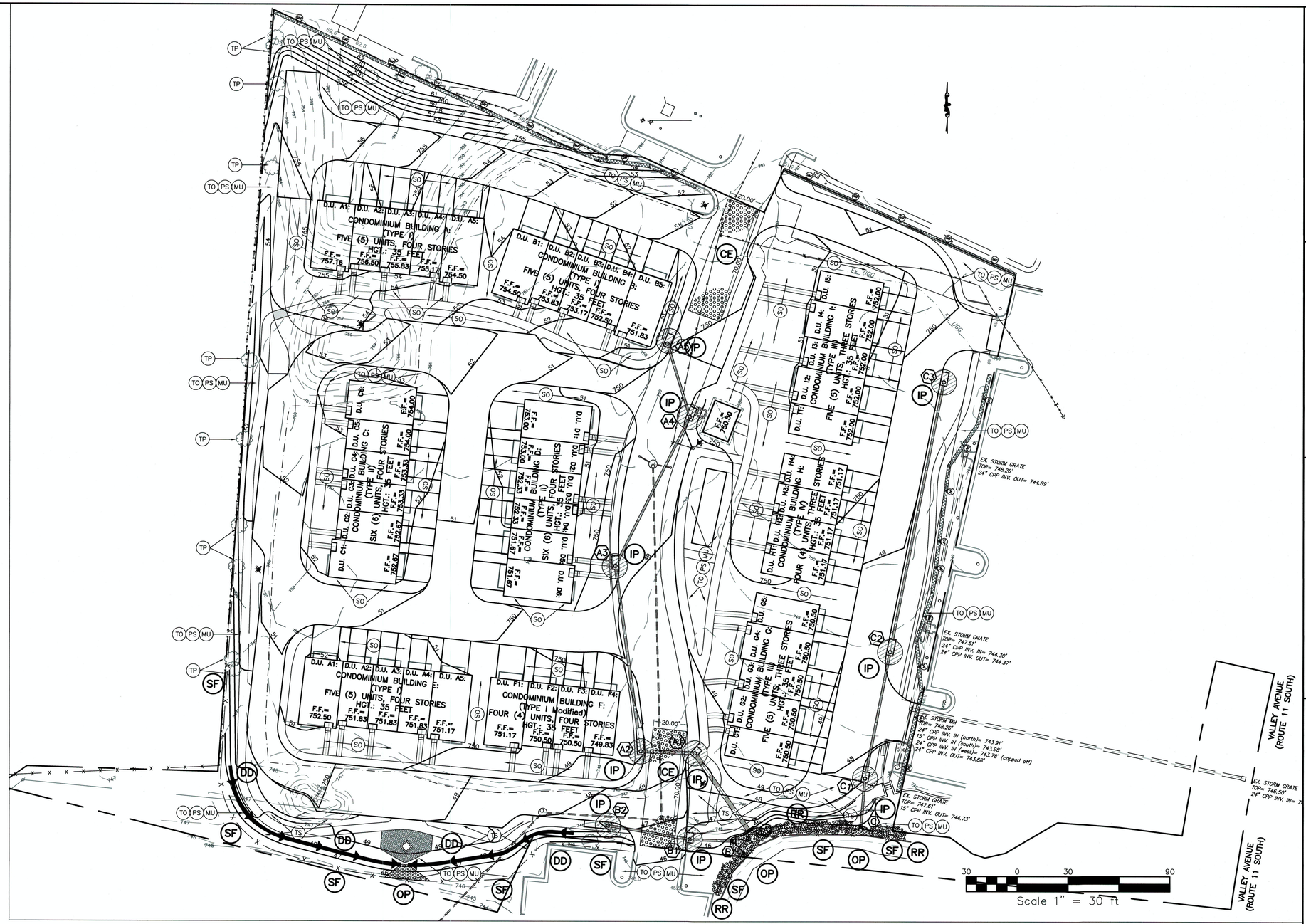
TITLE: SITE DEVELOPMENT PLAN: SITE UTILITY LAYOUT PLAN

PROJECT: OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET:	5/20



EROSION & SEDIMENT CONTROL KEY

3.01	SAFETY FENCE	SAF
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.07	STORM DRAIN INLET PROTECTION	IP
3.09	TEMPORARY DIVERSION DIKE	DD
3.18	OUTLET PROTECTION	OP
3.19	RIPRAP	RR
3.30	TOPSOILING	TO
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.33	SODDING	SO
3.35	MULCHING	MU
3.38	TREE PRESERVATION AND PROTECTION	TS

REVISIONS

NO.	DATE	DESCRIPTION	BY

TITLE:
SITE DEVELOPMENT PLAN:
SITE EROSION AND SEDIMENT CONTROL PLAN

PROJECT:
OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
CONSULTING ENGINEERS
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

SURVEY: P-L PLC	C.I.: 1"
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET:	6/20

9VAC25-840-40. MINIMUM STANDARDS 1-19:
A VESCP must be consistent with the following criteria, techniques and methods:

1. Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 140 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

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

3. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.

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

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

6. Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.

a. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.
b. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.

7. Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.

8. Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.

9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
10. All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.

10. All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.

11. Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.

12. When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.

13. When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.

14. All applicable federal, state and local regulations pertaining to working in or crossing live watercourses shall be met.

15. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.

16. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:

a. No more than 500 linear feet of trench may be opened at one time.
b. Excavated material shall be placed on the uphill side of trenches.
c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
e. Restabilization shall be accomplished in accordance with these regulations.
f. Applicable safety regulations shall be complied with.

17. Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land-disturbing activities.

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

19. Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:

a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.
b. Adequacy of all channels and pipes shall be verified in the following manner:
(1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or
(2) (a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks.
(b) All previously constructed man-made channels shall be analyzed by the use of a ten-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and
(c) Pipes and storm sewer systems shall be analyzed by the use of a ten-year storm to verify that stormwater will be contained within the pipe or system.
c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:
(1) Improve the channels to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel bed or banks; or
(2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances;
(3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a ten-year storm to increase when runoff outfalls into a man-made channel; or
(4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.
d. The applicant shall provide evidence of permission to make the improvements.
e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development of the subject project.
f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.
g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.
h. All on-site channels must be verified to be adequate.
i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted
to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.
j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a
whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate
development condition shall be used in all engineering calculations.
k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts
on the physical, chemical and biological integrity of rivers, streams and other waters of the state.
l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to 62.1-44.15:54 or 62.1-44.15:65 of the Act.
m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of 62.1-44-15:52A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (62.1-44.15:24 et seq. of the Code of Virginia) and attendant regulations, unless such land disturbing activities are in accordance with 9VAC25-870-48 of the Virginia Stormwater Management Program (VSMP) Regulations.
n. Compliance with the water quality standards set out in 9VAC25-870-66 of the Virginia Stormwater Management Program (VSMP) Regulations shall be deemed to satisfy the requirements of subdivision 19 of this subsection.

EROSION AND SEDIMENT CONTROL GENERAL NOTES
1. All work shall be done in accordance with the current edition of the Virginia Erosion and Sediment Control Handbook and the standards and specifications of the City of Winchester, Virginia.

2. A City of Winchester Land Disturbance permit shall be required for this project. In accordance with the requirements of the City Engineer, a pre-construction meeting with the local program administrator is required prior to commencement of construction of this project.

3. The local program administrator shall be given at least a one (1) week notice prior to the pre-construction conference, the commencement of any land disturbing activity, and to the final inspection.

4. The contractor is responsible for the installation of any additional erosion control measures as may be deemed necessary by the local program administrator.

SEDIMENT AND EROSION CONTROL NARRATIVE
1. Project Description:

This project shall consist of the construction of forty-five (45) townhouse style condominium units on a 4.45 acre site located in the southwestern portion of the Creekside Station shopping center complex in the city limits of Winchester, Virginia. The proposed construction shall include the construction of new private streets and drive aisles in and around the condominium complex. The construction process shall include demolition of an existing accessory building and some partially developed areas of curbing and miscellaneous utility work, complete site grading, utility installation and extensions, paving, landscaping, and on-site storm water quality measures. The total area of disturbance will encompass the entire site totaling approximately 4.45 acres.

2. Existing Conditions:

The proposed site is situated between the Kernstown Battlefield and three commercial developments. As stated, it is located in the southwestern portion of the Creekside Station shopping center within the city limits of the City of Winchester, Virginia. This project proposes to demolish an existing outbuilding and some partial developmental improvements on this 4.4449 acre site. Some light clearing and removal of soil stockpiles is needed, as well. The site has been used as a staging area and was intended to be an extension of Creekside Station. Initially, so there are areas of stone; small, partial parking lot areas; and a main paved travelway that must be removed as part of this development. The proposed residential complex construction shall include removal of the remaining topsoil areas, cut and fill excavations for the proposed buildings, roadways, and parking facilities, installation of the storm water management facilities, water, sewer, and service utilities installation, and paving of the proposed roadways and parking areas for use by the future residents and their guests. This parcel is currently not in use, but still serves as a travelway between the commercial developments and has some stored materials on site. The site is generally open with a few sparse trees and soils stockpiles, as stated previously. The entire site will be disturbed to develop the proposed improvements. The area of disturbance shall be limited to the property boundaries and the utility tie-in installations to be constructed on the adjacent parcels. There are some rock outcroppings throughout the site which will impact construction. The limits of construction have been shown on these plans and the construction access to the site shall be provided from both Creekside shopping center developments to the north and south of this site.

3. Adjacent Areas:

The site is bounded to the east by an existing physical therapy commercial use. The developments to the north and south consist of the Creekside shopping center developments. Creekside Station is located to the north with the original Creekside Village situated on the adjacent parcel to the south. The unimproved, historic Kernstown Battlefield site boundary coincides with the western boundary line of this parcel. As stated, the area of disturbance shall include the entire site and limited to the existing property boundaries with only tie-in connections to be made to the adjacent commercial developments.

4. Off-Site Areas:

No off site areas will be adversely affected. Utility construction within the existing travelway may disrupt some local through traffic, at times.

5. Soils:

The soils map of Frederick County does not include the soil types within the boundaries of the City of Winchester Corporate Limits.

6. Critical Areas:

The existing creek channel of Hoge Run that runs along the southern boundary of this development.

7. Construction Sequencing:

1. Site Preparation:
a. Hand dig test pits over existing utilities to determine their depth and actual locations.
b. Demolition of the existing outbuilding and miscellaneous clearing and demolition.

2. Phase I Controls:
a. Installation of the construction entrances.
b. Installation of the safety fence around the perimeter of the parcel. Installation of the required protective screening around the trees, the existing utilities, and along the pedestrian walkways and perimeter boundaries.
c. Installation of the silt fence along the individual site boundaries, as indicated on the plans.
d. Rough grading of parking, roadways, and subgrade elevations of the condominium units to the grades shown.
e. Rough grading of the adjacent slopes and lawn areas.
f. Installation of the storm sewer systems (management and water quality) and sanitary systems.
g. Installation of the water mains and all service utilities and site lighting utilities and structures.
h. Stabilization of all disturbed areas until the full development of the site occurs.

3. Phase II:
a. Final grading of all disturbed areas.
b. installation of driveways, curb and gutter systems, and perimeter walkways.
c. installation of stone base and pavement structures for all roadway, access areas, and parking facilities.
d. Rough grading of the adjacent slopes and lawn areas.
e. Stabilization of all disturbed areas.
f. Final site cleanup and demobilization.

8. Maintenance:

The contractor shall be responsible for the installation and maintenance of all erosion and sediment control measures. All measures shall be inspected daily and after each significant rainfall by the site superintendent or his representative. Any damaged structures shall be repaired or replaced by the end of work that day.

a. The construction entrances shall be maintained so as to control the amount of soil materials that may get caught on the existing pavement. If the pavement becomes too soiled with soil, mud, and debris that it will not prevent tracking onto the right-of-way, then it shall be cleaned and/or washed, as may be deemed necessary. A trash rack shall be installed as part of the construction entrance construction. If this measure fails to properly clean the construction vehicles, then a wash rack must be installed as directed by the local program administrator.

b. The silt fencing and sediment trapping devices shall be checked regularly for deposited sediment. If sediment is trapped, it shall be cleaned carefully so as not to release the trapped sediment downstream or on adjacent properties.

c. All seeded and sodded areas shall be checked regularly to ensure that a good stand of grass is maintained. Areas shall be repaired, fertilized, and reseeded or resodded, as required.

9. Erosion and Sediment Control Measures:

a. Erosion and Sediment Control Measures shall be installed prior to any land disturbing activities. The work shall be confined to the designated limits of clearing and grading. For this project, the limits of clearing and grading are defined by the property boundaries and the rights-of-way of the City streets. All perimeter sediment control devices shall be erected prior to any land disturbing activities and shall remain in place until the site is fully stabilized.

b. No disturbed areas shall be denuded for more than thirty (30) days. The contractor shall stabilize all exposed areas within seven (7) days after the end of construction of that phase of the work. If possible, all natural vegetation and/or mulching shall be used to protect areas exposed during development of the site. The existing vegetation along the limits of clearing and grading shall remain in place and be protected during the construction process to the greatest possible extent.

c. Soil stockpiles must be stabilized or protected with sediment trapping measures to prevent soil loss. Utility trenches located outside of paved areas shall be seeded and mulched within two (2) weeks of backfilling.

d. Upon completion of construction, all permanent erosion and sediment control measures shall be installed. After stabilization, the temporary erosion control measures shall be removed, as approved by the local program administrator. All vegetative cover shall be checked regularly and any damaged areas shall be repaired, fertilized, replanted, and mulched, as needed.

e. All property areas immediately adjacent to the work site shall be protected from sediment deposition. This shall be accomplished by installing perimeter controls such as silt fence barriers, diversion dikes, filters or check dams, or a combination of such measures, as indicated on the plans.

f. The contractor shall be responsible for the installation and maintenance of all erosion and sediment control measures.

g. The contractor shall perform over lot grading to provide positive drainage and preclude ponding of water. If applicable, all off site grading and construction is to be done with the property owner's consent. The City of Winchester, Virginia shall be contacted prior to performing any work within their rights-of-way or for connections to their service utilities.

h. Cut and fill slopes shall be graded at a maximum of 3 horizontal to 1 vertical unless otherwise indicated on these plans.

3.01 Safety fence shall be installed in selected locations to ensure that the safety of the public is maintained at all times by segregation of the construction area from the public. See the plan for the appropriate locations.

3.02 A 20'w by 70'l temporary stone construction entrance will be constructed along the existing travelway to the nrth from Creekside Station and to the south from Creekside Village, as indicated on these plans and as needed. The entrances shall be maintained in a condition which will prevent tracking or flow of soil or mud onto the adjacent property and public travel aisles. This may require periodic top dressing with additional stone or the washing and reworking of existing stone, as conditions demand, and repair or cleaning of any structures used to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately. The use of water trucks to remove materials dropped, washed, or tracked onto roadways will not be permitted under any circumstances.

3.05 Silt fence will be installed in selected locations downstream from the construction areas as a first measure of construction. Silt fence will be installed around the downstream side of topsoil stockpiles. Silt fences shall be inspected after each rainfall and at least daily during prolonged periods of rainfall. Any required repairs shall be made immediately. Damaged, decomposed or otherwise ineffective silt fence shall be replaced immediately. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier. Any sediment deposits remaining in place after the silt fence is no longer needed shall be dressed to conform with the existing grade and stabilized.

3.07 A gravel and wire mesh drop inlet sediment filter will be installed around each of the existing storm water drop inlets. The structures shall be inspected after each rain and repairs made as needed. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode. Structures shall be removed and the area stabilized when the remaining drainage area has been properly stabilized.

3.30 Topsoil shall be uniformly placed on all disturbed areas. The topsoil shall be clean and workable and shall promote growth of all seeding, sodding, or any other protective vegetative cover.

3.31 Temporary seeding, as indicated below, will be applied to the topsoil stock pile and all areas which will not be brought to final grade within 30 days. Embankment or excavated slopes denuded for a period of greater than 30 days shall be temporarily seeded and mulched. All temporary seeding areas will be mulched in accordance with the schedule included herein.

3.32 All disturbed areas will be stabilized by permanent seeding in accordance with the schedule included herein. The anticipated time for clearing is Fall 2019.

3.35 All seeded areas will be mulched in accordance with the schedule included herein.

3.36 All cut slopes and fill slopes will be stabilized with matting to promote the establishment of a vegetative cover. The mat areas will be inspected after each significant rainfall event and repairs will be made as required.

3.38 All tree protection measures shall be checked daily to ensure that they are secure and functioning properly. These measures shall remain in place until completion of the construction process.

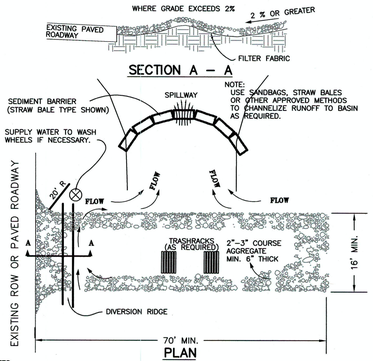
Temporary Seeding:

SEED TYPE	RATE	MIN. PURITY(%)	MIN. GERM.(%)
Sept 1 – Feb 15:			
Annual Ryegrass	50 lb/ac	98	85
Winter Rye	50 lb/ac	98	85
May 1 – Aug 31:			
German Millet	50 lb/ac	98	85
or			
Feb 16 – Apr 30:			
Annual ryegrass	75 lb/ac	98	85
Mulch:	1.5 ton/ac small grain straw		
Fertilizer:	1000 lb/ac 10-10-10		

Permanent Stabilization:
The contractor shall stabilize all denuded land within 7 days after the end of construction. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year. During construction of the project, soil stockpiles shall be stabilized or protected with sediment trapping measures. The contractor is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as soil intentionally transported from the project site. No soil testing is required. The contractor shall establish vegetation on all areas not otherwise stabilized according the following specification:

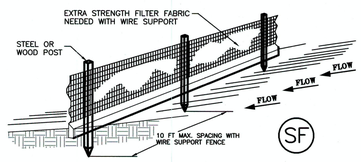
Seedbed Preparation:
a. Scarify top 1" to 2" of soil after final grades have been achieved.
b. Add 3 tons per acre pulverized agricultural limestone(140lb/1000sf)

SEED TYPE	RATE	MIN. PURITY(%)	MIN. GERM.(%)
Tall fescue	60 lb/ac	97	85
Red clover	8 lb/ac	95	65
Ladino clover	8 lb/ac	95	65
Nurse Grass--(season dependent)			
Sept 1 – Feb 15:			
Annual Ryegrass	12 lb/ac	98	85
Winter Rye	12 lb/ac	98	85
May 1 – Aug 31:			
German Millet	12 lb/ac	98	85
or			
Feb 16 – Apr 30:			
Annual ryegrass	12 lb/ac	98	85
Mulch:	1.5 ton/ac small grain straw		
Fertilizer:	1000 lb/ac 10-10-10		



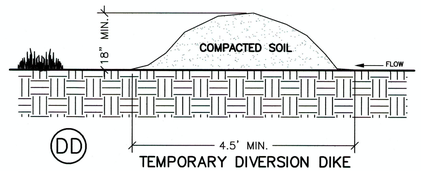
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. INSTALL CATTLE GUARDS AS CALLED FOR ON THE PLANS.

CE **TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT**



NOTE:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. SET POSTS AND EXCAVATE A 4"x4" TRENCH UPSLOPE ANLONG THE LINE OF POSTS.
5. STAPLE WIRE FENCING TO THE POSTS.
6. ATTACH WIRE FILTER FABRIC TO THE WIRE FENCING AND EXTEND IT INTO THE TRENCH.
7. BACKFILL AND COMPACT THE EXCAVATED SOIL.

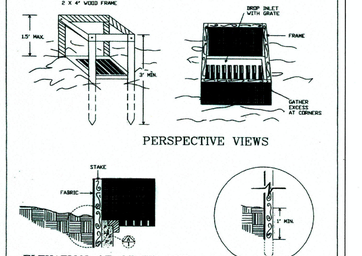
SILT FENCE DETAIL WITH WIRE SUPPORT
NOT TO SCALE — ADAPTED FROM: 1992 VA E&S CONTROL HANDBOOK 3.05



DD **TEMPORARY DIVERSION DIKE**

1992 3.07

SILT FENCE DROP INLET PROTECTION



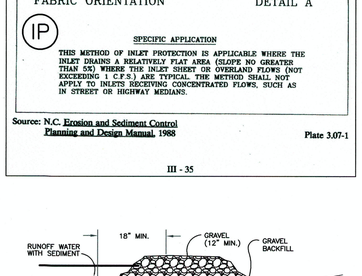
IP

SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

Source: N.C. Erosion and Sediment Control Planning and Design Manual 1988 — Plate 3.07-1

III - 35

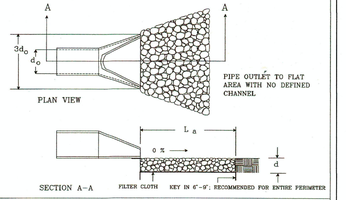


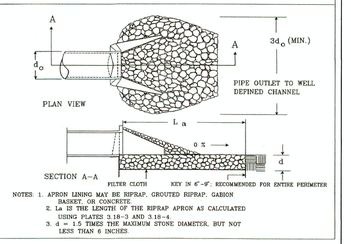
NOTES:
1. THIS METHOD OF INLET PROTECTION SHALL IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.
2. GRAVEL SHALL BE VDOT #3, #357, OR #5 COARSE AGGREGATE.

