Snyder Signs INC.
2918 CREEKMORE DRIVE
JOHNSON CITY, TN 37601
423-282-6221 FAX 423-282-6222

DATE: 6-6-16	DESIGN #: 20368-D
DESIGNER: RH & CS	REVISION #:
SALES REP: RANDY HOLLAND	SCALE: NTS

CUSTOMER APPROVAL: _____

DATE:

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DATE: 6-6-16	DESIGN #: 20368
DESIGNER: RH & CS	REVISION #: 5, 6-9-16
SALES REP: RANDY HOLLAND	SCALE: 1/4"=1'

CUSTOMER APPROVAL: _____

DATE:

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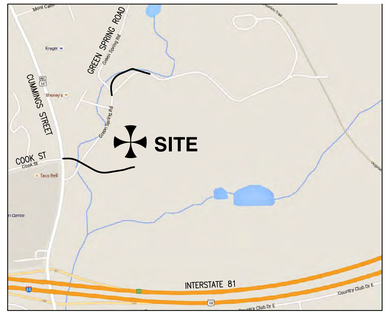

VICINITY MAP
NTS

SITE/CIVIL

CAUTION - NOTICE TO CONTRACTOR

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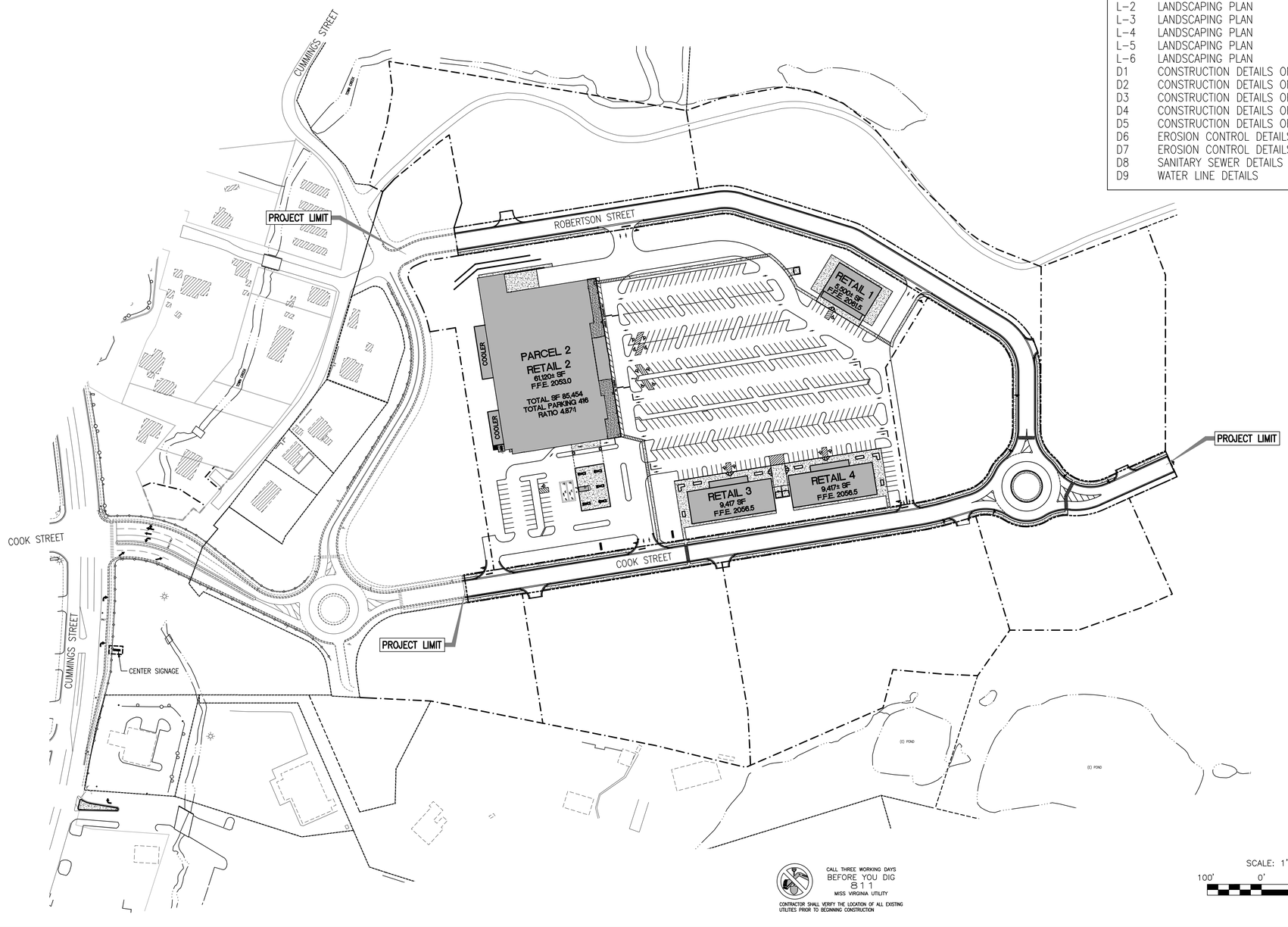

CALL THREE WORKING DAYS
BEFORE YOU DIG
811
MISS VIRGINIA UTILITY
CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION

SCALE: 1" = 100'
100' 0' 100' 200'

DRAWING INDEX

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C10	EROSION CONTROL PLAN - NOTES
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D3	CONSTRUCTION DETAILS OFF-SITE/PRIVATE
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D5	CONSTRUCTION DETAILS OFF-SITE/PRIVATE
D6	EROSION CONTROL DETAILS
D7	EROSION CONTROL DETAILS
D8	SANITARY SEWER DETAILS
D9	WATER LINE DETAILS

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE
- [x] CONCEPT DESIGN
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SEAL

COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

THE MEADOWS
ABINGDON, VA

owner
Marathon Reality Corporation
1 Food City Circle
Abingdon, Virginia 24210

APPALACHIA DESIGN SERVICES
INCORPORATED
245 Birch Street
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PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:

TITLE

DRAWING NO:

T1 OF 34

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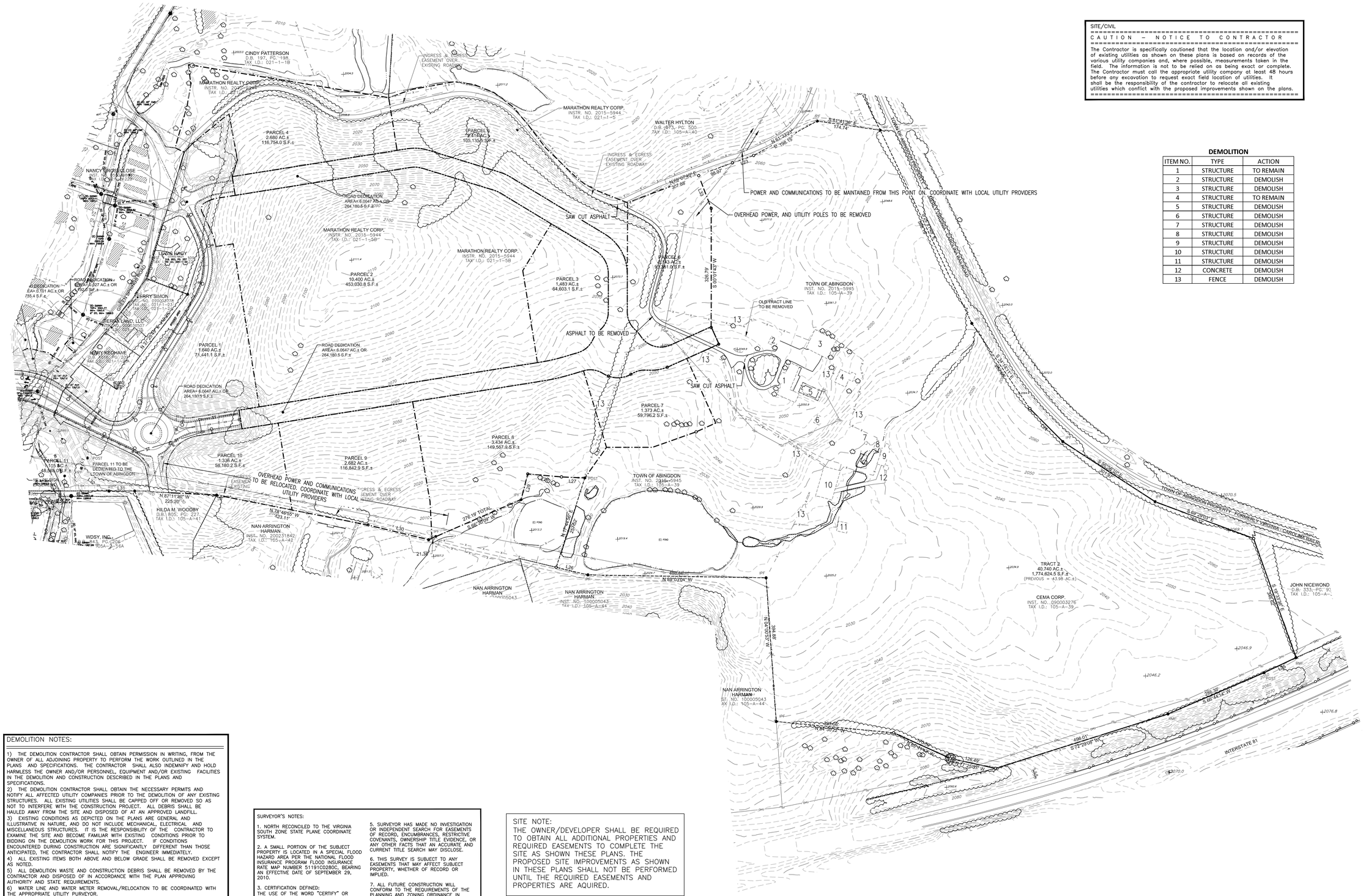

SITE/CIVIL

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DEMOLITION

ITEM NO.	TYPE	ACTION
1	STRUCTURE	TO REMAIN
2	STRUCTURE	DEMOLISH
3	STRUCTURE	DEMOLISH
4	STRUCTURE	TO REMAIN
5	STRUCTURE	DEMOLISH
6	STRUCTURE	DEMOLISH
7	STRUCTURE	DEMOLISH
8	STRUCTURE	DEMOLISH
9	STRUCTURE	DEMOLISH
10	STRUCTURE	DEMOLISH
11	STRUCTURE	DEMOLISH
12	CONCRETE	DEMOLISH
13	FENCE	DEMOLISH

DEMOLITION NOTES:

1) THE DEMOLITION CONTRACTOR SHALL OBTAIN PERMISSION IN WRITING, FROM THE OWNER OF ALL ADJOINING PROPERTY TO PERFORM THE WORK OUTLINED IN THE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL ALSO INDEMNIFY AND HOLD HARMLESS THE OWNER AND/OR PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES IN THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
2) THE DEMOLITION CONTRACTOR SHALL OBTAIN THE NECESSARY PERMITS AND NOTIFY ALL AFFECTED UTILITY COMPANIES PRIOR TO THE DEMOLITION OF ANY EXISTING STRUCTURES. ALL EXISTING UTILITIES SHALL BE CAPPED OFF OR REMOVED SO AS NOT TO INTERFERE WITH THE CONSTRUCTION PROJECT. ALL DEBRIS SHALL BE HAULED AWAY FROM THE SITE AND DISPOSED OF AT AN APPROVED LANDFILL.
3) EXISTING CONDITIONS AS DEPICTED ON THE PLANS ARE GENERAL AND ILLUSTRATIVE IN NATURE, AND DO NOT INCLUDE MECHANICAL, ELECTRICAL AND MISCELLANEOUS STRUCTURES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING ON THE DEMOLITION WORK FOR THIS PROJECT. IF CONDITIONS ENCOUNTERED DURING CONSTRUCTION ARE SIGNIFICANTLY DIFFERENT THAN THOSE ANTICIPATED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
4) ALL EXISTING ITEMS BOTH ABOVE AND BELOW GRADE SHALL BE REMOVED EXCEPT AS NOTED.
5) ALL DEMOLITION WASTE AND CONSTRUCTION DEBRIS SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH THE PLAN APPROVING AUTHORITY AND STATE REQUIREMENTS.
6) WATER LINE AND WATER METER REMOVAL/RELOCATION TO BE COORDINATED WITH THE APPROPRIATE UTILITY PURVEYOR.
7) GAS LINE AND GAS METER REMOVAL/RELOCATION TO BE COORDINATED WITH THE APPROPRIATE UTLITY PURVEYOR.
8) POWER POLE REMOVAL/RELOCATION AND ELECTRICAL DISCONNECTION TO BE COORDINATED WITH THE APPROPRIATE UTLITY PURVEYOR.
9) TELEPHONE SYSTEM REMOVAL/RELOCATION TO BE COORDINATED WITH THE APPROPRIATE UTLITY PURVEYOR.
10) THE SITE MAY CONTAIN SEPTIC SYSTEMS WHICH SHALL BE LOCATED, PUMPED, AND REMOVED IN ACCORDANCE WITH STATE REQUIREMENTS.
11) ALL SALVAGEABLE MATERIALS TO BE REIMBURSED TO THE OWNER.

SURVEYOR'S NOTES:

1. NORTH RECONCILED TO THE VIRGINIA SOUTH ZONE STATE PLANE COORDINATE SYSTEM.

2. A SMALL PORTION OF THE SUBJECT PROPERTY IS LOCATED IN A SPECIAL FLOOD HAZARD AREA PER THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP NUMBER 51191C02B0C, BEARING AN EFFECTIVE DATE OF SEPTEMBER 29, 2010.

3. CERTIFICATION DEFINED:
THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" BY A REGISTERED PROFESSIONAL LAND SURVEYOR, IN THE PRACTICE OF LAND SURVEYING, CONSTITUTES AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THOSE FACTS OF FINDINGS WHICH ARE SUBJECT OF THE CERTIFICATION, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESS OR IMPLIED.

4. SUBJECT PROPERTY REFERENCE DOCUMENTS: SEE SURVEY

5. SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP TITLE EVIDENCE, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

6. THIS SURVEY IS SUBJECT TO ANY EASEMENTS THAT MAY AFFECT SUBJECT PROPERTY, WHETHER OF RECORD OR IMPLIED.

7. ALL FUTURE CONSTRUCTION WILL CONFORM TO THE REQUIREMENTS OF THE PLANNING AND ZONING ORDINANCE IN EFFECT AT THE TIME OF CONSTRUCTION.

8. THIS SURVEY IS BASED UPON EXISTING MONUMENTS AND EVIDENCE WHICH WERE FOUND IN THE FIELD AS OF THIS DATE.

9. SUBJECT PROPERTY IS SUBJECT TO ALL APPLICABLE EASEMENTS, SETBACKS, RIGHT-OF-WAYS & RESTRICTIONS OF RECORD OR CLAIMS OF EASEMENTS OR RIGHT-OF-WAYS, NOT SHOWN BY PUBLIC RECORDS.

SITE NOTE:
THE OWNER/DEVELOPER SHALL BE REQUIRED TO OBTAIN ALL ADDITIONAL PROPERTIES AND REQUIRED EASEMENTS TO COMPLETE THE SITE AS SHOWN THESE PLANS. THE PROPOSED SITE IMPROVEMENTS AS SHOWN IN THESE PLANS SHALL NOT BE PERFORMED UNTIL THE REQUIRED EASEMENTS AND PROPERTIES ARE AQUIRED.

NOTE:
EXISTING SITE INFORMATION WAS OBTAINED FROM DRAWING PROVIDED BY THE OWNER & DEVELOPER. APPALACHIA DESIGN SERVICES, INC. DOES NOT WARRANTY EXISTING SITE INFORMATION AS SHOWN.

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SCALE: 1" = 120'
120' 0' 120' 240'

REVISIONS

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COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

THE MEADOWS
ABINGDON, VA

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PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:

EXISTING CONDITIONS

DRAWING NO:
C1 OF 34

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PAVING MATERIALS SCHEDULE

STANDARD ASPHALT PAVING		
	THICKNESS	TYPE
AGGREGATE BASE	4"	VDOT 21 OR 21A TYPE 1
ASPHALTIC BINDER	2"	VDOT TYPE BM-25.0, (345#/S.Y.)
ASPHALTIC TOPPING	1.25"	VDOT TYPE SM-12.5 A, (165#/S.Y.)
PRIME COAT		

HEAVY DUTY ASPHALT PAVING		
	THICKNESS	TYPE
AGGREGATE BASE	6"	VDOT 21 OR 21A TYPE 1
ASPHALTIC BINDER	3"	VDOT TYPE BM-25.0, (345#/S.Y.)
ASPHALTIC TOPPING	2"	VDOT TYPE SM-12.5 E, (165#/S.Y.)
PRIME COAT		

SIGN SCHEDULE

NAME	LEGEND		SIZE WIDTH	SIZE HEIGHT	SIGN FACE COPY	SIGN FACE BACKGROUND
STOP SIGN	STOP	R1-1	30"	30"	WHITE	RED (REF)
YIELD SIGN	YIELD	R1-2	36"	36"	RED	RED (REF) WHITE (REF)
ROUNDABOUT AHEAD SIGN		W2-6	30"	30"	BLACK	YELLOW (REF)
END OF ROAD MARKER		OM4-2	18" (EACH SIDE)	18" (EACH SIDE)	3" RED REFLECTORS	BLACK DIAMOND (REF)

SIGN NOTES:
1. SIGN MATERIALS SHALL BE IN ACCORDANCE WITH MUTCD GUIDELINES AND VDOT REGULATIONS.
2. THE SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH THE VDOT ROAD AND BRIDGE STANDARDS.
3. THE SIGNS SHALL BE LOCATED IN ACCORDANCE WITH MUTCD GUIDELINES.
4. THE SIGNS SHALL BE SUPPORTED BY U-POSTS (3 LBS/FT). THE U-POSTS SHALL BE GALVANIZED.
5. THE SIGNS SHALL BE EMBEDDED 3'-6" INTO THE GROUND.
6. THE SIGNS ARE TO BE HIGH INTENSITY GRADE REFLECTION.
7. THE SIGN MATERIAL SHALL BE 0.080" SHEET ALUMINUM.
8. THE INSTALLED SIGNS SHALL HAVE A VERTICAL CLEARANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE GROUND, EXCEPT FOR THE END OF ROAD MARKERS WHICH MAY HAVE A MINIMUM VERTICAL CLEARANCE OF 4' FROM THE BOTTOM OF THE MARKER TO THE GROUND.

PAVEMENT MARKING LEGEND

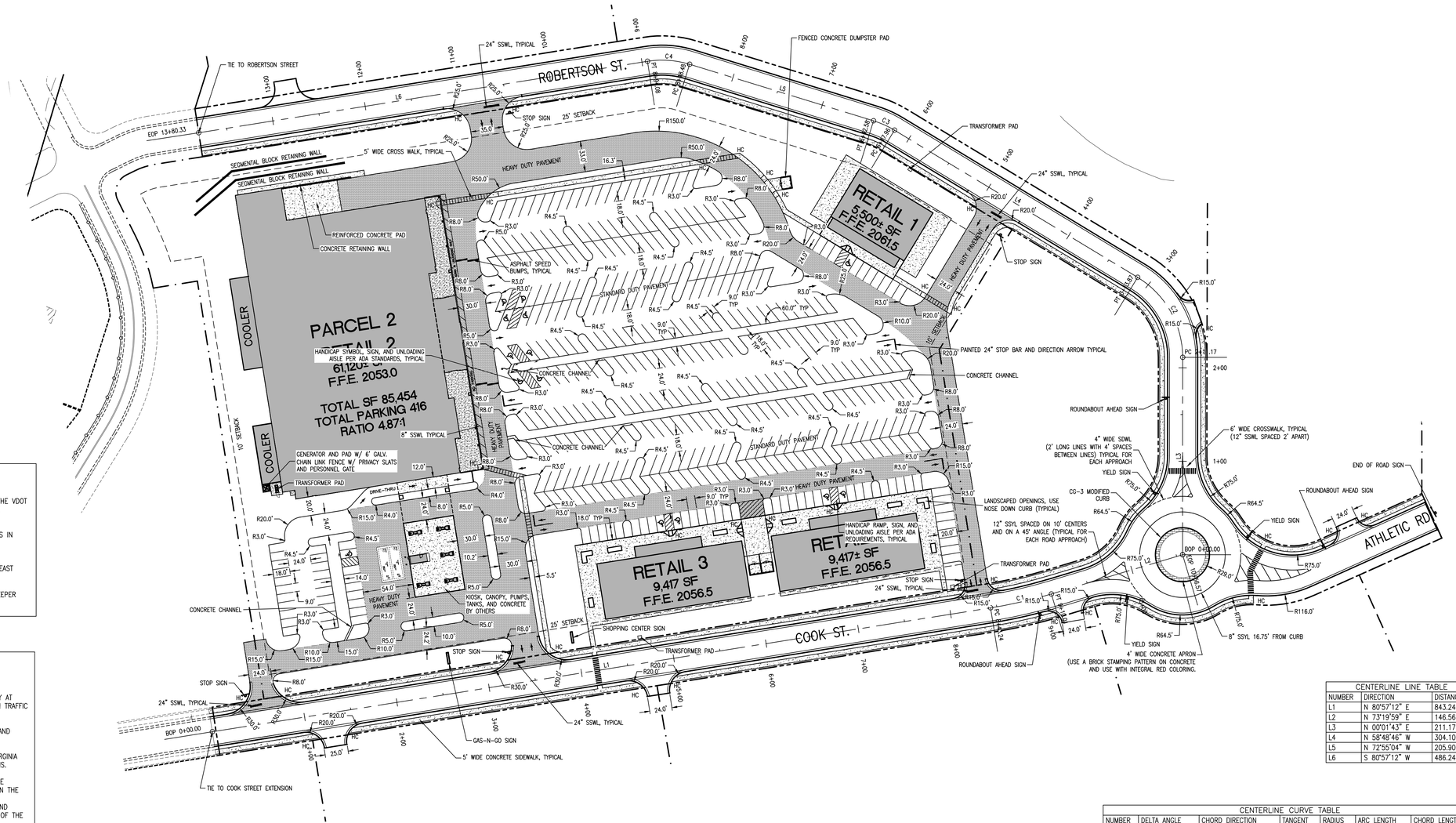
SSWL – SINGLE SOLID WHITE LINE
SDWL – SINGLE DASHED WHITE LINE

PAVEMENT MARKING NOTES

1. PAVEMENT MARKINGS ARE TO BE THERMOPLASTIC AND INSTALLED IN ACCORDANCE WITH MUTCD AND VDOT STANDARDS WITHIN THE PUBLIC R-O-W.
2. SINCE THERMOPLASTIC IS USED ON THE FINAL SURFACE, THE CONTRACTOR SHALL HAVE THE OPTION OF USING REFLECTORIZED PAINT INSTALLED TO PERMANENT STANDARDS AT THE END OF EACH DAY'S WORK AND THEN INSTALLING THE PERMANENT MARKINGS AFTER THE PAVING OPERATION IS COMPLETED. SHORT, UNMARKED SECTIONS SHALL NOT BE ALLOWED. THE TEMPORARY MARKINGS FOR THE FINAL SURFACE WILL NOT BE MEASURED AND PAID FOR DIRECTLY, BUT THE COSTS ARE TO BE INCLUDED IN THE PRICE BID FOR THE PERMANENT MARKINGS.
3. TEMPORARY PAVEMENT LINE MARKINGS ON INTERMEDIATE LAYERS OF PAVEMENT SHALL BE REFLECTIVE TAPE OR REFLECTORIZED PAINT INSTALLED TO PERMANENT STANDARDS BEFORE DARK HOURS. SHORT, UNMARKED SECTIONS SHALL NOT BE ALLOWED. THESE MARKINGS WILL NOT BE MEASURED AND PAID FOR DIRECTLY BUT THE COSTS ARE TO BE INCLUDED THE COST OF THE FINAL STRIPING.