IP **GRAVEL AND WIRE MESH DROP INLET SEDIMENT BARRIER**

1992 3.18

PIPE OUTLET CONDITIONS

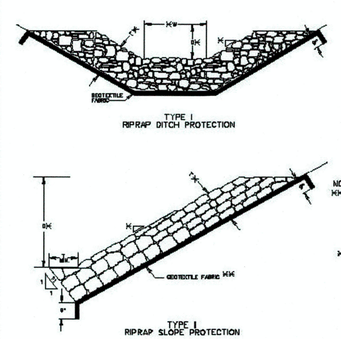




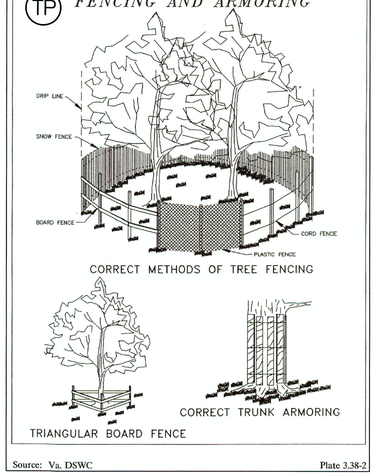
NOTES: 1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18-3 AND 3.18-4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES

Source: Va. DSWC — Plate 3.18-1

PG-3



PREPARED BY:	STANDARD RIP RAP DITCH & SLOPE PROTECTION
DAS 4/14	PG-3
	VIRGINIA DEPARTMENT OF TRANSPORTATION



1992 3.38

Source: Va. DSWC — Plate 3.38-2

EROSION & SEDIMENT CONTROL KEY

3.01 SAFETY FENCE	SAF	
3.02 TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	
3.05 SILT FENCE	SF	
3.07 STORM DRAIN INLET PROTECTION	IP	
3.09 TEMPORARY DIVERSION DIKE	DD	
3.18 OUTLET PROTECTION	OP	
3.19 RIPRAP	RR	
3.30 TOPSOILING	TO	TO
3.31 TEMPORARY SEEDING	TS	TS
3.32 PERMANENT SEEDING	PS	PS
3.33 SODDING	SO	SO
3.35 MULCHING	MU	MU
3.38 TREE PRESERVATION AND PROTECTION	TS	TS

NO.	DATE	DESCRIPTION	BY
		REVISIONS	

TITLE: SITE DEVELOPMENT PLAN: EROSION AND SEDIMENT CONTROL NARRATIVE AND DETAILS

PROJECT: OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
CONSULTING ENGINEERS
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/9/19
PROFESSIONAL ENGINEER

SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET:	7/20

LANDSCAPE NOTES:

1. Public Right-of-way Landscaped Area: None Required

2. Street Trees: None Required

3. Parking Lot Landscaping: (1) tree per 2000 sf of Off-Street Parking Area
Off-Street Parking Area: 54,481 sf
Trees Required: 54,481/2000 = 27.2 = 27 trees
Trees Proposed: 27

4. Building Foundation Plantings: Foundation plantings have been provided along the front building facades of the proposed residences. (See the following Landscape Sheet)

5. Buffers Required: An evergreen screening buffer is provided per the existing development proffers.

6. The owner of the property shall maintain required landscaping in good condition and shall make reasonable provisions to protect landscaped areas form damage caused by vehicles, pedestrians, shopping carts, etc. Dead or dying vegetation shall be replaced per direction of the Administrator. Replacement shrubs shall be of a size consistent with that which would could normally be expected based upon the specific species and the length of time elapsed since initial installation of said required landscaping elements. Replacement trees shall be 1/2" caliper larger for each year since initial installation of said required trees, except that no owner shall be required to replace any tree with another tree larger than five (5) inches in caliper.

LANDSCAPE INSTALLATION:

1. Confirm the locations of any utilities above or below ground prior to commencing work. Contact the Landscape Architect in the event that utilities or any other structure conflicts with the layout shown on the plan.

2. Verify the quantities shown on the plant list with totals indicated on the plan. Contact the Landscape Architect in the event that discrepancies exist. Supply unit prices to the Owner at time of bidding.

3. All materials are subject to approval by the Owner or Owner's representative. Provide the Owner with a tag from each plant species and a list of the plant suppliers. Where any requirements are omitted from the Plant List, use plants which meet the normal requirements for the variety according to the American Association of Nurserymen.

4. Plants shall be sound, healthy, vigorous, well branched, free of disease, insect eggs and larvae, and shall have adequate root systems.

5. Sizes specified in the Plant List are minimum sizes against which the plants will be judged. Failure to meet minimum size on any plant will result in rejection of that plant.

6. Groups of shrubs shall be placed in a continuous mulched bed with smooth, continuous edges as shown on the plan. All mulched beds shall be curvilinear in shape following the contour of the plant mass. Apply a minimum of 4 inches of mulch uniformly over beds. Trees located within four feet of any shrub bed shall share the same bed. Grade finished planting beds so as not to impede surface drainage.

7. Locate trees a minimum of 3 feet from walls or walks, if possible.

8. Stake and guy all trees according with standard practice and/or the suppliers recommendations. At a minimum, all deciduous trees shall be double-guyed with 72" hardwood stakes driven firmly into the ground. Secure tree to stakes with #9 galvanized wire guys with rubber hose connections. Stakes shall be 2" x 2" x 72".

9. Use shredded hardwood bark mulch in all planting beds.

10. Remove all tags, twine and containers from installed plants. Roll back burlap one third on all B&B plants.

11. Plant substitutions are permitted with consent from the Landscape Architect.

12. Prepare the soil in all bedding areas by mixing into the top six inches of soil one cubic yard of manure, peat and 10-6-4 granular fertilizer per 100 square feet of area. Remove any turf, weeds or other vegetation completely prior to installation.

13. Plant all materials in their appropriate season. The Contractor shall guarantee all plant materials and workmanship for a period of one year from time of installation.

14. All existing plant materials shall remain unless otherwise noted on the Site Plan.

PARKING AREA PLANT LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
AR	11	Acer rubrum 'Redpointe'	Redpointe Red Maple	5'-6' height	see plans
CV	2	Chionanthus virginicus	Fringetree	5'-6' height	see plans
GT	6	Gleditsia tricanthos inermis 'Skyline'	Skyline Honeylocust	2" Caliper	see plans
PO	8	Platanus occidentalis	American Sycamore	3" Caliper	see plans

ALL SIZES INDICATE PLANT HEIGHT OR SIZE AT TIME OF PLANTING

PROFFERED PROPERTY BUFFER PLANT LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
JV	36	Juniperus virginiana	Eastern Redcedar	5' height	10' o.c.
TE	58	Thuja occidentalis 'Elegantissima'	Elegant Arborvitae	5' height	5' o.c.
TN	23	Thuja occidentalis 'Nigra'	Black Arborvitae	5' height	10' o.c.

ALL SIZES INDICATE PLANT HEIGHT OR SIZE AT TIME OF PLANTING

LUMINAIRE SCHEDULE

LABEL	QTY.	CATALOG NO.	DESCIPTION	LAMP	HEIGHT
A	15	CSX1 LED	STD. POLE FIXTURE (SPA) with SHADED BACKGROUND, 60C LED, 120 MVOLT, TM3	1-60C LED, Color Temp: 4000k (Cool), DARK BRONZE	25' POLE HEIGHT
B	2	CSX1 LED DOUBLE FIXTURE	STD. POLE FIXTURE (SPA) with SHADED BACKGROUND, 60C LED, 120 MVOLT, TM3	1-60C LED, Color Temp: 4000k (Cool), DARK BRONZE	25' POLE HEIGHT

UTILITY LEGEND

	EX. WATER LINE
	PR. WATER LINE
	STORM SEWER LINE
	SANITARY SEWER LINE
	GAS LINE
	UNDERGROUND ELECTRIC LINE
	OVERHEAD ELECTRIC AND TELEPHONE LINE

30 0 30 90

Scale 1" = 30 ft

REVISIONS

NO.	DATE	DESCRIPTION	BY

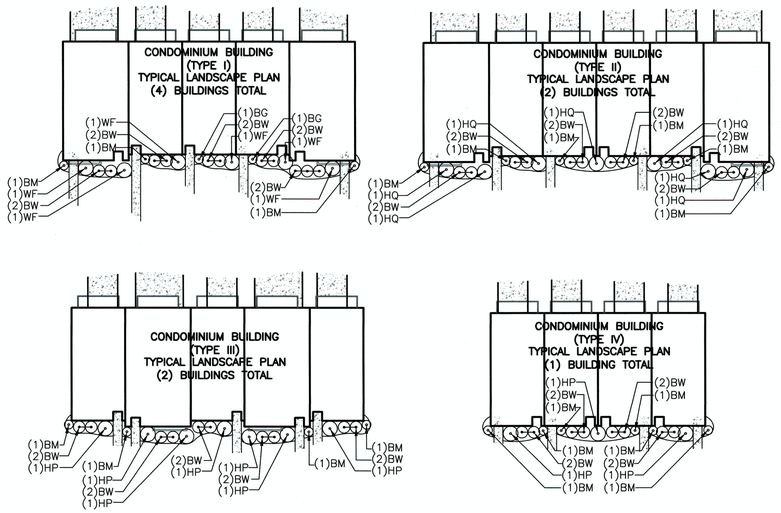
TITLE:
SITE DEVELOPMENT PLAN:
SITE LANDSCAPING and
LIGHTING & ILLUMINATION PLAN

PROJECT:
OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

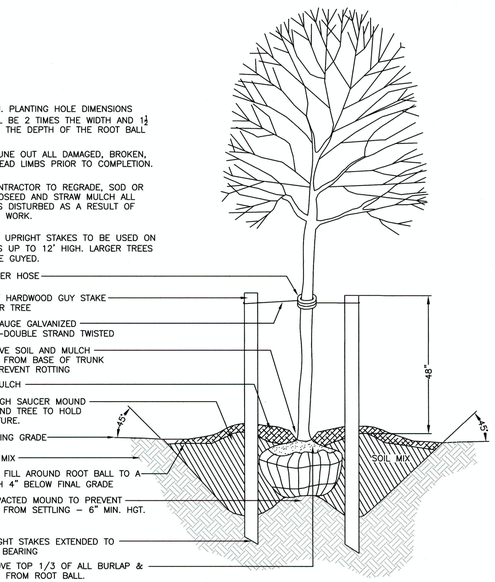
SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET:	8/20



CONDOMINIUM FOUNDATION PLANT LIST (COMBINED TOTAL FOR ALL BUILDINGS)

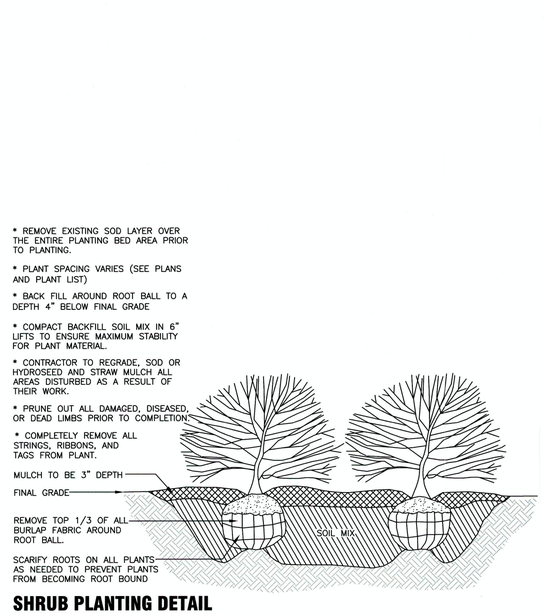
KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
BW	96	Buxus sinica var. insularis 'Wintergreen'	Wintergreen Boxwood	#3 container	4' o.c.
BM	46	Buxus 'Green Mountain'	Green Mountain Boxwood	#3 container	see plans
HP	17	Hydrangea paniculata 'Little Quickfire'	Little Quickfire Hydrangea	#3 container	see plans
HQ	14	Hydrangea quercifolia	Oakleaf Hydrangea	#5 container	see plans
WF	24	Weigela florida 'Variegata'	Variegated Weigela	#5 container	see plans

ALL SIZES INDICATE PLANT HEIGHT OR SIZE AT TIME OF PLANTING



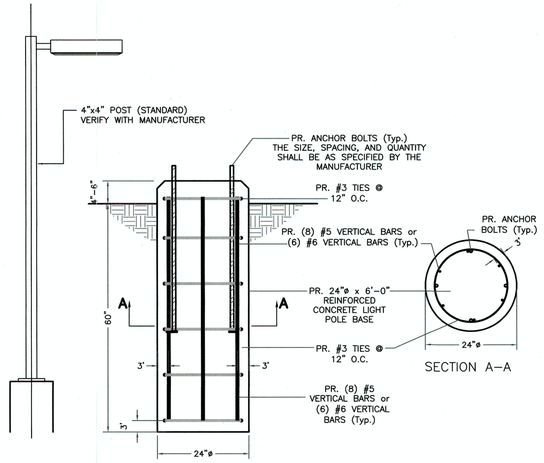
TYPICAL TREE PLANTING

SECTION NOT TO SCALE



SHRUB PLANTING DETAIL

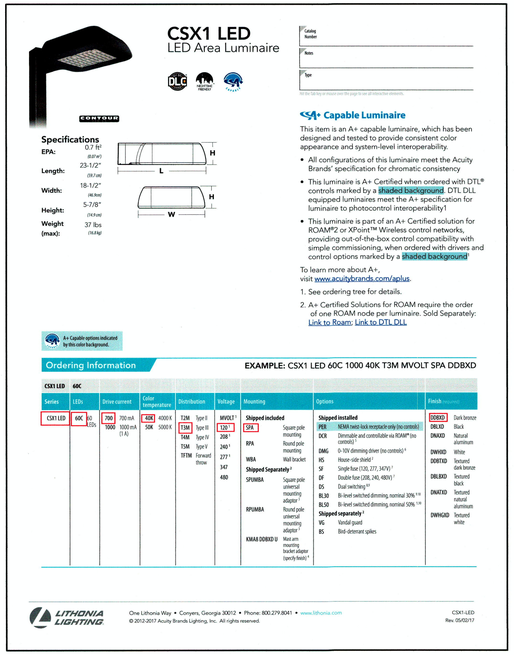
SECTION NOT TO SCALE

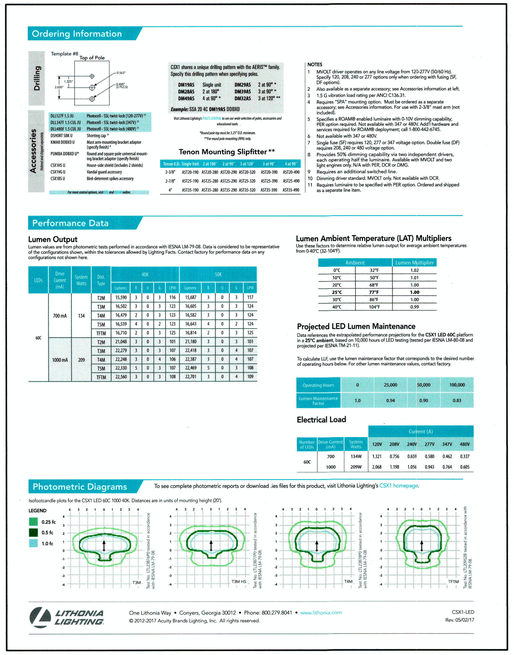


NOTES:
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) AND THE REQUIREMENTS OF THE LOCAL BUILDING DEPARTMENT.
- THE CONCRETE SHALL A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAY CURING TIME.
- THE STEEL REINFORCEMENT SHALL BE GRADE 60 STEEL (Fy=60,000 PSI).
- LATERAL PASSIVE EARTH PRESSURE SHALL BE 275 PSF/FT DEPTH, MINIMUM.
- THE FOUNDATION DESIGN HAS BEEN BASED ON A MAXIMUM POLE HEIGHT OF 25'.
- THE LIGHT FIXTURES AND POLE DESIGN SHALL BE BY OTHERS. SEE THE SITE PLAN FOR LIGHT LOCATIONS.

SITE LIGHTING (PRIVATE DEVELOPMENT): STANDARD LIGHTPOLE BASE DETAIL

N.T.S.





(A) SITE LIGHTING (PRIVATE DEVELOPMENT): STANDARD 25' POLE LED AREA FIXTURE

N.T.S.

LUMINAIRE SCHEDULE

LABEL	QTY.	CATALOG NO.	DESCIPTION	LAMP	HEIGHT
A	15	CSX1 LED	STD. POLE FIXTURE (SPA) with SHADED BACKGROUND, 60C LED, 120 MVOLT, TM3	1–60C LED, Color Temp: 4000k (Cool), DARK BRONZE	25' POLE HEIGHT
B	2	CSX1 LED DOUBLE FIXTURE	STD. POLE FIXTURE (SPA) with SHADED BACKGROUND, 60C LED, 120 MVOLT, TM3	1–60C LED, Color Temp: 4000k (Cool), DARK BRONZE	25' POLE HEIGHT

STATISTICS

DESCRIPTION	SYMBOL	AVERAGE	MAXIMUM	MINIMUM	MAX./MIN.	AVG./MIN.
CALC. ZONE II	+	2.2 fc	12.6 fc	0.0 fc	N/A	N/A

NOTES: SITE LIGHTING
–A FULL CUT–OFF VISOR MUST BE INSTALLED FOR ALL BUILDING MOUNTED LIGHTING TO PREVENT ILLUMINATION OFF–SITE.
–ALL BUILDING MOUNTED FLOOD LIGHTS SHALL BE FULLY SHIELDED AND DOWNCAST, AS REQUIRED.
–ALL SITE LIGHT POLES SHALL BE EQUIPPED WITH SUPPLEMENTAL OPAQUE SHIELDING ON THE RESIDENTIAL SIDE TO PREVENT ILLUMINATION AND LESSEN GLARE OFF–SITE.

REVISIONS			
NO.	DATE	DESCRIPTION	BY

TITLE:
SITE DEVELOPMENT PLAN:
SITE LANDSCAPING and
LIGHTING DETAILS

PROJECT:
OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662–5792
Facsimile: (540) 662–5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/13/19
PROFESSIONAL ENGINEER

SURVEY:	C.I.:
P–L PLC	1"
DRAWN BY:	JOB NO.:
TGP	1802043
SCALE:	DATE:
1"=30.0'	09–09–19
SHEET:	
9/20	

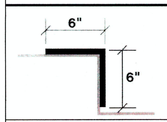
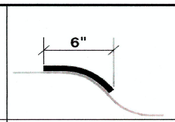
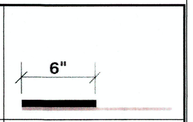
Fire Lane Marking Guidelines

D103.6 Signs. Where required by the fire code official, fire apparatus access roads shall be marked with permanent signs complying with the following specifications:

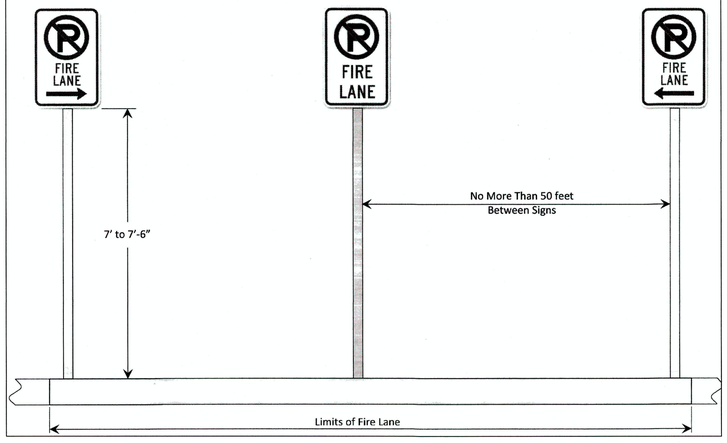
1. Metal construction 12 inches by 18 inches.
2. Red letters on engineer grade prismatic reflective white background with 3/8 inch red trim stripe around entire outer edge of sign.
3. Sign construction to be: the letter "P" in black inside a red circle with a red slash through the "P", below that to read "FIRE LANE" on separate lines. Signs delineating the beginning or ending of a fire lane shall have a solid filled arrow to point in the direction of the fire lane.
4. Signs are to be mounted with the bottom no less than 7' from the ground and no more than 7'6" to the ground, unless otherwise directed by the fire code official.
5. Posts for signs, when required, shall be metal and securely mounted, unless written permission for alternatives is obtained prior to installation from the Office of the Fire Marshal. Signs should be spaced as shown on approved plans. In long stretches, the maximum distance between signs is 50 feet.
6. Other special signs may be approved by the Office of the Fire Marshal.

SIGN TYPE "A"	SIGN TYPE "C"	SIGN TYPE "D"
		
Standard wording with an arrow on the bottom pointing to the right. One sign mounted parallel to the line of curbing or pavement edge at the end of the painted area.	Standard wording with an arrow on the bottom pointing to the left. One sign mounted parallel to the line of curbing or pavement edge at the end of the painted area.	Standard wording with no arrow. One sign mounted per to the line of curbing or pavement edge.

D103.7 Curb Designation. Where curbing is provided adjacent to the fire lane, it must be painted yellow within the limits of the fire lane. In areas without curbing a 6 inch yellow line shall be applied to the edge of the pavement. Paint shall be highway traffic grade.

		
Curbs shall be identified by a 6 inch yellow paint stripe on the top and side.	Rolled curbs shall be identified by a 6 inch yellow stripe to the top.	Roads with no curbs shall be identified by a 6 inch yellow stripe.

Example of Fire Lane Markings



FIRE DEPARTMENT NOTATIONS:

A C D FIRE DEPARTMENT SIGN LOCATIONS & TYPES SEE THIS SHEET FOR SIGN DETAILS

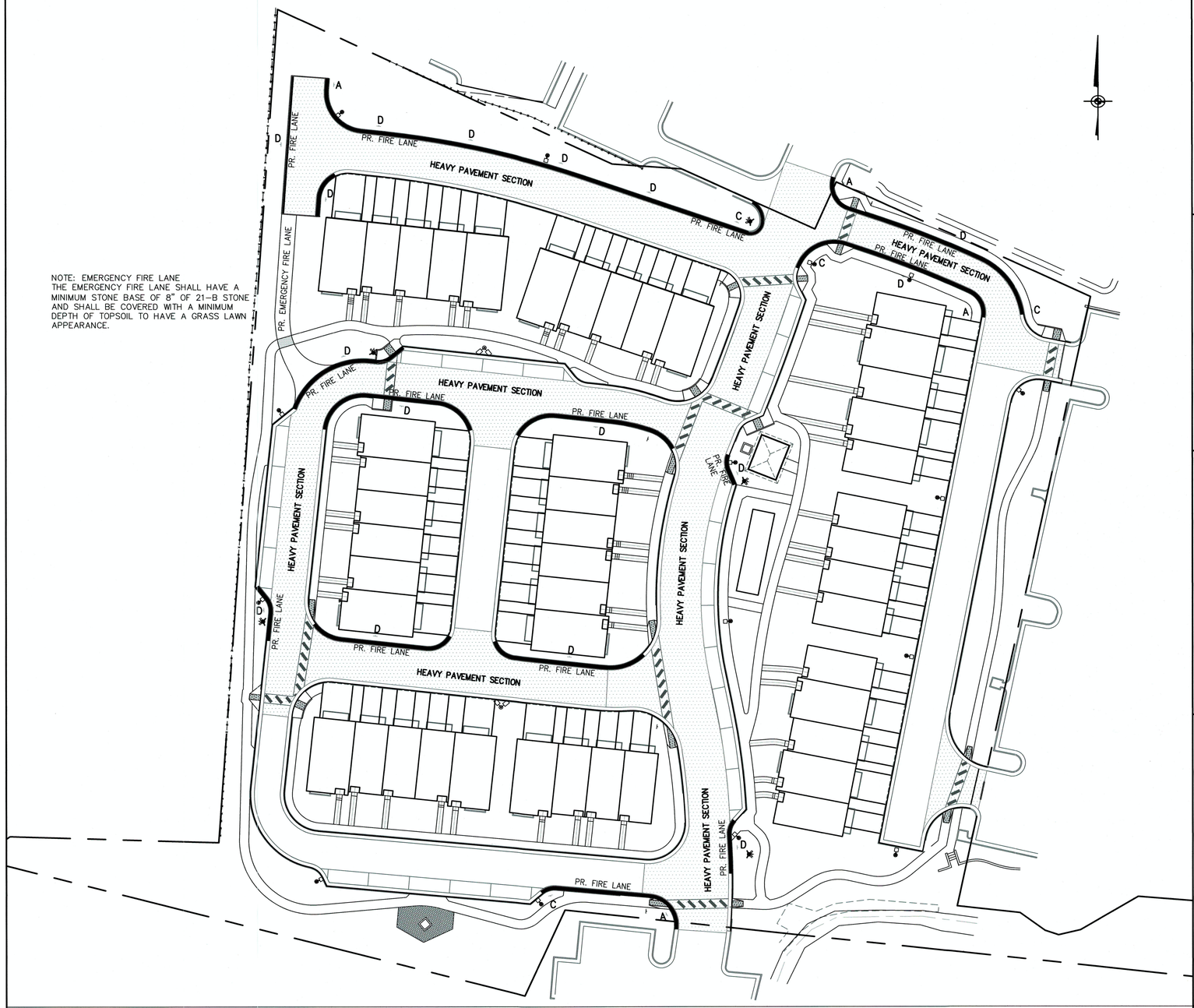
[K] FIRE DEPARTMENT KNOX BOX LOCATIONS ("KNOX BOX PER FIRE MARSHAL SPECIFICATION")

DESIGNATED FIRE LANE (YELLOW PAINTED CURB)

NOTES: FIRE DEPARTMENT:

NO SHRUBS OR FOUNDATION PLANTINGS SHALL BE INSTALLED DIRECTLY IN FRONT OF OR THAT WILL BLOCK OR LIMIT ACCESS TO THE FIRE DEPARTMENT CONNECTION (FDC).

NOTE: EMERGENCY FIRE LANE
THE EMERGENCY FIRE LANE SHALL HAVE A MINIMUM STONE BASE OF 8" OF 21-B STONE AND SHALL BE COVERED WITH A MINIMUM DEPTH OF TOPSOIL TO HAVE A GRASS LAWN APPEARANCE.



FIRE PROTECTION PLAN and HEAVY PAVEMENT AREA DESIGNATIONS

NOTE: PAVEMENT SECTIONS
– ALL AREAS TO RECEIVE THE HEAVY PAVEMENT SECTION (SEE SHEET 20/20) HAVE BEEN DESIGNATED BY THE HATCHED ROADWAY AREAS, AS INDICATED ON THIS DRAWING.
– ALL OTHER AREAS TO BE PAVED SHALL RECEIVE THE LIGHT PAVEMENT SECTION IN ACCORDANCE WITH PAVEMENT DETAIL ON SHEET 20/20.

30 0 30 90
Scale 1" = 30 ft

REVISIONS

NO.	DATE	DESCRIPTION	BY

TITLE: SITE DEVELOPMENT PLAN: FIRE PROTECTION PLAN and DETAILS

PROJECT: OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
CONSULTING ENGINEERS
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/09/19
PROFESSIONAL ENGINEER

SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET:	10/20

SITE DRAINAGE AREAS TABULATION:

(C2) INDICATES RELATED DRAINAGE AREAS

DRAINAGE AREA - SITE:
AREA: 4.4449 Ac.
C: 0.57
Tc: 15 Min.
Q10: 11.65 cfs
(PRE-DEVELOPMENT)

DRAINAGE AREA - SITE:
AREA: 4.4449 Ac.
C: 0.61
Tc: 15 Min.
Q10: 12.47 cfs
(POST-DEVELOPMENT)

DRAINAGE AREA A1:
AREA: 0.360 Ac.
C: 0.75
Tc: 10 Min.
Q10: 1.49 cfs

DRAINAGE AREA A2:
AREA: 0.652 Ac.
C: 0.85
Tc: 10 Min.
Q10: 3.05 cfs

DRAINAGE AREA A3:
AREA: 0.437 Ac.
C: 0.80
Tc: 10 Min.
Q10: 1.92 cfs

DRAINAGE AREA A4:
AREA: 0.418 Ac.
C: 0.80
Tc: 10 Min.
Q10: 1.84 cfs

DRAINAGE AREA A5:
AREA: 0.467 Ac.
C: 0.80
Tc: 10 Min.
Q10: 2.05 cfs

DRAINAGE AREA B1:
AREA: 0.043 Ac.
C: 0.90
Tc: 5 Min.
Q10: 0.26 cfs

DRAINAGE AREA B2:
AREA: 0.720 Ac.
C: 0.80
Tc: 10 Min.
Q10: 3.17 cfs

DRAINAGE AREA C1:
AREA: 0.2.08 Ac.
C: 0.85
Tc: 10 Min.
Q10: 0.97 cfs

DRAINAGE AREA C2:
AREA: 0.276 Ac.
C: 0.85
Tc: 10 Min.
Q10: 1.26 cfs

DRAINAGE AREA C3:
AREA: 0.144 Ac.
C: 0.90
Tc: 5 Min.
Q10: 0.89 cfs

SITE STORM SEWER SYSTEM: PROPOSED STORM STRUCTURES SUMMARY

(A) PR. 30"x19" ES-1A
PR. 30"x19" INV. OUT=743.50

(A1) PR. DI-3B, L=6'
Top = 748.60
PR. 21"Ø INV. IN = 743.90
PR. 30"x19" INV. OUT=743.80

(A2) PR. DI-3B, L=16'
Top = 749.00
PR. 18"Ø INV. IN = 744.35
PR. 21"Ø INV. OUT=744.10

(A3) PR. DI-3B, L=8'
Top = 749.60
PR. 15"Ø INV. IN = 745.15
PR. 18"Ø INV. OUT=744.90

(A4) PR. DI-3B, L=8'
Top = 749.80
PR. 15"Ø INV. IN = 746.00
PR. 15"Ø INV. OUT=745.90

(A5) PR. DI-3B, L=8'
Top = 750.50
PR. 15"Ø INV. OUT=746.50

(B) PR. 15"Ø ES-1
PR. 15"Ø INV. OUT = 743.50

(B1) PR. DI-3B, L=6'
Top = 746.75
PR. 15"Ø INV. IN = 743.75
PR. 15"Ø INV. OUT=743.65

(B2) PR. DI-3B, L=16'
Top = 747.90
PR. 15"Ø INV. OUT=744.40

(C) PR. 15"Ø ES-1
PR. 15"Ø INV. OUT = 743.50

(C1) PR. DI-3B, L=10'
Top = 748.00
PR. 15"Ø INV. IN = 743.75
PR. 15"Ø INV. OUT=743.65

(C2) PR. DI-3B, L=10'
Top = 749.00
PR. 15"Ø INV. IN = 744.70
PR. 15"Ø INV. OUT=744.50

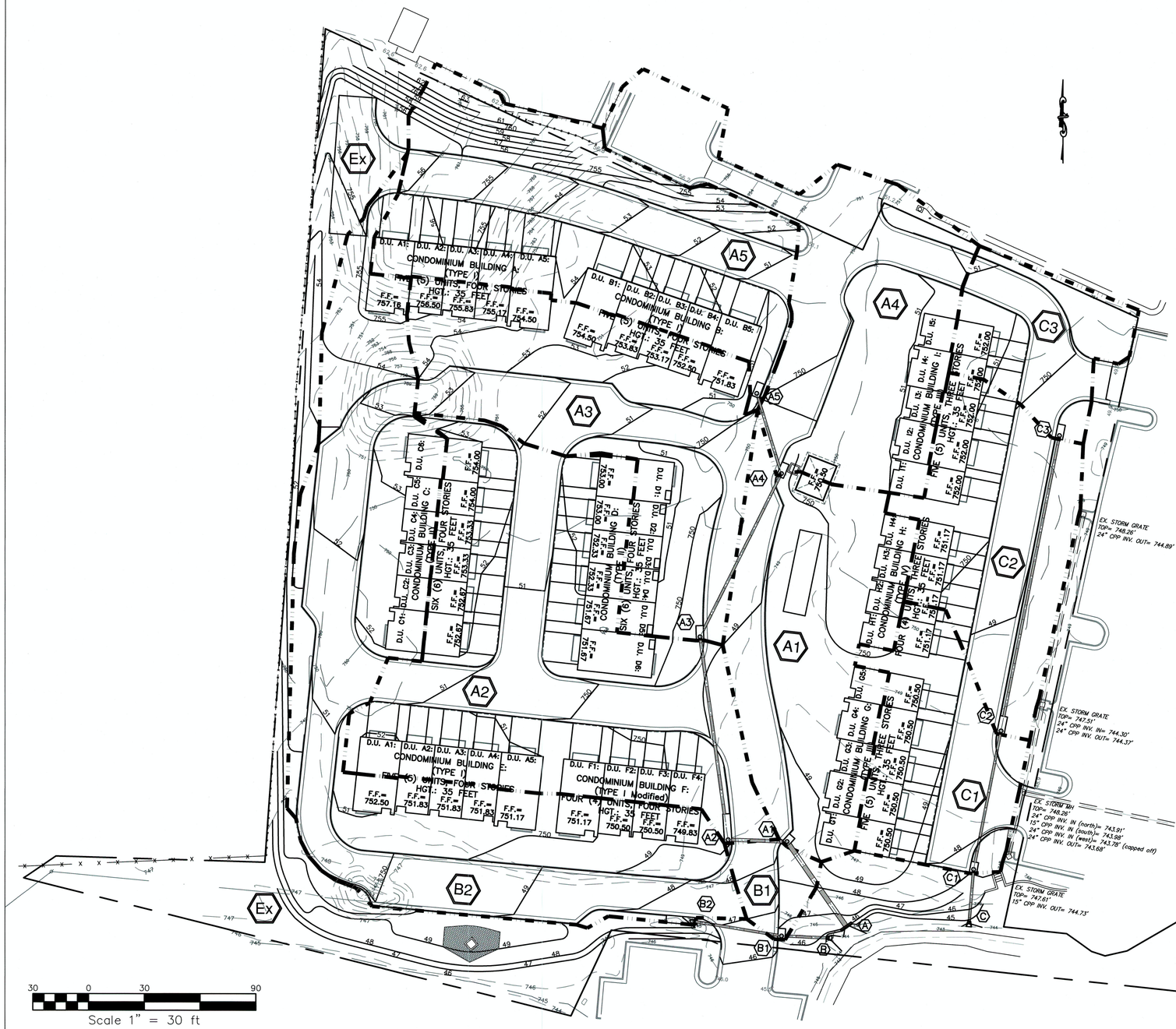
(C3) PR. DI-3B, L=8'
Top = 749.90
PR. 15"Ø INV. OUT=745.90

UTILITY LEGEND

	EX. WATER LINE
	PR. WATER LINE
	STORM SEWER LINE
	SANITARY SEWER LINE
	GAS LINE
	UNDERGROUND ELECTRIC LINE
	OVERHEAD ELECTRIC AND TELEPHONE LINE

NOTE: STORM WATER MANAGEMENT REQUIREMENTS

- THIS PROJECT SHALL BE CONSTRUCTED ON A SITE THAT WAS ORIGINALLY PROPOSED TO BE DEVELOPED AS A COMMERCIAL RETAIL COMPLEX. IT IS BEING CONSIDERED A REDEVELOPMENT SITE BECAUSE OF THE EXISTING SITE IMPROVEMENTS THAT ARE CURRENTLY IN PLACE AND THE PREVIOUS LEVEL OF DISTURBANCE THAT HAS OCCURRED OVER THE YEARS IN THIS AREA AND ON SITE.
- THE PARCEL IS LOCATED ADJACENT TO THE HOGE RUN FLOOD PLAIN WHICH CONTROLS 1.7 SQUARE MILES (1088 ACRES) OF TRIBUTARY AREA. THIS PARCEL IS 4.4449 ACRES WHICH IS 0.409% OF THE TOTAL WATERSHED.
- STORM WATER MANAGEMENT IS NOT REQUIRED BECAUSE THE POST-DEVELOPED FLOW EXCEEDS THE PRE-DEVELOPED CONDITION BY ONLY 0.82 CFS (SEE ABOVE) FOR THE 10 YEAR STORM WHICH SUBSTANTIALLY LESS THAN THE TRIBUTARY FLOW. ADDITIONALLY, THE TRIBUTARY AREA OF THIS SITE IS LESS THAN 1.0% OF THE TOTAL CONTRIBUTING WATERSHED, SO, BY LAW, NO STORM WATER MANAGEMENT IS REQUIRED.
- AN ADEQUATE CHANNEL CONSISTING OF A PROPOSED STORM SEWER SYSTEM, IN AND THROUGH THIS SITE, HAS BEEN DESIGNED TO CONTROL THE 2 YR AND 10 YR DESIGN STORM EVENTS. THIS SYSTEM SHALL CONTROL AND CONVEY THE STORM WATER TO THE EXISTING ADEQUATE CHANNEL LOCATED AT THE SOUTH OF THIS PARCEL WHICH IS THE HOGE RUN STREAM CHANNEL.
- THESE FACTORS AND THIS CRITERIA DO NOT REQUIRE THE INSTALLATION OF A STORM WATER MANAGEMENT SYSTEM; AND THEREFORE, NO MEASURES ARE PROPOSED FOR THIS DEVELOPMENT.
- THE STORM WATER QUALITY REQUIREMENTS SHALL BE SATISFIED BY THE PURCHASE OF THE REQUIRED NUMBER OF NUTRIENT CREDITS FROM A CERTIFIED NUTRIENT BANK.



30 0 30 90
Scale 1" = 30 ft

REVISIONS

NO.	DATE	DESCRIPTION	BY

TITLE: SITE DEVELOPMENT PLAN: SITE DRAINAGE DIVIDES PLAN

PROJECT: OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET:	11/20

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

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

Project Name:	OakCrest Builders: The Lofts at Creekside	CLEAR ALL	data input cells
Date:	9-Sep-19		constant values
Linear Development Project?	No		calculation cells
			final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 4.45

Maximum reduction required:	20%
The site's net increase in impervious cover (acres) is:	0
Post-Development TP Load Reduction for Site (lb/yr):	0.93

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

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land			0.00		0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed			1.57		1.57
Impervious Cover (acres)			2.88		2.88
					4.45

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land			0.00		0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed			1.86		1.86
Impervious Cover (acres)			2.59		2.59
Area Check	OK.	OK.	OK.	OK.	4.45

Constants

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

Runoff Coefficients (Rv)

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

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre		
Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	1.57	1.57
Weighted Rv(turf)	0.22	0.22
% Managed Turf	35%	35%
Impervious Cover (acres)	2.88	2.88
Rv(impervious)	0.95	0.95
% Impervious	65%	65%
Total Site Area (acres)	4.45	4.45
Site Rv	0.69	0.69

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.2564	0.2564
Pre-ReDevelopment Treatment Volume (cubic feet)	11,168	11,168
Pre-ReDevelopment TP Load (lb/yr)	7.02	7.02
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	1.58	1.58
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		1.82

1Adjusted 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 requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

LAND COVER SUMMARY --

Land Cover Summary-Post (Final)	
Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	1.86
Weighted Rv (turf)	0.22
% Managed Turf	42%
Impervious Cover (acres)	2.59
Rv(impervious)	0.95
% Impervious	58%
Final Site Area (acres)	4.45
Final Post Dev Site Rv	0.65

Land Cover Summary-Post	
Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	1.86
Weighted Rv (turf)	0.22
% Managed Turf	42%
ReDev. Impervious Cover (acres)	2.59
Rv(impervious)	0.95
% Impervious	58%
Total ReDev. Site Area (acres)	4.45
ReDev Site Rv	0.65

Land Cover Summary-Post	
Post-Development New Impervious	
New Impervious Cover (acres)	0.00
Rv(impervious)	--

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.2390
Final Post-Development Treatment Volume (cubic feet)	10,410
Final Post-Development TP Load (lb/yr)	6.54
Final Post-Development TP Load per acre (lb/acre/yr)	1.47

Post-ReDevelopment Treatment Volume (acre-ft)	0.2390
Post-ReDevelopment Treatment Volume (cubic feet)	10,410
Post-ReDevelopment Load (TP) (lb/yr)*	6.54
Post-ReDevelopment TP Load per acre (lb/acre/yr)	1.47
Max. Reduction Required (Below Pre-ReDevelopment Load)	20%
TP Load Reduction Required for Redeveloped Area (lb/yr)	0.93

Post-Development Treatment Volume (acre-ft)	--
Post-Development Treatment Volume (cubic feet)	--
Post-Development TP Load (lb/yr)	--
TP Load Reduction Required for New Impervious Area (lb/yr)	0

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	0.93

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	50.20	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	46.79

Drainage Area A

CLEAR BMP AREAS

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)			0.00		0.00	0.00
Managed Turf (acres)			1.86		1.86	0.22
Impervious Cover (acres)			2.59		2.59	0.95
				Total	4.45	

Total Phosphorus Available for Removal in D.A. A (lb/yr)	6.54
Post Development Treatment Volume in D.A. A (ft³)	10,410

Stormwater Best Management Practices (RR = Runoff Reduction) --Select from dropdown lists--

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (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
1. Vegetated Roof (RR)													
1.a. Vegetated Roof #1 (Spec #5)	45	▨		▨	0	0	0	0	▨	0.00	0.00	0.00	
1.b. Vegetated Roof #2 (Spec #5)	60	▨		▨	0	0	0	0	▨	0.00	0.00	0.00	
2. Rooftop Disconnection (RR)													
2.a. Simple Disconnection to A/B Soils (Spec #1)	50	▨		0	0	0	0	0	0.00	0.00	0.00	0.00	
2.b. Simple Disconnection to C/D Soils (Spec #1)	25	▨		0	0	0	0	0	0.00	0.00	0.00	0.00	
2.c. To Soil Amended Filter Path as per specifications (existing C/D soils) (Spec #4)	50	▨		0	0	0	0	0	0.00	0.00	0.00	0.00	
2.d. To Dry Well or French Drain #1, Micro-Infiltration #1 (Spec #8)	50	▨		0	0	0	0	25	0.00	0.00	0.00	0.00	
2.e. To Dry Well or French Drain #2, Micro-Infiltration #2 (Spec #8)	90	▨		0	0	0	0	25	0.00	0.00	0.00	0.00	
2.f. To Rain Garden #1, Micro-Bioretention #1 (Spec #9)	40	▨		0	0	0	0	25	0.00	0.00	0.00	0.00	
2.g. To Rain Garden #2, Micro-Bioretention #2 (Spec #9)	80	▨		0	0	0	0	50	0.00	0.00	0.00	0.00	
2.h. To Rainwater Harvesting (Spec #6)	0	▨		0	0	0	0	0	0.00	0.00	0.00	0.00	
2.i. To Stormwater Planter, Urban Bioretention (Spec #9, Appendix A)	40	▨		0	0	0	0	25	0.00	0.00	0.00	0.00	
3. Permeable Pavement (RR)													
3.a. Permeable Pavement #1 (Spec #7)	45	▨		0	0	0	0	25	0.00	0.00	0.00	0.00	
3.b. Permeable Pavement #2 (Spec #7)	75	▨		▨	0	0	0	25	▨	0.00	0.00	0.00	
4. Grass Channel (RR)													
4.a. Grass Channel A/B Soils (Spec #3)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.b. Grass Channel C/D Soils (Spec #3)	10			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.c. Grass Channel with Compost Amended Soils as per specs (see Spec #4)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
5. Dry Swale (RR)													
5.a. Dry Swale #1 (Spec #10)	40			0	0	0	0	20	0.00	0.00	0.00	0.00	
5.b. Dry Swale #2 (Spec #10)	60			0	0	0	0	40	0.00	0.00	0.00	0.00	
6. Bioretention (RR)													
6.a. Bioretention #1 or Micro-Bioretention #1 or Urban Bioretention (Spec #9)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
6.b. Bioretention #2 or Micro-Bioretention #2 (Spec #9)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
7. Infiltration (RR)													
7.a. Infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
7.b. Infiltration #2 (Spec #8)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	
8. Extended Detention Pond (RR)													
8.a. ED #1 (Spec #15)	0			0	0	0	0	15	0.00	0.00	0.00	0.00	
8.b. ED #2 (Spec #15)	15			0	0	0	0	15	0.00	0.00	0.00	0.00	
9. Sheetflow to Filter/Open Space (RR)													
9.a. Sheetflow to Conservation Area, A/B Soils (Spec #2)	75			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.b. Sheetflow to Conservation Area, C/D Soils (Spec #2)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.c. Sheetflow to Vegetated Filter Strip, A Soils or Compost Amended B/C/D Soils (Spec #2 & #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
10. Wet Swale (no RR)													
10.a. Wet Swale #1 (Spec #11)	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
10.b. Wet Swale #2 (Spec #11)	0			0	0	0	0	40	0.00	0.00	0.00	0.00	
11. Filtering Practices (no RR)													
11.a. Filtering Practice #1 (Spec #12)	0			0	0	0	0	60	0.00	0.00	0.00	0.00	
11.b. Filtering Practice #2 (Spec #12)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
12. Constructed Wetland (no RR)													
12.a. Constructed Wetland #1 (Spec #13)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
12.b. Constructed Wetland #2 (Spec #13)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13. Wet Ponds (no RR)													
13.a. Wet Pond #1 (Spec #14)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
13.b. Wet Pond #1 (Coastal Plain) (Spec #14)	0			0	0	0	0	45	0.00	0.00	0.00	0.00	
13.c. Wet Pond #2 (Spec #14)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13.d. Wet Pond #2 (Coastal Plain) (Spec #14)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device-Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
14.c. Manufactured Treatment Device-Generic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	

Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
1. Vegetated Roof (RR)				
0	▨	0.00	0.00	0.00
0	▨	0.00	0.00	0.00
2. Rooftop Disconnection (RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
3. Permeable Pavement (RR)				
25	0.00	0.00	0.00	0.00
25	▨	0.00	0.00	0.00
4. Grass Channel (RR)				
20	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
5. Dry Swale (RR)				
25	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00
6. Bioretention (RR)				
40	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
7. Infiltration (RR)				
15	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
8. Extended Detention Pond (RR)				
10	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00
9. Sheetflow to Filter/Open Space (RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
10. Wet Swale (Coastal Plain) (no RR)				
25	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00
11. Filtering Practices (no RR)				
30	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00
12. Constructed Wetland (no RR)				
25	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00
13. Wet Ponds (no RR)				
30	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
14. Manufactured BMP (no RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00

TOTAL IMPERVIOUS COVER TREATED (ac)	0.00	AREA CHECK:	OK.
TOTAL MANAGED TURF AREA TREATED (ac)	0.00	AREA CHECK:	OK.
TOTAL RUNOFF REDUCTION IN D.A. A (ft³)	0		
TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr)	6.54		
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.00		
TOTAL PHOSPHORUS REMAINING AFTER APPLYING RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	6.54		