IMPORTANT!
GEOTECHNICAL NOTE:

SEE SITE GEOTECHNICAL REPORT FOR ALL SUBGRADE INFORMATION. GEOTECHNICAL REPORT SHALL HAVE PRECEDENCE OVER INFORMATION BOTH GRAPHICAL AND VERBAL INCLUDED WITHIN THESE SITE PLANS



HANDICAP RAMP NOTES

1. THE HANDICAP RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE VDOT PARALLEL CG-12 TYPE B STANDARD. REFER TO HC RAMP DETAIL ON SITE CONSTRUCTION DETAILS SHEET.
2. THE HANDICAP RAMPS SHALL BE CONSTRUCTED WITH TRUNCATED DOMES IN ACCORDANCE WITH VDOT STANDARDS. REFER TO THE DETAIL ON THE CONSTRUCTION DETAILS SHEET.
3. THE LANDING AT THE BOTTOM OF THE HANDICAP RAMP SHALL BE AT LEAST 5'X5' AND SLOPED AT 2% OR LESS.
4. THE RAMPS LEADING TO THE LANDING SHALL BE CONSTRUCTED NO STEEPER THAN 8%.

ROADWAY NOTES

1. FIELD VERIFY THE LOCATIONS OF ALL EXISTING ROADWAYS, PARTICULARLY AT WHERE CONNECTIONS WILL BE MADE TO THE EXISTING ROADWAYS. MAINTAIN TRAFFIC ON THE EXISTING ROADWAYS THROUGHOUT CONSTRUCTION.
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH WASHINGTON COUNTY AND VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND REGULATIONS.
3. ALL PAVEMENT MARKINGS AND SIGNAGE TO BE IN ACCORDANCE WITH VIRGINIA DEPARTMENT OF TRANSPORTATION AND MUTCD STANDARDS AND REGULATIONS.
4. JUST PRIOR TO PLACEMENT OF THE AGGREGATE BASE MATERIAL FOR THE PAVEMENT SECTION, THE PAVEMENT SUBGRADE SHALL BE PROOF-ROLLED IN THE PRESENCE OF A QUALIFIED SOILS TESTING AGENT WORKING UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER. ALL AREAS THAT ARE SOFT AND EXHIBIT PUMPING SHALL BE REMOVED AND REPLACED PER THE DIRECTION OF THE SOILS TESTING AGENT.
5. THE CONTRACTOR SHALL RETAIN COPIES OF ALL TESTING BY THE SOILS TESTING AGENCY, INCLUDING LABORAGTORY DENSITY TESTS, FIELD DENSITY TESTS AND THE EVALUSATION OF THE PROOF-ROLLING PERFORMED ON THE PAVEMENT SUBGRADE SOIL. THE TESTS SHOULD INCLUDE COMPACTION OF PIPE AND STRUCTURE TRENCHES AND BACKFILLING WITHIN THE PROPOSED RIGHT-OF-WAY.
6. REFER TO THE DETAIL SHEETS AND TYPICAL SECTION SHEET FOR ADDTIONAL INFORMATION.

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CENTERLINE LINE TABLE

NUMBER	DIRECTION	DISTANCE
L1	N 80°57'12" E	843.24'
L2	N 73°19'59" E	146.56'
L3	N 00°01'43" E	211.17'
L4	N 58°48'46" W	304.10'
L5	N 72°55'04" W	205.90'
L6	S 80°57'12" W	486.24'

CENTERLINE CURVE TABLE

NUMBER	DELTA ANGLE	CHORD DIRECTION	TANGENT	RADIUS	ARC LENGTH	CHORD LENGTH
C1	07°37'13"	N 77°08'35" E	33.43	502.00	66.77	66.72
C2	58°50'29"	N 29°23'31" W	56.39	100.00	102.70	98.24
C3	14°06'18"	N 65°51'55" W	12.37	100.00	24.62	24.56
C4	26°07'44"	N 85°58'56" W	23.21	100.00	45.60	45.21

SCALE: 1" = 60'
60' 0' 60' 120'

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SURFACING PLAN

DRAWING NO:
C2 OF 34

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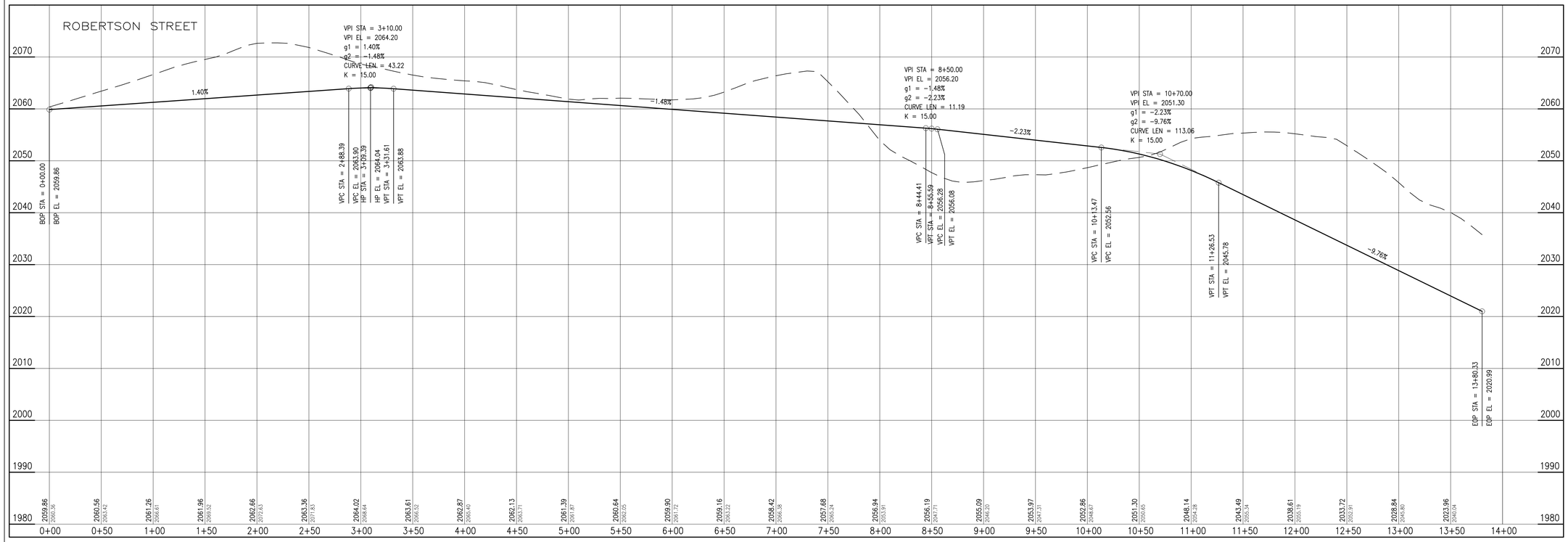

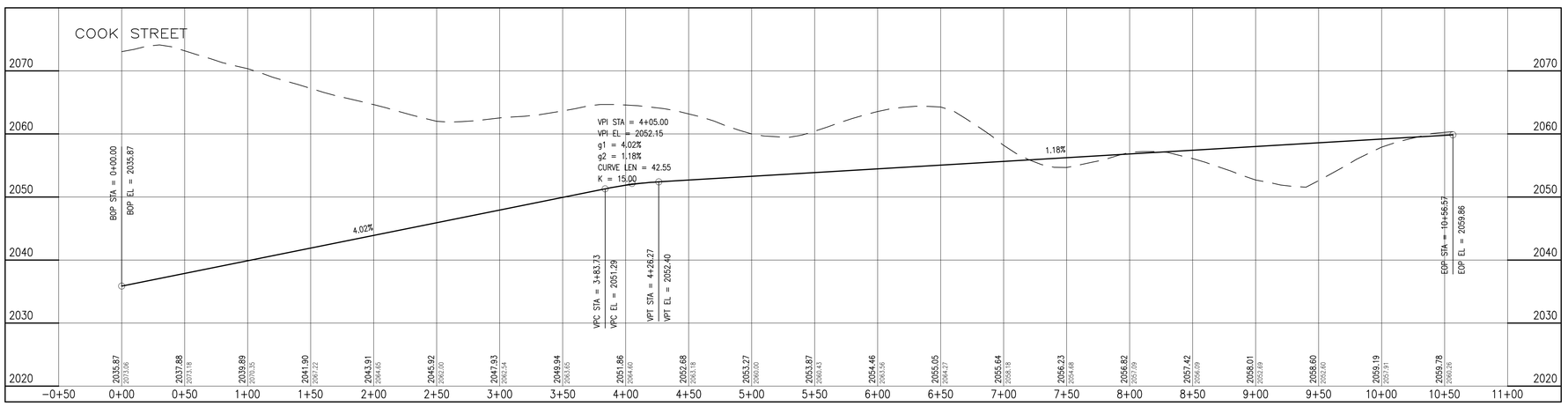

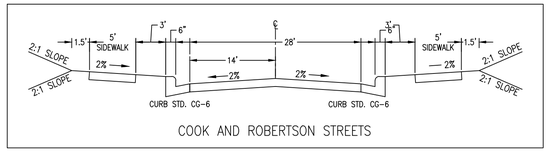

COOK AND ROBERTSON STREETS

LEGEND

———	PROPOSED GRADE
— — —	EXISTING GROUND
VPI	VERTICAL POINT OF INTERSECTION
VPC	VERTICAL POINT OF CURVATURE
VPT	VERTICAL POINT OF TANGENCY
g1	INTERSECTING GRADIENT IN
g2	INTERSECTING GRADIENT OUT
K	RATE OF VERTICAL CURVATURE
BOP	BEGINING OF PROFILE
EOP	ENDING OF PROFILE
LP	LOW POINT
HP	HIGH POINT
STA	STATION
EL	ELEVATION

VERT: 10' 0' 10' 20'
HORZ: 50' 0' 50' 100'

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- [x] CONCEPT DESIGN
- [ ] DESIGN DEVELOPMENT
- [ ] CONSTRUCTION BIDDING PHASE
- [ ] CONSTRUCTION DOCUMENTS
- [ ] CONSTRUCTION ADMINISTRATION

SEAL

COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

THE MEADOWS
ABINGDON, VA

owner
Marathon Reality Corporation
1 Food City Circle
Abingdon, Virginia 24210

APPALACHIA DESIGN SERVICES
INCORPORATED

245 Birch Street
Blountville, TN 37617
Phone: (423) 323-1206
Fax: (423) 323-1732

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DRAWING INFORMATION

SCALE:	AS SHOWN
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:

STREET PROFILES

DRAWING NO:

C3 OF 34

\\ds-projects\ADS-SDS- THE MEADOWS\Project Drawings\Current\THE MEADOWS ROAD REALIGNMENT 11.dwg, SP, 6/8/2016 12:38:01 PM, Computer 2, 1:1

SITE NOTE:
THE OWNER/DEVELOPER SHALL BE REQUIRED TO OBTAIN ALL ADDITIONAL PROPERTIES AND REQUIRED EASEMENTS TO COMPLETE THE SITE AS SHOWN ON THESE PLANS. THE PROPOSED SITE IMPROVEMENTS AS SHOWN IN THESE PLANS SHALL NOT BE PERFORMED UNTIL THE REQUIRED EASEMENTS AND PROPERTIES ARE AQUIRED AND APPROVED.

SITE STORM SYSTEM NOTES

PIPE MATERIALS
All pipe is to be PVC, HDPE, or CMP, as specified on the plans or approved equal. All pipe is to free from defect and is to be connected using approved connection systems.

Prior to pipe being ordered, a submittal is to be provided to ADS for approval.

MINIMUM COVER
Minimum cover from top of pipe to finish grade shall be 2'–0".

PIPE SYSTEM INSPECTION
Prior to acceptance of completed stormwater system, installer shall notify GC. Installer and General Contractor shall inspect system together to verify completion.

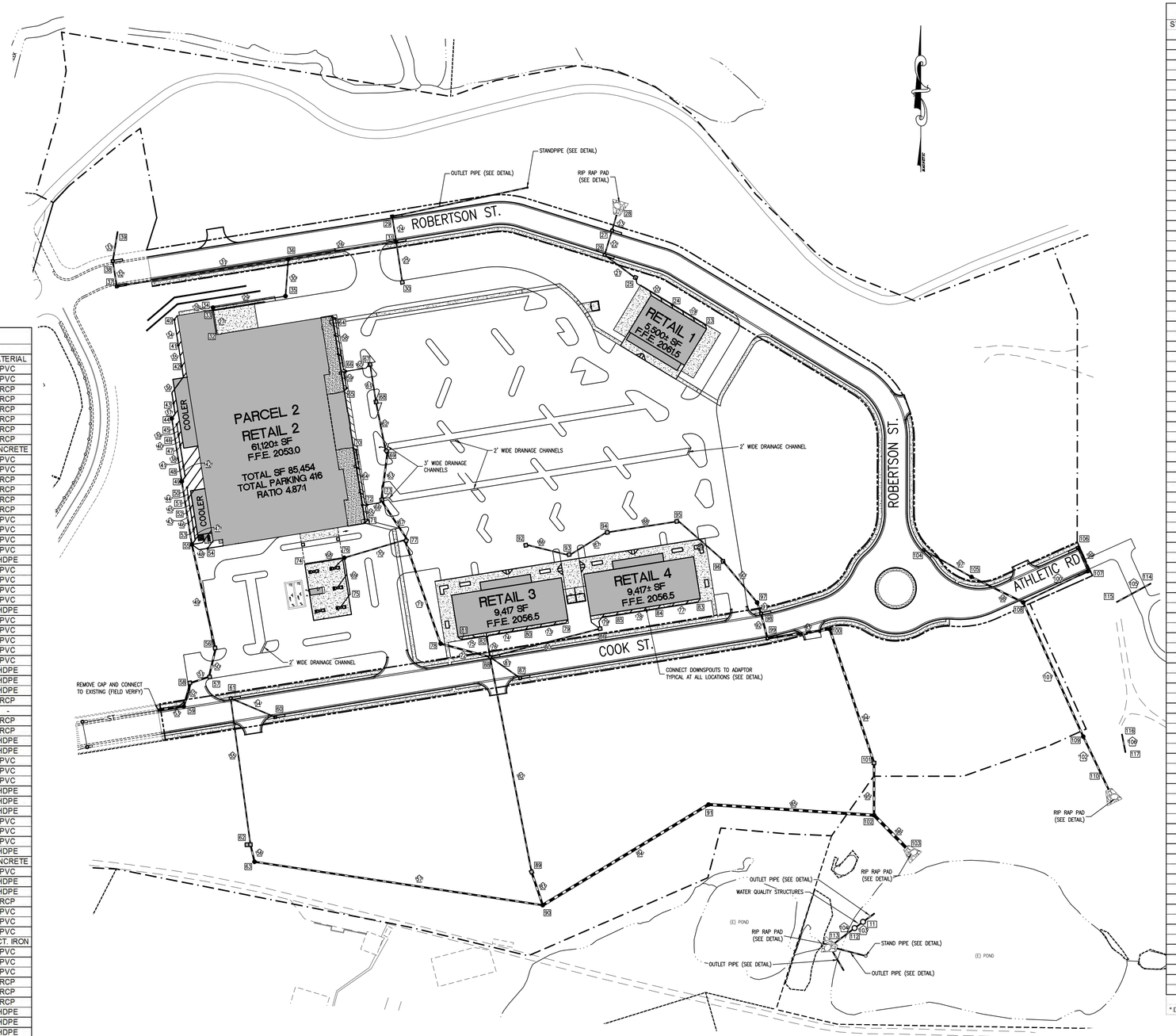
AREA DRAINS MANHOLES,AND CURB INLETS
Proposed area drains, manholes, and curb inlets to be precast concrete and manufactured by a certified precast plant. Shop drawings of the proposed structures to be submitted to ADS for review and approval.

DRAINAGE GRATES
Proposed area drain grates to be a Neenah R–4826 (2' rectangular grate) or approved equal. Proposed curb inlet grates to be a Neenah traffic and pedestrian safe. Shop drawings of the proposed grates to be provided to ADS for approval.

STORM SEWER DRAINAGE PIPE SUMMARY TABLE

PIPE #	FROM STRUCTURE	INVERT ELEV.	TO STRUCTURE	INVERT ELEV.	GRADE %	PIPE SIZE (IN)	PIPE LENGTH (FT)	PIPE MATERIAL
19	23	2058.9	24	2057.1	3.21%	6	56	PVC
20	24	2057.1	25	2055.0	3.18%	8	66	PVC
21	25	2055.0	26	2053.4	2.96%	15	54	RCP
22	26	2053.4	27	2053.0	1.11%	15	36	RCP
23	27	2053.0	28	2050.6	10.43%	15	23	RCP
24	29	2047.4	31	2047.0	1.11%	15	36	RCP
25	30	2049.2	31	2047.0	3.93%	15	56	RCP
26	31	2047.0	36	2035.9	7.21%	15	154	RCP
27	32	2047.7	33	2047.2	1.56%	12"x12"	32	CONCRETE
28	33	2047.2	34	2047.1	2.00%	8	5	PVC
29	34	2047.1	35	2046.0	1.06%	8	104	PVC
30	35	2046.0	36	2035.9	19.42%	15	52	RCP
31	36	2035.9	37	2011.5	9.96%	15	245	RCP
32	37	2011.5	38	2011.1	1.11%	18	36	RCP
33	38	2011.1	39	2003.0	19.29%	18	42	RCP
34	40	2050.4	41	2049.9	1.35%	6	37	PVC
35	41	2049.9	42	2049.5	1.33%	8	30	PVC
36	42	2049.5	43	2048.7	1.38%	10	58	PVC
37	43	2048.7	44	2048.4	1.30%	12	23	PVC
38	44	2048.4	49	2047.5	1.00%	15	90	HDPE
39	45	2050.0	46	2049.7	2.00%	6	15	PVC
40	46	2049.7	47	2049.4	2.00%	8	15	PVC
41	47	2049.4	48	2048.9	1.67%	10	30	PVC
42	48	2048.9	49	2048.5	1.74%	12	23	PVC
43	49	2047.5	55	2046.6	1.00%	18	90	HDPE
44	50	2050.0	51	2049.7	2.00%	6	15	PVC
45	51	2049.7	52	2049.4	2.00%	8	15	PVC
46	52	2049.4	53	2048.9	1.67%	10	30	PVC
47	53	2048.9	55	2048.5	1.74%	12	23	PVC
48	54	2049.3	55	2048.9	1.60%	8	25	PVC
49	55	2042.8	56	2039.5	2.19%	24	151	HDPE
50	56	2037.5	57	2034.8	6.59%	24	41	HDPE
51	57	2034.8	58	2033.6	4.00%	24	30	HDPE
52	58	2033.6	59	2031.5	6.56%	30	32	RCP
53**	-	-	-	-	-	-	-	-
54	60	2038.7	61	2036.4	3.38%	15	68	RCP
55	61	2036.4	62	2034.3	1.01%	15	208	RCP
56	62	2032.3	63	2032.0	1.20%	24	25	HDPE
57	63	2032.0	90	2027.8	1.02%	24	411	HDPE
58	64	2048.7	66	2047.9	1.04%	6	77	PVC
59	65	2049.2	66	2047.9	5.20%	6	25	PVC
60	66	2047.9	67	2046.8	3.06%	6	36	PVC
61	67	2046.8	68	2046.2	1.07%	15	56	HDPE
62	68	2046.2	69	2045.5	1.01%	18	69	HDPE
63	69	2045.5	73	2044.8	1.03%	24	68	HDPE
64	70	2049.2	72	2048.4	1.00%	6	80	PVC
65	71	2049.2	72	2048.4	3.48%	6	23	PVC
66	72	2048.4	73	2048.0	1.67%	6	24	PVC
67	73	2044.8	77	2044.2	1.09%	24	55	HDPE
68	74	2050.2	76	2049.5	1.35%	6"x12"	52	CONCRETE
69	75	2048.8	76	2046.0	1.54%	6	52	PVC
70	76	2046.0	77	2045.1	1.02%	15	88	HDPE
71	77	2044.2	78	2042.6	1.05%	24	153	HDPE
72	78	2042.6	88	2041.8	1.11%	24	72	RCP
73	79	2053.9	80	2053.3	1.05%	6	57	PVC
74	80	2053.3	82	2052.7	1.05%	8	57	PVC
75	81	2053.9	82	2052.7	3.24%	6	37	PVC
76	82	2052.7	88	2049.8	10.74%	8	27	DUCT. IRON
77	83	2053.9	84	2053.3	1.05%	6	57	PVC
78	84	2053.3	85	2052.7	1.00%	8	60	PVC
79	85	2052.7	86	2051.0	4.47%	8	38	PVC
80	86	2051.0	88	2049.3	1.06%	15	160	RCP
81	87	2048.7	88	2048.1	1.15%	15	52	RCP
82	88	2041.8	89	2038.7	1.00%	30	309	RCP
83	89	2038.7	90	2027.8	21.80%	30	50	HDPE
84	90	2027.8	91	2025.0	1.02%	42	274	HDPE
85	91	2025.0	102	2022.6	1.03%	42	234	HDPE
86	92	2050.4	93	2049.7	1.13%	15	62	HDPE
87	93	2049.7	94	2049.0	1.13%	15	62	HDPE
88	94	2049.0	95	2048.0	1.01%	15	99	HDPE
89	95	2048.0	96	2047.1	1.05%	15	86	HDPE
90	96	2047.1	97	2046.3	1.07%	18	75	HDPE
91	97	2046.3	98	2046.1	1.18%	24	17	RCP
92	98	2046.1	99	2045.7	1.11%	24	36	RCP
93	99	2045.7	100	2044.8	1.01%	30	89	RCP
94	100	2044.8	101	2042.8	1.01%	30	199	HDPE
95	101	2042.8	102	2022.6	27.30%	30	74	HDPE
96	102	2020.7	103	2020.0	1.09%	48	64	HDPE
97	104	2056.5	105	2054.5	2.60%	15	77	RCP
98	105	2054.5	108	2053.6	1.11%	24	81	RCP
99	106	2053.9	107	2053.5	1.11%	15	36	RCP
100	107	2053.5	108	2052.4	1.08%	15	102	RCP
101	108	2052.4	109	2050.3	1.01%	24	207	RCP
102	109	2050.3	110	2020.0	36.51%	24	83	HDPE
103	111	2016.8	112	2016.7	1.25%	6	8	PVC
104	112	2014.2	113	2014.0	0.63%	6	32	PVC
105	114	2048.0	115	2047.0	1.82%	15	55	HDPE
106	116	2044.0	117	2043.5	1.85%	15	27	HDPE

** REFER TO PLANS

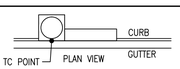


STORM SEWER DRAINAGE STRUCTURE SUMMARY TABLE

STRUCTURE #	TYPE	DEPTH (FT)	TOP ELEV.	INVERT ELEV.
23	CLEAN OUT	2.5	2061.4	2058.9
24	CLEAN OUT	4.3	2061.4	2057.1
25	AREA DRAIN	3.5	2058.5	2055.0
26	VDOT INLET L4	4.3	2057.7	2053.4
27	VDOT INLET L4	4.7	2057.7	2053.0
28	END WALL	-	-	2050.6
29	VDOT INLET L4	4.3	2051.7	2047.4
30	CURB INLET	3.5	2052.7	2049.2
31	VDOT INLET L4	4.7	2051.7	2047.0
32	TRENCH DRAIN START	1.0	2048.7	2047.7
33	TRENCH DRAIN END	1.5	2048.7	2047.2
34	STORM MAN HOLE	5.8	2052.9	2047.1
35	STORM MAN HOLE	6.4	2052.4	2046.0
36	STORM MAN HOLE	4.3	2040.2	2035.9
37	VDOT INLET L4	4.3	2015.8	2011.5
38	VDOT INLET L4	4.7	2015.8	2011.1
39	END WALL	-	-	2003.0
40	CLEAN OUT	2.5	2052.9	2050.4
41	CLEAN OUT	3.0	2052.9	2049.9
42	CLEAN OUT	3.4	2052.9	2049.5
43	CLEAN OUT	3.8	2052.5	2048.7
44	STORM MAN HOLE	3.9	2052.3	2048.4
45	CLEAN OUT	2.5	2052.5	2050.0
46	CLEAN OUT	2.8	2052.5	2049.7
47	CLEAN OUT	3.1	2052.5	2049.4
48	CLEAN OUT	3.6	2052.5	2048.9
49	**STORM MAN HOLE***	4.8	2052.3	2047.5
50	CLEAN OUT	2.5	2052.5	2050.0
51	CLEAN OUT	2.8	2052.5	2049.7
52	CLEAN OUT	3.1	2052.5	2049.4
53	CLEAN OUT	3.6	2052.5	2048.9
54	CLEAN OUT	2.5	2051.8	2049.3
55	**STORM MAN HOLE***	9.2	2052.0	2042.8
56	**CURB INLET***	5.5	2043.0	2037.5
57	CURB INLET	5.4	2040.2	2034.8
58	CURB INLET	5.0	2038.6	2033.6
59	STORM MAN HOLE	5.6	2037.1	2031.5
60	VDOT INLET L4	3.3	2042.0	2038.7
61	VDOT INLET L4	3.3	2039.7	2036.4
62	**DOUBLE AREA DRAIN***	9.5	2041.8	2032.3
63	STORM MAN HOLE	5.0	2037.0	2032.0
64	CLEAN OUT	3.5	2052.2	2048.7
65	CLEAN OUT	3.5	2052.7	2049.2
66	CLEAN OUT	4.8	2052.7	2047.9
67	CURB INLET	4.3	2051.1	2046.8
68	CURB INLET	5.1	2051.3	2046.2
69	CURB INLET	5.8	2051.3	2045.5
70	CLEAN OUT	3.5	2052.7	2049.2
71	CLEAN OUT	3.0	2052.2	2049.2
72	CLEAN OUT	3.8	2052.2	2048.4
73	**CURB INLET***	6.7	2051.5	2044.8
74	TRENCH DRAIN START	0.5	2050.7	2050.2
75	CLEAN OUT	3.5	2050.3	2046.8
76	**STORM MAN HOLE***	4.8	2051.0	2046.2
77	**CURB INLET***	8.6	2052.8	2044.2
78	STORM MAN HOLE	12.4	2055.0	2042.6
79	CLEAN OUT	2.5	2056.4	2053.9
80	CLEAN OUT	3.1	2056.4	2053.3
81	CLEAN OUT	2.5	2056.4	2053.9
82	CLEAN OUT	3.6	2056.3	2052.7
83	CLEAN OUT	2.5	2056.4	2053.9
84	CLEAN OUT	3.1	2056.4	2053.3
85	CLEAN OUT	3.7	2056.4	2052.7
86	AREA DRAIN	3.3	2054.3	2051.0
87	VDOT INLET L4	4.3	2053.0	2048.7
88	**VDOT INLET L4***	10.8	2052.6	2041.8
89	AREA DRAIN	12.3	2051.0	2038.7
90	STORM MAN HOLE	6.8	2034.6	2027.8
91	STORM MAN HOLE	9.2	2034.2	2025.0
92	AREA DRAIN	4.3	2054.7	2050.4
93	AREA DRAIN	5.0	2054.7	2049.7
94	AREA DRAIN	5.6	2054.6	2049.0
95	AREA DRAIN	6.5	2054.5	2048.0
96	AREA DRAIN	7.6	2054.7	2047.1
97	STORM MAN HOLE	12.2	2058.5	2046.3
98	VDOT INLET L4	11.1	2057.2	2046.1
99	VDOT INLET L4	11.5	2057.2	2045.7
100	STORM MAN HOLE	13.6	2058.4	2044.8
101	AREA DRAIN	14.4	2057.2	2042.8
102	**STORM MAN HOLE***	9.3	2030.0	2020.7
103	END WALL	-	-	2020.0
104	VDOT INLET L4	3.3	2069.8	2056.5
105	STORM MAN HOLE	6.0	2060.5	2054.5
106	VDOT INLET L4	4.3	2058.2	2053.9
107	VDOT INLET L4	4.7	2058.2	2053.5
108	**STORM MAN HOLE***	7.4	2059.8	2052.4
109	STORM MAN HOLE	5.7	2056.0	2050.3
110	END WALL	-	-	2026.0
111	TREATMENT STRUCTURE	7.7	2024.5	2016.8
112	TREATMENT STRUCTURE	10.3	2024.5	2014.2
113	PIPE OUTLET	-	-	2014.0
114	HEADWALL	-	-	2048.0
115	ENDWALL	-	-	2047.0
116	PIPE INLET	-	-	2044.0
117	PIPE OUTLET	-	-	2043.5

* DROP STRUCTURE – NOT ALL INVERTS MATCH

IMPORTANT!
GEOTECHNICAL NOTE:
SEE SITE GEOTECHNICAL REPORT FOR ALL SUBGRADE INFORMATION. GEOTECHNICAL REPORT SHALL HAVE PRECEDENCE OVER INFORMATION BOTH GRAPHICAL AND WRITTEN INCLUDED WITHIN THESE SITE PLANS



TC OF VDOT CURB INLETS REPRESENTS THE TOP OF CONCRETE IN THE GUTTER AT THE FACE OF CURB (THE FLOW LINE) AT A POINT EVEN WITH THE MIDDLE OF THE MANHOLE PORTION OF THE STRUCTURE.

CALL THREE WORKING DAYS
BEFORE YOU DIG
811
MISS VIRGINIA UTILITY
CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION

SITE/CIVIL
CAUTION – NOTICE TO CONTRACTOR
The Contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The Contractor must call the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to relocate all existing utilities which conflict with the proposed improvements shown on the plans.

LEGEND

	PROPOSED STORM LINE
(E)	EXISTING
ST	EXISTING STORM LINE
	RIP RAP PAD (SEE DETAIL)

SCALE: 1" = 80'
80' 0' 80' 160'

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE
- [x] CONCEPT DESIGN
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SEAL
COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:
THE MEADOWS
ABINGDON, VA

owner
Marathon Reality Corporation
1 Food City Circle
Abingdon, Virginia 24210

APPALACHIA DESIGN SERVICES
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SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:
DRAINAGE PLAN

DRAWING NO:
C4 OF 34

U:\Projects\ADS\ADS- THE MEADOWS\Project Drawings\Current\THE MEADOWS ROAD REALIGNMENT 11.dwg, DR, 6/8/2016 12:38:03 PM, Computer 2, 1:1

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EXCAVATION AND GRADING NOTES

GENERAL
The requirements listed below are intended to serve as an outline of general requirements. Additional requirements may be set forth in the project manual. Contractor is cautioned to consider all requirements of the project during the bidding process.

CLEARING
Comply with local and state ordinances regarding disposal of debris. Do not burn debris on site without specific written approval of the local authority. Clear and grub for new construction as required.

EXCAVATION PREPARATION
Verify location of existing on-site utilities. Protect and maintain existing utilities as required. Establish and verify existing lines, grade and dimensions shown on the drawing. Report any errors or inconsistencies to the General Contractor, before commencement of work. Commencement of work with out notification will constitute acceptance of the site as is.

EXISTING TOPO ACCURACY
Exist contours shown are intended to form a general description of surface ground elevations. Topographic information shown herein shall be considered to have not more than the following plus or minus limits of accuracy: 0.10 Feet at benchmarks, 0.25 Feet at spot grades, 1.0 Feet at contour lines.

Contractor is cautioned that straight line interpolation between contours may not exactly reflect existing conditions. Areas of relatively quick changes in contours should not be allowed to unduly influence interpretation of contours. Report any errors or inconsistencies to the General Contractor, before commencement of work. Any error not so reported cannot be considered for adjustment in contract price.

STRIPPING AND SPREADING TOPSOIL
Topsoil shall be stripped and temporarily stock piled for later reuse. If no stock pile area is noted on grading plan, stock pile shall be in such a place to avoid conflicts with proposed site features and other trades. If a conflict with proposed site features and or other trades, the grading contractor is to relocate the stock pile at no additinal fee to the owner. Particular attention shall be paid to finely textured topsoil that will be reused for landscaping purposes. General topsoil respreading will be by grading contractor to a minimum depth of 6" at any point except on slope of 2-1/2 to 1 or steeper where topsoil depth shall be 2" min. At any point not receiving sod.

PROOF-ROLLING
All areas to receive new structural fill or other new construction shall be proof rolled with a 20 ton tandem dump truck in presence of soils testing agent before commencing any construction activity. All areas to be compacted shall receive 8 passes with compaction roller. Soil engineer shall notify GC, that all areas have passed proof roll inspection prior to commencement cut & fill of grading. Do not commence grading prior to such notification.

UNDERCUT-BACKFILL
Undercut shall mean excavation or other removal of unsuitable material below elevation of proposed final subgrade. In no case shall the term undercut be used to describe material occuring above final subgrade elevation. Extent of undercut of unsuitable materials, if any must be recommended by the soil engineer for the owner's approval. Soil engineer shall not have unilateral authority to direct undercut activities without approval of the owner's representative. Soil engineer's written field notes will be required to substantiate amounts of undercut. Backfill shall be of approved material only. Money for required testing shall be included in quoted prices concerning undercut and backfill.

Where terms of bidding call for an unclassified contract no payments for undercut/backfill will be considered. Such quotes shall be included in the contractor's base bid. Undercut & backfill shall not constitute an extra to the contract in unclassified contracts.

STRUCTURAL FILL
Structural fill shall be compacted as specified in excavation and grading schedule within -1% to +3% of optimum moisture content. Off site borrow areas shall be approved by Soils Eng.. Place fill and backfill in layers as specified in excavation and grading notes. Use no deleterious material, organic, or rock larger than as required. In-situ soils may require additional water or may require additional drying to reach optimum moisture content for compaction.

GRADING TOLERANCE
Grading contractor shall bring subgrade to within an average of 1/10 of one foot of required elevation to obtain finished grade indicated on drawings except at locations where spot elevations are shown and where floor elevations are shown which shall be within 1/100 of 1 foot of required elevations. Final subgrade shall be spot checked by a licensed surveyor with not less than 1 shot per 35 SF and at each finished floor elevation and a drawing prepared and forwarded to ADS. for approval prior to commencing fine grade, paving or building construction. Grading Contractor shall be responsible for minor adjustments in grades as directed by the GC. Such changes shall be limited to 1500 cubic yards total. No additional cost will be allowed for this work.

IMPORT/ EXPORT OF SITE MATERIALS
All import and export materials needed to complete plan per specifications shall be the sole responsibility of site grading contractor. allowances will not be given for the removal of cut or fill material nor will allowances be given for the exporting or importing of cut or fill material. Any off site borrow or waste areas to be permitted by the site grading contractor prior to construction. All site testing of materials will be the sole responsibility of the site grading contractor.

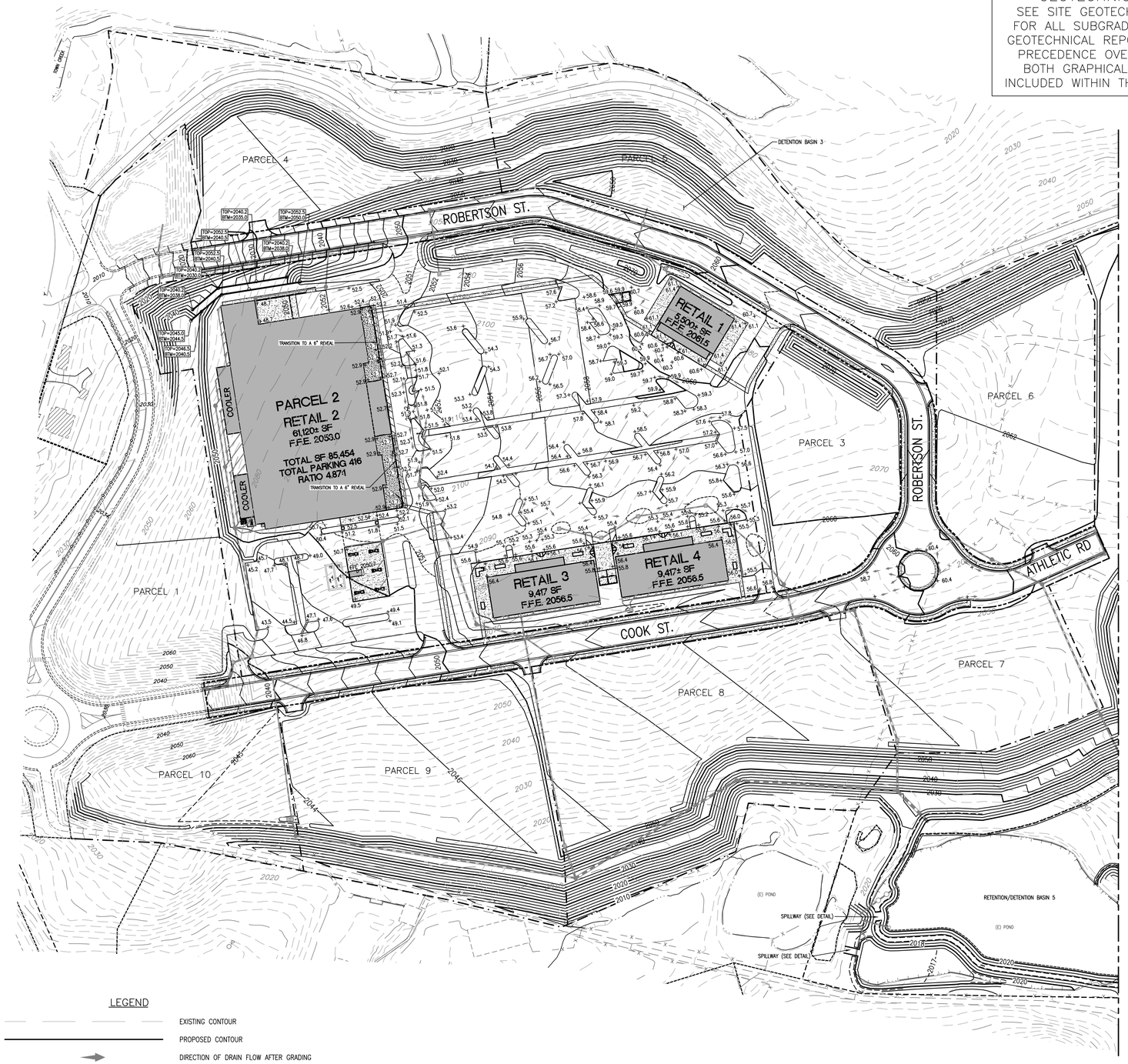
TESTING
The Grading Contractor shall include price of all required testing as set forth herein to be performed by an independent qualified geotechnical testing agent suitable to the Developer. Test reports must use graphic location map at 1" = 100' scale for location of density tests. Original copies of all tests shall be forwarded directly to the General Contractor from the testing agent. All tests shall specifically state that the test either passes or fails to meet the Geotechnical specifications. Grading Contractor shall include in his base bid 10 (ten) soil compaction tests after completion of the work, located per General Contractor.

WATER CONTROL
The Grading Contractor shall furnish all labor, materials and equipment necessary to keep the work free of water either from surface sources or from underground sources or both. Selection of equipment and methods shall be the sole responsibility of the Grading Contractor. The Grading Contractor shall be and is responsible for all damage incurred in handling water conditions. Additionally, the Grading Contractor shall provide means necessary to avoid direct run-off from this project onto adjacent property.

SEEDING
Seeding of all disturbed areas not paved or built upon shall be the responsibility of the grading contractor unless noted otherwise. Hardened soil shall be loosened to a depth of 6" and topsoil respread as noted before seeding. Respread topsoil shall be free of any debris and or gravel. Reseed per the listed seeding schedule. Sodding shall be as specified on the Landscape Plan.

EROSION CONTROL
Expose minimum amount of subgrade possible at one time to allow for efficient proceeding of the work. Grassing and other erosion control means shall be employed, maintained and reconstructed as required if destroyed by erosion. Sediment deposited on existing paving by construction activities shall be cleaned-up immediately. Temporary sediment fences shall be constructed and/or installed prior to stripping of topsoil. Provide and maintain inlet protection around drainage structures and to prevent siltation throughout construction. Re-topsoil or rework topsoil and reseed in areas that experience erosion during construction. Do not remove erosion control measures until entire site is stabilized.

PERMITS
Grading Contractor shall pay all grading permit fees.
Grading Contractor to post grading bond, if required.



LEGEND

	EXISTING CONTOUR
	PROPOSED CONTOUR
	DIRECTION OF DRAIN FLOW AFTER GRADING
+ 00.0	SPOT ELEVATION (+2000)
(E)	EXISTING

SITE/GRADING

STRIPPING AND COMPACTION SCHEDULE

Required compaction percentages (% max dry density)
standard proctor method ASTM Test # D698

Building Area 98 % Parking/Road 98 % Utility Trench 98 %

Vibratory compaction roller type req'd (gross wt. 20,000 #)

TESTING:
Allow 1 compaction test per ea. 2500 S.F. (Max 50' x 50' area) per lift at building areas.

Allow 1 compaction test per each 2,500 S.F. of cut or natural grade at building area.

Allow 1 compaction test per ea. 2500 S.F. (Max 50' x 50' area) per lift at parking area.

Allow 1 compaction test per each 2500 S.F. of cut or natural grade at parking area.

Maximum lift thickness shall be 8", unless noted otherwise.

CALL THREE WORKING DAYS
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CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION

SITE/CIVIL
CAUTION - NOTICE TO CONTRACTOR
The Contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The Contractor must call the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to relocate all existing utilities which conflict with the proposed improvements shown on the plans.

SCALE: 1" = 80'
80' 0' 80' 160'

REVISIONS

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- [x] CONCEPT DESIGN
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- [ ] CONSTRUCTION DOCUMENTS
- [ ] CONSTRUCTION ADMINISTRATION

SEAL
COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:
THE MEADOWS
ABINGDON, VA

owner
Marathon Reality Corporation
1 Food City Circle
Abingdon, Virginia 24210

APPALACHIA DESIGN SERVICES
INCORPORATED
245 Birch Street
Blountville, TN 37617
Phone: (423) 323-1206
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SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:

GRADING PLAN

DRAWING NO:
C5 OF 34

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SITE NOTE:
THE OWNER/DEVELOPER SHALL BE REQUIRED TO OBTAIN ALL ADDITIONAL PROPERTIES AND REQUIRED EASEMENTS TO COMPLETE THE SITE AS SHOWN ON THESE PLANS. THE PROPOSED SITE IMPROVEMENTS AS SHOWN IN THESE PLANS SHALL NOT BE PERFORMED UNTIL THE REQUIRED EASEMENTS AND PROPERTIES ARE AQUIRED AND APPROVED.

SITE/CIVIL

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IMPORTANT!

GEOTECHNICAL NOTE:
SEE SITE GEOTECHNICAL REPORT FOR ALL SUBGRADE INFORMATION. GEOTECHNICAL REPORT SHALL HAVE PRECEDENCE OVER INFORMATION BOTH GRAPHICAL AND WRITTEN INCLUDED WITHIN THESE SITE PLANS

EXCAVATION AND GRADING NOTES

GENERAL
The requirements listed below are intended to serve as an outline of general requirements. Additional requirements may be set forth in the project manual. Contractor is cautioned to consider all requirements of the project during the bidding process.

CLEARING
Comply with local and state ordinances regarding disposal of debris. Do not burn debris on site without specific written approval of the local authority. Clear and grub for new construction as required.

EXCAVATION PREPARATION
Verify location of existing on-site utilities. Protect and maintain existing utilities as required. Establish and verify existing lines, grade and dimensions shown on the drawing. Report any errors or inconsistencies to the General Contractor, before commencement of work. Commencement of work with out notification will constitute acceptance of the site as is.

EXISTING TOPO ACCURACY
Exist contours shown are intended to form a general description of surface ground elevations. Topographic information shown herein shall be considered to have not more than the following plus or minus limits of accuracy: 0.10 Feet at benchmarks, 0.25 Feet at spot grades, 1.0 Feet at contour lines.

Contractor is cautioned that straight line interpolation between contours may not exactly reflect existing conditions. Areas of relatively quick changes in contours should not be allowed to unduly influence interpretation of contours. Report any errors or inconsistencies to the General Contractor, before commencement of work. Any error not so reported cannot be considered for adjustment in contract price.