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

TOTAL RUNOFF REDUCTION IN D.A. A (ft³)	0
NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.00

SEE WATER QUALITY COMPLIANCE TAB FOR SITE CALCULATIONS (Information Only)

TOTAL IMPERVIOUS COVER TREATED (ac)	0.00	AREA CHECK:	OK.
TOTAL MANAGED TURF AREA TREATED (ac)	0.00	AREA CHECK:	OK.
TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr)	0.93		
TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr)	6.54		
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.00		
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)	0.00		
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. A (lb/yr)	6.54		

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

2 of 3

REVISIONS			
NO.	DATE	DESCRIPTION	BY

TITLE: SITE DEVELOPMENT PLAN: STORM WATER QUALITY CALCULATION SPREADSHEETS

PROJECT: OAKCREST BUILDERS, INC. THE LOFTS AT CREEKSIDE CONDOMINIUM COMPLEX 3131 VALLEY AVENUE (ROUTE 11 SOUTH) WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
PROFESSIONAL ENGINEER
Timothy G. Painter
09/09/19

SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET: 12/20	

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)	2.59	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	0.00	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	1.86	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.00	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft^3): 10,410

Runoff Reduction Volume and TP By Drainage Area

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft^3)	0	0	0	0	0	0
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	6.54	0.00	0.00	0.00	0.00	6.54
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00
TP LOAD REMAINING (lb/yr)	6.54	0.00	0.00	0.00	0.00	6.54
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00

Total Phosphorus

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	6.54
TP LOAD REDUCTION REQUIRED (lb/yr)	0.93
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.00
TP LOAD REMAINING (lb/yr):	6.54
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.93

Total Nitrogen (For Information Purposes)

POST-DEVELOPMENT LOAD (lb/yr)	46.79
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	46.79

Virginia Runoff Reduction Method Worksheet

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

BMP Design Specifications List: **2013 Draft Stds & Specs**

Site Summary

Total Rainfall (in):	43
Total Disturbed Acreage:	4.45

Site Land Cover Summary

Pre-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	1.57	0.00	1.57	35
Impervious Cover (acres)	0.00	0.00	2.88	0.00	2.88	65
					4.45	100

Post-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	1.86	0.00	1.86	42
Impervious Cover (acres)	0.00	0.00	2.59	0.00	2.59	58
					4.45	100

Site Tv and Land Cover Nutrient Loads

	Final Post-Development (Post-ReDevelopment & New Impervious)	Post-ReDevelopment	Post-Development (New Impervious)	Adjusted Pre-ReDevelopment
Site Rv	0.65	0.65	--	0.69
Treatment Volume (ft^3)	10,410	10,410	--	11,168
TP Load (lb/yr)	6.54	6.54	--	7.02

Pre-ReDevelopment TP Load per acre (lb/acre/yr)	Final Post-Development TP Load per acre (lb/acre/yr)	Post-ReDevelopment TP Load per acre (lb/acre/yr)
1.58	1.47	1.47

Total TP Load Reduction Required (lb/yr)	0.93	0.93	0

	Final Post-Development Load (Post-ReDevelopment & New Impervious)	Pre-ReDevelopment
TN Load (lb/yr)	46.79	50.20

Site Compliance Summary

Maximum % Reduction Required Below Pre-ReDevelopment Load	10%

Total Runoff Volume Reduction (ft^3)	0
Total TP Load Reduction Achieved (lb/yr)	0.00
Total TN Load Reduction Achieved (lb/yr)	0.00
Remaining Post Development TP Load (lb/yr)	6.54
Remaining TP Load Reduction (lb/yr) Required	0.93

Drainage Area Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	1.86	0.00	0.00	0.00	0.00	1.86
Impervious Cover (acres)	2.59	0.00	0.00	0.00	0.00	2.59
Total Area (acres)	4.45	0.00	0.00	0.00	0.00	4.45

Drainage Area Compliance Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Reduced (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00
TN Load Reduced (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00

Drainage Area A Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	1.86	0.00	1.86	42
Impervious Cover (acres)	0.00	0.00	2.59	0.00	2.59	58
					4.45	

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft^3)	TP Load from Upstream Practices (lbs)	Untreated TP Load to Practice (lbs)	TP Removed (lb/yr)	TP Remaining (lb/yr)	Downstream Treatment to be Employed
6.a. Bioretention #1 or Micro-Bioretention #1 or Urban Bioretention (Spec #9)	0.39	4.11	14,484.79	0.00	9.09	5.00	4.09	

Total Impervious Cover Treated (acres)	0.00
Total Turf Area Treated (acres)	0.00
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.00
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00

NOTE: STORM WATER QUALITY REQUIREMENTS

- DUE TO THE SIZE OF THIS SITE, THE PROPOSED DENSITY, AND THE DEVELOPMENT OF THIS SITE IS A LESSER USE THAN WAS ORIGINALLY PROPOSED, NO ONSITE STORM WATER QUALITY MEASURES HAVE BEEN PROPOSED FOR THIS RESIDENTIAL DEVELOPMENT.
- THE STORM WATER QUALITY REQUIREMENTS FOR THIS REDEVELOPMENT SITE RESULTS IN A 0.93 LB/YR OF TP LOAD REDUCTION.
- TO MEET THIS REQUIREMENT, 0.93 LB/YR OF NUTRIENT CREDITS SHALL BE OBTAINED BY THE OWNER FROM A CERTIFIED NUTRIENT BANK.

REVISIONS

NO.	DATE	DESCRIPTION	BY

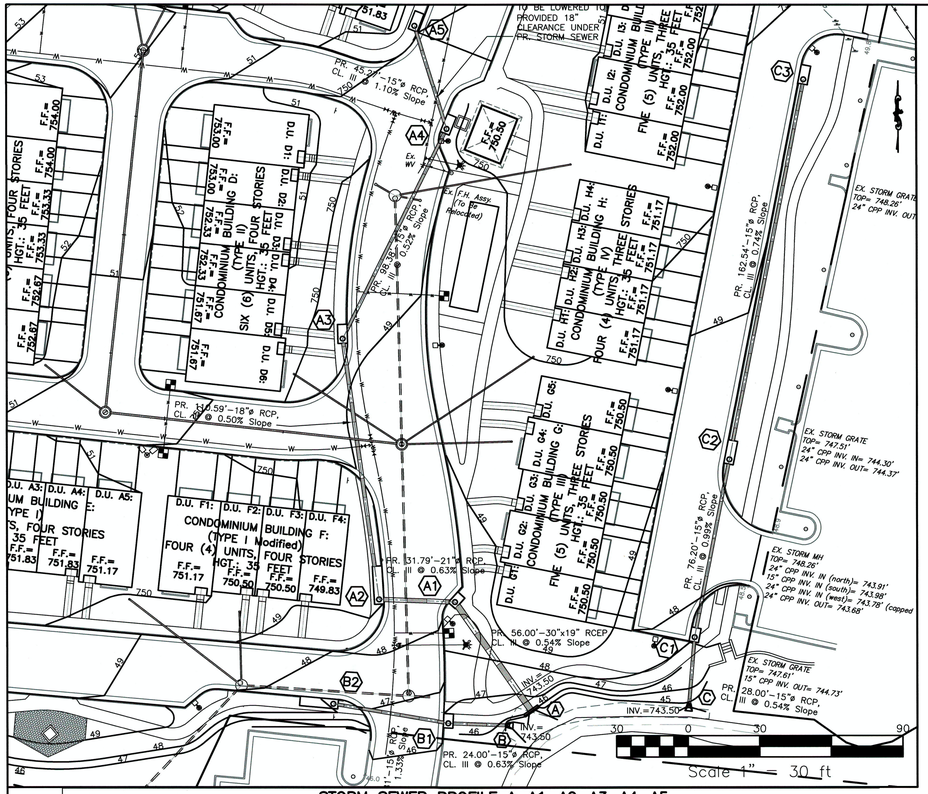
TITLE:
SITE DEVELOPMENT PLAN:
STORM WATER QUALITY
CALCULATION SUMMARY
SPREADSHEETS

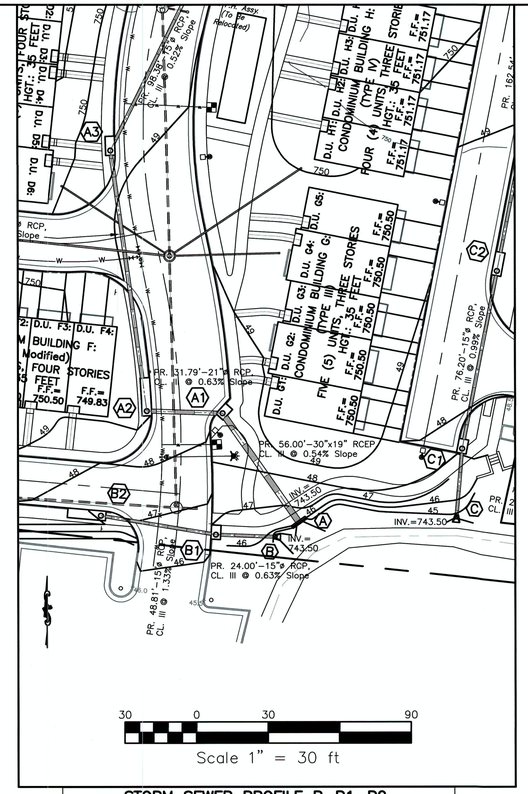
PROJECT:
OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

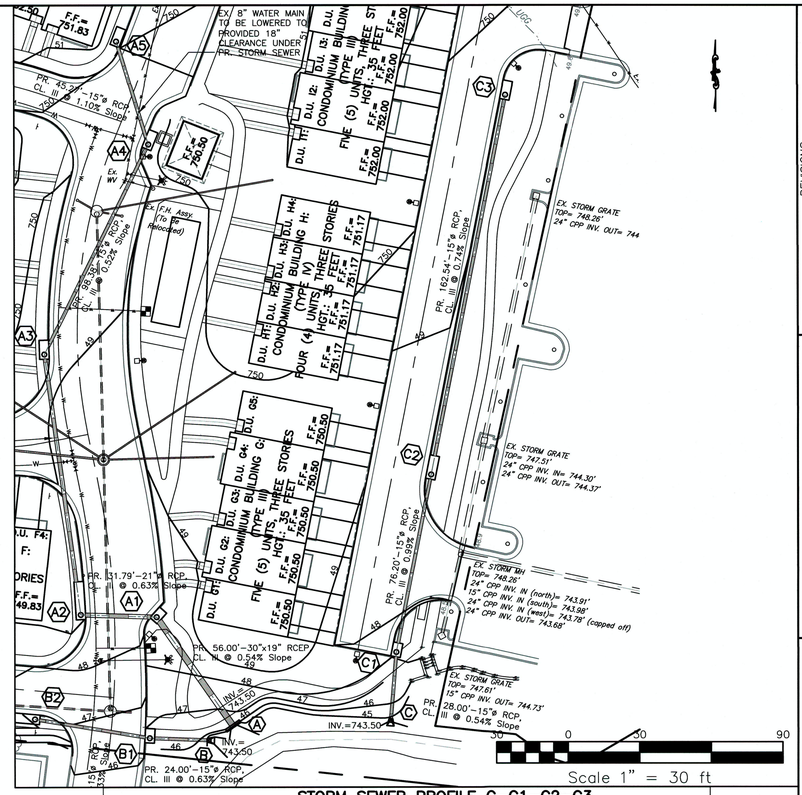
PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

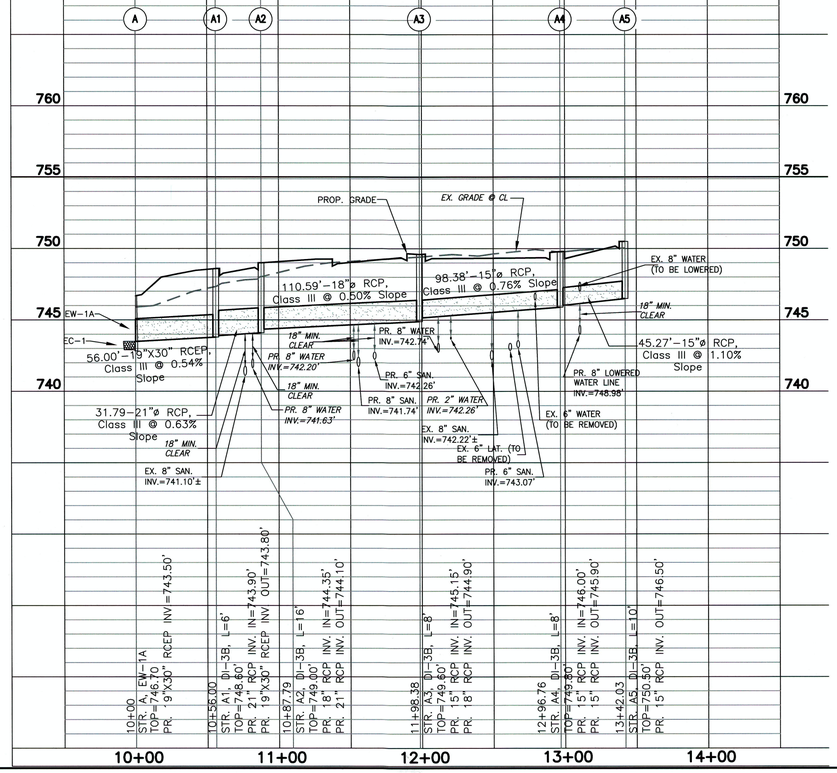
SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET:	13/20



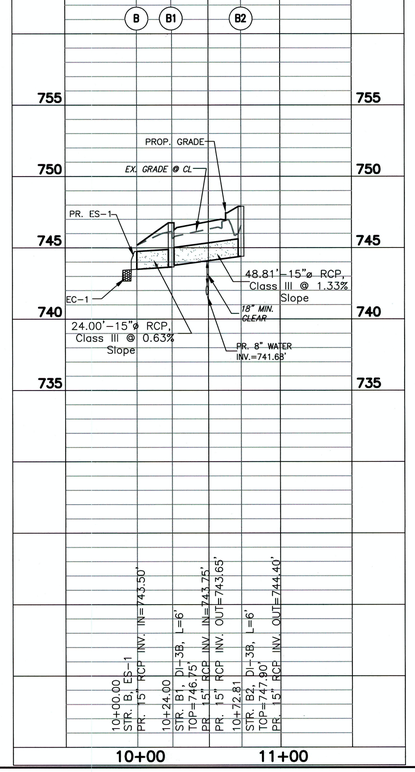




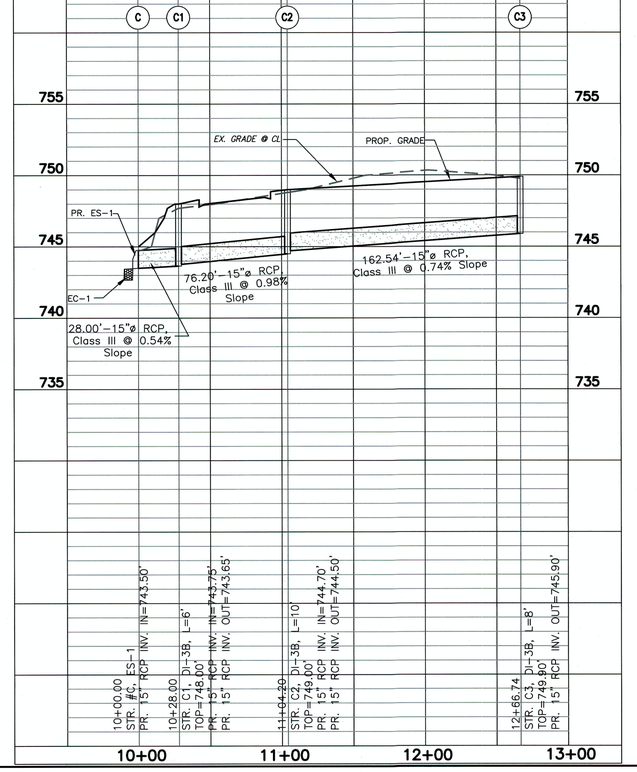
STORM SEWER PROFILE A–A1–A2–A3–A4–A5



STORM SEWER PROFILE B–B1–B2



STORM SEWER PROFILE C–C1–C2–C3



REVISIONS			
NO.	DATE	DESCRIPTION	BY

TITLE:
SITE DEVELOPMENT PLANS:
STORM SEWER PROFILES:
LINE A–A5
LINE B–B2
LINE C–C3

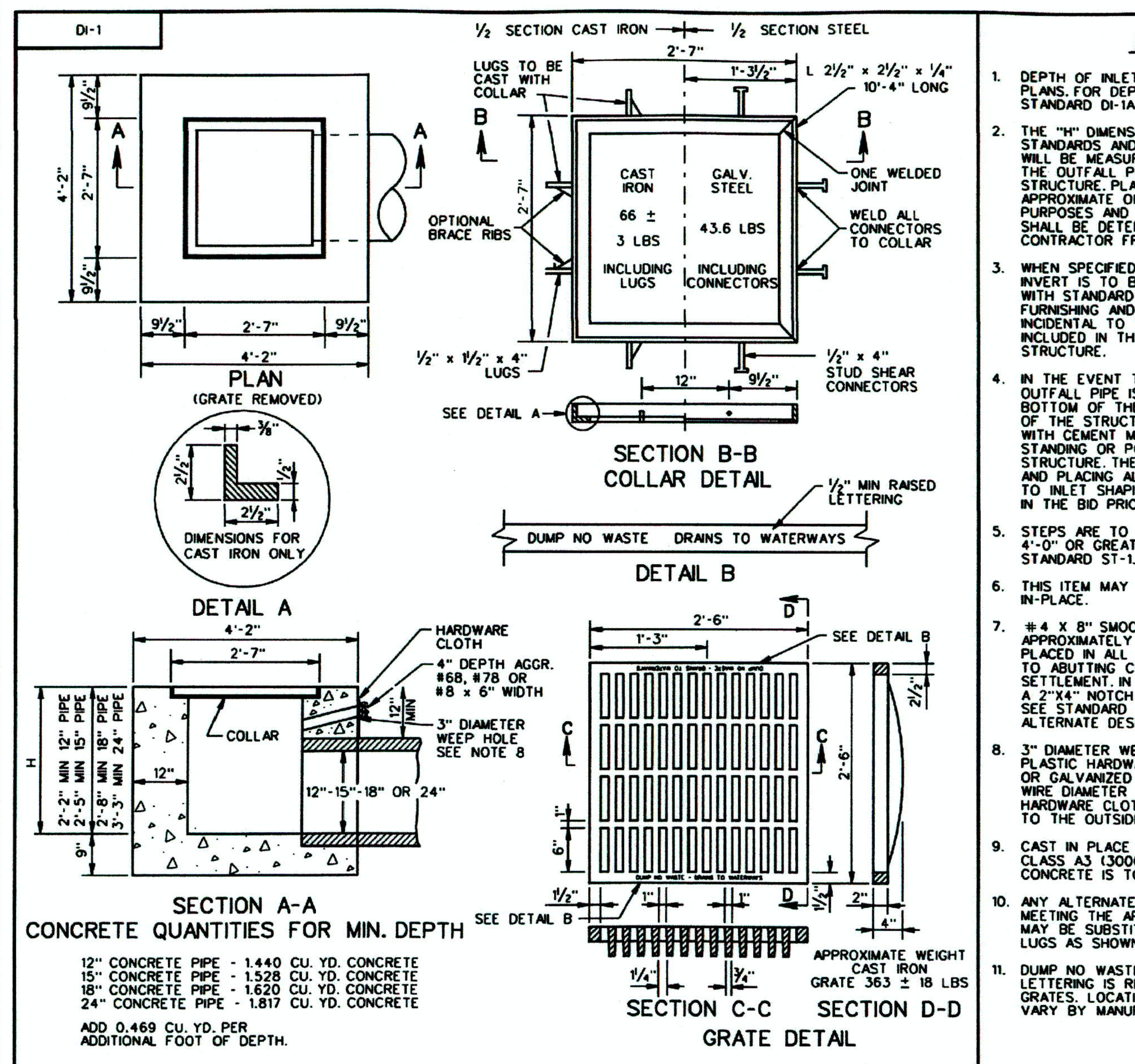
PROJECT:
OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
PROFESSIONAL ENGINEER
Timothy G. Painter
10/1/19

SURVEY: P–L PLC	C.I.: 1"
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09–09–19
SHEET:	14/20

DI-1



CONCRETE QUANTITIES FOR MIN. DEPTH

12" CONCRETE PIPE - 1.440 CU. YD. CONCRETE
15" CONCRETE PIPE - 1.528 CU. YD. CONCRETE
18" CONCRETE PIPE - 1.620 CU. YD. CONCRETE
24" CONCRETE PIPE - 1.817 CU. YD. CONCRETE

ADD 0.469 CU. YD. PER ADDITIONAL FOOT OF DEPTH.

NOTES

1. DEPTH OF INLET (H) TO BE SHOWN ON PLANS. FOR DEPTH GREATER THAN 10' USE STANDARD DI-1A
2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.
3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO INLET SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
6. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
7. #4 X 8" SMOOTH DOWELS AT APPROXIMATELY 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT SETTLEMENT. IN LIEU OF DOWELS A 2"X4" NOTCH MAY BE PROVIDED. SEE STANDARD T-DI-3, 4 FOR ALTERNATE DESIGN.
8. 3" DIAMETER WEEP HOLE WITH 12"X12" PLASTIC HARDWARE CLOTH ¼" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIAMETER 0.03", NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.
9. CAST IN PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE IS TO BE 4000 PSI.
10. ANY ALTERNATE METHODS OF ANCHORAGE MEETING THE APPROVAL OF THE ENGINEER MAY BE SUBSTITUTED FOR THE CAST IRON LUGS AS SHOWN HEREON.
11. DUMP NO WASTE DRAINS TO WATERWAY LETTERING IS REQUIRED ON ALL DI-1 GRATES. LOCATION OF LETTERING MAY VARY BY MANUFACTURER.