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Topsoil shall be stripped and temporarily stock piled for later reuse. If no stock pile area is noted on grading plan, stock pile shall be in such a place to avoid conflicts with proposed site features and other trades. If a conflict with proposed site features and or other trades, the grading contractor is to relocate the stock pile at no additinal fee to the owner. Particular attention shall be paid to finely textured topsoil that will be reused for landscaping purposes. General topsoil respreading will be by grading contractor to a minimum depth of 6" at any point except on slope of 2-1/2 to 1 or steeper where topsoil depth shall be 2" min. At any point not receiving sod.

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All areas to receive new structural fill or other new construction shall be proof rolled with a 20 ton tandem dump truck in presence of soils testing agent before commencing any construction activity. All areas to be compacted shall receive 8 passes with compaction roller. Soil engineer shall notify GC, that all areas have passed proof roll inspection prior to commencement cut & fill of grading. Do not commence grading prior to such notification.

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Structural fill shall be compacted as specified in excavation and grading schedule within -1% to +3% of optimum moisture content. Off site borrow areas shall be approved by Soils Eng. Place fill and backfill in layers as specified in excavation and grading notes. Use no deleterious material, organic, or rock larger than as required. In-situ soils may require additional water or may require additional drying to reach optimum moisture content for compaction.

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EROSION CONTROL
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Grading Contractor to post grading bond, if required.

SITE/GRADING

STRIPPING AND COMPACTION SCHEDULE

Required compaction percentages (% max dry density)
standard proctor method ASTM Test # D698

Building Area 98 % Parking/Road 98 % Utility Trench 98 %

Vibratory compaction roller type req'd (gross wt. 20,000 #)

TESTING:
Allow 1 compaction test per ea. 2500 S.F. (Max 50' x 50' area) per lift at building areas.

Allow 1 compaction test per each 2,500 S.F. of cut or natural grade at building area.

Allow 1 compaction test per ea. 2500 S.F. (Max 50' x 50' area) per lift at parking area.

Allow 1 compaction test per each 2500 S.F. of cut or natural grade at parking area.

Maximum lift thickness shall be 8", unless noted otherwise.

LEGEND

	30' BUFFER LINE
	PROPOSED DITCH
	EXISTING CONTOUR
	PROPOSED CONTOUR
	DIRECTION OF DRAIN FLOW AFTER GRADING
+ 00.0	SPOT ELEVATION (+2000)
(E)	EXISTING

DITCH DESIGN SUMMARY TABLE

ID	A	B	C	D	E	F	G
DESIGN FLOW (CFS)	19.64	42.06	42.23	8.5	11.01	5.21	1.17
BOTTOM WIDTH (FT)	0	0	0	0	0	0	0
CHANNEL DEPTH (FT)	2	4	2	2	2	2	2
DESIGN DEPTH (FT)	1.55	2.04	1.76	1.11	0.8	0.77	.42'
SIDE SLOPE (H:1)	2	2	2	2	2	2	2
CHANNEL SLOPE (%)	1	1.13	3.55	1.11	2.52	3.03	3.69
FLOW VELOCITY (FT/ SEC)	3.88	4.95	6.82	3.25	4.16	4.23	3.12
LINING MATERIAL	GRASS	GRASS	RIP-RAP	GRASS	GRASS	GRASS	GRASS
MANNINGS "n"	0.03	0.03	0.035	0.03	0.03	0.03	C

SEE SHEET D6 FOR TYPICAL DITCH SECTION

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SCALE: 1" = 80'
80' 0' 80' 160'

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JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

THE MEADOWS
ABINGDON, VA

owner
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1 Food City Circle
Abingdon, Virginia 24210

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INCORPORATED

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SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:

GRADING PLAN

DRAWING NO:
C6 OF 34

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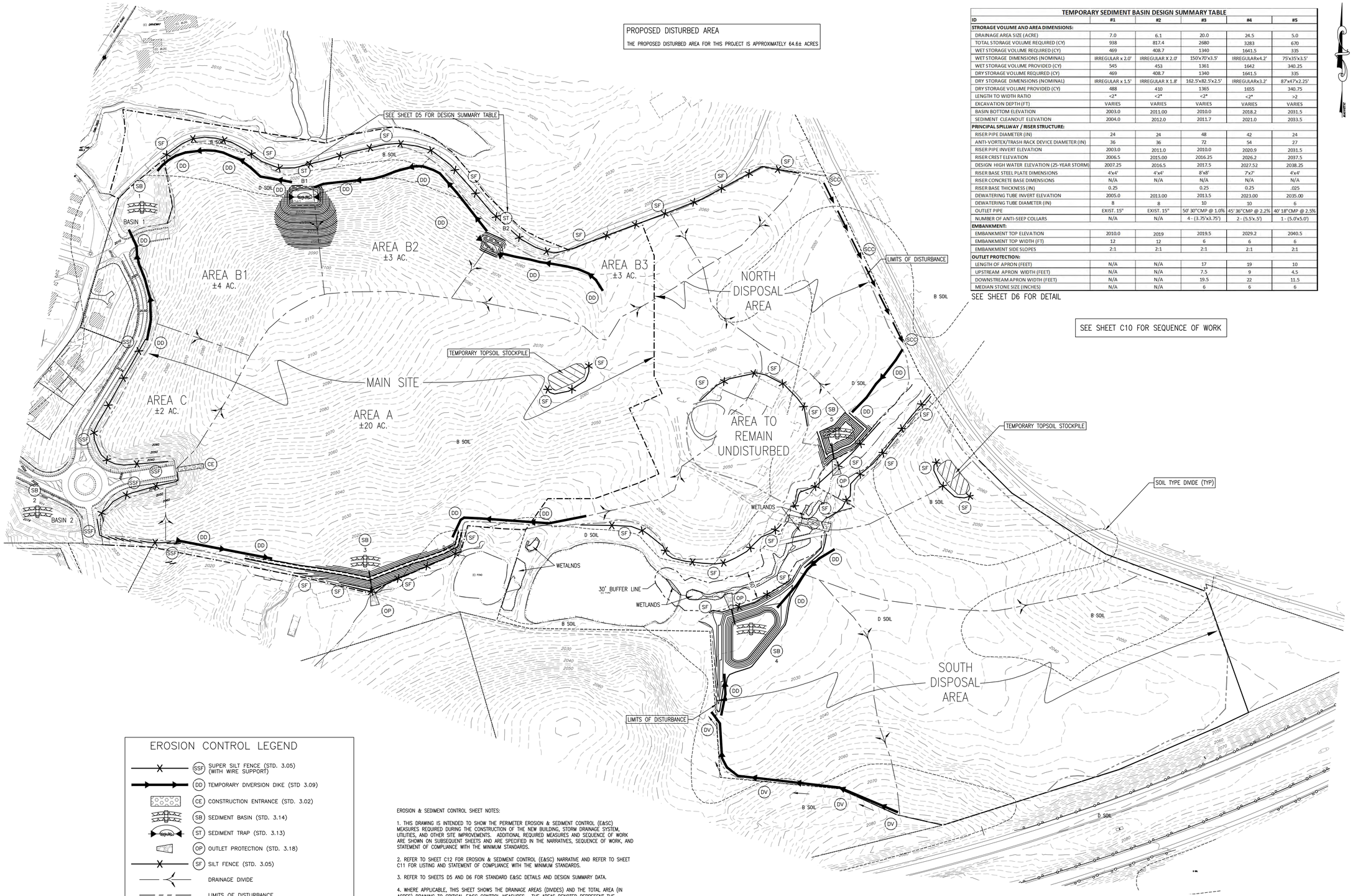

TEMPORARY SEDIMENT BASIN DESIGN SUMMARY TABLE

ID	#1	#2	#3	#4	#5
STRORAGE VOLUME AND AREA DIMENSIONS:					
DRAINAGE AREA SIZE (ACRE)	7.0	6.1	20.0	24.5	5.0
TOTAL STORAGE VOLUME REQUIRED (CY)	938	817.4	2680	3283	670
WET STORAGE VOLUME REQUIRED (CY)	469	408.7	1340	1641.5	335
WET STORAGE DIMENSIONS (NOMINAL)	IRREGULAR x 2.0'	IRREGULAR X 2.0'	150'x70'x3.5'	IRREGULARx4.2'	75'x35'x3.5'
WET STORAGE VOLUME PROVIDED (CY)	545	453	1361	1642	340.25
DRY STORAGE VOLUME REQUIRED (CY)	469	408.7	1340	1641.5	335
DRY STORAGE DIMENSIONS (NOMINAL)	IRREGULAR x 1.5'	IRREGULAR X 1.8'	162.5'x82.5'x2.5'	IRREGULARx3.2'	87'x47'x2.25'
DRY STORAGE VOLUME PROVIDED (CY)	488	410	1365	1655	340.75
LENGTH TO WIDTH RATIO	<2*	<2*	<2*	<2*	>2
EXCAVATION DEPTH (FT)	VARIES	VARIES	VARIES	VARIES	VARIES
BASIN BOTTOM ELEVATION	2003.0	2011.00	2010.0	2018.2	2031.5
SEDIMENT CLEANOUT ELEVATION	2004.0	2012.0	2011.7	2021.0	2033.5
PRINCIPAL SPILLWAY / RISER STRUCTURE:					
RISER PIPE DIAMETER (IN)	24	24	48	42	24
ANTI-VORTEX/TRASH RACK DEVICE DIAMETER (IN)	36	36	72	54	27
RISER PIPE INVERT ELEVATION	2003.0	2011.0	2010.0	2020.9	2031.5
RISER CREST ELEVATION	2006.5	2015.00	2016.25	2026.2	2037.5
DESIGN HIGH WATER ELEVATION (25-YEAR STORM)	2007.25	2016.5	2017.5	2027.52	2038.25
RISER BASE STEEL PLATE DIMENSIONS	4'x4'	4'x4'	8'x8'	7'x7'	4'x4'
RISER CONCRETE BASE DIMENSIONS	N/A	N/A	N/A	N/A	N/A
RISER BASE THICKNESS (IN)	0.25		0.25	0.25	.025
DEWATERING TUBE INVERT ELEVATION	2005.0	2013.00	2013.5	2023.00	2035.00
DEWATERING TUBE DIAMETER (IN)	8	8	10	10	6
OUTLET PIPE	EXIST. 15"	EXIST. 15"	50' 30"CMP @ 1.0%	45' 36"CMP @ 2.2%	40' 18"CMP @ 2.5%
NUMBER OF ANTI-SEEP COLLARS	N/A	N/A	4 - (3.75'x3.75')	2 - (5.5'x.5')	1 - (5.0'x5.0')
EMBANKMENT:					
EMBANKMENT TOP ELEVATION	2010.0	2019	2019.5	2029.2	2040.5
EMBANKMENT TOP WIDTH (FT)	12	12	6	6	6
EMBANKMENT SIDE SLOPES	2:1	2:1	2:1	2:1	2:1
OUTLET PROTECTION:					
LENGTH OF APRON (FEET)	N/A	N/A	17	19	10
UPSTREAM APRON WIDTH (FEET)	N/A	N/A	7.5	9	4.5
DOWNSTREAM APRON WIDTH (FEET)	N/A	N/A	19.5	22	11.5
MEDIAN STONE SIZE (INCHES)	N/A	N/A	6	6	6

EROSION CONTROL LEGEND

- SSF — SUPER SILT FENCE (STD. 3.05) (WITH WIRE SUPPORT)
- DD — TEMPORARY DIVERSION DIKE (STD 3.09)
- CE — CONSTRUCTION ENTRANCE (STD. 3.02)
- SB — SEDIMENT BASIN (STD. 3.14)
- ST — SEDIMENT TRAP (STD. 3.13)
- OP — OUTLET PROTECTION (STD. 3.18)
- SF — SILT FENCE (STD. 3.05)
- DRAINAGE DIVIDE
- LIMITS OF DISTURBANCE
- SOIL TYPE DIVIDE
- SCC — STORMWATER CONVEYANCE CHANNEL (STD. 3.17)
- CRS — CONSTRUCTION ROAD STABILIZATION (STD. 3.03)
- DV — DIVERSION (STD 3.12)

EROSION & SEDIMENT CONTROL SHEET NOTES:

1. THIS DRAWING IS INTENDED TO SHOW THE PERIMETER EROSION & SEDIMENT CONTROL (E&SC) MEASURES REQUIRED DURING THE CONSTRUCTION OF THE NEW BUILDING, STORM DRAINAGE SYSTEM, UTILITIES, AND OTHER SITE IMPROVEMENTS. ADDITIONAL REQUIRED MEASURES AND SEQUENCE OF WORK ARE SHOWN ON SUBSEQUENT SHEETS AND ARE SPECIFIED IN THE NARRATIVES, SEQUENCE OF WORK, AND STATEMENT OF COMPLIANCE WITH THE MINIMUM STANDARDS.

2. REFER TO SHEET C12 FOR EROSION & SEDIMENT CONTROL (E&SC) NARRATIVE AND REFER TO SHEET C11 FOR LISTING AND STATEMENT OF COMPLIANCE WITH THE MINIMUM STANDARDS.

3. REFER TO SHEETS D5 AND D6 FOR STANDARD E&SC DETAILS AND DESIGN SUMMARY DATA.

4. WHERE APPLICABLE, THIS SHEET SHOWS THE DRAINAGE AREAS (DIVIDES) AND THE TOTAL AREA (IN ACRES) DRAINING TO CRITICAL E&SC CONTROL MEASURES. THE AREAS DENOTED REPRESENT THE MAXIMUM AREA DRAINING TO A GIVEN MEASURE.

5. WHERE APPLICABLE, THIS DRAWING SHOWS THE TYPES AND APPROXIMATE LIMITS OF SOILS ANTICIPATED TO BE ENCOUNTERED ON THE SITE. ALL SOIL DATA IS TAKEN FROM UNITED STATED DEPARTMENT OF AGRICULTURE – NATURAL RESOURCES CONSERVATION SERVICES – NATIONAL COOPERATIVE SOIL SURVEY PUBLICATIONS.

6. REFER TO E&SC NARRATIVE FOR INFORMATION REGARDING "CRITICAL EROSION AREAS."

7. A CERTIFIED RESPONSIBLE LAND DISTURBER (RLD) SHALL OVERSEE AND BE INVOLVED IN ALL ASPECTS OF THE LAND DISTURBANCE ACTIVITIES (FROM INITIAL LAND DISTURBANCE THROUGH FINAL STABILIZATION). THE NAME OF THE RLD SHALL BE PROVIDED TO PLAN REVIEWING AUTHORITY AT OR PRIOR TO THE PRECONSTRUCTION CONFERENCE. THIS PERSON SHALL ATTEND THE PRECONSTRUCTION CONFERENCE AND PROVIDE A COPY OF HIS RLD CERTIFICATE.

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SCALE: 1" = 120'
120' 0' 120' 240'

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Marathon Reality Corporation
1 Food City Circle
Abingdon, Virginia 24210

APPALACHIA DESIGN SERVICES
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DRAWING INFORMATION

SCALE:	AS SHOWN
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:
EROSION AND SEDIMENT CONTROL PLAN ~ PHASE 1

DRAWING NO:
C7 OF 34

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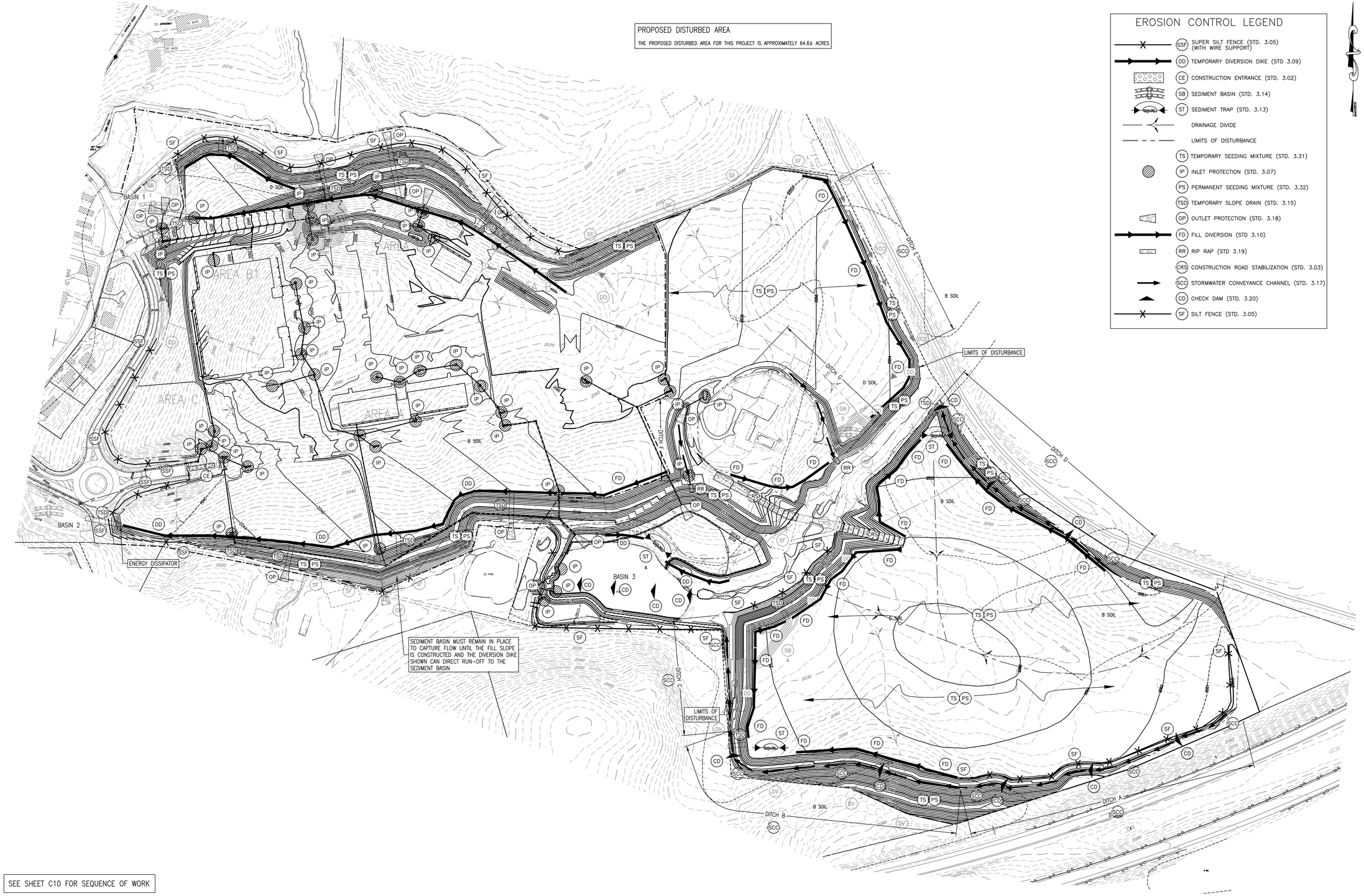

EROSION CONTROL LEGEND

- SSF — SUPER SILT FENCE (STD. 3.05) (WITH WIRE SUPPORT)
- DD — TEMPORARY DIVERSION DIKE (STD 3.09)
- CE — CONSTRUCTION ENTRANCE (STD. 3.02)
- SB — SEDIMENT BASIN (STD. 3.14)
- ST — SEDIMENT TRAP (STD. 3.13)
- DRAINAGE DIVIDE
- LIMITS OF DISTURBANCE
- TS — TEMPORARY SEEDING MIXTURE (STD. 3.31)
- IP — INLET PROTECTION (STD. 3.07)
- PS — PERMANENT SEEDING MIXTURE (STD. 3.32)
- TSD — TEMPORARY SLOPE DRAIN (STD. 3.15)
- OP — OUTLET PROTECTION (STD. 3.18)
- FD — FILL DIVERSION (STD 3.10)
- RR — RIP RAP (STD 3.19)
- CRS — CONSTRUCTION ROAD STABILIZATION (STD. 3.03)
- SCC — STORMWATER CONVEYANCE CHANNEL (STD. 3.17)
- CD — CHECK DAM (STD. 3.20)
- SF — SILT FENCE (STD. 3.05)

SEE SHEET C10 FOR SEQUENCE OF WORK

SEE SHEET D6 FOR TYPICAL DITCH SECTION

CALL THREE WORKING DAYS
BEFORE YOU DIG
811
MISS VIRGINIA UTILITY

CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION

SITE/CIVIL

CAUTION – NOTICE TO CONTRACTOR

The Contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The Contractor must call the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to relocate all existing utilities which conflict with the proposed improvements shown on the plans.

SCALE: 1" = 120'

120' 0' 120' 240'

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- [x] CONCEPT DESIGN
- [ ] DESIGN DEVELOPMENT
- [ ] CONSTRUCTION BIDDING PHASE
- [ ] CONSTRUCTION DOCUMENTS
- [ ] CONSTRUCTION ADMINISTRATION

SEAL

COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

THE MEADOWS
ABINGDON, VA

owner
Marathon Reality Corporation
1 Food City Circle
Abingdon, Virginia 24210

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DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:

EROSION AND SEDIMENT CONTROL PLAN ~ PHASE 2A

DRAWING NO:

C8 OF 34

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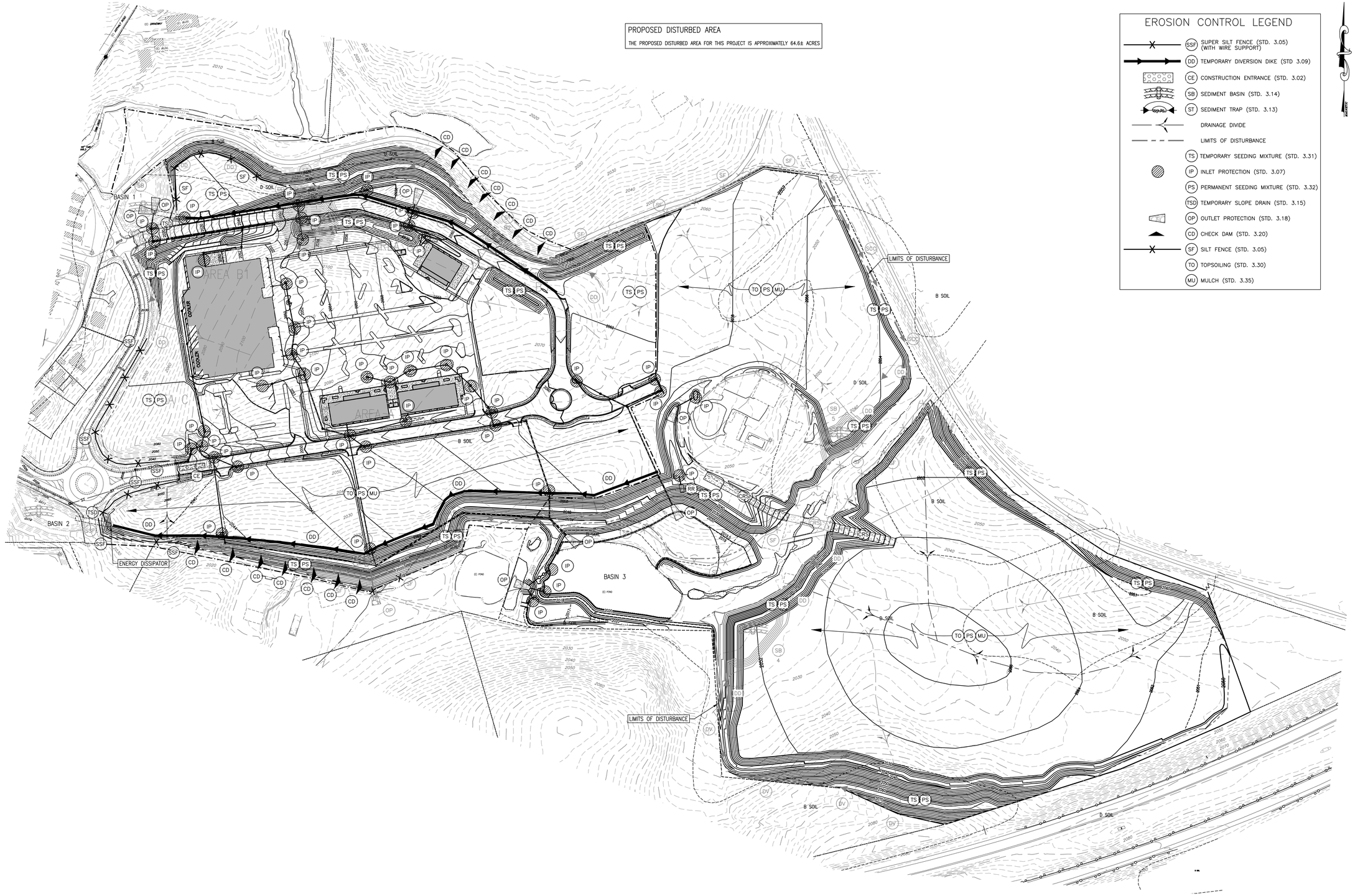

EROSION CONTROL LEGEND

- SSF — SUPER SILT FENCE (STD. 3.05) (WITH WIRE SUPPORT)
- DD — TEMPORARY DIVERSION DIKE (STD 3.09)
- CE — CONSTRUCTION ENTRANCE (STD. 3.02)
- SB — SEDIMENT BASIN (STD. 3.14)
- ST — SEDIMENT TRAP (STD. 3.13)
- DRAINAGE DIVIDE
- LIMITS OF DISTURBANCE
- TS — TEMPORARY SEEDING MIXTURE (STD. 3.31)
- IP — INLET PROTECTION (STD. 3.07)
- PS — PERMANENT SEEDING MIXTURE (STD. 3.32)
- TSD — TEMPORARY SLOPE DRAIN (STD. 3.15)
- OP — OUTLET PROTECTION (STD. 3.18)
- CD — CHECK DAM (STD. 3.20)
- SF — SILT FENCE (STD. 3.05)
- TO — TOPSOILING (STD. 3.30)
- MU — MULCH (STD. 3.35)

SEE SHEET C10 FOR SEQUENCE OF WORK

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BEFORE YOU DIG
811
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SITE/CIVIL

C A U T I O N – N O T I C E T O C O N T R A C T O R

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SCALE: 1" = 120'

120' 0' 120' 240'

REVISIONS

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DRAWING TITLE:

EROSION AND SEDIMENT CONTROL PLAN ~ PHASE 2B

DRAWING NO:

C9 OF 34

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EROSION & SEDIMENT CONTROL GENERAL NOTES
(ADOPTED FROM TABLE 6-1 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK)

ES-1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 4VAC50-30 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2. UNLESS OTHERWISE NOTED HEREON OR STIPULATED BY THE LAND DISTURBING PERMIT, THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRECONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3. UNLESS OTHERWISE NOTED IN THE E&SC NARRATIVE, PERIMETER CONTROLS AND SEDIMENT TRAPS SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

ES-4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES-5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY OR PROVIDE DOCUMENTATION OF APPROVAL / PERMITTING FOR SAID SITE.

ES-6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES-7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES-9. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

ES-10. THE EROSION AND SEDIMENT CONTROL (E&SC) MEASURES SHOWN ON THESE SHEETS ARE TO BE CONSTRUCTED DURING THE SITE GRADING AND CONSTRUCTION. REFER TO THE FOLLOWING SHEETS FOR EROSION AND SEDIMENT CONTROL NARRATIVE, SEQUENCE OF WORK, DETAILS, AND DESIGN DATA.

ES-11. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

ES-12. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

ES-13. PERMANENT OR TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE.

ES-14. TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN FOURTEEN (14) DAYS. PERMANENT STABILIZATION MEASURES SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

ES-15. PERMANENT SEEDING APPLIED TO ALL MECHANICALLY STABILIZED SLOPES AND SLOPES STEEPER THAN 3:1 AND SHALL MEET THE FOLLOWING SEED MIXTURE:

POUNDS PER ACRE	SEED TYPE
108	KENTUCKY 31
2	RED TOP
20	SEASONAL NURSE CROP (ANNUAL RYE, FOXTAIL MILLET, & WINTER RYE MIX)
20	CROWN VETCH

ES-16. ALL AREAS DISTURBED BY THE WORK OF THIS PROJECT SHALL BE STABILIZED BY EITHER THE CONSTRUCTION OF A PERMANENT SURFACE SUCH AS CURB, PAVEMENT, OR CONCRETE SIDEWALK, OR STABILIZED BY MEANS OF PERMANENT SEEDING OR ANOTHER APPROVED STABILIZATION METHOD.

ES-17. FOLLOWING THE COMPLETION OF SITE DEVELOPMENT CONSTRUCTION/GRADING, CONFIRMED STABILIZATION OF ALL DISTURBED AREAS, CONFIRMATION THAT EROSION OR SEDIMENTATION IS NO LONGER OCCURRING ON THE PROJECT SITE OR AT ITS BOUNDARIES, CONFIRMATION THAT DRAINAGE FLOWS ARE FUNCTIONING ACCORDING TO DESIGN, AND APPROVAL HAS BEEN GRANTED BY THE EROSION AND SEDIMENT CONTROL INSPECTOR, THE CONTRACTOR MAY THEN BEGIN TO REMOVE THE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES. THIS WORK SHALL BE DONE IN A CAREFUL, NEAT, AND ORGANIZED MANNER. IF DEWATERING IS REQUIRED, WATER SHALL BE PUMPED TO AN APPROVED FILTERING DEVICE.

GENERAL SEQUENCE OF WORK:

I. PHASE I EROSION & SEDIMENT CONTROL:

a. IN ORDER TO MINIMIZE THE POTENTIAL FOR SOIL EROSION AND SEDIMENTATION OF DOWNSTREAM WATERWAY AND PROPERTIES, THE WORK OF THE PROJECT SHALL BE STAGED AND EXECUTED GENERALLY CHRONOLOGICALLY IN ACCORDANCE WITH THE GENERAL WORK SEQUENCE OUTLINED BELOW. THE WORK SEQUENCE MAY BE ALTERED UPON SUBMISSION AND APPROVAL OF WRITTEN AMENDMENTS OR APPROVED FIELD AMENDMENTS.
b. IN ORDER TO ADEQUATELY DESCRIBE THE EROSION AND SEDIMENT CONTROL (E&SC) MEASURES AND THE SEQUENCE OF INSTALLATION, THIS NARRATIVE IS DIVIDED INTO THREE SECTION – EACH CORRESPONDING TO THE DEFINED AREAS OF THE OVERALL PROJECT SITE.
c. THIS DRAWING IS INTENDED TO SHOW THE PERIMETER EROSION & SEDIMENT CONTROL (E&SC) MEASURES REQUIRED DURING PHASE I – THE INITIAL STAGES OF CLEARING, GRUBBING, AND MASS GRADING OPERATIONS ASSOCIATED WITH THE CONSTRUCTION OF NEW STORM DRAINAGE SYSTEM, UTILITIES, AND ROADWAY/SITE IMPROVEMENTS. ADDITIONAL REQUIRED MEASURES AND SEQUENCE OF WORK ARE SHOWN AND SPECIFIED ON SUBSEQUENT SHEETS.

II. MAIN SITE AREA:

a. GENERAL: THE MAIN SITE AREA IS GENERALLY DIVIDED INTO TWO DISTINCT DRAINAGE AREAS – THE NORTH AREA AND THE SOUTH AREA – DEFINED BY A HIGH-POINT /CREST WHICH RUNS THROUGH THE SITE IN GENERALLY A WEST TO EAST DIRECTION. THE SEQUENCE FOR THE MAIN SITE WILL BE BROKEN DOWN BY THESE TWO AREAS.
b. INSTALL TEMPORARY CONSTRUCTION ENTRANCE (CE) WHERE SHOWN ON THE PLAN. IT IS ANTICIPATED THE ROAD SERVING THE SITE (GREEN SPRINGS ROAD FROM CUMMINGS STREET) WILL BE UNDER CONSTRUCTION CONCURRENTLY WITH THIS PROJECT. REFER TO THE DRAWINGS FOR GREEN SPRINGS ROAD FOR ADDITIONAL INFORMATION REGARDING THE PLACEMENT OF THE TEMPORARY CONSTRUCTION ENTRANCE. IF AN EXISTING (CE) IS IN-PLACE AND LOCATED ON THE GREEN SPRING ROAD PROJECT THE CONTRACTOR SHALL INSPECT THE (CE) AND ENSURE IT MEETS THE MINIMUM STANDARDS SHOWN ON THE DETAILS AND SPECIFICATIONS.
c. IN THE NORTHERN AREA OF MAIN SITE:
i. INSTALL SILT FENCE (SF) JUST DOWNSLOPE OF THE SEDIMENT TRAPS; INSTALL TEMPORARY SEDIMENT TRAP (TST) NO. 1 AND NO. 2 WHERE SHOWN; AND INSTALL THE DIVERSION DIKE (DD) ALONG THE NORTHERN PERIMETER DRAINING TO (TST) NOS. 1 & 2 AS SHOWN ON THE PLAN.
ii. TEMPORARY SEDIMENT BASIN (TSB) NO. 1 WILL BE CONSTRUCTED BY THE GREEN SPRINGS ROAD PROJECT AND SHOULD BE IN-PLACE WHEN THIS PROJECT STARTS. IF NOT, CONSTRUCT THE (TSB) IN ACCORDANCE WITH THE APPROVED PLANS. INSTALL THE DIVERSION DIKE (DD) ALONG THE NORTHWESTERN AND WESTERN PERIMETER THAT WILL DRAIN TO (TSB) NO. 1.
iii. INSTALL SILT FENCE (SF) ALONG THE REMAINDER OF THE WESTERN PERIMETER ADJACENT TO THE GREEN SPRINGS ROAD PROJECT AND THE CONSTRUCTION ENTRANCE INTO THE SITE.
d. IN THE SOUTHERN AREA OF MAIN SITE:
i. INSTALL SILT FENCE (SF) DOWNSLOPE OF THE AREA WHERE TEMPORARY SEDIMENT BASIN NO. 3 (TSB-3) WILL BE INSTALLED.
ii. TEMPORARY SEDIMENT BASIN – REFER TO SEQUENCE UNDER "NORTH DISPOSAL AREA."
iii. INSTALL DIVERSION DIKE (DD) WHERE SHOWN IN ORDER TO DIVERT FLOW INTO (TSB) NO. 3.
iv. INSTALL SILT FENCE (SF) ALONG THE REMAINDER OF THE WESTERN PERIMETER ADJACENT TO THE GREEN SPRINGS ROAD PROJECT AND THE CONSTRUCTION ENTRANCE INTO THE SITE.
e. CALL FOR INSPECTION AND APPROVAL OF THESE E&SC MEASURES.
f. INSTALL ADDITIONAL E&SC MEASURE AS DEEMED NECESSARY AND REQUIRED BY THE E&SC INSPECTOR. NOTE – TOPSOIL STRIPING, GRUBBING, AND MASS GRADING MAY ONLY PROCEED UPON APPROVAL OF PERIMETER MEASURES BY E&SC INSPECTOR.
g. STRIP AND STOCKPILE TOPSOIL ON-SITE (AT LOCATION SHOWN HEREON) AS NECESSARY TO ENSURE ADEQUATE TOPSOIL IS AVAILABLE TO DRESS CONSTRUCTED SLOPES. PROTECT STOCKPILE FROM EROSION WITH PERIMETER SILT FENCE (SF) AND TEMPORARY SEEDING (TS).
h. THE AREA OF LAND DISTURBANCE FOR THIS PROJECT IS GENERALLY VOID OF MATURE TREES. IT IS NOT ANTICIPATED THAT EXTENSIVE LOGGING WITHIN THE LIMITS OF LAND DISTURBANCE WILL BE REQUIRED. PERFORM TREE REMOVAL / LOGGING WITHIN THE LIMITS OF LAND DISTURBANCE. PROTECT TREES TO REMAIN AS SHOWN ON THE LANDSCAPE PLAN. MINIMIZE LAND DISTURBANCE DUE TO LOGGING.
i. BEGIN MASS GRADING WITHIN THE AREAS DRAINING TO THESE MEASURES. REFER TO PHASE 2 PLANS, WORK SEQUENCE, AND NARRATIVE FOR ADDITIONAL INFORMATION.

III. NORTH DISPOSAL AREA:

a. FLAG PROPOSED LIMITS OF LAND DISTURBANCE.
b. INSTALL SILT FENCE (SF) ALONG THE NORTHERN PERIMETER OF THE SITE AT THE LOCATION AND TO THE EXTENT SHOWN ON THIS SHEET.
c. INSTALL SILT FENCE (SF) / SUPER SILT FENCE (SSF) ALONG THE SOUTHWESTERN PERIMETER OF THE GRADING AREA (JUST DOWNGRADE FROM THE FARMHOUSE TO REMAIN) AT THE LOCATION AND TO THE EXTENT SHOWN ON THIS SHEET.
d. INSTALL SILT FENCE (SF) DOWNSLOPE OF THE AREA WHERE TEMPORARY SEDIMENT BASIN NO. 5 (TSB-5) WILL BE INSTALLED.
e. TEMPORARY SEDIMENT BASIN (TYPICAL SEQUENCE):
i. BEGIN EXCAVATION AND FILL ONLY AS REQUIRED TO CONSTRUCT THE EMBANKMENT, SEDIMENT STORAGE ZONE, AND RISER/OUTFALL PIPE. DO NOT PERFORM GRADING BEYOND THE AREA WHERE SILT FENCE IS INSTALLED. EXTEND SILT FENCE AS NEEDED.
ii. INSTALL SEDIMENT BASIN RISER, OUTFALL PIPE, OUTLET PROTECTION, AND OTHER APPURTENANCES.
iii. EXCAVATE SEDIMENT BASIN AND FILL TO CONSTRUCT EMBANKMENT AS SHOWN. GRADE SIDE SLOPES OF BASIN (INTERIOR AND EXTERIOR) TO UNIFORM ELEVATIONS AND CROSS SECTION AS SHOWN.
iv. APPLY TOPSOIL (TO) UNIFORMLY OVER THE SIDE SLOPES AND TOP OF EMBANKMENT OF THE TEMPORARY SEDIMENT BASIN (TSB).
v. APPLY TEMPORARY SEEDING (TS) TO CUT/FILL SLOPES THAT WILL REMAIN DORMANT FOR LONGER THAN FOURTEEN (14) DAYS AND/OR WHEN FINAL GRADE IS REACHED. APPLY SOIL STABILIZATION BLANKET/MATTING (B/M) TO SLOPES WHERE INDICATED.
f. INSTALL DIVERSION DIKE (DD) WHERE SHOWN IN ORDER TO DIVERT FLOW INTO THE (TSB).
g. THE EXISTING STORMWATER CONVEYANCE CHANNEL (SCC) LOCATED ALONG THE NORTHEASTER PERIMETER OF THE SITE WILL CONVEY THE MAJORITY OF THE RUN-OFF INTO THE (STB). INSPECT THE (SCC) TO ENSURE SEDIMENT LADEN RUN-OFF WILL BE DIVERTED TO THE (TSB) AND WILL NOT EXIT THE SITE IN AN UNANTICIPATED MANNER.
h. CALL FOR INSPECTION AND APPROVAL OF THESE E&SC MEASURES.
i. INSTALL ADDITIONAL E&SC MEASURE AS DEEMED NECESSARY AND REQUIRED BY THE E&SC INSPECTOR. NOTE – TOPSOIL STRIPING, GRUBBING, AND MASS GRADING MAY ONLY PROCEED UPON APPROVAL OF PERIMETER MEASURES BY E&SC INSPECTOR.
j. STRIP AND STOCKPILE TOPSOIL ON-SITE (AT LOCATION SHOWN HEREON) AS NECESSARY TO ENSURE ADEQUATE TOPSOIL IS AVAILABLE TO DRESS CONSTRUCTED SLOPES. PROTECT STOCKPILE FROM EROSION WITH PERIMETER SILT FENCE (SF) AND TEMPORARY SEEDING (TS).
k. THE AREA OF LAND DISTURBANCE FOR THIS PROJECT IS GENERALLY VOID OF MATURE TREES. IT IS NOT ANTICIPATED THAT EXTENSIVE LOGGING WITHIN THE LIMITS OF LAND DISTURBANCE WILL BE REQUIRED. PERFORM TREE REMOVAL / LOGGING WITHIN THE LIMITS OF LAND DISTURBANCE. PROTECT TREES TO REMAIN AS SHOWN. MINIMIZE LAND DISTURBANCE DUE TO LOGGING.
l. BEGIN MASS GRADING WITHIN THE AREAS DRAINING TO THESE MEASURES. REFER TO PHASE 2 PLANS, WORK SEQUENCE, AND NARRATIVE FOR ADDITIONAL INFORMATION.

IV. SOUTH DISPOSAL AREA:

a. FLAG PROPOSED LIMITS OF LAND DISTURBANCE.
b. INSTALL SILT FENCE (SF) ALONG CONSTRUCTION ACCESS ROAD WHICH CROSSES THE STREAM SEPARATING THE NORTH AND SOUTH DISPOSAL AREAS. INSTALL CONSTRUCTION ROAD STABILIZATION (CRS) ON THE CONSTRUCTION ACCESS ROAD. INSTALL SILT FENCE (SF) / SUPER SILT FENCE (SSF) ALONG THE NORTH AND NORTHWESTERN PERIMETER OF THE GRADING AREA (RUNNING PARALLEL TO THE STREAM) AT THE LOCATION AND TO THE EXTENT SHOWN ON THIS SHEET.
c. INSTALL SILT FENCE (SF) DOWNSLOPE OF THE AREA WHERE TEMPORARY SEDIMENT BASIN (TSB) NO. 4 WILL BE INSTALLED.
d. TEMPORARY SEDIMENT BASIN: REFER TO SEQUENCE UNDER "NORTH DISPOSAL AREA."
e. INSTALL DIVERSION DIKE (DD) WHERE SHOWN IN ORDER TO DIVERT FLOW INTO THE (TSB).
f. INSTALL DIVERSION (DV) WHERE SHOWN IN ORDER TO DIVERT OFF-SITE FLOWS AWAY FROM THE WORK AREA. THE DIVERSION (DV) WILL COLLECT RUN-OFF FROM THE UP-HILL / UNDISTURBED SIDE OF THE SITE AND CONVEY IT TO A CONTROLLED OUTFALL.
g. CALL FOR INSPECTION AND APPROVAL OF THESE E&SC MEASURES.
h. INSTALL ADDITIONAL E&SC MEASURE AS DEEMED NECESSARY AND REQUIRED BY THE E&SC INSPECTOR. NOTE – TOPSOIL STRIPING, GRUBBING, AND MASS GRADING MAY ONLY PROCEED UPON APPROVAL OF PERIMETER MEASURES BY E&SC INSPECTOR.
i. STRIP AND STOCKPILE TOPSOIL ON-SITE (AT LOCATION SHOWN HEREON) AS NECESSARY TO ENSURE ADEQUATE TOPSOIL IS AVAILABLE TO DRESS CONSTRUCTED SLOPES. PROTECT STOCKPILE FROM EROSION WITH PERIMETER SILT FENCE AND TEMPORARY SEEDING.
j. THE AREA OF LAND DISTURBANCE FOR THIS PROJECT IS GENERALLY VOID OF MATURE TREES. IT IS NOT ANTICIPATED THAT EXTENSIVE LOGGING WITHIN THE LIMITS OF LAND DISTURBANCE WILL BE REQUIRED. PERFORM TREE REMOVAL / LOGGING WITHIN THE LIMITS OF LAND DISTURBANCE. PROTECT TREES TO REMAIN AS SHOWN ON THE LANDSCAPE PLAN. MINIMIZE LAND DISTURBANCE DUE TO LOGGING.
k. BEGIN MASS GRADING WITHIN THE AREAS DRAINING TO THESE MEASURES. REFER TO PHASE 2 PLANS, WORK SEQUENCE, AND NARRATIVE FOR ADDITIONAL INFORMATION.

END OF PHASE I GENERAL SEQUENCE OF WORK

GENERAL SEQUENCE OF WORK – PHASE II EROSION & SEDIMENT CONTROL

I. GENERAL:

a. IN ORDER TO MINIMIZE THE POTENTIAL FOR SOIL EROSION AND SEDIMENTATION OF DOWNSTREAM WATERWAY AND PROPERTIES, THE WORK OF THE PROJECT SHALL BE STAGED AND EXECUTED GENERALLY CHRONOLOGICALLY IN ACCORDANCE WITH THE GENERAL WORK SEQUENCE OUTLINED BELOW. THE WORK SEQUENCE MAY BE ALTERED UPON SUBMISSION AND APPROVAL OF WRITTEN AMENDMENTS OR APPROVED FIELD AMENDMENTS.
b. IN ORDER TO ADEQUATELY DESCRIBE THE EROSION AND SEDIMENT CONTROL (E&SC) MEASURES AND THE SEQUENCE OF INSTALLATION, THIS NARRATIVE IS DIVIDED INTO THREE SECTION – EACH CORRESPONDING TO THE DEFINED AREAS OF THE OVERALL PROJECT SITE.
c. THIS DRAWING IS INTENDED TO SHOW THE EROSION & SEDIMENT CONTROL (E&SC) MEASURES REQUIRED DURING PHASE II A & B – THE CONTINUED STAGES OF MASS GRADING OPERATIONS, EMBANKMENT AND SLOPE CONSTRUCTION, AND UTILITY INSTALLATION. THE E&SC FOR THIS PHASE SHALL BE CLOSELY COORDINATE WITH THOSE INSTALLED UNDER PHASE I TO ENSURE ADEQUATE PROTECTION IS IN PLACE AT ALL TIME. ADDITIONAL REQUIRED MEASURES AND SEQUENCE OF WORK ARE SHOWN AND SPECIFIED ON SUBSEQUENT SHEETS.
d. APPLY PERMANENT OR TEMPORARY SEEDING AND STABILIZATION MEASURES TO ALL DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. ADDITIONALLY, APPLY TEMPORARY SOIL STABILIZATION MEASURES TO ALL DENUDED AREAS WITHIN SEVEN (7) DAYS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 14 DAYS.