VDOT ROAD AND BRIDGE STANDARDS | SHEET 1 OF 1 | REVISION DATE | 104.01

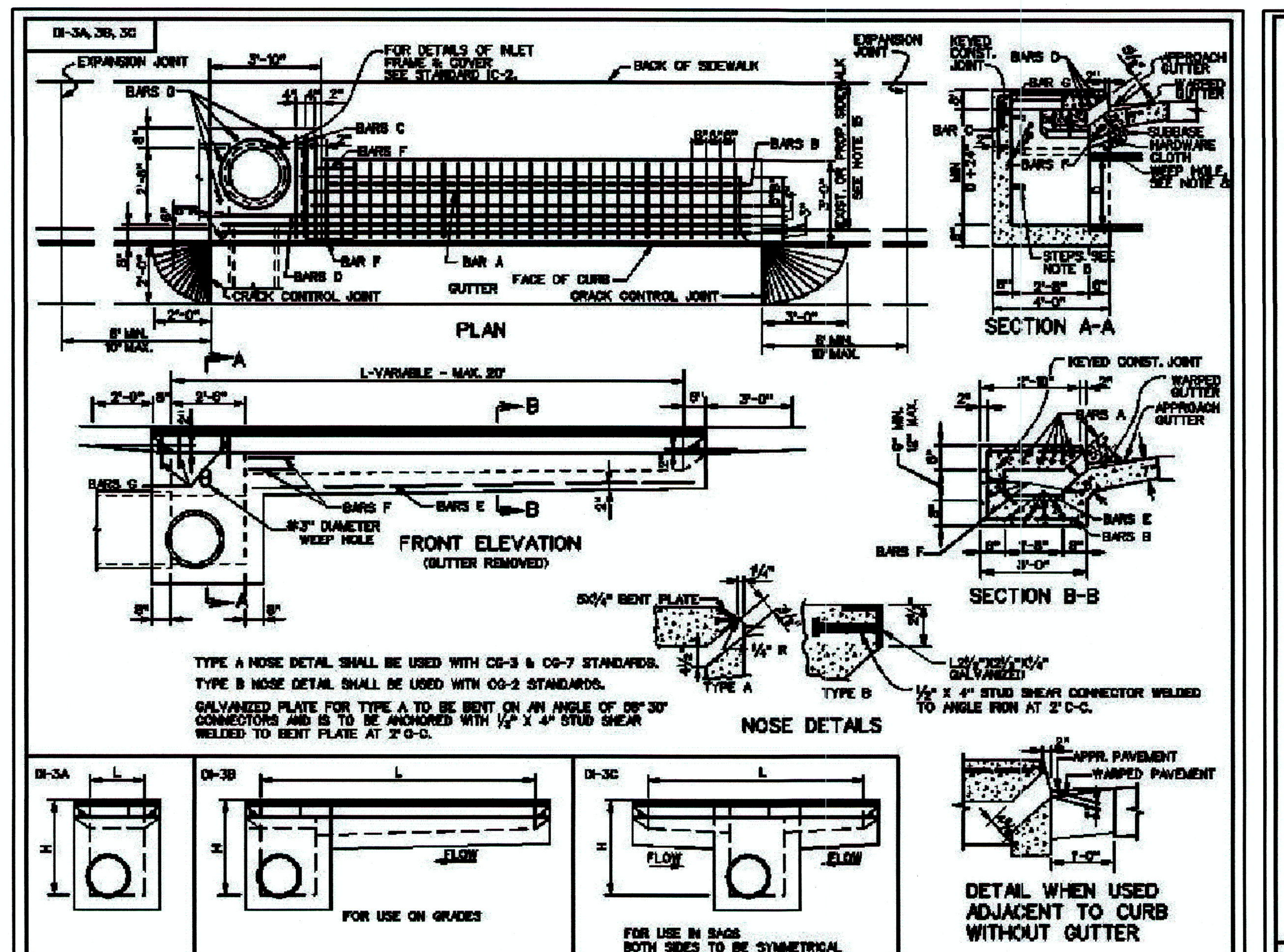
STANDARD DROP INLET

12" - 24" PIPE: MAXIMUM DEPTH (H) - 10'

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE 233 302

DI-3A, 3B, 3C



VDOT ROAD AND BRIDGE STANDARDS | SHEET 1 OF 2 | REVISION DATE | 104.09

STANDARD CURB DROP INLET

12" - 30" PIPE: MAXIMUM DEPTH (H) - 8'

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE 233 302

TABLE OF QUANTITIES

DI-3A, 3B, 3C

TYPE	L	AREA OF SLOT	Concrete	BARS A		BARS B		BARS C		BARS D		BARS E		BARS F		BARS G		WEIGHT
	Ft.	Sq. Ft.	Cu. Yds.	No.	Lin. Ft. #	No.	Lin. Ft. #	No.	Lin. Ft. #	No.	Lin. Ft. #	No.	Lin. Ft. #	No.	Lin. Ft. #	No.	Lin. Ft. #	Lbs.
DI-3A	2'-8"	1.10	2.28	-	-	-	-	1	5'-7"	3	3'-2"	-	-	-	-	6	1'-0"	22
DI-3B	4'	1.83	2.59	5	1'-6"	2	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	1'-6"	3	1'-6"	4	1'-0"	64
	6'	2.75	3.02	5	3'-6"	6	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	3'-6"	3	1'-6"	4	1'-0"	111
	8'	3.67	3.46	5	5'-6"	10	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	5'-6"	3	1'-6"	4	1'-0"	158
	10'	4.58	3.90	5	7'-6"	14	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	7'-6"	3	1'-6"	4	1'-0"	204
	12'	5.50	4.34	5	9'-6"	18	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	9'-6"	3	1'-6"	4	1'-0"	251
	14'	6.42	4.78	5	11'-6"	22	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	11'-6"	3	1'-6"	4	1'-0"	298
	16'	7.33	5.22	5	13'-6"	26	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	13'-6"	3	1'-6"	4	1'-0"	345
	18'	8.25	5.66	5	15'-6"	30	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	15'-6"	3	1'-6"	4	1'-0"	391
	20'	9.17	6.09	5	17'-6"	34	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	17'-6"	3	1'-6"	4	1'-0"	438
DI-3C	6'	2.75	3.01	10	1'-6"	4	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	1'-6"	6	1'-6"	2	1'-0"	111
	8'	3.67	3.45	10	2'-9"	8	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	2'-9"	6	1'-6"	2	1'-0"	158
	10'	4.58	3.89	10	3'-9"	12	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	3'-9"	6	1'-6"	2	1'-0"	205
	12'	5.50	4.33	10	4'-9"	16	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	4'-9"	6	1'-6"	2	1'-0"	252
	14'	6.42	4.77	10	5'-9"	20	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	5'-9"	6	1'-6"	2	1'-0"	298
	16'	7.33	5.21	10	6'-9"	24	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	6'-9"	6	1'-6"	2	1'-0"	345
	18'	8.25	5.65	10	7'-9"	28	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	7'-9"	6	1'-6"	2	1'-0"	392
	20'	9.17	6.09	10	8'-9"	32	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	8'-9"	6	1'-6"	2	1'-0"	439

NOTES

1. DEPTH OF INLET (H) TO BE SHOWN ON PLANS.
2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.
3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
6. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
7. #4 X 8" SMOOTH DOWELS AT APPROXIMATELY 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT SETTLEMENT.
8. 3" DIAMETER WEEP HOLE TO BE LOCATED TO DRAIN SUBBASE MATERIAL. WEEP HOLE WITH 12"X12" PLASTIC HARDWARE CLOTH ¼" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIAMETER 0.03", NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.
9. ALL REINFORCING STEEL SHALL HAVE A MIN. COVER OF 2".
10. ALL REINFORCING STEEL TO BE CUT CLEAR OF ALL OPENINGS BY 2".
11. CAST-IN PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE IS TO BE 4000 PSI.
12. LENGTH OF SLOT (L) WILL, IN EVERY CASE, BE SHOWN ON PLANS.
13. IF INLET IS CONSTRUCTED IN MEDIAN CURB OR WITH INTEGRAL CURB, GUTTER IS TO BE OMITTED (SEE DETAIL).
14. STANDARD INLETS MAY BE CONSTRUCTED WITH CONCRETE BLOCKS IN ACCORDANCE WITH THE DETAILS SHOWN ON STANDARD DRAWING DI-MB.
15. THIS AREA MAY BE EARTHEN, IN WHICH CASE THE EXPANSION JOINTS WILL APPLY ONLY TO CURB AND GUTTER.
16. CONCRETE QUANTITIES SHOWN ARE FOR DEPTH (H) OF 5'-2" WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES. FOR INLETS OF DIFFERENT DEPTHS ADD OR SUBTRACT 0.32 CUBIC YARDS OF CONCRETE FOR EACH FOOT OF DEPTH.
17. LENGTH OF ANGLE IRON AS SHOWN ON SHEET 1 OF 2 IS TO BE L+16" AT 4.10 LBS./FT.
18. # DENOTES LENGTH OF ONE (1) BAR.
19. ALL REINFORCING BARS TO BE #5.
20. WHEN INLET IS USED IN 4'-0" MEDIAN, BACK OF INLET IS TO BE SHAPED TO CONFORM TO PROPOSED CURB.

SPECIFICATION REFERENCE 233 302

STANDARD CURB DROP INLET

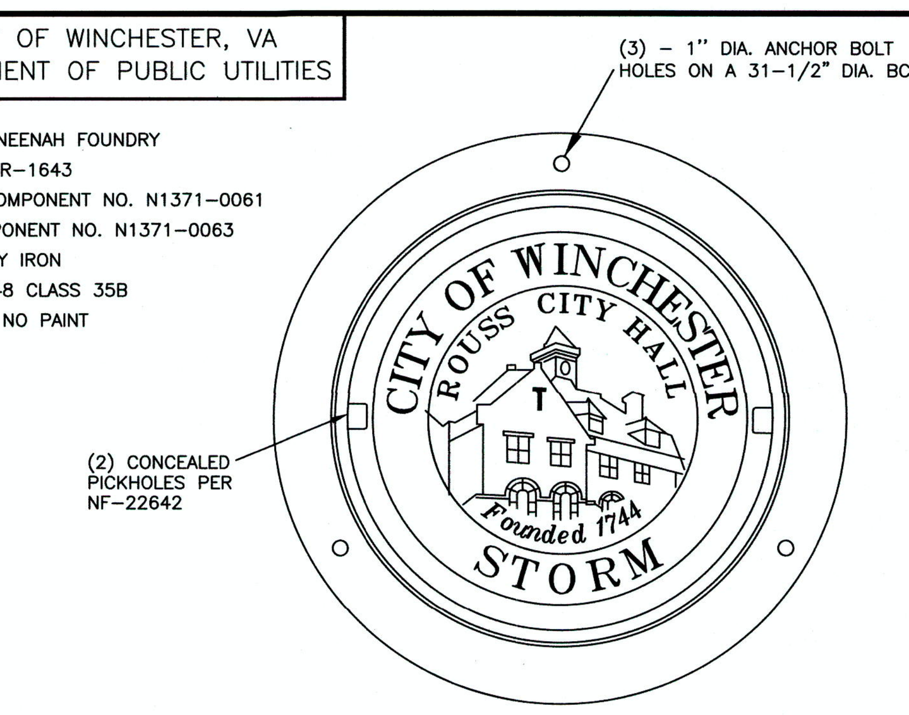
12" - 30" PIPE: MAXIMUM DEPTH (H) - 8'

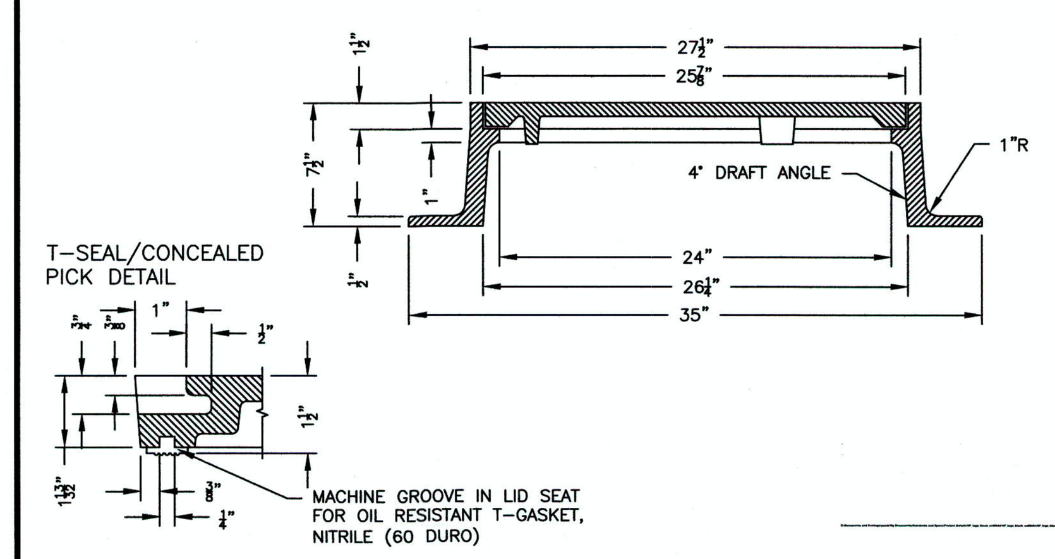
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS | REVISION DATE | SHEET 2 OF 2 | 104.10

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

MFG. BY NEENAH FOUNDRY
CAT. NO. R-1643
FRAME: COMPONENT NO. N1371-0061
LID: COMPONENT NO. N1371-0063
CAST GRAY IRON
ASTM A-48 CLASS 35B
FINISH – NO PAINT

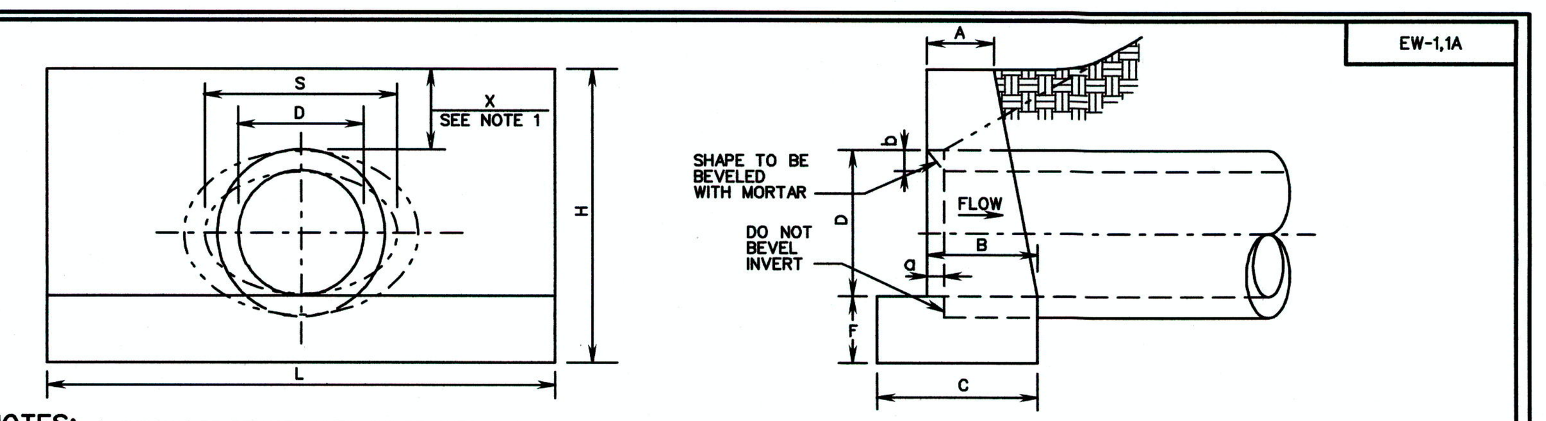




STANDARD DETAIL NO. SD-3 | 28" STORM MANHOLE LID AND FRAME | DATE: 10/2017

SCALE: NONE

EW-1,1A



NOTES:
1. "H" MAY BE REDUCED UNTIL "X" REACHES A MINIMUM OF 4" WHERE ENDWALL WOULD PROTRUDE ABOVE SHOULDER LINE. IN NO CASE SHALL TOP OF ENDWALL PROJECT ABOVE FILL SLOPE, DITCH SLOPE, OR SHOULDER.
2. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
3. ALL CAST IN PLACE CONCRETE TO BE CLASS A3. FOR PRECAST SEE SHEET 101.02.
4. THIS STANDARD TO BE USED WITH STRAIGHT CROSSINGS AND ALL SKEWS(0° TO 45°).
5. HEADWALL TO BE BEVELED IN ALL AREAS EXCEPT WHERE A CONFLICT WITH INVERT OR WINGWALLS OCCUR
6. BEVEL EDGE IS REQUIRED ON THE HEADWALL AT THE INLET END OF THE CULVERT (WHERE THE FLOW ENTERS THE CULVERT).
7. HEADWALL AT THE OUTLET END OF THE CULVERT MAY BE EITHER SQUARE EDGE OR BEVEL EDGE.
8. ON SHALLOW FILLS, WHERE ENDWALLS ARE 1'OR LESS BELOW SHOULDER LINE, THE TOP OF THE ENDWALL SHALL BE CONSTRUCTED PARALLEL TO THE GRADE OF THE ROAD.
9. ¾" CHAMFER MAY BE PROVIDED ON ALL EDGES AT MANUFACTURER'S OPTION.

EW-1

ENDWALL FOR CIRCULAR PIPE

	DIAMETER OF PIPE CULVERT					
	12"	15"	18"	21" OR 24"	27" OR 30"	33" OR 36"
A	0'-6"	0'-8"	0'-9"	0'-11"	1'-0"	1'-0"
B	0'-11"	1'-1"	1'-3"	1'-6"	1'-9"	2'-0"
C	1'-4"	1'-7"	1'-9"	2'-2"	2'-6"	2'-9"
D	1'-0"	1'-3"	1'-6"	2'-0"	2'-6"	3'-0"
F	0'-6"	0'-8"	0'-8"	0'-9"	0'-9"	0'-9"
H	2'-3"	2'-11"	3'-2"	3'-9"	4'-3"	4'-9"
L	4'-0"	5'-0"	6'-0"	8'-0"	10'-0"	12'-0"
a	0'-1¼"	0'-1¾"	0'-2"	0'-2½"	0'-3¼"	0'-3¾"
b	0'-1"	0'-1¼"	0'-1½"	0'-2"	0'-2½"	0'-3"
	CUBIC YARDS OF CONCRETE					
CONC. PIPE	0.241	0.492	0.697	1.319	2.067	2.947
C.M. PIPE	0.257	0.521	0.739	1.398	2.198	3.145

EW-1A

ENDWALL FOR ELLIPTICAL PIPE

	SIZE OF ELLIPTICAL PIPE CULVERT (SPAN x RISE)							
	23"x14"	30"x19"	34"x22"	38"x24"	42"x27"	45"x29"	49"x32"	53"x34"
A	0'-8"	0'-9"	0'-10"	0'-11"	0'-11"	1'-0"	1'-0"	1'-0"
B	1'-2"	1'-5"	1'-6"	1'-8"	1'-9"	1'-10"	1'-11"	1'-11"
C	1'-8"	1'-11"	2'-1"	2'-4"	2'-5"	2'-7"	2'-8"	2'-9"
D	1'-2"	1'-7"	1'-10"	2'-0"	2'-3"	2'-5"	2'-8"	2'-10"
F	0'-8"	0'-8"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"
H	2'-10"	3'-3"	3'-7"	3'-9"	4'-0"	4'-2"	4'-5"	4'-7"
L	5'-5"	7'-2"	8'-6"	9'-2"	10'-2"	10'-11"	12'-1"	12'-11"
S	1'-11"	2'-6"	2'-10"	3'-2"	3'-6"	3'-9"	4'-1"	4'-5"
a	0'-2½"	0'-3¼"	0'-3½"	0'-4"	0'-4½"	0'-4¾"	0'-5"	0'-5½"
b	0'-2"	0'-2½"	0'-2¾"	0'-3"	0'-3½"	0'-3¾"	0'-4"	0'-4½"
	CUBIC YARDS OF CONCRETE							
CONC.PIPE	0.502	0.855	1.236	1.500	1.811	2.101	2.512	2.801

SPECIFICATION REFERENCE 105 302

STANDARD ENDWALL FOR PIPE CULVERTS

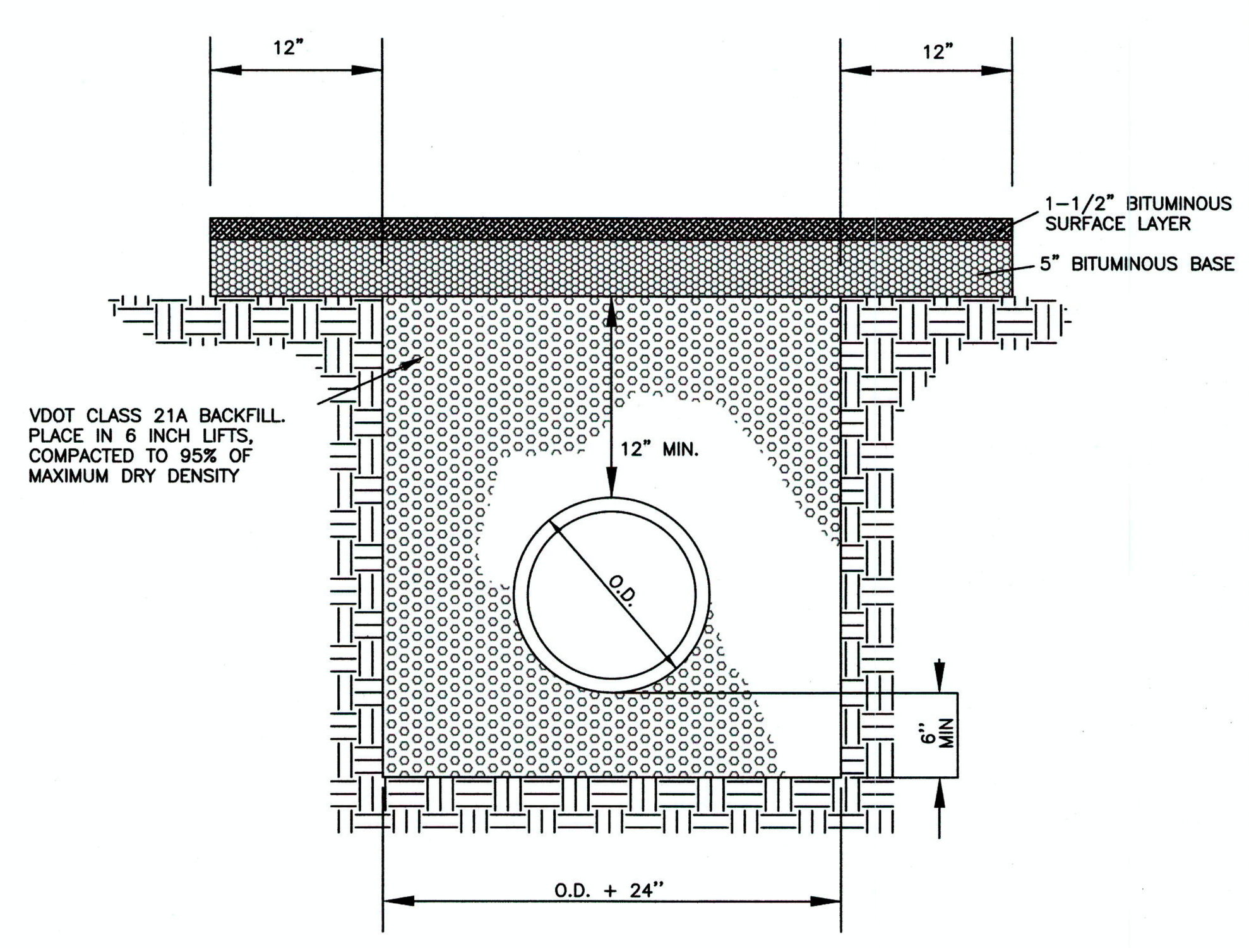
12" - 36" CIRCULAR AND 23" x 14" - 53" x 34" ELLIPTICAL PIPES