II. MAIN SITE AREA:

a. GENERAL: THE MAIN SITE AREA IS GENERALLY DIVIDED INTO TWO DISTINCT DRAINAGE AREAS – THE NORTH AREA AND THE SOUTH AREA – DEFINED BY A HIGH-POINT /CREST WHICH RUNS THROUGH THE SITE IN GENERALLY A WEST TO EAST DIRECTION. THE SEQUENCE FOR THE MAIN SITE WILL BE BROKEN DOWN BY THESE TWO AREAS.
b. MAINTAIN PRE-DEVELOPED DRAINAGE DIVIDE PATTERNS AS LONG AS POSSIBLE IN ORDER TO ENSURE EXISTING E&SC MEASURE ARE EFFECTIVE. PERFORM GRADING IN A MANNER THAT WILL NOT OVERLOAD EXISTING E&SC MEASURES.
c. DO NOT PERFORM UNNECESSARY CLEARING AND LAND DISTURBANCE. DISTURB AND GRADE AREAS AS MATERIAL IS NEEDED OR WHEN FILL PLACEMENT IS TO BEGIN.
d. UPON COMPLETION OF GRADING ON SUBSTANTIAL AREAS OF THE STEEP SLOPES PLACE TOPSOIL, PERMANENT SEEDING AND BLANKET MATTING ON GRADED SLOPES AS SPECIFIED ON THESE PLANS.
e. IN THE NORTHERN AREA OF MAIN SITE:
i. IT IS ANTICIPATED THE FILL SLOPES ALONG THE NORTHERN PERIMETER WILL BE CONSTRUCTED FIRST – USING EXCAVATED MATERIAL FROM THE HIGHER POINT OF THE SITE. AT THIS TIME THE PERIMETER CONTROL MEASURES FROM PHASE I (TST NOS. B1 AND B2, DD, AND TSB NO. 1) WILL BE IN-PLACE AND SIZED TO HANDLE THE ANTICIPATED RUN-OFF FROM THE ENTIRE NORTHERN DENUDED AREA.
ii. BEGIN FILL OF THE SLOPES ALONG THE NORTHERN PERIMETER. AS FILL IS PLACED, SLOPE THE TOP BENCH AWAY FROM THE FILL SLOPE SO RUN-OFF FROM THE UPSLOPE DENUDED AREAS WILL BE DIRECTED AWAY FROM THE FACE OF THE SLOPE.
iii. INSTALL FILL DIVERSION (FD) AND TEMPORARY SLOPE DRAIN PIPE (TSD) TO CONVEY STORMWATER RUN-OFF TO TEMPORARY SEDIMENT TRAPS (TST) OR TSB-NO. 1. ADJUST LOCATION AND LENGTH OF FILL DIVERSION AND TEMPORARY SLOPE DRAIN (TSD) AS SLOPE IS BEING PLACED TO ENSURE RUN-OFF IS CONVEYED TO (TST) OR (TSB).
iv. ONCE WORK PROGRESSES TO POINT WHERE THE PERMANENT STORM DRAINAGE SYSTEM CAN BE INSTALLED INSTALL THE SYSTEM IN ACCORDANCE WITH THE SEQUENCE OUTLINED HEREIN.
v. ONCE THE SLOPE IS COMPLETED, CONSTRUCT TOP OF SLOPE (DD) OR (FD) TO ENSURE RUN-OFF IS NOT DIRECTED DOWN THE SLOPE. DIVERT FLOW TO NEWLY INSTALLED STORM DRAINAGE INLET (WITH INLET PROTECTION (IP) IN-PLACE) OR ADEQUATELY SIZED TRAPPING DEVICES (TSB-NO. 1). INSTALL TOPSOIL (TO), PERMANENT STABILIZATION (PS), AND MULCH / BLANKET MATTING (B/M) AS SPECIFIED.
vi. UPON INSTALLATION OF THE PERMANENT STORM DRAINAGE SYSTEM AND STABILIZATION OF SLOPES, CLOSE THE SEDIMENT TRAP BY CLEANING OUT THE SEDIMENT AND BACKFILLING TO THE ELEVATION AND LINES OF THE FINISHED GRADES. STABILIZE ANY ADJOINING DISTURBED AREAS WITH A PERMANENT SEED MIXTURE. DISPOSE OF SEDIMENT IN A PROPER MANNER.
f. IN THE SOUTHERN AREA OF MAIN SITE:
i. IT IS ANTICIPATED THE FILL SLOPES ALONG THE SOUTHERN PERIMETER WILL BE CONSTRUCTED FIRST – USING EXCAVATED MATERIAL FROM THE HIGHER POINT OF THE SITE. AT THIS TIME THE PERIMETER CONTROL MEASURES FROM PHASE I (DD AND TSB-NO. 3) WILL BE IN-PLACE AND SIZED TO HANDLE THE ANTICIPATED RUN-OFF FROM THE ENTIRE SOUTHERN DENUDED AREA.
ii. BEGIN FILL OF THE SLOPES ALONG THE SOUTHERN PERIMETER. AS FILL IS PLACED, SLOPE THE TOP BENCH AWAY FROM THE FILL SLOPE SO RUN-OFF FROM THE UPSLOPE DENUDED AREAS WILL BE DIRECTED AWAY FROM THE FACE OF THE SLOPE AND TOWARD THE INSTALLED FILTERING MEASURES.
iii. INSTALL FILL DIVERSION (FD) AND TEMPORARY SLOPE DRAIN PIPE (TSD) TO CONVEY STORMWATER RUN-OFF TO TEMPORARY SEDIMENT BASIN (TSB) NO. 2 OR NO. 3. ADJUST LOCATION AND LENGTH OF FILL DIVERSION AND TEMPORARY SLOPE DRAIN AS SLOPE IS BEING PLACED TO ENSURE RUN-OFF IS CONVEYED TO (TST) OR (TSB).
iv. UPON COMPLETION OF GRADING ON SUBSTANTIAL AREAS OF THE STEEP SLOPES, PLACE TOPSOIL (TO), PERMANENT SEEDING (PS), AND BLANKET MATTING (B/M) ON GRADED SLOPES AS SPECIFIED ON THESE PLANS.
v. ONCE WORK PROGRESSES TO POINT WHERE THE PERMANENT STORM DRAINAGE SYSTEM CAN BE INSTALLED INSTALL THE SYSTEM IN ACCORDANCE WITH THE SEQUENCE OUTLINED HEREIN.
vi. ONCE THE SLOPE IS COMPLETED, CONSTRUCT TOP OF SLOPE (DD) OR (FD) TO ENSURE RUN-OFF IS NOT DIRECTED DOWN THE SLOPE. DIVERT FLOW TO NEWLY INSTALLED STORM DRAINAGE INLET (WITH INLET PROTECTION (IP) INSTALLED) OR ADEQUATELY SIZED TRAPPING DEVICES (TSB-NO. 2 OR 3).
vii. INSTALL TOPSOIL (TO), PERMANENT STABILIZATION (PS), AND MULCH / BLANKET MATTING (B/M) AS SPECIFIED.
viii. UPON INSTALLATION OF THE PERMANENT STORM DRAINAGE SYSTEM AND STABILIZATION OF SLOPES, AND DIVERSION OF FLOW TO CONTROLLED POINTS, BEGIN REMOVAL OF TSB NO. 3. REMOVE SEDIMENT, REMOVE RISER AND OUTFALL PIPE, AND BACKFILL BASIN TO THE ELEVATION AND LINES OF THE FINISHED GRADES. STABILIZE ANY ADJOINING DISTURBED AREAS WITH A PERMANENT SEED MIXTURE.

III. INSTALLATION OF NEW STORM DRAINAGE SYSTEM (AND OTHER UNDERGROUND UTILITIES):

a. INSTALL NEW STORM DRAINAGE SYSTEM PIPING FROM LOWEST POINT IN SYSTEM TO THE HIGHER/UPSLOPE POINT IN SYSTEM.
b. PLACE SITE AND ROAD ON GRADE AS WORK OF STORM DRAINAGE IS COMPLETED TO ENSURE RUN-OFF IS DIRECTED TOWARD THE NEW INLETS.
c. INSTALL INLET PROTECTION AT END OF OPEN PIPES AT END OF WORK DAY AND WHEN RAIN IS FORECASTED AND AROUND EACH STORM DRAIN INLET AS IT BECOMES OPERATIONAL.
d. USE CULVERT INLET PROTECTION (CIP) WHEN WORK IS SUSPENDED FOR MORE THAN 5 DAYS.
e. OTHER UTILITY INSTALLATION REQUIREMENTS THAT APPLY TO THE INSTALLATION OF THIS STORM DRAINAGE SYSTEM SHALL BE FOLLOWED AND GENERALLY INCLUDE:
i. OPEN NO MORE THAN 200 LINEAR FEET OF TRENCH AT ONE TIME.
ii. WHERE FEASIBLE EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
iii. 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.
iv. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
v. COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS REGARDING TRENCHING.

IV. NORTH DISPOSAL AREA:

a. IT IS ANTICIPATED THE FILL SLOPES ALONG THE EASTERN AND SOUTHERN PERIMETER WILL BE CONSTRUCTED FIRST – USING EXCAVATED MATERIAL HAULED IN FROM THE MAIN SITE AREA. AT THIS TIME THE PERIMETER CONTROL MEASURES FROM PHASE I (TSB-NO. 5, DD, AND SF) WILL BE IN-PLACE AND SIZED TO HANDLE THE ANTICIPATED RUN-OFF FROM THE ENTIRE NORTH DISPOSAL DENUDED AREA.
b. BEGIN FILL OF THE SLOPES ALONG THE EASTERN AND SOUTHERN PERIMETER. AS FILL IS PLACED, SLOPE THE TOP BENCH AWAY FROM THE FILL SLOPE SO RUN-OFF FROM THE UPSLOPE DENUDED AREAS WILL BE DIRECTED AWAY FROM THE FACE OF THE SLOPE AND TOWARD TSB NO. 5.
c. ALONG THE EASTERN PERIMETER CONSTRUCT CHANNEL IMPROVEMENTS REQUIRED FOR DITCH "E". ENSURE DITCH "E" IS DIVERTED INTO TSB NO. 4 OR INSTALL SILT FENCE (SF) BETWEEN THE CHANNEL AND THE SLOPE.
d. AS FILL IS PLACED AND SLOPE HEIGHT INCREASES, INSTALL FILL DIVERSION (FD) AND TEMPORARY SLOPE DRAIN PIPE (TSD) TO CONVEY STORMWATER RUN-OFF TO TSB-NO. 5. ADJUST LOCATION AND LENGTH OF FILL DIVERSION AND TEMPORARY SLOPE DRAIN (TSD) AS SLOPE IS BEING PLACED TO ENSURE RUN-OFF IS CONVEYED TO (TSB).
e. ONCE THE SLOPE IS COMPLETED, CONSTRUCT TOP OF SLOPE (DD) OR (FD) TO ENSURE RUN-OFF IS NOT DIRECTED DOWN THE SLOPE. DIVERT FLOW TO TRAPPING DEVICES (TSB-NO. 5). INSTALL TOPSOIL (TO), PERMANENT STABILIZATION (PS), AND MULCH / BLANKET MATTING (B/M) AS SPECIFIED.
f. UPON STABILIZATION OF SLOPES AND UPLAND GRADED AREAS AND DIVERSION OF FLOW TO CONTROLLED POINTS, BEGIN REMOVAL OF TSB NO. 5. REMOVE SEDIMENT, REMOVE RISER AND OUTFALL PIPE, AND BACKFILL BASIN TO THE ELEVATION AND LINES OF THE FINISHED GRADES. STABILIZE ANY ADJOINING DISTURBED AREAS WITH A PERMANENT SEED MIXTURE.
g. PERFORM PERMANENT STABILIZATION OF REMAINING DISTURBED AREAS.

V. SOUTH DISPOSAL AREA:

a. IT IS ANTICIPATED THE FILL SLOPES ALONG THE NORTHWESTERN AND WESTERN PERIMETER WILL BE CONSTRUCTED FIRST – USING EXCAVATED MATERIAL HAULED IN FROM THE MAIN SITE AREA. AT THIS TIME THE PERIMETER CONTROL MEASURES FROM PHASE I (TSB-NO. 4, DD, AND SF) WILL BE IN-PLACE AND SIZED TO HANDLE THE ANTICIPATED RUN-OFF FROM THE ENTIRE NORTH DISPOSAL DENUDED AREA.
b. ENSURE CONSTRUCTION ROAD STABILIZATION (CRS) IS ADEQUATE TO HANDLE THE ANTICIPATED HAULING ACTIVITY INTO THIS DISPOSAL AREA.
c. BEGIN FILL OF THE SLOPES ALONG THE NORTHWESTER AND WESTERN PERIMETER. AS FILL IS PLACED, SLOPE THE TOP BENCH AWAY FROM THE FILL SLOPE SO RUN-OFF FROM THE UPSLOPE DENUDED AREAS WILL BE DIRECTED AWAY FROM THE FACE OF THE SLOPE AND TOWARD TSB NO. 4.
d. PERFORM EXCAVATION AND CUT SLOPE ALONG THE SOUTHWESTERN PERIMETER IN ORDER TO CONSTRUCT DITCH "A-B-C" WHICH WILL CONVEY RUN-OFF FROM THE SOUTHEASTERN CORNER OF THE SITE ALONG THE SOUTHERN PERIMETER AND DISCHARGE INTO TSB NO 4. STABILIZE CHANNEL WITH TEMPORARY OR PERMANENT LINING AS SPECIFIED. INSTALL CHECK DAMS (CD) TO AID IN STABILIZATION.
e. ONCE DITCH "A-B-C" IN IN-PLACE BEGIN FILL IN SOUTHERN AND CENTRAL PORTION OF THE SITE. ENSURE RUN-OFF IS DIVERTED TO PERIMETER DITCH OR DIVERSION DIKE AND INTO TSB NO. 4.
f. AS FILL IS PLACED AND SLOPE HEIGHT INCREASES, INSTALL FILL DIVERSION (FD) AND TEMPORARY SLOPE DRAIN PIPE (TSD) TO CONVEY STORMWATER RUN-OFF TO TSB-NO. 4. ADJUST LOCATION AND LENGTH OF FILL DIVERSION AND TEMPORARY SLOPE DRAIN (TSD) AS SLOPE IS BEING PLACED TO ENSURE RUN-OFF IS CONVEYED TO (TSB).
g. ONCE THE SLOPE IS COMPLETED, CONSTRUCT SEDIMENT TRAPS NO. 3 AND NO. 4. CONSTRUCT TOP OF SLOPE (DD) OR (FD) TO ENSURE RUN-OFF IS NOT DIRECTED DOWN THE SLOPE, BUT IS DIVERTED TO TRAPPING DEVICES (TSB-NO. 4, TST NO. 3 / NO. 4). INSTALL TOPSOIL (TO), PERMANENT STABILIZATION (PS), AND MULCH / BLANKET MATTING (B/M) AS SPECIFIED.
h. UPON STABILIZATION OF SLOPES AND UPLAND GRADED AREAS AND DIVERSION OF FLOW TO CONTROLLED POINTS, BEGIN REMOVAL OF TSB NO. 4. REMOVE SEDIMENT, REMOVE RISER AND OUTFALL PIPE, AND BACKFILL BASIN TO THE ELEVATION AND LINES OF THE FINISHED GRADES. STABILIZE ANY ADJOINING DISTURBED AREAS WITH A PERMANENT SEED MIXTURE.
i. PERFORM PERMANENT STABILIZATION OF ALL REMAINING AREAS.

VI. EXISTING FARM POND WORK

a. INSTALL SILT FENCE (SF) / SUPER SILT FENCE (SSF) IMMEDIATELY DOWNSLOPE OF THE EXISTING EMBANKMENT.

b. IF PRESENT OPEN THE POND DRAIN VALVE AND ALLOW THE PONDED WATER TO GRADUALLY DRAIN FROM THE POND. LIMIT WATER DRAWN DOWN TO +/- 1-FEET PER DAY TO MINIMIZE RE-SUSPENSION OF SEDIMENT STORED IN THE BOTTOM OF THE POND. ALLOW POND TO FULLY DRAIN SO UPSLOPE FLOWS ARE DIVERTED THROUGH THE ORIGINAL CHANNEL BOTTOM OR NATURALLY OCCURRING LOW-POINT.

c. IF LOW-DRAIN PIPE AND VALVE ARE NOT PRESENT OR OPERATIONAL PERFORM A CONTROLLED BREACH OF THE EXISTING EMBANKMENT BY INCREMENTALLY REMOVING A SMALL SECTION OF THE EMBANKMENT (MAXIMUM OF 10-FEET WIDE) AND ALLOWING THE PONDED WATER TO DRAIN OUT.

d. ONCE POND IS DRAINED AND BOTTOM HAS DRIED ENOUGH TO ACCESS WITH MECHANIZED CONSTRUCTION EQUIPMENT INSTALL CHECK DAM(S) / RIP-RAP BERM NEAR THE INFLUENT POINT AND ALONG THE CHANNEL TO SLOW RUN-OFF VELOCITY AND MINIMIZE EROSION.

e. INSTALL NEW OUTLET PIPES AND RISER STRUCTURE. INSTALL INLET PROTECTION ON RISER STRUCTURE. INSTALL OUTLET PROTECTION AT PIPE OUTLET. STABILIZE ANY ADJOINING DISTURBED AREAS WITH TEMPORARY / PERMANENT SEEDING.

f. INCREMENTALLY RECONSTRUCT THE MAIN EMBANKMENT TO THE SECTION AND ELEVATIONS SHOWN. IMMEDIATELY STABILIZE ALL DOWNSLOPE AREAS WITH TEMPORARY / PERMANENT SEEDING.

g. PERFORM A CONTROLLED REMOVAL OF EXCESS SEDIMENT / MUCK FROM THE BOTTOM OF THE POND. PLACE MATERIAL IN AN APPROVED STOCKPILE AREA ON THE SITE FOR DRYING. STABILIZE THE BOTTOM OF THE POND AS WORK IS COMPLETED.

h. CONSTRUCT EMBANKMENT ALONG SOUTHERN PERIMETER OF THE POND. ENSURE ALL UPSLOPE RUN-OFF IS DIVERTED TO THE OUTLET PIPE WHICH IS PROTECTED WITH INLET PROTECTION. STABILIZE ALL AREAS OF THE NEW EMBANKMENT WITH TEMPORARY / PERMANENT SEEDING.

i. INSTALL SEDIMENT TRAP NO. 4 AND DIVERSION DIKES ALONG THE NORTH PERIMETER OF THE POND WHERE SHOWN. BEGIN EXCAVATION OF AREA ADJOINING THE POND. PERFORM WORK IN A MANNER THAT LEAVES A BERM BETWEEN THE EXCAVATION AREA AND THE EXISTING POND. ONCE GRADE IS REACHED IN THIS AREA STABILIZE DISTURBED AREAS AND REMOVE BERM AND SEDIMENT TRAP THAT SEPARATES THE AREA FROM THE POND. AT THIS TIME FLOW FROM THIS AREA

END OF GENERAL SEQUENCE OF WORK – PHASE II EROSION & SEDIMENT CONTROL

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- ☑ CONCEPT DESIGN
- ☐ DESIGN DEVELOPMENT
- ☐ CONSTRUCTION BIDDING PHASE
- ☐ CONSTRUCTION DOCUMENTS
- ☐ CONSTRUCTION ADMINISTRATION

SEAL

COMMONWEALTH OF VIRGINIA
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6-8-16
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EROSION AND SEDIMENT CONTROL PLAN ~ NOTES

DRAWING NO:

C10 OF 34

STATEMENT OF COMPLIANCE WITH VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS – 9VAC25–840–40 – MINIMUM STANDARDS

THE LAND–DISTURBING ACTIVITIES OF THIS PROJECT MUST COMPLY WITH THE 19 "MINIMUM STANDARDS" (MS) SPECIFIED IN SECTION 4VAC50–30–40 OF THE REGULATIONS (VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS) THAT ARE APPLICABLE TO THE PROJECT. THIS SECTION PROVIDES A RECITATION OF THE FULL TEXT OF THE 19 MINIMUM STANDARDS AND FOLLOWS WITH A "METHOD OF COMPLIANCE" WITH EACH MINIMUM STANDARD. THESE EROSION AND SEDIMENT CONTROL PLANS WERE PREPARED IN A MANNER TO ENSURE COMPLIANCE WITH THE MINIMUM STANDARDS.

THE CONTRACTOR AND THE CERTIFIED RESPONSIBLE LAND DISTURBER (RLD) SHALL PERFORM THE WORK OF THE PROJECT IN THE MANNER STATED AND IN A MANNER AND SEQUENCE SUCH THAT THE INTENT AND REQUIREMENTS OF THE MINIMUM STANDARDS ARE MET. REFER TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR ADDITIONAL INFORMATION.

MS–1: Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven (7) days to denuded areas that may not be at final grade but will remain dormant for longer than fourteen (14) days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

METHOD OF COMPLIANCE – PERMANENT SEEDING AND TEMPORARY SEEDING MEASURES ARE SHOWN AND SPECIFIED ON THE EROSION AND SEDIMENT CONTROL PLANS AND DETAILS. CONTRACTOR SHALL REFER TO THESE DETAILS AS WELL AS THE NARRATIVE AND DETAILS FOR SEEDING REQUIREMENTS AND SCHEDULES.

MS–2: During construction of the project, soil stock piles 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.

METHOD OF COMPLIANCE – IT IS ANTICIPATED THAT TOPSOIL, EXCESS EXCAVATION MATERIAL, AND/OR UN–SUITABLE MATERIAL WILL BE ENCOUNTERED ON THE PROJECT SITE AND WILL NEED TO BE STOCKPILED AND/OR HAULED FROM THE SITE. THE LOCATION OF THE TEMPORARY TOPSOIL STOCKPILE AND THE REQUIRED E&SC MEASURES ARE SHOWN ON THE PLANS. EXCESS TOPSOIL, EXCESS EXCAVATION, OR UN–SUITABLE MATERIAL REMOVED FROM THE SITE SHALL BE PLACED IN THE NORTH OR SOUTH BORROW AREAS AS SHOWN ON THESE PLANS.

MS–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.