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS | REVISION DATE | SHEET 1 OF 1 | 101.01

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

* WHERE THE TRENCH BOTTOM IS ROCK, IT SHALL BE EXCAVATED TO A MINIMUM OF 8" BELOW THE BOTTOM OF THE PIPE AND BACKFILLED WITH BEDDING MATERIAL FREE OF ROOTS, DEBRIS & STONES
* WHERE SUBGRADE IS UNSTABLE, PIPE SHALL BE BEDDED ON A MINIMUM OF 8" BEDDING MATERIAL

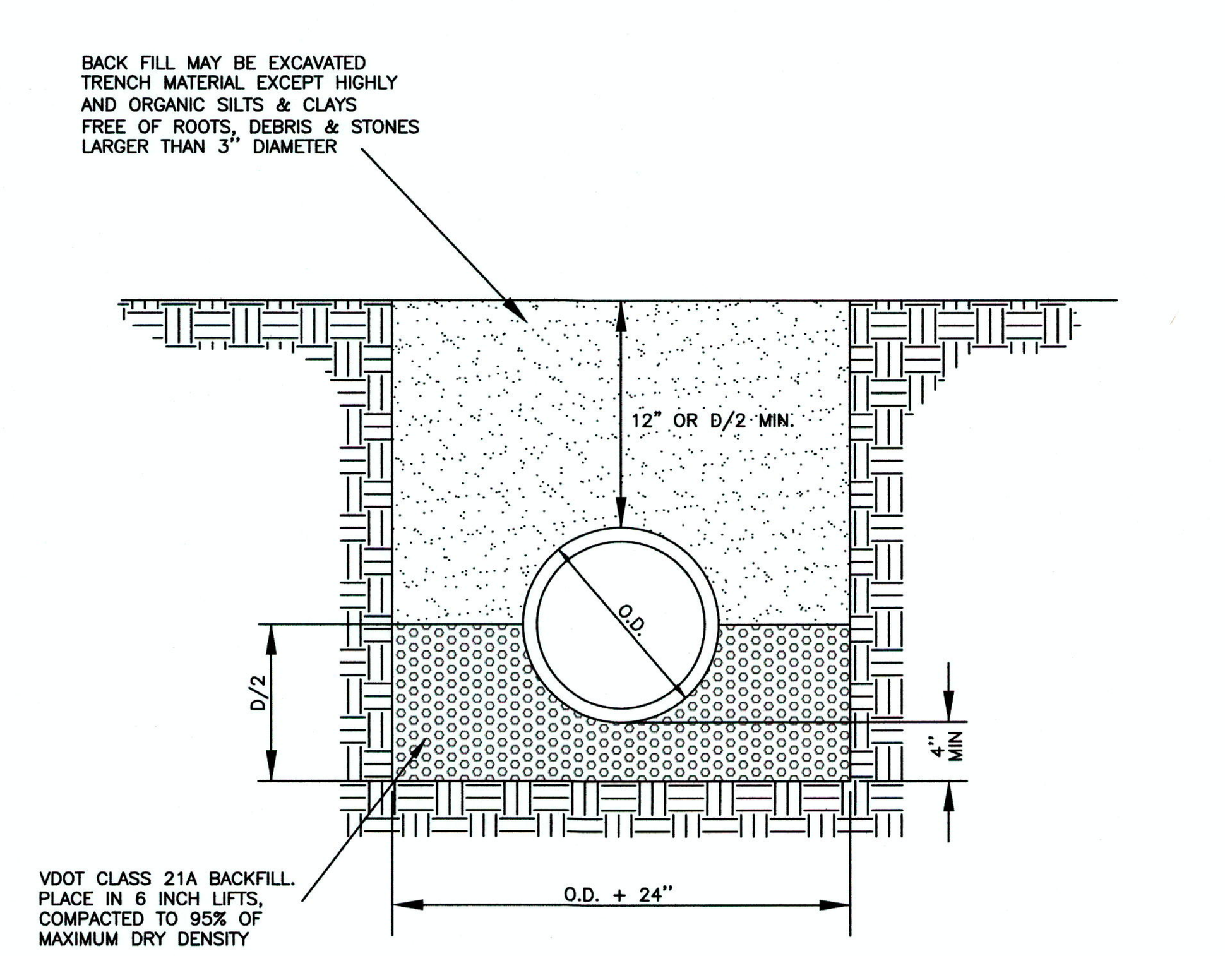


STANDARD DETAIL NO. SD – 1 | CONCRETE STORM DRAIN BEDDING WITHIN TRAFFIC AREAS (RCP) | DATE: 10/2017

SCALE: NONE

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

* WHERE THE TRENCH BOTTOM IS ROCK, IT SHALL BE EXCAVATED TO A MINIMUM OF 8" BELOW THE BOTTOM OF THE PIPE AND BACKFILLED WITH BEDDING MATERIAL FREE OF ROOTS, DEBRIS & STONES
* WHERE SUBGRADE IS UNSTABLE, PIPE SHALL BE BEDDED ON A MINIMUM OF 8" BEDDING MATERIAL

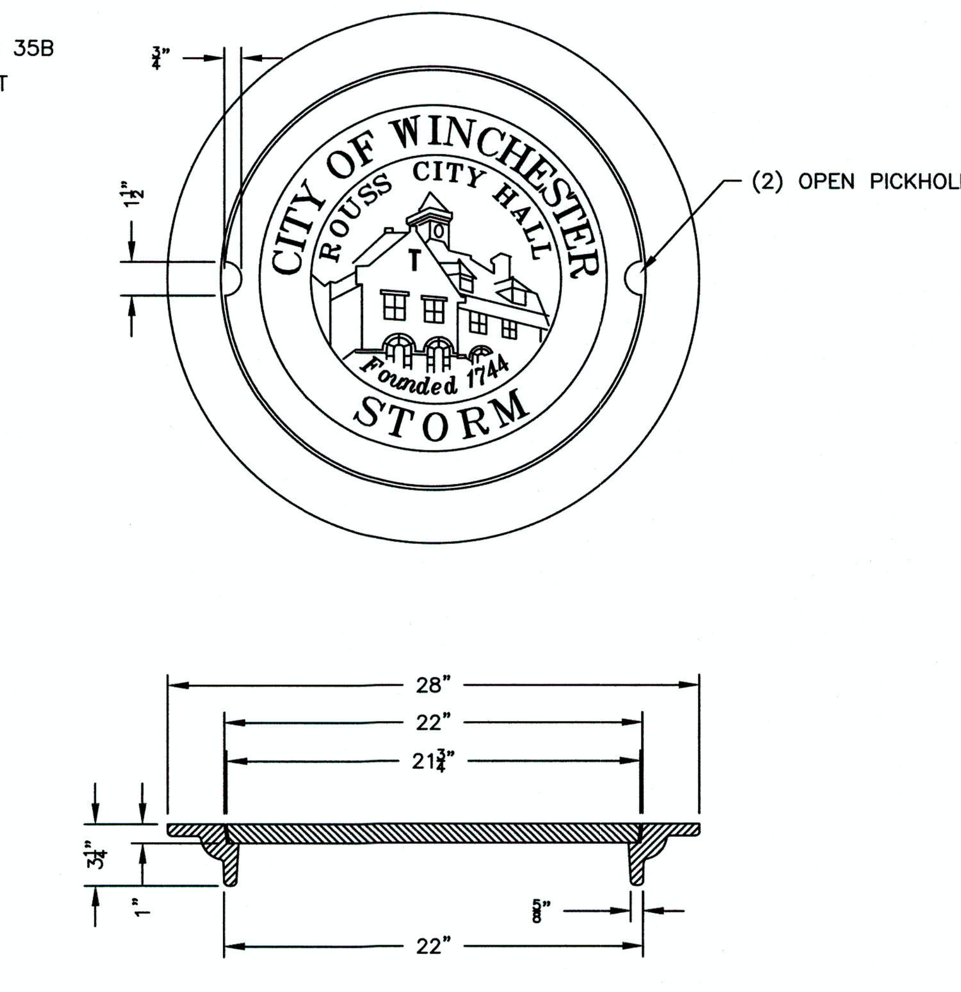


STANDARD DETAIL NO. SD – 2a | STORM DRAIN BEDDING OUTSIDE TRAFFIC AREAS (RCP) | DATE: 10/2017

SCALE: NONE

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

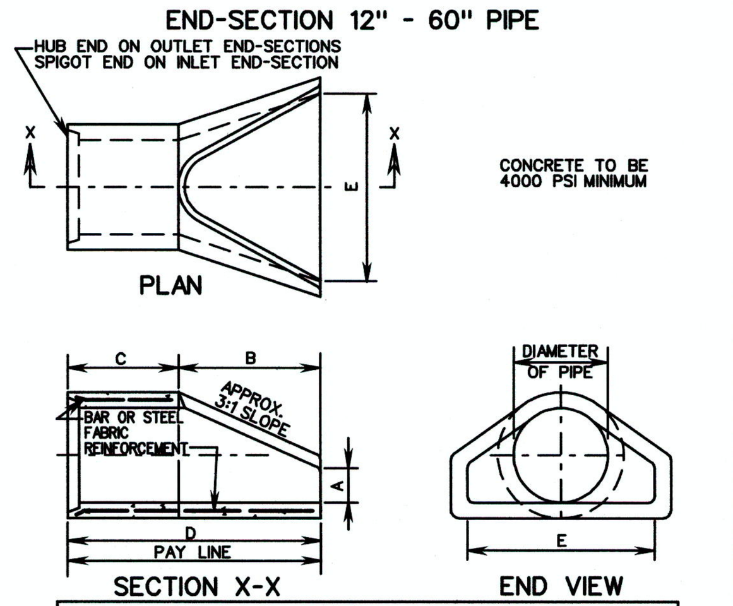
MFG. BY NEENAH FOUNDRY
CAT. NO. R-1643
FRAME: COMPONENT NO. NXXXX-XXXX
LID: COMPONENT NO. NXXXX-XXXX
CAST GRAY IRON
ASTM A-48 CLASS 35B
FINISH – NO PAINT



STANDARD DETAIL NO. SD-6 | 22" DI-3 LID AND FRAME | DATE: 10/2017

SCALE: NONE

END-SECTION 12" - 60" PIPE

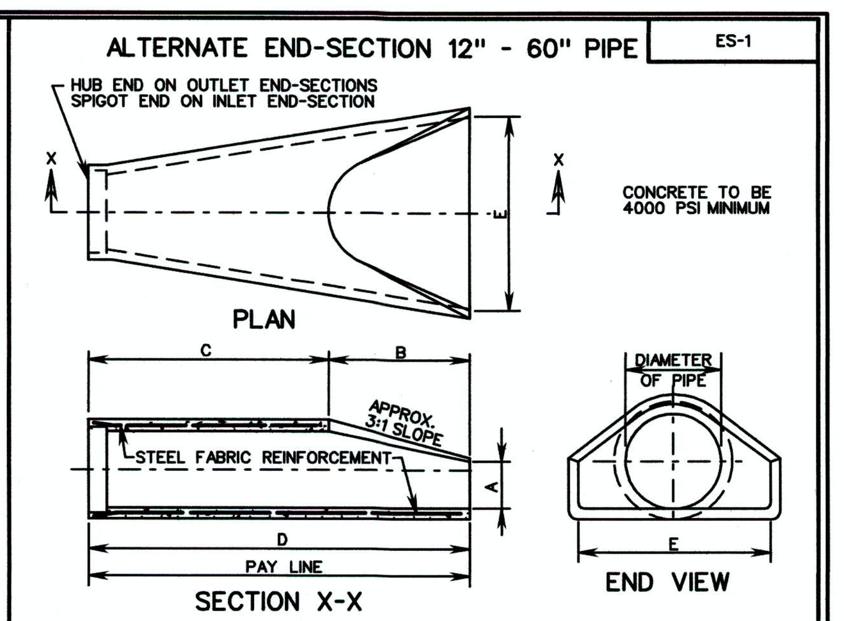


END SECTION DIMENSIONS

PIPE DIAMETER	A	B	C	D	E
12"	4"	2'-0"	2'-0"	4'-0"	2'-0"
15"	6"	2'-3"	1'-9"	4'-0"	2'-6"
18"	9"	2'-3"	1'-9"	4'-0"	3'-0"
21"	9¼"	2'-11"	2'-1"	5'-0"	3'-6"
24"	9½"	3'-7"	2'-6"	6'-1"	4'-0"
27"	10¾"	4'-0"	2'-1"	6'-1"	4'-6"
30"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"
33"	1'-1½"	4'-10½"	2'-3¼"	7'-1¾"	5'-6"
36"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"
42"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"
48"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"
54"	2'-3"	5'-5"	2'-9¼"	8'-2¼"	7'-6"
60"	2'-11"	5'-0"	3'-3"	8'-3"	8'-0"

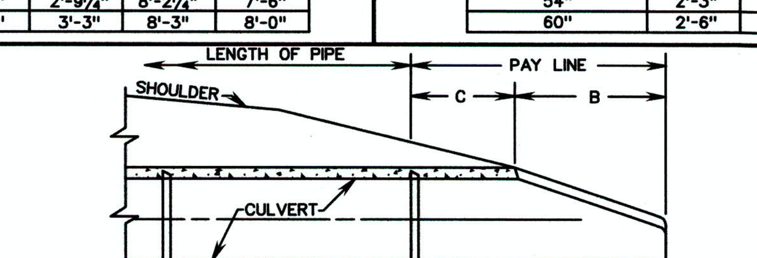
ALTERNATE END-SECTION 12" - 60" PIPE

ES-1



END SECTION DIMENSIONS

PIPE DIAMETER	A	B	C	D	E
12"	4"	2'-0"	4'-1"	6'-1"	2'-0"
15"	6"	2'-3"	3'-10"	6'-1"	2'-6"
18"	9"	2'-3"	3'-10"	6'-1"	3'-0"
21"	9"	2'-11"	3'-2"	6'-1"	3'-6"
24"	10"	3'-7"	2'-8"	6'-3"	4'-0"
27"	10½"	4'-0"	2'-1½"	6'-1½"	4'-6"
30"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"
33"	1'-1½"	4'-10½"	3'-3¼"	8'-1¾"	5'-6"
36"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"
42"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"
48"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"
54"	2'-3"	5'-5"	2'-11"	8'-4"	7'-6"
60"	2'-6"	5'-0"	3'-3"	8'-3"	8'-0"



SLOPE DETAIL

NOTES:
PIPE LENGTHS SHOWN ON PLANS ARE BASED ON END-SECTION DESIGN SHOWN ON THE LEFT. IF THE CONTRACTOR ELECTS TO USE THE ALTERNATE DESIGN SHOWN ON THE RIGHT, LENGTHS WILL BE REDUCED BY THE DIFFERENCE IN DIMENSION "D".

SPECIFICATION REFERENCE 302

FLARED END SECTION

12" - 60" CONCRETE PIPE CULVERTS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS | REVISION DATE | SHEET 1 OF 1 | 102.01

REVISIONS			
NO.	DATE	DESCRIPTION	BY

TITLE: SITE DEVELOPMENT PLAN: STORM SEWER SYSTEM DETAILS

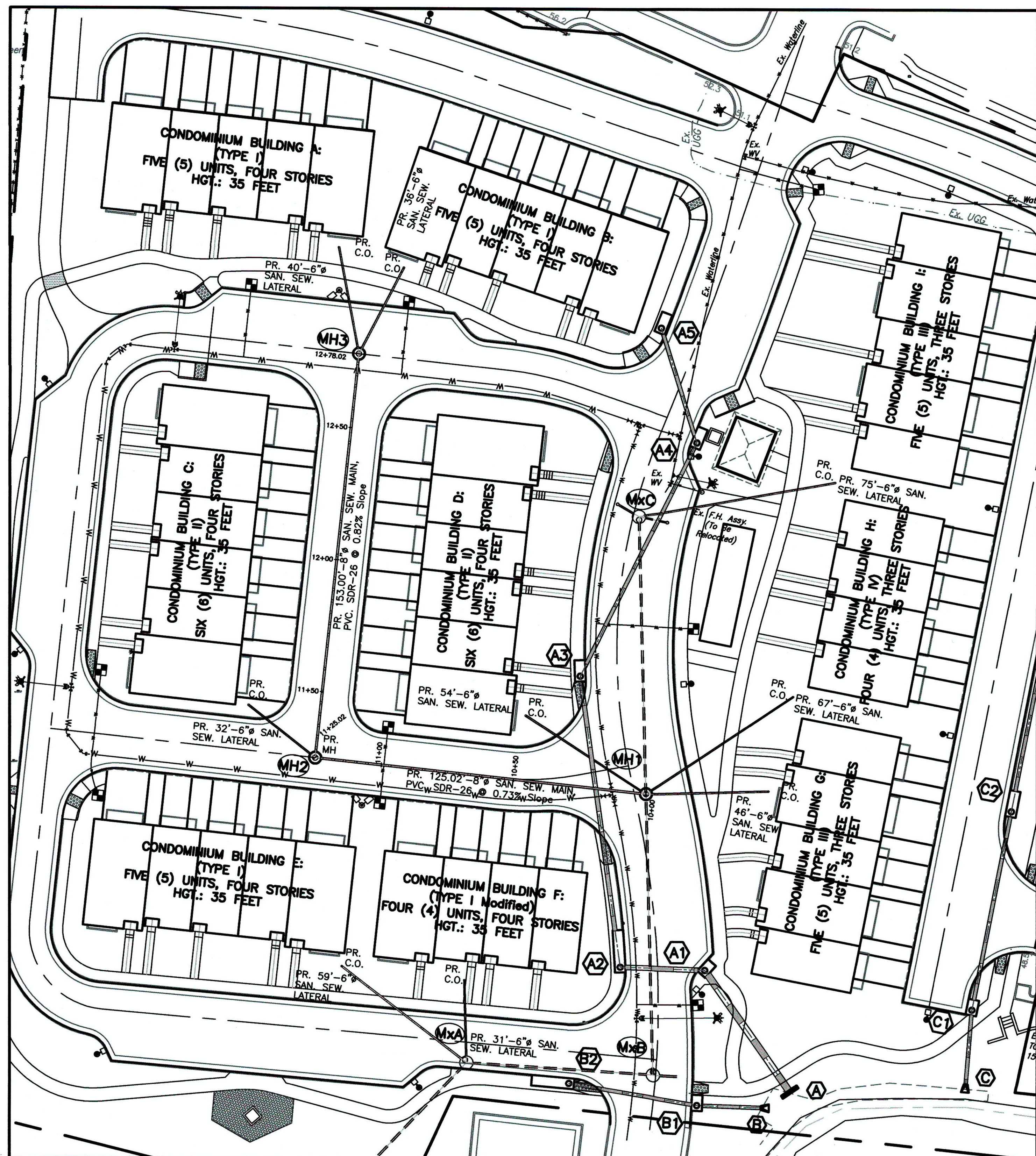
PROJECT: OAKCREST BUILDERS, INC. THE LOFTS AT CREEKSIDE CONDOMINIUM COMPLEX 3131 VALLEY AVENUE (ROUTE 11 SOUTH) WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER
Timothy G. Painter

SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19

SHEET: 15/20



40 0 40 120

Scale 1" = 40 ft

MxA EX. SAN. MH
TOP= 746.40'
8" PVC INV. IN = 740.46'
8" PVC INV. OUT = 740.41'
PR. 6"ø LATERAL IN= 740.63'
PR. 6"ø LATERAL IN= 740.63'

MxB EX. SAN. MH
TOP= 746.44'
8" PVC INV. IN (north)= 740.82'
8" PVC INV. IN (west)= 739.88'
8" PVC INV. OUT = 739.87'

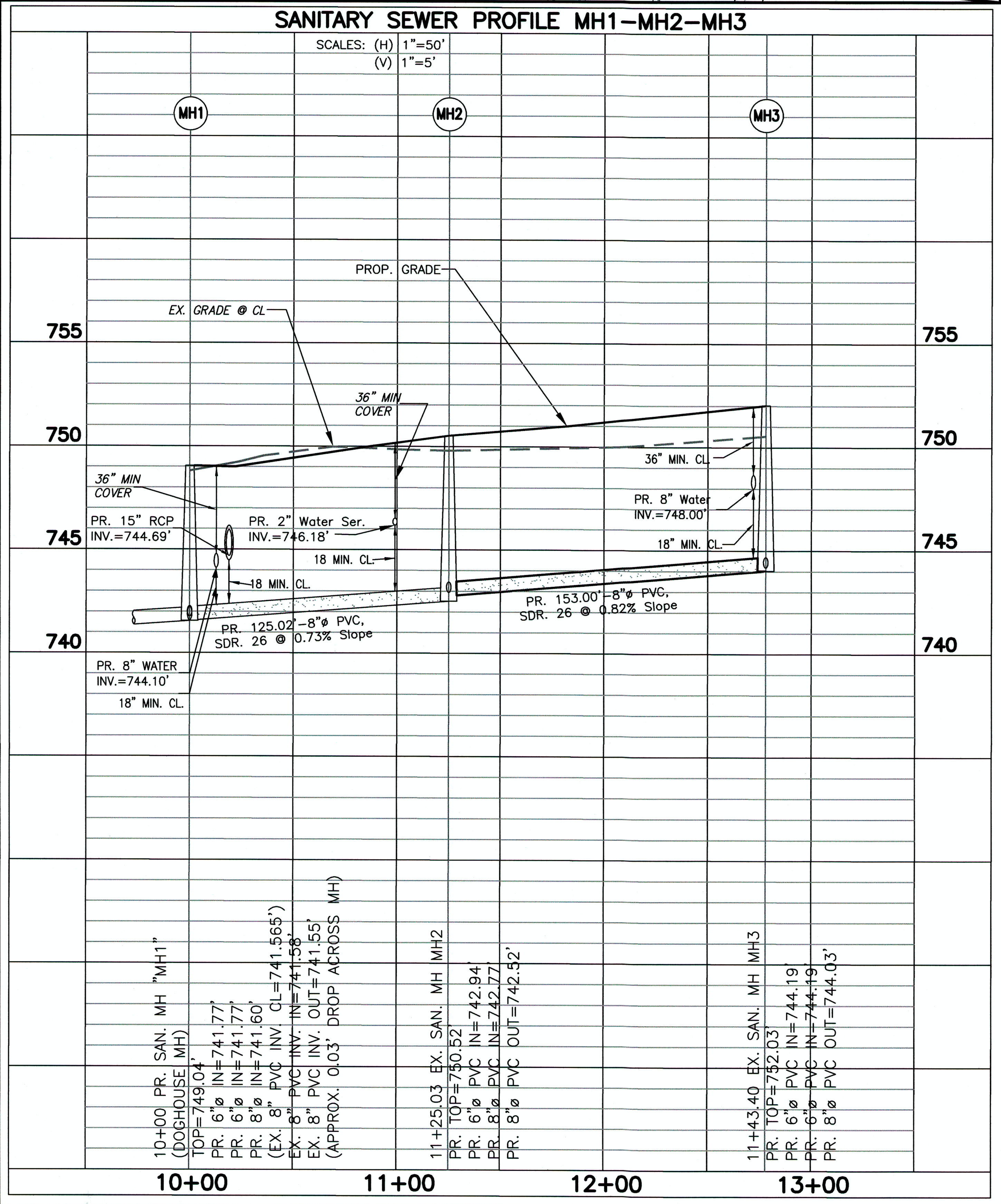
MH1 PR. SAN. MH (DOGHOUSE MH)
TOP= 749.04'
PR. 6" PVC INV. IN = 741.77'
PR. 6" PVC INV. IN = 741.77'
PR. 8" PVC INV. IN = 741.60'
(EX. 8" PVC INV. CL = 741.565')
EX. 8" PVC INV. IN = 741.58'
EX. 8" PVC INV. OUT= 741.55'
(APPROX. 0.03' DROP ACROSS MH)

MH2 PR. SAN. MH
TOP= 750.52'
PR. 6" PVC INV. IN = 742.94'
PR. 8" PVC INV. IN = 742.77'
PR. 8" PVC INV. OUT= 742.52'

MH3 PR. SAN. MH
TOP= 752.03'
PR. 6" PVC INV. IN = 744.19'
PR. 6" PVC INV. IN = 744.19'
PR. 8" PVC INV. OUT= 744.03'

MxC Ex. SAN. MH
TOP= 750.04'
6" PVC INV. IN (east)= 742.74'
6" PVC INV. IN (west)= 742.90'
8" PVC INV. OUT= 742.30'

SANITARY SEWER PROFILE MH1–MH2–MH3



SANITARY SEWER LATERAL TABLE

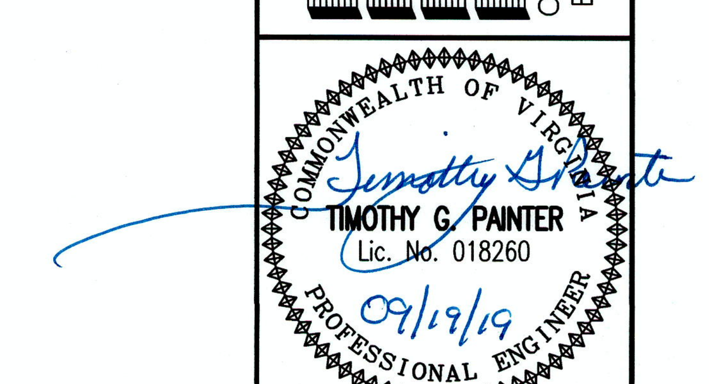
BLDG	STATION	SLOPE	LATERAL LENGTH	INVERT @ CONN.	INVERT @ END
A	12+78.02 (MH 3)	2.08%	40.00'	744.19	745.02'
B	12+78.02 (MH 3)	2.08%	36.00'	744.19	744.94'
C	11+25.02 (MH 2)	2.08%	32.00'	742.94	743.61
D	10+00.00 (MH 1)	2.08%	54.00'	741.77'	742.90'
E	EX. MH (MxA)	2.08%	59.00	740.63'	741.81'
F	EX. MH (MxA)	2.08%	31.00'	740.63'	741.28'
G	10+00.00 (MH 1)	2.08%	46.00'	741.77'	742.73'
H	10+00.00 (MH 1)	2.08%	67.00'	741.77'	743.17'
I	EX. MH (MxC)	2.08%	75.00'	742.90'	744.46'

REVISIONS		
NO.	DATE	DESCRIPTION	BY

TITLE:
SITE DEVELOPMENT PLANS:
SANITARY SEWER MAIN
PLAN and PROFILE

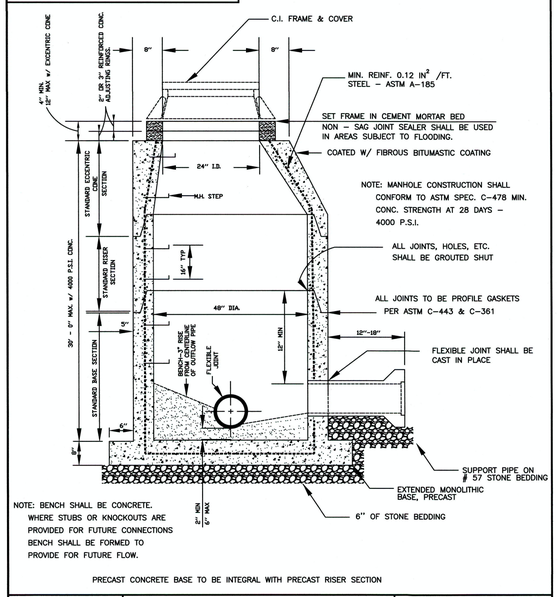
PROJECT:
OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS



SURVEY: P-L PLC | C.I.: 1'
DRAWN BY: TGP | JOB NO.: 1802043
SCALE: 1"=40.0' | DATE: 09-09-19
SHEET: 16/20

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES



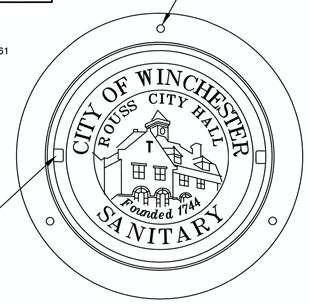
NOTE: BENCH SHALL BE CONCRETE. WHERE STUBS OR KNOCKOUTS ARE PROVIDED FOR FUTURE CONNECTIONS BENCH SHALL BE FORMED TO PROVIDE FOR FUTURE FLOW.

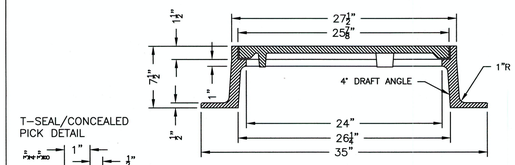
PRECAST CONCRETE BASE TO BE INTEGRAL WITH PRECAST RISER SECTION

STANDARD DETAIL NO. SS–1	STANDARD PRECAST CONCRETE MANHOLE SEWER 8" TO 24" SCALE: NONE	DATE: 10/2017

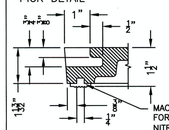
CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

MFG. BY NEENAH FOUNDRY
CAT. NO. R–1643
FRAME: COMPONENT NO. N1371–0061
LID: COMPONENT NO. N1371–0062
CAST GRAY IRON
ASTM A–48 CLASS 35B
FINISH – NO PAINT



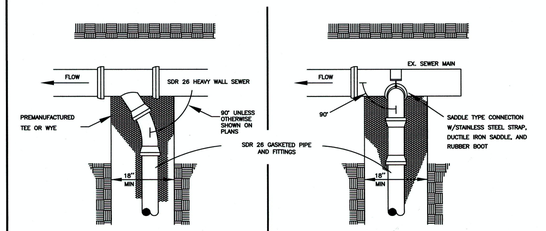


T–SEAL/CONCEALED PICK DETAIL

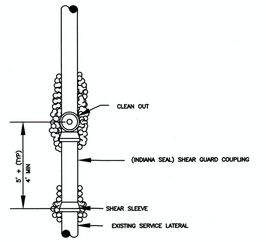


STANDARD DETAIL NO. SS–6	28" SANITARY MANHOLE LID AND FRAME SCALE: NONE	DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

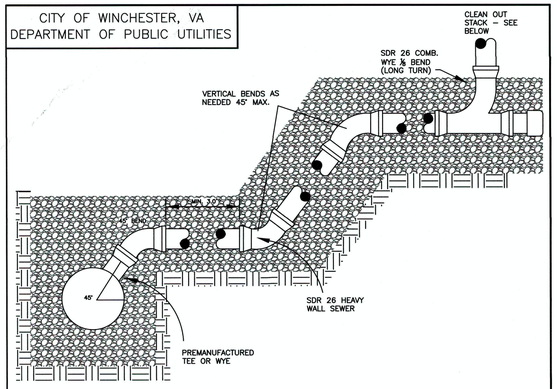


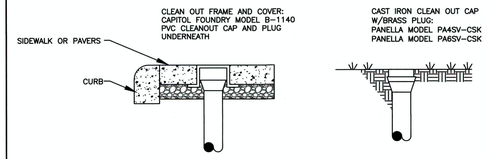
* SEWER SERVICE CONNECTION PER SPECIFICATIONS
* STANDARD GRANULAR BEDDING THROUGHOUT



STANDARD DETAIL NO. SS– 4	STANDARD SANITARY LATERAL CONNECTION SCALE: NONE	DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

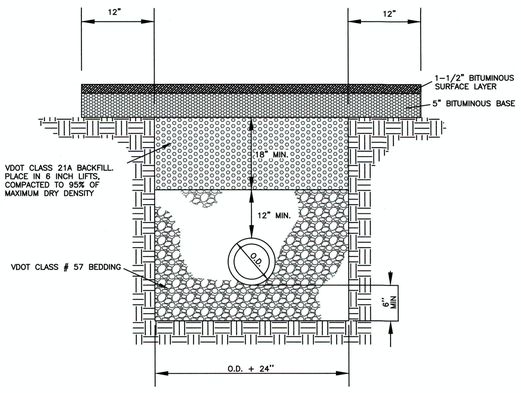




STANDARD DETAIL NO. SS–5	STANDARD SANITARY LATERAL CONNECTION SCALE: NONE	DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

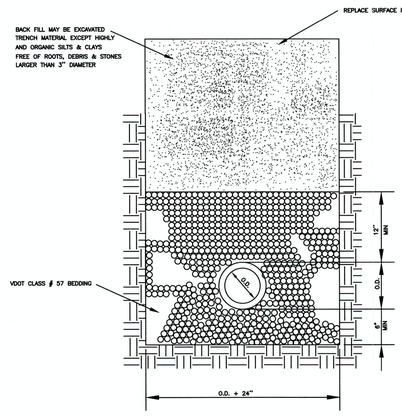
* WHERE THE TRENCH BOTTOM IS ROCK, IT SHALL BE EXCAVATED TO A MINIMUM OF 8" BELOW THE BOTTOM OF THE PIPE AND BACKFILLED WITH BEDDING MATERIAL FREE OF ROOTS, DEBRIS & STONES
* WHERE SUBGRADE IS UNSTABLE, PIPE SHALL BE BEDDED ON A MINIMUM OF 8" BEDDING MATERIAL



STANDARD DETAIL NO. WS – 2	STANDARD BEDDING DETAIL WITHIN TRAFFIC AREAS (PVC OR DIP) SCALE: NONE	DATE: 10/2017

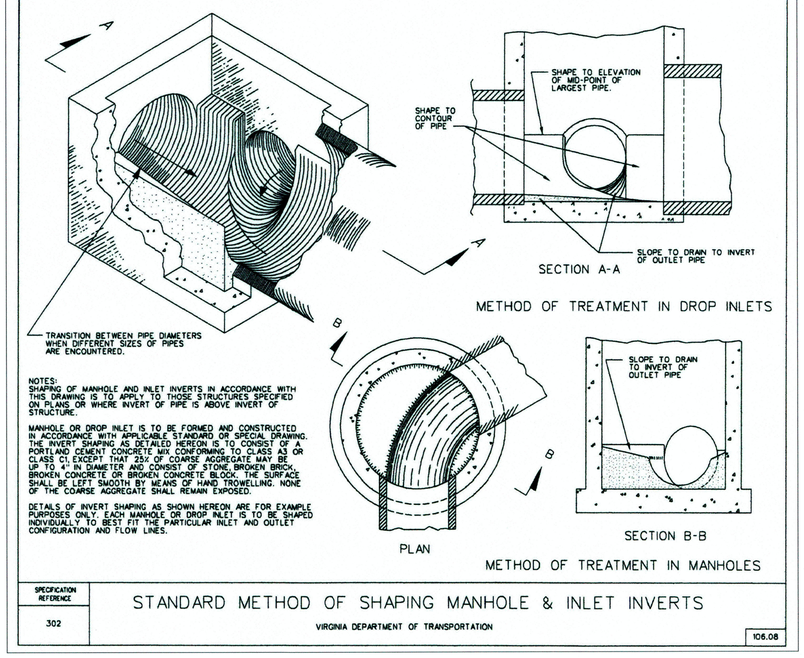
CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

* WHERE THE TRENCH BOTTOM IS ROCK, IT SHALL BE EXCAVATED TO A MINIMUM OF 8" BELOW THE BOTTOM OF THE PIPE AND BACKFILLED WITH BEDDING MATERIAL FREE OF ROOTS, DEBRIS & STONES
* WHERE SUBGRADE IS UNSTABLE, PIPE SHALL BE BEDDED ON A MINIMUM OF 8" BEDDING MATERIAL
* BACKFILL TO BE PLACED IN 12" LIFTS AND COMPACTED TO 90% OF MAXIMUM DRY DENSITY



STANDARD DETAIL NO. WS – 1	STANDARD BEDDING DETAIL OUTSIDE TRAFFIC AREAS (PVC OR DIP) SCALE: NONE	DATE: 10/2017

IS-1



NOTES:
SHAPING OF MANHOLE AND INLET INVERTS IN ACCORDANCE WITH THIS DRAWING IS TO APPLY TO THOSE STRUCTURES SPECIFIED ON PLANS OR WHERE INVERT OF PIPE IS ABOVE INVERT OF STRUCTURE.

MANHOLE OR DROP INLET IS TO BE FORMED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE STANDARD OR SPECIAL DRAWING. THE INVERT SHAPING AS DETAILED HEREON IS TO CONSIST OF A PORTLAND CEMENT CONCRETE MIX CONFORMING TO CLASS A3 OR CLASS C1 EXCEPT THAT 25% OF COARSE AGGREGATE MAY BE UP TO 4" IN DIAMETER AND CONSIST OF STONE, BROKEN BRICK, BROKEN CONCRETE OR BROKEN CONCRETE BLOCK. THE SURFACE SHALL BE LEFT SMOOTH BY MEANS OF HAND TROWELLING. NONE OF THE COARSE AGGREGATE SHALL REMAIN EXPOSED.

DETAILS OF INVERT SHAPING AS SHOWN HEREON ARE FOR EXAMPLE PURPOSES ONLY. EACH MANHOLE OR DROP INLET IS TO BE SHAPED INDIVIDUALLY TO BEST FIT THE PARTICULAR INLET AND OUTLET CONFIGURATION AND FLOW LINES.

SPECIFICATION REFERENCE	STANDARD METHOD OF SHAPING MANHOLE & INLET INVERTS VIRGINIA DEPARTMENT OF TRANSPORTATION	106.08
302		

NOTE: UTILITY SERVICE LATERALS

A PERMIT IS REQUIRED AND MUST BE OBTAINED FOR ALL FIRE, WATER, AND SANITARY SEWER SERVICE LATERALS PRIOR TO THE COMMENCEMENT OF THE CONSTRUCTION PROCESS FOR THESE FACILITIES.

NO.	DATE	DESCRIPTION	BY
		REVISIONS	

TITLE: SITE DEVELOPMENT PLAN: SANITARY SEWER SYSTEM DETAILS

PROJECT: OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

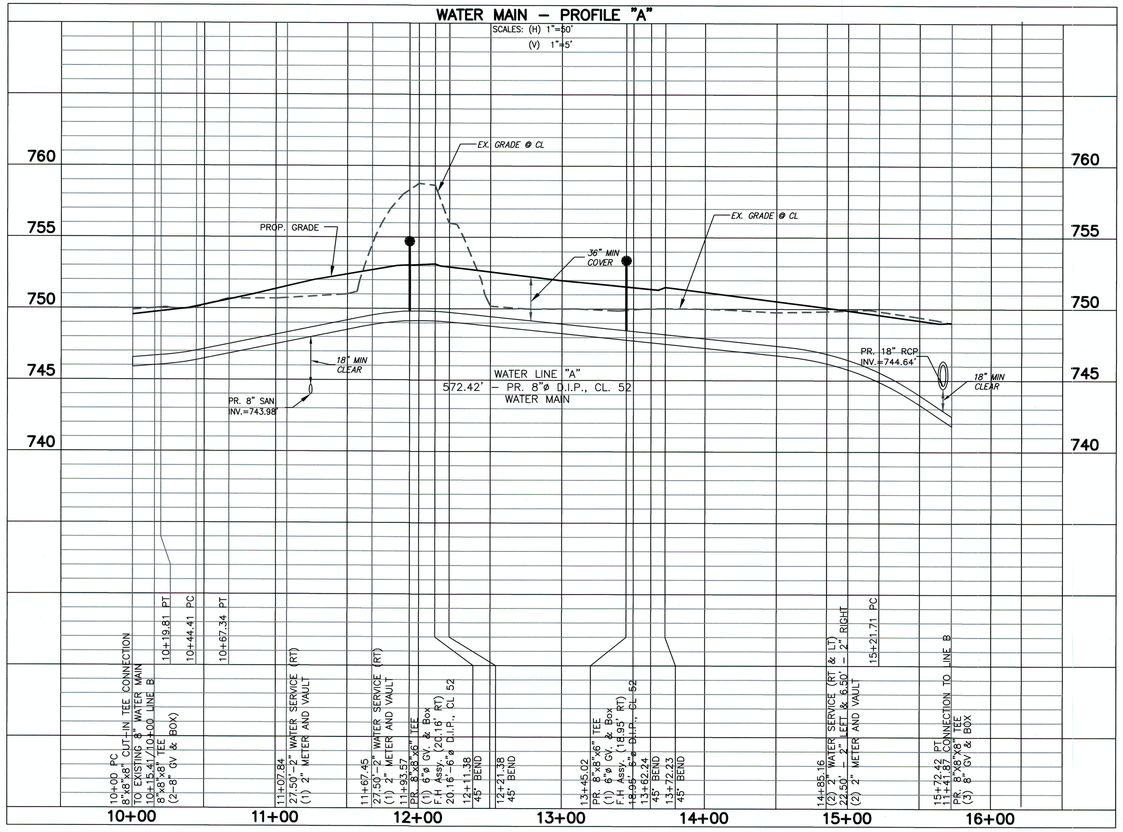
COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

SURVEY: P–L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09–09–19
SHEET:	17/20

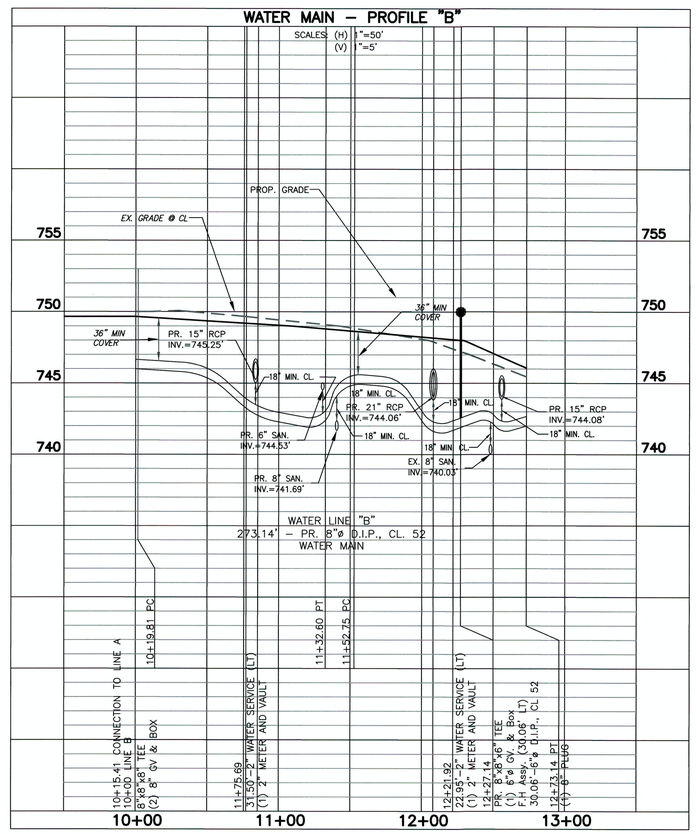
30 0 30 90

Scale 1" = 30 ft

WATER MAIN – PROFILE "A"



WATER MAIN – PROFILE "B"



NO.	DATE	DESCRIPTION	BY
		REVISIONS	

TITLE: SITE DEVELOPMENT PLANS: WATER LINE PLANS and PROFILES: LINE A & LINE B

PROJECT: OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
CONSULTING ENGINEERS
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com

COMMONWEALTH OF VIRGINIA
TIMOTHY C. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

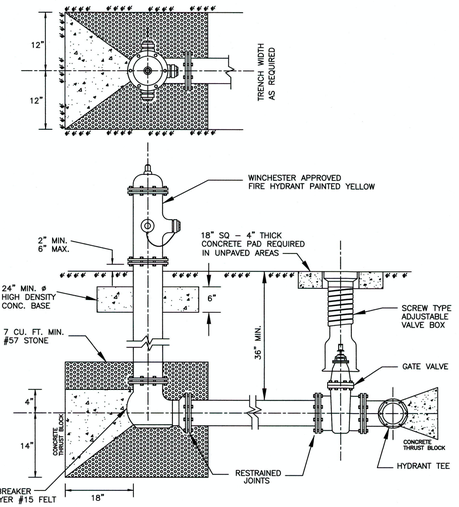
SURVEY: P-L PLC	C.I.: 1"
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0"	DATE: 09-09-19
SHEET:	18/20

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

FIRE HYDRANT SHALL BE TRAFFIC MODEL

RESTRAINTS SHALL BE BY MEGA-LUG FLANGES

4 – 1/2" STREAMER NOZZLE SHALL FACE THE ROADWAY



STANDARD DETAIL NO. WD– 7	FIRE HYDRANT INSTALLATION SCALE: NONE	DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

TYPICAL RESILIENT SEAT VALVE INSTALLATION:

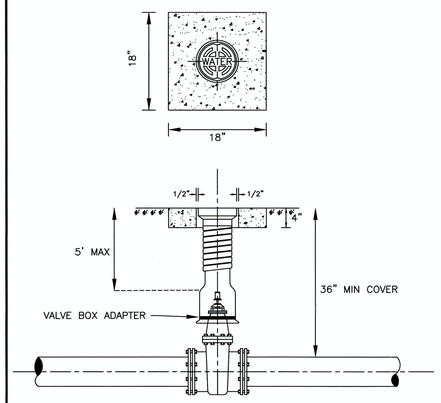
VALVE BOX AND BOOT SHALL BE CAST IRON

VALVE BOX COVER SHALL BE MARKED "WATER"

VALVE TOP SHALL BE FLUSH WITH FINISHED GRADE

18" X 18" CONCRETE PAD SHALL BE PLACED AROUND VALVE BOXES LOCATED OUTSIDE OF PAVEMENT AREAS

VALVE BOX SHALL BE SCREW TYPE FOR ADJUSTMENT



MECHANICAL JOINT FITTINGS AND PIPE RESTRAINED BY USING MEGA-LUG RESTRAINING FLANGES

STANDARD DETAIL NO. WD– 8	TYPICAL VALVE & BOX INSTALLATION SCALE: NONE	DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

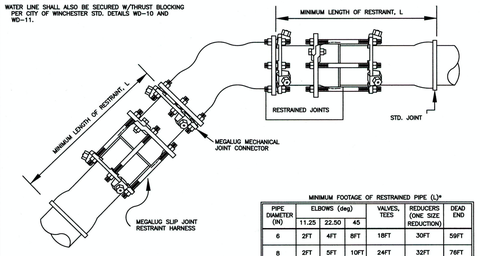
THE FOLLOWING JOINTS MUST BE RESTRAINED IN ALL APPLICATIONS:

1. BEND – INLET & OUTLET
2. VALVES – INLET & OUTLET
3. TEES – BRANCHES
4. REDUCERS – LARGER PIPE ONLY
5. DEAD ENDS
6. HYDRANT RUNOUTS SHALL BE RESTRAINED AS DEAD ENDS

THRUST RESTRAINT ON SLIP JOINT DUCTILE IRON PIPE SHALL BE MEGALUG SERIES 1700, UNI-FLANGE SERIES 1400, OR APPROVED EQUAL.