METHOD OF COMPLIANCE – PERMANENT SEEDING (PS), ALONG WITH TOPSOILING (TO), AND MULCHING (MU) MEASURES ARE SHOWN AND SPECIFIED ON THE E&SC PLANS AND DETAIL SHEETS AS WELL AS THE NARRATIVE AND SEQUENCE OF WORK.

MS–4: Sediment basins and sediment 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.

METHOD OF COMPLIANCE – THESE PERIMETER SEDIMENT TRAPPING MEASURES ARE SHOWN AT VARIOUS LOCATIONS ON THE E&SC PLAN SHEET AND ARE SPECIFIED TO BE INSTALLED PRIOR TO MAJOR LAND DISTURBANCE ACTIVITIES. REFER TO THE GENERAL NOTES, NARRATIVE, AND SEQUENCE OF WORK FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

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

METHOD OF COMPLIANCE – REFER TO THE GENERAL NOTES, NARRATIVE, AND SEQUENCE OF WORK FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

MS–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.

METHOD OF COMPLIANCE – ALL TEMPORARY SEDIMENT BASINS (TSB) AND TEMPORARY SEDIMENT TRAPS (TST) COMPLY WITH THE ABOVE REQUIREMENTS. DRAINAGE DIVIDES ARE SHOWN ON THESE PLANS AND THE MEASURES ARE SIZED BASED ON THESE DRAINAGE DIVIDES. REFER TO THE SEDIMENT BASIN AND SEDIMENT TRAP "DESIGN SUMMARY TABLE" AND THE CALCULATIONS (IN THE STORMWATER POLLUTION PREVENTION PLAN) FOR THE DESIGN PARAMETER USED.

MS–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.

METHOD OF COMPLIANCE: NEW CUT AND FILL SLOPES OR EXISTING SLOPES TO BE DENUDED GREATER THAN 6 FEET IN HEIGHT ARE ANTICIPATED AND ARE CONSIDERED "CRITICAL EROSION AREAS." SPECIFIC MEASURES HAVE BEEN INCORPORATED INTO THE E&SC PLANS TO MINIMIZE THE POTENTIAL FOR UNANTICIPATED EROSION OF THE SLOPES. MEASURES INCLUDE: BENCHES CONSTRUCTED WITHIN THE SLOPE, TOP OF SLOPE DIVERSIONS, USE OF TEMPORARY SLOPE DRAINS, AND BLANKET STABILIZATION MATTING.

MS–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.

METHOD OF COMPLIANCE – NEW CUT OR FILL SLOPES GREATER THAN 6 FEET IN HEIGHT AND EXISTING DENUDED STEEP SLOPES THAT ARE TO BE DISTURBED ARE ANTICIPATED IN THIS PLAN AND ARE DEEMED CRITICAL EROSION AREAS. THE E&SC PLAN CONTAINS PROVISIONS TO ENSURE CONCENTRATED RUNOFF DOES NOT FLOW DOWN CUT OR FILL SLOPES. THE GRADING PLAN INCORPORATES CHANNELS THAT DRAIN TO AREA INLETS ALONG THE TOP OF HIGH FILL SLOPES OR RUN–OFF IS NOT CONCENTRATED (E.G. THE DISPOSAL AREAS).

MS–9: Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.

METHOD OF COMPLIANCE – BASED ON A REVIEW OF AVAILABLE SUBSURFACE INVESTIGATION REPORTS, PUBLIC DATA, AND KNOWLEDGE OF THE GROUNDWATER CONDITIONS AT THE SITE, THIS CONDITION IS NOT ANTICIPATED AT THE FACE OF CUT SLOPES DURING THIS PROJECT. IF ENCOUNTERED DURING CONSTRUCTION IT WILL BE ADDRESSED WITH PLAN REVISION.

MS–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.

METHOD OF COMPLIANCE – INLET PROTECTION (IP) DEVICES ARE SPECIFIED AND SHOWN ON THE E&SC PLAN SHEETS AND IN THE NARRATIVE. THE GENERAL WORK SEQUENCE SPECIFIES THE TIMING FOR INSTALLATION OF THESE MEASURES.

MS–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.

METHOD OF COMPLIANCE – THE NEW STORMWATER CONVEYANCE SYSTEM(S) DISCHARGES DIRECTLY IN TO THE EXISTING STORM DRAINAGE SYSTEM OR INTO NEW RECEIVING CHANNELS. WHERE REQUIRED, OUTLET PROTECTION MEASURES ARE SPECIFIED AND DETAILED ON THE E&SC PLAN SHEETS. THE TIMING OF INSTALLING LININGS AND OUTLET PROTECTIONS IS SPECIFIED IN THE NARRATIVE AND SEQUENCE OF WORK.

MS–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.

METHOD OF COMPLIANCE – NOT APPLICABLE. THE WORK OF THE PROJECT DOES NOT RESULT IN WORK WITHIN A LIVE WATERCOURSE.

MS–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.

METHOD OF COMPLIANCE – NOT APPLICABLE. THE WORK OF THE PROJECT WORK DOES NOT INVOLVE THE CROSSING OF A LIVE WATERCOURSE. CROSSING OF DRAINAGE CHANNEL BETWEEN THE NORTH AND SOUTH DISPOSAL SHALL BE PERFORMED AT AN EXISTING PIPED CROSSING.

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

METHOD OF COMPLIANCE – NOT APPLICABLE. THE WORK OF THE PROJECT DOES NOT INVOLVE WORKING IN OR CROSSING OF A LIVE WATERCOURSE AND DOES NOT PROPOSE FILL IN JURISDICTIONAL WATER (WATERS OF THE U.S.).

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

METHOD OF COMPLIANCE – NOT APPLICABLE. THE WORK OF THE PROJECT DOES NOT INVOLVE WORKING IN OR CROSSING OF A LIVE WATERCOURSE AND DOES NOT PROPOSE FILL IN JURISDICTIONAL WATER (WATERS OF THE U.S.).

MS–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 this chapter.

f. Applicable safety requirements shall be complied with.

METHOD OF COMPLIANCE – SPECIFIC REQUIREMENTS TO ADDRESS THIS MINIMUM STANDARD ARE INCORPORATED INTO AND IDENTIFIED IN THE SEQUENCE OF WORK AND THE E&SC NARRATIVE.

MS–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.

METHOD OF COMPLIANCE – THE E&SC PLAN SHEETS INDICATE THE LOCATION OF THE PROPOSED CONSTRUCTION ENTRANCE (CE) AND THE SEQUENCE OF INSTALLATION IS SPECIFIED IN THE NARRATIVE AND GENERAL SEQUENCE OF WORK. ALL CONSTRUCTION VEHICLES SHALL ENTER AND LEAVE THE SITE AT THE SPECIFIED LOCATION.

MS–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 authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

METHOD OF COMPLIANCE – REFER TO NARRATIVE AND WORK SEQUENCE ON THE E&SC PLAN SHEETS AND THE GENERAL NOTES FOR STATED REQUIREMENTS REGARDING THE PROVISIONS OF REMOVAL OF E&SC MEASURES.

MS–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, the bed, or the 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 condition 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 §62.1–44.15:52 A 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 quantity minimum 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.

METHOD OF COMPLIANCE: THIS PROJECT SATISFIES THE REQUIREMENTS OF MS–19 BY DEMONSTRATING COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25–870–66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATIONS. SPECIFICALLY THE PROJECT COMPLIES WITH THE CHANNEL PROTECTION AND FLOOD PROTECTION REQUIREMENTS AS OUTLINED IN 9VAC25–870–66 B.3. (CHANNEL PROTECTION) AND 9VAC25–870–66 C.2.B (FLOOD PROTECTION). THE DEVELOPMENT PLAN INCORPORATES VARIOUS MEASURES OF DETENTION AND EXTENDED DETENTION TO MEET THESE REQUIREMENTS. REFER TO THE STORMWATER MANAGEMENT PLAN AND COMPUTATION FOR ADDITIONAL INFORMATION.

END OF STATEMENT OF COMPLIANCE WITH VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS – 9VAC25–840–40 – MINIMUM STANDARDS

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- [x] CONCEPT DESIGN
- [ ] DESIGN DEVELOPMENT
- [ ] CONSTRUCTION BIDDING PHASE
- [ ] CONSTRUCTION DOCUMENTS
- [ ] CONSTRUCTION ADMINISTRATION

SEAL:

COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

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EROSION AND SEDIMENT CONTROL PLAN ~ STATEMENT

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C11 OF 34

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EROSION & SEDIMENT CONTROL NARRATIVE

1. PROJECT DESCRIPTION:

1.1 THE PURPOSE OF THIS PROJECT IS TO PERFORM CLEARING AND GRADING, STORM DRAINAGE INSTALLATION, UTILITY CONSTRUCTION (WATER AND SEWER SERVICES), PAVING, AND OTHER SITE DEVELOPMENT CONSTRUCTION REQUIRED FOR THE CONSTRICTION OF THE NEW COMMERCIAL DEVELOPMENT, GENERALLY CONSISTING OF: TWO NEW COMMERCIAL ACCESS ROADS, A MAIN "ANCHOR" RETAIL BUILDING (+/- 61,120 SF), THREE SMALL RETAIL BUILDINGS (TOTAL +/- 24,350 SF), AND SUPPORTING PARKING AREAS AND SITE FEATURES.

1.2 THE PROJECT SITE AREA IS CONTAINED WITHIN TWO PARCELS OF LAND LOCATED WITHIN THE TOWN OF ABINGDON / WASHINGTON COUNTY, VA. THE PRIMARY DEVELOPMENT SITE IS IDENTIFIED AS TAX PARCEL NUMBER 021-1-5B AND CONSISTS OF 33.2 ACRES. THE SOIL DISPOSAL SITES AND FUTURE LOCATION OF A REGIONAL RECREATIONAL PARK IS IDENTIFIED AS TAX PARCEL NUMBER 105-A-39 AND CONSISTS OF 40.7 ACRES. SEE THE DEVELOPMENT PLANS FOR ADDITIONAL INFORMATION REGARDING THE PROPERTY LINES WHICH DEFINE THE PROJECT SITE AREA. THE TERMS USED TO DESCRIBE THE SITES IN THIS NARRATIVE GENERALLY INCLUDE: THE "MAIN SITE" (PARCEL 021-1-5B) AND THE "DISPOSAL SITE" (105-A-39). THE DESCRIPTION OF THE DISPOSAL SITE IS FURTHER DIVIDED BETWEEN THE "NORTHERN DISPOSAL AREA" AND THE "SOUTHERN DISPOSAL AREA", WITH THE TWO AREAS BEING DIVIDED BY THE WET-WEATHER CHANNEL THAT BISECTS THE TWO AREAS.

1.3 THE TOTAL AREA OF PROPOSED LAND DISTURBANCE IS 64.6 ACRES AS SHOWN ON THE E&SC PLANS.

1.4 TO MINIMIZE THE POTENTIAL FOR SILT-LADEN RUNOFF LEAVING THE SITE, EROSION AND SEDIMENT CONTROL (E&SC) MEASURES SHALL BE PROVIDED AS SHOWN AND SPECIFIED ON THESE PLANS AND AS OUTLINED IN THIS E&SC NARRATIVE. THE E&SC MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS FOUND IN THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK", LATEST EDITION.

2. EXISTING SITE CONDITIONS:

2.1 LAND COVER: THE EXISTING SITE IS GENERALLY UN-DEVELOPED, SAVE A FARM HOUSE AND SEVERAL BARNS AND OUT-BUILDING THAT SUPPORT THE FARM. OTHER THAN THE BUILDINGS, THERE FEW OTHER IMPERVIOUS SURFACES AS THE ROADS AND DRIVEWAYS WITHIN THE PROPERTY ARE GENERALLY GRAVEL AND DIRT. THERE ARE NO SIGNIFICANT AREAS OF TREE COVER / WOODED AREAS ON THE SITE, BUT THERE ARE STAND-ALONE POCKETS OF NATIVE TREES ALONG THE PERIMETER OF THE SITE AND ALONG SOME FENCE-LINES. THE MAJORITY OF THE PROJECT SITE IS OPEN PASTURE LAND AND COVERED WITH A GOOD STAND OF NATIVE GRASS.

2.2 SLOPES/TOPOGRAPHY: THE EXISTING TOPOGRAPHY IS SHOWN AT 2-FOOT CONTOUR INTERVAL ON THESE E&SC PLANS AND THE DEVELOPMENT PLANS.

2.2.1 THE TOPOGRAPHY OF THE MAIN DEVELOPMENT SITE IS DEFINED BY A HIGH RIDGE LINE THAT GENERALLY BISECTS THE SITE RUNNING IN A SOUTHWEST TO NORTHEASTERN DIRECTION. THE RIDGE LINE SLOPES FROM AN ELEVATION OF 2060 TO A HIGH ELEVATION OF 2110. THE SLOPE FALLS AWAY FROM THE RIDGELINE TO THE NORTH AND TO THE SOUTH. THE LOW-POINT ALONG THE NORTHERN PERIMETER OF THE SITE IS AT ELEVATION +/- 2010 AND THE LOW-POINT ALONG THE SOUTHERN PERIMETER OF THE SITE IS ALSO AT ELEVATION +/- 2010. THE PREVAILING LAND SLOPE IN THE NORTHERN AREA IS +/- 22-PERCENT WHILE THE PREVAILING LAND SLOPE IN THE SOUTHERN AREA IS +/- 16-PERCENT.

2.2.2 THE TOPOGRAPHY IN THE NORTHERN DISPOSAL AREA IS DEFINED BY A HIGH RIDGE LINE THAT GENERALLY BISECTS THE SITE RUNNING IN A SOUTHWEST TO NORTHEASTERN DIRECTION. THE RIDGE LINE SLOPES FROM AN ELEVATION OF 2056 TO A HIGH ELEVATION OF 2070. THE SLOPE FALLS AWAY FROM THE RIDGELINE TO THE NORTH AND TO THE SOUTH / SOUTHEAST. THE LOW-POINT ALONG THE NORTHERN PERIMETER IS AT ELEVATION +/- 2048 AND THE LOW-POINT ALONG THE SOUTHERN PERIMETER IS AT ELEVATION +/- 2020. SOUTHERN DRAINAGE AREA IS INTERSECTED BY TWO BROAD LOW AREAS THAT PULL THE RUN-OFF TOWARD THE EXISTING WET-WEATHER CHANNEL THAT RUNS ALONG THE SOUTHERN PERIMETER OF THIS AREA. THE TOPOGRAPHY IS MODERATELY TO GENTLY ROLLING IN THESE AREAS. THE PREVAILING LAND SLOPE IN THE NORTHERN AREA IS +/- 7.5 PERCENT WHILE THE PREVAILING LAND SLOPE IN THE SOUTHERN AREA IS +/- 7-PERCENT.

2.2.3 THE TOPOGRAPHY IN THE SOUTHERN DISPOSAL AREA IS PRIMARILY DEFINED BY A HIGH-POINT THAT IS LOCATED AT THE EASTERN PERIMETER OF THE SITE, A BROAD BISECTING LOW AREA THAT DRAINS THE AREA FROM EAST TO WEST, AND A LOW-POINT LOCATED NEAR THE NORTHWESTERN PERIMETER THAT COINCIDES WITH THE WET-WEATHER CHANNEL THAT SEPARATES THE NORTHERN AND SOUTHERN DISPOSAL AREAS. THERE ARE ALSO THREE ISOLATED "MOUND-LIKE" HIGH-POINTS WITHIN THE AREA. THE HIGH-POINT ELEVATION AT THE EASTERN PERIMETER IS ELEVATION 2054 AND THE LOW-POINT ALONG THE SOUTHERN PERIMETER IS AT ELEVATION +/- 2020. THE TOPOGRAPHY IS MODERATELY TO GENTLY ROLLING IN THESE AREAS. THE PREVAILING LAND SLOPE IS +/- 2-PERCENT ALONG THE BROAD LOW AREA.

2.3 DRAINAGE FEATURES: THE MOST PROMINENT DRAINAGE FEATURE IN THE PROJECT AREA IS THE CHANNEL THAT DISSECTS THE NORTHERN AND SOUTHERN DISPOSAL AREA AND THEN CONTINUES TO RUN ALONG THE SOUTHERN BOUNDARY OF THE MAIN SITE AREA. THE CHANNEL BEGINS ALONG THE WESTERN FLANK OF THE CREEPER TRAIL EMBANKMENT AS A WET-WEATHER CHANNEL AND FLOWS IN A SOUTHWESTERLY DIRECTION WHERE IT FLOWS INTO A FARM POND. DOWNSTREAM OF THE FARM POND THE CHANNEL RUNS ALONG THE SOUTHERN PERIMETER OF THE SITE FOR A SHORT WHILE AND IT THEN CONTINUES IN A SOUTHWESTERLY DIRECTION AWAY FROM THE PROJECT SITE. THIS CHANNEL IS IDENTIFIED AS AN UN-NAMED TRIBUTARY TO TOWN CREEK. OTHER THAN A COUPLE SMALL DITCHES THAT RUN ALONG THE SIDE OF SOME OF THE ACCESS ROADS, THE MAJORITY OF THE ON-SITE DRAINAGE IS BY SHEET-FLOW. THERE IS NO ENCLOSED / PIPED STORM DRAINAGE ON THE PROJECT SITE.

3. ADJACENT PROPERTY:

3.1 THE PROJECT SITE IS BORDERED ON THE EAST AND A PORTION OF THE SOUTH BORDER BY INTERSTATE 81 AND THE VIRGINIA CREEPER TRAIL. THE CREEPER TRAIL ON THE EASTERN PERIMETER FORMS A BARRIER AND DRAINAGE DIVIDE BETWEEN THE PROJECT SITE AND PROPERTIES TO THE EAST. INTERSTATE 81 ALONG THE SOUTHERN PERIMETER OF THE SOUTH DISPOSAL AREA ALSO FORMS A BARRIER AND DRAINAGE DIVIDE BETWEEN THE PROJECT SITE AND PROPERTIES TO THE SOUTH. THERE IS NO RUN-OFF OR STORMWATER DISCHARGE FROM EITHER OF THESE AREAS INTO THE SITE AND THE PROJECT SITE WILL NOT DRAIN ONTO THESE ADJOINING SITE. BASED ON THIS ANALYSIS THERE IS LITTLE POTENTIAL FOR IMPACTS TO OR FROM THESE ADJOINING PROPERTIES.

3.2 THE PROJECT SITE IS BORDERED ON THE NORTH BY UNDEVELOPED FARM LAND THAT IS OF SIMILAR NATURE TO THE PROJECT SITE. THE NORTHERN PERIMETER IS ALSO DEFINED BY AN EXISTING FARM ROAD AND DRIVEWAY TO THE EXISTING FARM HOUSE. THE LAND AREA TO THE NORTH IS DOWNSLOPE FROM THE PROJECT SITE AND STORMWATER RUN-OFF TO THE NORTHERN PERIMETER LEAVES THE SITE BY SHEET-FLOW AND DRAINS ONTO THE ADJOINING PROPERTY. THERE IS ALSO A FARM POND, RECEIVING CHANNEL, AND A PORTION OF TOWN CREEK LOCATED ON THE NORTHERLY ADJOINING PROPERTY. BASED ON THIS ANALYSIS THERE IS MODERATE TO HIGH POTENTIAL FOR IMPACTS FROM DOWNSTREAM SEDIMENTATION TO THE PROPERTY TO THE NORTH.

3.3 THE PROJECT SITE IS BORDERED ON THE WEST BY THE CONCURRENT CONSTRUCTION PROJECT FOR GREEN SPRINGS ROAD. THIS PROJECT WILL INCLUDE ITS OWN E&SC MEASURES TO PROTECT ADJOINING AND DOWNSTREAM PROPERTIES FROM SEDIMENTATION FROM THE PROJECT ACTIVITIES. THE ADJOINING AREA IS DOWNSLOPE OF THE PROJECT AREA, BUT THE CONTRIBUTING DRAINAGE AREA IS SMALL. RUN-OFF FROM THE GREEN SPRINGS ROAD PROJECT WILL NOT IMPACT THE WORK OF THIS PROJECT.

3.4 THE PROJECT SITE IS BORDERED ON THE SOUTH BY UNDEVELOPED FARM LAND THAT IS OF SIMILAR NATURE TO THE PROJECT SITE. THE SOUTHERN PERIMETER IS ALSO DEFINED BY AN EXISTING FARM ROAD AND DRIVEWAY TO ADJOINING PROPERTIES, TWO EXISTING FARM PONDS, AND A SMALL SECTION OF THE CHANNEL (UN-NAMED TRIBUTARY TO TOWN CREEK) DOWNSTREAM OF THE PONDS. THE LAND AREA TO THE SOUTH IS DOWNSLOPE FROM THE PROJECT SITE AND STORMWATER RUN-OFF TO THE SOUTHERN PERIMETER LEAVES THE SITE BY SHEET-FLOW AND DRAINS ONTO THE ADJOINING PROPERTY AND THE ADJOINING STREAM. BASED ON THIS ANALYSIS THERE IS MODERATE TO HIGH POTENTIAL FOR IMPACTS FROM DOWNSTREAM SEDIMENTATION TO THE PROPERTY TO THE SOUTH.

4. SOILS:

4.1 A DETAILED SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION WAS NOT PERFORMED FOR THIS PORTION OF THE PROJECT. THE SOILS THAT ARE CURRENTLY IN-PLACE ARE NATIVE IN-SITU SOILS.

4.2 PER THE USDA WEB SOIL SURVEY (WSS), THE SOIL TYPES WITHIN THE PROJECT LIMITS ARE: FREDERICK SILT LOAM, HAGERSTOWN SILT LOAM, SINDION SILT LOAM, TIMBERVILLE-MARBIE COMPLEX, AND WYRICK-MARBIE COMPLEX. A GENERAL DESCRIPTION OF THE CHARACTERIZES ARE PRESENTED BELOW.

4.2.1 FREDERICK SILT LOAM: CONSISTS OF VERY DEEP, WELL DRAINED SOILS FORMED IN RESIDUUM DERIVED MAINLY FROM DOLOMITIC LIMESTONE WITH INTERBEDS OF SANDSTONE, SILTSTONE, AND SHALE. THEY ARE ON ARE NEARLY LEVEL TO VERY STEEP UPLANDS. PERMEABILITY IS MODERATE AND THE POTENTIAL FOR SURFACE RUNOFF IS LOW TO VERY HIGH. EROSION POTENTIAL IS MODERATE.

4.2.2 HAGERSTOWN SILT LOAM: CONSISTS OF DEEP AND VERY DEEP, WELL DRAINED SOILS FORMED IN RESIDUUM OF HARD GRAY LIMESTONE. PERMEABILITY IS MODERATE AND THE POTENTIAL FOR SURFACE RUNOFF IS MODERATE TO HIGH. EROSION POTENTIAL IS MODERATE.