THRUST RESTRAINT ON DUCTILE IRON FITTINGS SHALL BE PROVIDED BY THE USE OF MECHANICAL JOINT FITTINGS WITH MEGALUG SERIES 1100 OR UNI-FLANGE SERIES 1400 (OR APPROVED EQUAL).

WATER LINE SHALL ALSO BE SECURED W/THRUST BLOCKING PER CITY OF WINCHESTER STD. DETAILS WD–10 AND WD–11.



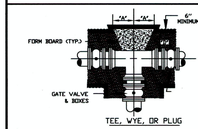
MINIMUM FOOTAGE OF RESTRAINED PIPE (L)*

PIPE DIAMETER (IN)	ELBOWS (deg)			VALVES, TEES	REDUCERS (ONE SIZE REDUCTION)	DEAD END
	11.25	22.50	45			
6	2FT	4FT	8FT	18FT	32FT	59FT
8	2FT	5FT	10FT	24FT	32FT	76FT
10	3FT	6FT	12FT	28FT	31FT	107FT
12	3FT	7FT	14FT	33FT	31FT	137FT
16	4FT	8FT	17FT	42FT	58FT	137FT
20	5FT	10FT	21FT	56FT	58FT	164FT
24	6FT	11FT	24FT	70FT	57FT	192FT

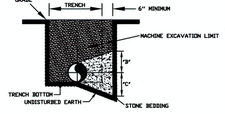
* FIGURES BASED ON 36 INCH BURIAL DEPTH 150 PSI TEST PRESSURE
*FIGURES BASED ON SOIL BEARING CAPACITY OF 1500 PSF
*FIGURES BASED ON LAYING CONDITION AS SPECIFIED IN THE WINCHESTER STANDARD DETAILS

STANDARD DETAIL NO. WD– 9	DUCTILE IRON PIPE RESTRAINT SCALE: NONE	DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES



TEE, WYE, OR PLUG



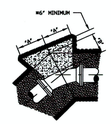
TYPICAL SECTION

IN LIEU OF WOOD FORMING THE FITTING MAY BE WRAPPED WITH POLYETHYLENE, AND THE CONCRETE POURED TO COMPLETELY SURROUND THE FITTINGS AND AGAINST UNDISTURBED SOIL. THE BEARING DIMENSIONS AGAINST UNDISTURBED SOIL SHALL REMAIN AS SHOWN.

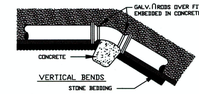
*DENOTES HAND EXCAVATION
"B" = 12" MIN. FOR 10" AND SMALLER PIPE
"B" = 18" MIN. FOR 12" THRU 20" PIPE
SEE CHART BELOW FOR A,B,C DIMENSIONS.

CONCRETE DIMENSIONS FOR HORIZONTAL THRUST BLOCKS

PIPE DIA.	PLUGS, WYES & TEES			11 1/4° AND 22 1/2° BENDS			45° AND 90° BENDS		
---	A	B	C	A	B	C	A	B	C
6"	1'-0"	0'-9"	1'-0"	0'-9"	0'-9"	1'-3"	0'-9"	1'-3"	1'-9"
8"	1'-3"	0'-9"	1'-3"	0'-9"	0'-9"	1'-6"	0'-9"	1'-6"	2'-3"
10"	1'-6"	0'-9"	1'-6"	1'-0"	0'-9"	1'-3"	1'-3"	0'-9"	2'-6"
12"	1'-9"	1'-0"	2'-6"	1'-3"	1'-0"	1'-6"	2'-0"	1'-0"	3'-0"
14"	2'-0"	1'-0"	3'-0"	1'-3"	1'-0"	1'-6"	2'-6"	1'-0"	4'-0"
16"	2'-3"	1'-0"	3'-6"	1'-6"	1'-0"	2'-0"	3'-0"	1'-0"	4'-6"
18"	2'-6"	1'-3"	3'-9"	1'-6"	1'-3"	2'-0"	3'-0"	1'-3"	4'-9"
20"	2'-9"	1'-6"	4'-9"	1'-9"	1'-6"	2'-6"	3'-3"	1'-6"	5'-0"



11 1/4 THRU 90° BENDS



THRUST BLOCKS FOR VERTICAL UP BENDS SHALL BE THE SAME AS FOR HORIZONTAL BENDS.

FITTING SIZE	ROD SIZE	NO. RODS	EMBEDMENT
12" & LESS	6	2	30"
14"–20"	8	2	36"

FITTING SIZE	VOLUME OF THRUST BLOCK IN CUYD.			
	11-1/4°	22-1/2°	45°	90°
6"	–	–	–	1.3
8"	–	–	1.1	2.3
10"	–	–	1.8	3.7
12"	–	1.2	2.8	5.5
14"	0.5	1.7	3.9	7.6
16"	0.9	2.3	5.1	–
18"	1.4	3.2	6.3	–
20"	2.2	4.5	7.8	–

* WATER LINE SHALL ALSO BE SECURED W/JOINT RESTRAINTS PER CITY OF WINCHESTER STD. DETAIL WD–9

STANDARD DETAIL NO. WD–10	CONCRETE THRUST BLOCKING SCALE: NONE	DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

* 2" FORD COPPERSETTER MODEL # VBHH77-15BHC-11-77

* 1-1/2" FORD; SAME LAYING DISTANCE AS 2" WITH ONE PAIR OF 2" x 1-1/2" METER ADAPTERS, FORD PART # A67 (FURNISHED BY CONTRACTOR)

* SET METER WIDTH TO 17". USE ADAPTERS FOR 1-1/2" METERS AS NECESSARY.

* METER SUPPLIED BY THE DEPARTMENT OF PUBLIC UTILITIES

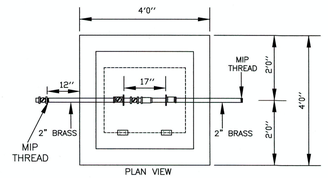
* FLANGED ANGLE METER VALVE SHALL HAVE O-RING TYPE FLANGE METER SUPPORT BRACKETS

* BACK FLOW DEVICE REQUIRED AS SET FORTH IN CITY CROSS CONNECTION CONTROL PROGRAM

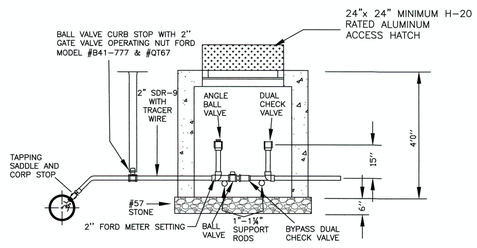
* BACKFLOW DEVICE MAY NOT BE INSTALLED IN METER VAULT

* PRECAST VAULT AS MANUFACTURED BY WINCHESTER BUILDING SUPPLY OF WINCHESTER, VA OR APPROVED EQUAL

* CONNECT TO EX. SERVICE BEHIND SIDEWALK OR AT BUILDING



PLAN VIEW



SECTION VIEW

STANDARD DETAIL NO. WD– 4	1 1/2" & 2" METER INSTALLATION SCALE: NONE	DATE: 02/2018

NO.	DATE	DESCRIPTION	BY
		REVISIONS	

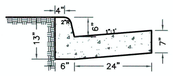
TITLE: SITE DEVELOPMENT PLAN: WATER SYSTEM DETAILS

PROJECT: OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

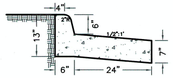
COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

SURVEY: P–L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09–09–19
SHEET: 19/20	



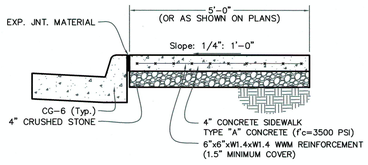
6" COMBINATION CURB & GUTTER (CG-6)

N.T.S.
(SEE V.D.O.T (CG-6) & WVDOT ROAD and BRIDGE STANDARDS FOR ADDITIONAL INFORMATION.)



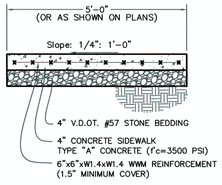
6" COMBINATION CURB & GUTTER REVERSED (CG-6R)

N.T.S.



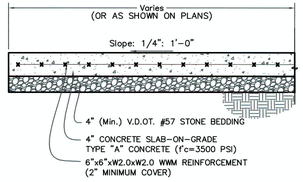
ON-SITE 4" CONCRETE SIDEWALK DETAIL

N.T.S.

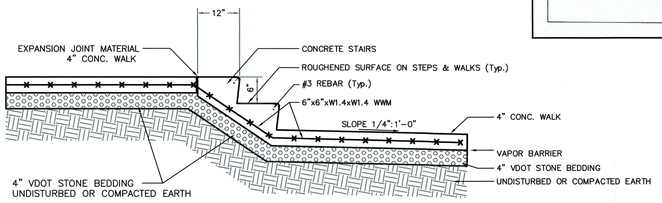


PRIVATE WALKWAYS: 4" CONCRETE SIDEWALK DETAIL

N.T.S.

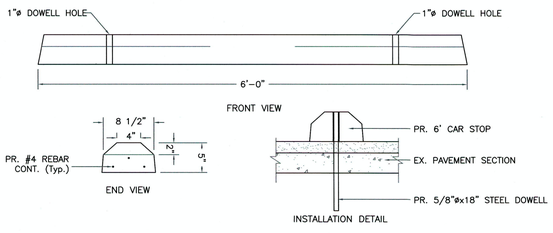


PRIVATE DRIVEWAYS: 4" CONCRETE SLAB-ON-GRADE DETAIL



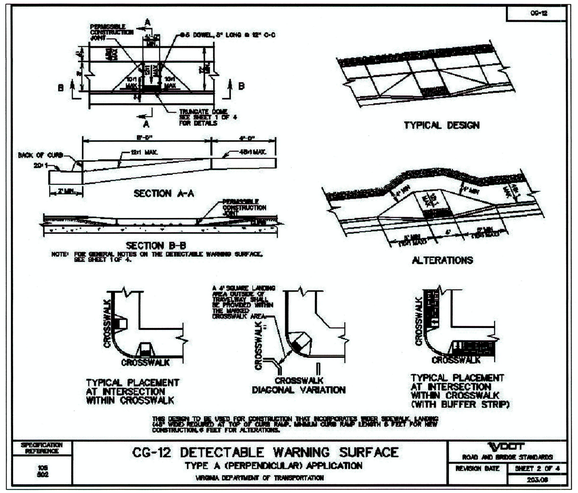
ON-SITE: TYPICAL EXTERIOR CONCRETE STEP DETAIL

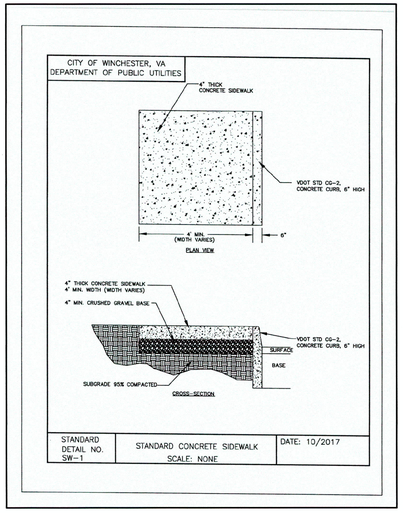
N.T.S.

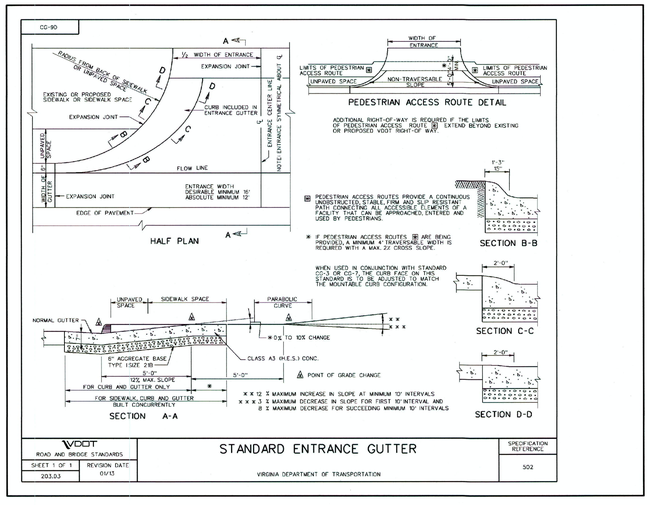


TIMBER OR PRE-CAST CONCRETE CURB DETAIL

N.T.S.



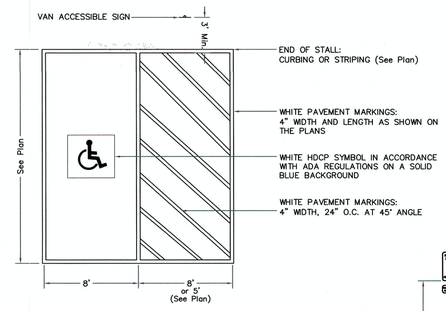




NOTE: OPTIONAL ENTRANCE DETAIL
– THIS ENTRANCE DETAIL MAY BE USED FOR THIS PROJECT, AS DIRECTED BY THE DEVELOPER. VERIFY THE USE OF THIS ENTRANCE PRIOR TO THE BIDDING PROCESS.
– IF USED, THE DEPTH OF THE CONCRETE ENTRANCE FROM THE GUTTER PAN SHALL BE FIVE FEET (5').

PRIVATE DRIVEWAYS: OPTIONAL CG-9D CONCRETE ENTRANCE DETAIL

N.T.S.



NOTES:
ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE ADA ACCESSIBILITY REGULATIONS FOR BUILDINGS AND FACILITIES

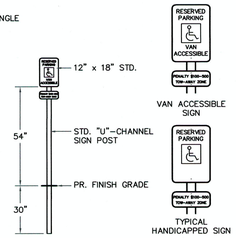
THE PAINT SHALL BE NON-REFLECTORIZED, ACRYLIC LATEX, TYPE 442XX TRAFFIC MARKING PAINT BY DEVOE, LOUISVILLE, KY, OR APPROVED EQUAL.

THE SIGNAGE MAY BE INSTALLED ON THE BUILDINGS WILL PROPER APPROVAL FROM THE LOCAL BUILDING OFFICIAL.

PLEASE REFER TO THE SITE PLAN FOR THE PROPOSED LAYOUT AND ORIENTATION OF THE ACCESSIBLE PARKING AREAS.

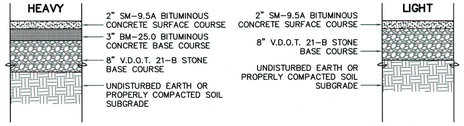
HANDICAPPED SPACES: PARKING LOT STRIPING DETAILS

N.T.S.



HANDICAP SIGN DETAIL

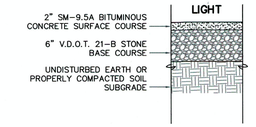
N.T.S.



NOTE:
–THE HEAVY PAVEMENT SECTION SHALL BE APPLIED TO THE MAIN ENTRANCES TO THE SITE, THE CENTRAL PUBLIC ACCESS ROADWAY, AND PRIVATE ROADWAY AISLES, AS INDICATED ON THE PLANS.
–THE LIGHT PAVEMENT SECTION SHALL BE APPLIED TO THE PARKING STALL AREAS AND OTHER AREAS NOT HATCHED FOR HEAVY PAVEMENT.
(SEE PLANS FOR ADDITIONAL INFORMATION)

ON-SITE PAVEMENT DETAILS

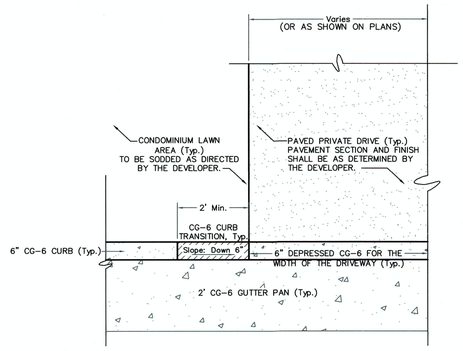
N.T.S.



NOTE:
–THE TRAIL PAVEMENT SECTION SHALL BE INSTALLED FOR THE ON-SITE PEDESTRIAN TRAIL AREAS, AS INDICATED ON THESE PLANS.
–THE HEAVY PAVEMENT SECTION SHALL BE APPLIED TO THE ONE AREA WHERE THE PEDESTRIAN TRAIL CROSSED THE EMERGENCY FIRE LANE, AS INDICATED ON THE PLANS.
(SEE PLANS FOR ADDITIONAL INFORMATION)

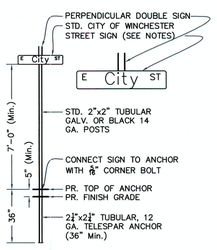
ON-SITE PEDESTRIAN TRAIL PAVEMENT DETAIL

N.T.S.



PRIVATE DRIVEWAYS: DEPRESSED CONCRETE ENTRANCE DETAIL

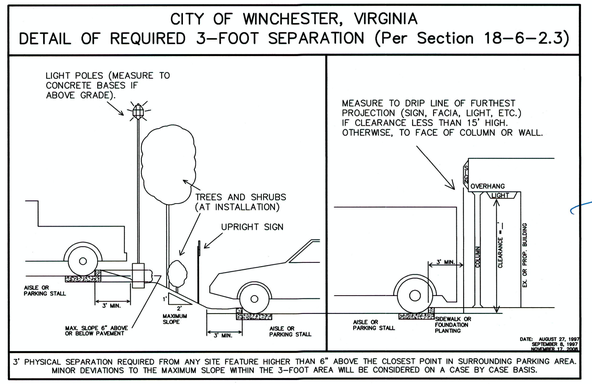
N.T.S.



NOTE: CITY OF WINCHESTER STREET SIGN
1. STREET SIGNS SHALL BE PLACED ON TWO OPPOSITE CORNERS OF AN INTERSECTION.
2. SIGNS SHALL BE DOUBLED ON THE POST.
3. STREET SIGNS SHALL BE MADE OF 3m DIAMOND GRADE DG3 REFLECTIVE SHEETING.
4. STREET SIGNS SHALL BE CUT FROM 3m ELECTROCUT FILM.
a. BLACK FILM MUST BE USED IN THE DOWNTOWN HISTORIC DISTRICT FOR ALL PUBLIC STREETS. LETTERS & BORDER SHALL BE WHITE.
b. WHITE FILM MUST BE USED IN THE DOWNTOWN HISTORIC DISTRICT FOR ALL PRIVATE STREETS. LETTERS & BORDER SHALL BE BLACK.
c. GREEN FILM SHALL BE USED FOR PUBLIC STREETS IN ALL OTHER AREAS. LETTERS & BORDER SHALL BE WHITE.
d. WHITE FILM SHALL BE USED FOR PRIVATE STREETS IN ALL OTHER AREAS. LETTERS & BORDER SHALL BE GREEN.
5. THE STREET NAME SIGNS WILL BE INSTALLED ON 0.80 GA. ALUMINUM WITH ½" CORNER RADII.
a. THE ALUMINUM SHALL BE 6"x12", 6"x18", 6"x24", 6"x30", or 6"x36", AS REQUIRED FOR SIGNAGE.
6. THE STREET NAME SHALL BE 4" LETTERS WITH ONLY THE FIRST LETTER CAPITALIZED.
7. THE PREFIX & SUFFIX SHALL BE 2" CAPITALIZED LETTERS WITH A 2" VERTICAL OFFSET. (SEE DETAIL)
8. THE SIGNS SHALL BE ATTACHED TO THE POST WITH A ⅜" DRIVE RIVET.
9. ALL STREET SIGNS SHALL HAVE A ½" BORDER AROUND THE FILM.
10. ALL STREET NAME SIGNS USED ON ROADWAYS WITH A SPEED LIMIT GREATER THAN 35 MPH SHALL BE AS FOLLOWS:
a. THE ALUMINUM SHALL BE 9"x12", 9"x18", 9"x24", 9"x30", or 9"x36", AS REQUIRED FOR SIGNAGE WITH A ½" CORNER RADIUS.
b. THE STREET NAME SHALL CONSIST OF 6" LETTERS.
c. THE PREFIX & SUFFIX SHALL BE 3" CAPITALIZED LETTERS WITH A 3" VERTICAL OFFSET.

TYPICAL CITY OF WINCHESTER STREET NAME SIGN DETAIL

N.T.S.



SIGN KEY

NO.	DATE	DESCRIPTION	BY
REVISIONS			

TITLE:
SITE DEVELOPMENT PLAN: MISCELLANEOUS CONSTRUCTION DETAILS

PROJECT:
OAKCREST BUILDERS, INC.
THE LOFTS AT CREEKSIDE
CONDOMINIUM COMPLEX
3131 VALLEY AVENUE
(ROUTE 11 SOUTH)
WINCHESTER, VIRGINIA 22601

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
09/19/19
PROFESSIONAL ENGINEER

SURVEY: P-L PLC	C.I.: 1'
DRAWN BY: TGP	JOB NO.: 1802043
SCALE: 1"=30.0'	DATE: 09-09-19
SHEET:	20/20