4.2.3 SINDION SILT LOAM: CONSISTS OF VERY DEEP, MODERATELY WELL DRAINED SOILS FORMED IN ALLUVIUM DERIVED FROM LIMESTONE, SANDSTONE, PHYLLITE, SILTSTONE, SHALE, GRANITE, GNEISS, SCHIST, AND BASALT ON FLOOD PLAINS. PERMEABILITY IS MODERATE AND THE POTENTIAL FOR SURFACE RUNOFF IS VERY LOW. THESE SOILS ARE SUBJECT TO FLOODING. EROSION POTENTIAL IS LOW TO MODERATE.

4.2.4 TIMBERVILLE-MARBIE COMPLEX: THE TIMBERVILLE SERIES CONSISTS OF VERY DEEP, WELL DRAINED SOILS FORMED IN ALLUVIAL/COLLUVIAL MATERIALS. PERMEABILITY IS MODERATE. THE SOILS ARE SUBJECT TO FREQUENT FLOODING OF VERY SHORT DURATION DURING THE PERIOD APRIL THRU OCTOBER. THE MARBIE SERIES CONSISTS OF VERY DEEP, MODERATELY WELL DRAINED, SLOWLY PERMEABLE SOILS ALONG DRAINAGEWAYS, ON TOESLOPES, AND IN DEPRESSIONS. THEY FORMED IN COLLUVIUM AND ALLUVIUM WEATHERED DOMINANTLY FROM LIMESTONE WITH INCLUSIONS OF SHALE, SILTSTONE, AND FINE-GRAINED SANDSTONE OVER RESIDUUM. EROSION POTENTIAL IS MODERATE TO HIGH.

4.2.5 WYRICK-MARBIE COMPLEX: CONSISTS OF VERY DEEP, WELL DRAINED, MODERATELY PERMEABLE SOILS ON BENCHES, TOESLOPES, CONCAVE SIDESLOPES AND IN UPLAND DEPRESSIONS. THEY FORMED IN COLLUVIUM AND ALLUVIUM WEATHERED DOMINANTLY FROM LIMESTONES WITH INCLUSIONS OF SHALE, SILTSTONE, AND FINE-GRAINED SANDSTONE OVER RESIDUUM. PERMEABILITY IS MODERATE AND RUNOFF IS SLOW TO RAPID. EROSION POTENTIAL IS MODERATE TO HIGH.

5. CRITICAL EROSION AREAS:

5.1. STEEP SLOPES - DENUDED SLOPES AND PROPOSED FILL SLOPES POSE A HIGH POTENTIAL FOR EROSION AND ACCORDINGLY, ALL NEWLY DENUDED SLOPES BETWEEN 2H:1V AND 3H:1V ON THE PROJECT SITE ARE CONSIDERED "HIGH EROSION AREAS." THESE SLOPES SHOULD BE GRADED TO THEIR FINAL CONDITION AS QUICKLY AS POSSIBLE AND IMMEDIATELY STABILIZED IN ACCORDANCE WITH THE PROVISIONS OF THE PLANS AND NARRATIVES. ALL SLOPES IN EXCESS OF 3H:1V ARE TO BE FURTHER STABILIZED WITH SOIL STABILIZATION BLANKET AND MATTINGS.

6. EROSION AND SEDIMENT CONTROL MEASURES:

6.1 UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS (STD. AND SPEC.) OF THE LATEST EDITION OF THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK." MEASURES SPECIFICALLY IDENTIFIED ON THESE PLANS ARE LISTED BELOW.

6.2 CONSTRUCTION ENTRANCE (CE) AND CONSTRUCTION ROAD STABILIZATION (RCS): A CONSTRUCTION ENTRANCE IS PROVIDED AS SHOWN ON THE E&SC PLAN. THE CONTRACTOR SHALL ENSURE VEHICLES LEAVING THE WORK AREA ARE FREE OF EXCESS MUD, DIRT, AND DUST. VEHICLE WASH-DOWN PROVISIONS SHALL BE ADDED IF REQUIRED BY E&SC INSPECTOR. THE CONSTRUCTION ROAD STABILIZATION (CRS) CONSISTS OF THE TEMPORARY STABILIZATION OF ACCESS ROADS, AND ON-SITE PARKING AREAS WITH STONE IMMEDIATELY AFTER GRADING. THE PURPOSE OF THE CRS IS TO REDUCE THE EROSION OF TEMPORARY ROADBEDS BY CONSTRUCTION TRAFFIC DURING WET WEATHER AND REDUCE THE EROSION AND SUBSEQUENT RE-GRADING OF PERMANENT ROADBEDS BETWEEN THE TIME OF INITIAL GRADING AND FINAL STABILIZATION.

6.3 SILT FENCE (SF/SSF): SILT FENCE SHALL BE INSTALLED AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN AND IN CONFORMANCE WITH STD. AND SPEC. 3.05 - IT WILL INTERCEPT SILT LADEN RUNOFF BEFORE IT EXITS THE SITE. SILT FENCE INSTALLATION SHALL BE COORDINATED WITH AND INSPECTED BY THE EROSION AND SEDIMENT CONTROL INSPECTOR OR REPRESENTATIVE. IN SOME STEEPER AREAS OF THE PROJECT SITE "SUPER SILT FENCE," WHICH USES WIRE BACKING TO HANDLE HIGHER VELOCITIES AND FLOWS, MAY BE SPECIFIED.

6.4 TOPSOILING (TO): SHALL BE APPLIED TO ALL DISTURBED AREAS WHICH ARE TO RECEIVE PERMANENT SEEDING AS INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN AND SHALL BE APPLIED IN ACCORDANCE WITH THE STD. AND SPEC. 3.30. TOPSOILING PROVIDES A METHOD FOR PRESERVING AND RE-USING THE SURFACE LAYER OF SOIL, OFTEN ENRICHED IN ORGANIC MATTER, IN ORDER TO OBTAIN A MORE DESIRABLE PLANTING AND GROWTH MEDIUM.

6.5 TEMPORARY SEEDING / STABILIZATION (TS): SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE AND SHALL CONFORM TO STD. AND SPEC. 3.31. ADDITIONALLY, TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN FOURTEEN (14) DAYS IN CONFORMANCE WITH STD. AND SPEC. 3.31.

6.6 PERMANENT SEEDING (PS): ALL DISTURBED AREAS BROUGHT TO FINAL GRADE THAT ARE NOT BUILT UPON (BUILDING, PAVEMENT, WALKS, ETC.) OR THAT ARE NOT LANDSCAPED SHALL BE SEEDED IN CONFORMANCE WITH STD. AND SPEC. 3.32. PERMANENT STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE.

6.7 INLET PROTECTION (IP): SHALL BE INSTALLED AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN AND IN CONFORMANCE WITH STD. AND SPEC. 3.07. INLET PROTECTIONS ARE PROVIDED IN ORDER TO FILTER RUNOFF BEFORE IT ENTERS THE STORM DRAINAGE SYSTEM.

6.8 OUTLET PROTECTION (OP): SHALL BE INSTALLED AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN AND IN CONFORMANCE WITH STD. AND SPEC. 3.18. OUTLET PROTECTION IS AN ENERGY DISSIPATING DEVICE WHICH PROTECTS THE OUTLET AND REDUCES DOWNSTREAM EROSION BY REDUCING THE VELOCITY OF CONCENTRATED STORMWATER FLOWS.

6.9 TEMPORARY SEDIMENT TRAP (TST): TEMPORARY SEDIMENT TRAPS SHALL BE INSTALLED IN THE LOCATION SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN AND IN CONFORMANCE WITH STD. AND SPEC. 3.13. TEMPORARY SEDIMENT TRAPS DETAINS SEDIMENT LADEN RUNOFF FROM SMALL DISTURBED AREAS LONG ENOUGH TO ALLOW THE MAJORITY OF THE SEDIMENT TO SETTLE OUT.

6.10 DIVERSION (DV/FD): DIVERSIONS SHALL BE INSTALLED AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN AND IN CONFORMANCE WITH STD. AND SPEC. 3.12. THE DIVERSIONS WILL INTERCEPT AND DIVERT STORMWATER RUNOFF AT NON-EROSIVE VELOCITIES TO THE NEW STORM DRAIN SYSTEM, TO TEMPORARY SEDIMENT TRAPS, OR OTHER APPROVED CONTROL MEASURES.

6.11 SOIL STABILIZATION MATTING (B/M): SHALL BE VDOT STANDARD TYPE "TREATMENT 1" AND SHALL BE INSTALLED IN THE LOCATION SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN AND SHALL CONFORM TO STD. AND SPEC. 3.36. MATTING CAUSES SOIL/SEDIMENT TO DROP OUT OF STORMWATER AND FORMS AN EROSION RESISTANT VEGETATIVE COVER IN CHANNELS AND ON STEEP SLOPES.

6.12 TEMPORARY SEDIMENT BASIN (TSB): SHALL BE INSTALLED AT THE LOCATION SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN AND IN CONFORMANCE WITH STD. AND SPEC. 3.14. THE TEMPORARY SEDIMENT BASIN DETAINS SEDIMENT LADEN RUNOFF FROM LARGER (GREATER THAN 3 ACRES) DISTURBED AREAS LONG ENOUGH TO ALLOW THE MAJORITY OF THE SEDIMENT TO SETTLE OUT, AND THEN RELEASES THE RUNOFF AT A CONTROLLED RATE.

6.13 TEMPORARY SLOPE DRAIN (TSD) PIPES: SHALL BE USED TO CONVEY CONCENTRATED RUNOFF DOWN FRESHLY CUT OR FILLED EMBANKMENT SLOPES. TSD'S SHALL BE USED WHERE SHOWN ON THE PLAN OR WHERE DIRECTED BY THE E&SC INSPECTOR. TSD MAY BE REMOVED DURING WORK DAY TO ALLOW CONSTRUCTION VEHICLE TO TRAVERSE THE SITE, BUT THE TSD'S SHALL BE RECONNECTED AT THE END OF THE WORK DAY OR WHENEVER A RAIN EVENT IS EMINENT.

6.14 RIPRAP (RR)/CHECK DAMS(CD): SHALL BE INSTALLED AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN AND IN CONFORMANCE WITH STD. AND SPEC. 3.19. RIPRAP PROTECTS AND STABILIZES SLOPES AND SOILS IN CRITICAL EROSION AREAS. ADDITIONALLY, RIPRAP SLOWS THE VELOCITY OF CONCENTRATED RUNOFF.

7. MANAGEMENT STRATEGY AND SEQUENCE OF CONSTRUCTION:

7.1 CONSTRUCTION SHALL BE SEQUENCED SO LAND DISTURBING AND GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE. REFER TO THE "GENERAL SEQUENCE OF WORK" FOR ADDITIONAL INFORMATION.

7.2 THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY MARKED PRIOR TO START OF WORK.

7.3 SEDIMENT TRAPPING AND PERIMETER MEASURES SHALL BE INSTALLED AS THE FIRST STEP IN THE GRADING OPERATION AND SHALL BE SEEDED AND MULCHED IMMEDIATELY FOLLOWING INSTALLATION.

7.4 TEMPORARY SEEDING (TS) OR OTHER STABILIZATION MEASURES SHALL BE PLACED IMMEDIATELY FOLLOWING GRADING.

7.5 THE PROJECT SUPERINTENDENT OR THE RESPONSIBLE LAND DISTURBER (RLD) SHALL BE DIRECTLY RESPONSIBLE TO ENSURE THE MEASURES SPECIFIED HEREIN ARE INSTALLED AND MAINTAINED AND THE SEQUENCE OF WORK IS FOLLOWED.

7.6 AFTER PERFORMANCE OF THE WORK OF THE PROJECT AND UPON ACHIEVING ADEQUATE STABILIZATION, THE TEMPORARY E&SC MEASURES WILL BE CLEANED UP AND REMOVED.

8. PERMANENT STABILIZATION / REMOVAL OF MEASURES:

8.1 AFTER THE INSTALLED EROSION AND SEDIMENTATION CONTROL DEVICES ARE FOUND TO BE FUNCTIONAL, THE CONTRACTOR SHALL IMMEDIATELY PROCEED WITH CLEARING, GRUBBING, AND PRELIMINARY GRADING OPERATIONS. PERMANENT OR TEMPORARY STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN FOURTEEN (14) DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE (1) YEAR.

8.2 FOLLOWING THE COMPLETION OF DEVELOPMENT AND STABILIZATION OF ALL AREAS, AND IT HAS BEEN DETERMINED THAT EROSION OR SEDIMENTATION IS NO LONGER OCCURRING ON THE SITE OR AT ITS BOUNDARIES, AND DRAINAGE FLOWS ARE FUNCTIONING ACCORDING TO DESIGN, THE CONTRACTOR MAY THEN BEGIN TO REMOVE THE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES. THIS WORK SHALL BE DONE IN A CAREFUL, NEAT, AND ORGANIZED MANNER.

8.3 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 LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT SHALL BE CAREFULLY REMOVED OR UNIFORMLY SPREAD OVER THE AREA AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

9. INSPECTION & MAINTENANCE REQUIREMENTS:

9.1 THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL MAINTENANCE REQUIREMENTS OF THE EROSION AND SEDIMENT CONTROL MEASURES AS OUTLINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.

9.2 ALL EROSION AND SEDIMENT MEASURES WILL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL. THE ITEMS LISTED BELOW WILL BE CHECKED IN ACCORDANCE WITH THE REQUIREMENTS FOR EACH PARTICULAR ITEM.

9.3 STD & SPEC 3.02 - TEMPORARY STONE CONSTRUCTION ENTRANCE (CE) - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT 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.

9.4 STD & SPEC 3.05 - SILT FENCE (SF): SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH A DEPTH OF 6-INCHES. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

9.5 STD & SPEC 3.07 - STORM DRAIN INLET PROTECTION (IP) - THE STRUCTURE 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.

9.6 STD & SPEC 3.14 - TEMPORARY SEDIMENT BASIN - SEDIMENT SHALL BE REMOVED AND THE BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN VOLUME OF THE WET STORAGE. SEDIMENT REMOVAL FROM THE BASIN SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS. THE STRUCTURE SHOULD BE CHECKED REGULARLY TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT. THE EMERGENCY SPILLWAY SHOULD BE CHECKED REGULARLY TO ENSURE THAT ITS LINING IS WELL ESTABLISHED AND EROSION-RESISTANT.

9.6 STD & SPEC 3.19 AND 3.20 - RIP-RAP (RR) AND ROCK CHECK DAMS (CD) - CHECK DAMS SHOULD BE CHECKED FOR SEDIMENT ACCUMULATION AFTER EACH RUNOFF-PRODUCING STORM EVENT. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES ONE HALF OF THE ORIGINAL HEIGHT OF THE MEASURE. REGULAR INSPECTIONS SHOULD BE MADE TO INSURE THAT THE CENTER OF THE DAM IS LOWER THAN THE EDGES. EROSION CAUSED BY HIGH FLOWS AROUND THE EDGES OF THE DAM SHOULD BE CORRECTED IMMEDIATELY.

9.8 STD & SPEC 3.32 - PERMANENT SEEDING (PS) - IN GENERAL, A STAND OF VEGETATION CANNOT BE DETERMINED TO BE FULLY ESTABLISHED UNTIL IT HAS BEEN MAINTAINED FOR ONE FULL YEAR AFTER PLANTING. IRRIGATION - NEW SEEDING SHOULD BE SUPPLIED WITH ADEQUATE MOISTURE. SUPPLY WATER AS NEEDED, ESPECIALLY LATE IN THE SEASON, IN ABNORMALLY HOT OR DRY WEATHER, OR ON ADVERSE SITES. WATER APPLICATION RATES SHOULD BE CONTROLLED TO PREVENT EXCESSIVE RUNOFF. RE-SEEDING - INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEEDINGS WITHIN THE SAME SEASON, IF POSSIBLE. IF VEGETATIVE COVER IS INADEQUATE TO PREVENT RILL EROSION, OVER-SEED AND FERTILIZE IN ACCORDANCE WITH SOIL TEST RESULTS. IF A STAND HAS LESS THAN 40% COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. THE SOIL MUST BE TESTED TO DETERMINE IF ACIDITY OR NUTRIENT IMBALANCES ARE RESPONSIBLE. RE-ESTABLISH THE STAND FOLLOWING SEEDBED PREPARATION AND SEEDING RECOMMENDATIONS. FERTILIZATION - COOL SEASON GRASSES SHOULD BEGIN TO BE FERTILIZED 90 DAYS AFTER PLANTING TO ENSURE PROPER STAND AND DENSITY. WARM SEASON FERTILIZATION SHOULD BEGIN AT 30 DAYS AFTER PLANTING. APPLY MAINTENANCE LEVELS OF FERTILIZER AS DETERMINED BY SOIL TEST. IN THE ABSENCE OF A SOIL TEST, FERTILIZATION SHOULD BE AS INDICATED ON THE SEED SCHEDULE.

10. STORMWATER MANAGEMENT

10.1 STORMWATER RUN-OFF FROM THE PROJECT SITE WILL BE COLLECTED BY NEW STORM DRAINAGE INLETS, CURB SLOTS AND FLUMES, OR OTHER DEVICES, CONVEYED BY PIPE OR CHANNEL, AND DISCHARGED INTO TWO NEWLY CONSTRUCTED STORMWATER MANAGEMENT BASINS. DISCHARGE FROM THE BASINS SHALL OCCUR IN A NON-EROSIVE MANNER INTO THE EXISTING RECEIVING CHANNEL ADJOINING THE SITE.
END OF EROSION & SEDIMENT CONTROL NARRATIVE

REVISIONS

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SEAL

COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

THE MEADOWS
ABINGDON, VA

owner
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EROSION AND SEDIMENT CONTROL PLAN ~ NARRATIVE

DRAWING NO:

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SANITARY SEWER CHART								
MANHOLE	TOP EL.	INV. IN EL.	INV. OUT EL.	DEPTH (FT)	PIPE DIA. (IN)	PIPE LENGTH (FT)	PIPE MATERIAL	PIPE SLOPE
LINE C								
EXISTING	2035.90	2027.50	2027.40	8.45	8	196	PVC	4.00%
C1	2043.91	2035.44	2035.34	8.52	8	145	PVC	0.80%
C2	2049.90	2036.70	2036.60	13.25	8	304	PVC	1.45%
C3	2055.10	2041.20	2041.10	13.95	8	171	PVC	1.46%
C4	2057.20	2043.79	2043.69	13.46	8	132	PVC	0.91%
C5	2059.00	2045.09	2044.99	13.96	8	65	PVC	0.82%
C6	2060.00	2045.72	2045.62	14.33	8	276	PVC	0.83%
C7	2059.70	2048.10	2048.00	11.65	8			
LINE D								
C2	2049.90	2040.70	2036.60	13.25	8	170	PVC	1.00%
D1	2051.50	2042.50	2042.40	9.05	8	310	PVC	0.97%
D2	2051.50	2045.60	2045.50	5.95				
LINE E								
D1	2051.50	2047.00	2038.40	13.05	6	235	PVC	1.32%
E1	2054.20	2050.20	2050.10	4.05				
LINE F								
C4	2057.20	2050.20	2043.69	13.46	6	359	PVC	0.92%
CLEANOUT	2060.00	2053.60	2053.50	6.45				

LEGEND

(E)	EXISTING
SEW	EXISTING SANITARY SEWER LINE
SAN	PROPOSED SANITARY SEWER LINE
CO	PROPOSED CLEANOUT AND LATERAL
#	MANHOLE IDENTIFIER (REFER TO SAN. PROFILES)
WS	WATERSTOP (INSTALL UPSTREAM OF MANHOLE)
	PROPOSED STORM LINE

SUPPLEMENTAL SANITARY SEWER NOTES

1. CONNECTIONS TO NEW PRECAST AND EXISTING SANITARY MANHOLES SHALL USE ONE OF THE FOLLOWING OR APPROVED EQUAL FLEXIBLE BOOTS:
   - PSX BY PRESS-SEAL GASKET CORP
   - KOR-N-SEAL BY NPC INC.
   - G3 BOOT SYSTEM BY A-LOK PRODUCTS INC.

2. THE COMPLETE SANITARY INSTALLATION MUST BE INSPECTED AND APPROVED BY THE TOWN OF ABINGDON PRIOR TO BEING BACKFILLED. CONTACT THE TOWN'S SEWER SUPERINTENDENT, GLEN FOSTER AT (276) 451-0419 OR (276) 628-3167 TO SCHEDULE INSPECTIONS.

3. THE SEWER LINE SHALL BE PLACED IN A STEEL ENCASEMENT PIPE UNDER THE ROADWAY. THE STEEL ENCASEMENT PIPE FOR THE SANITARY SEWER ROAD CROSSING SHALL BE A MINIMUM OF 1/2" THICK AND FABRICATED IN ACCORDANCE WITH AWWA C201. JOINTS BETWEEN SECTIONS OF CASING SHALL BE COMPLETELY LEAKPROOF. NO SPIRAL WELDED PIPE WILL BE ALLOWED. STEEL CASING PIPE SHALL CONFORM TO THE MATERIAL STANDARDS OF ASTM A 139, GRADE B, OR APPROVED EQUAL.

4. THE PIPE CASING SPACERS SHALL BE METAL SPIDER SUPPORTS OR RACI PLASTIC SPACERS OF THE APPROPRIATE SIZE AND NUMBER TO FIRMLY SECURE THE PIPE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE SUPPORTS SHALL BE ATTACHED AND SPACED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

5. ALL DROP MANHOLES SHALL BE INSIDE DROP.

6. A HORIZONTAL CLEARANCE OF 22' TO 24' SHALL BE PROVIDED BETWEEN THE END OF THE CASING PIPE AND MANHOLES FOR MAINTENANCE PURPOSES.

7. RESTRAINED JOINTS SHALL BE USED THROUGH THE CASING.

TOWN OF ABINGDON GENERAL SANITARY SEWER NOTES

SS-1: ALL SANITARY SEWER FACILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND THE STANDARDS AND SPECIFICATIONS THAT MEET THE APPROVAL OF THE TOWN OF ABINGDON DEPARTMENT OF PUBLIC WORKS.

SS-2: ANY DEVIATION FROM APPROVED PLANS AND SPECIFICATIONS MUST BE APPROVED IN WRITING BY THE TOWN OF ABINGDON. REQUESTS FOR SUCH DEVIATIONS SHALL BE PRESENTED TO THE DIRECTOR OF WASTEWATER OPERATIONS AND BE ACCOMPANIED BY REVISED PLANS PRODUCED BY THE DESIGN ENGINEER. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY RESULT IN THE TOWN REFUSING TO ACCEPT FLOW FROM THE PROJECT OR ACCEPTANCE OF THE COMPLETED SEWER FACILITIES INTO THE TOWN'S SYSTEM.

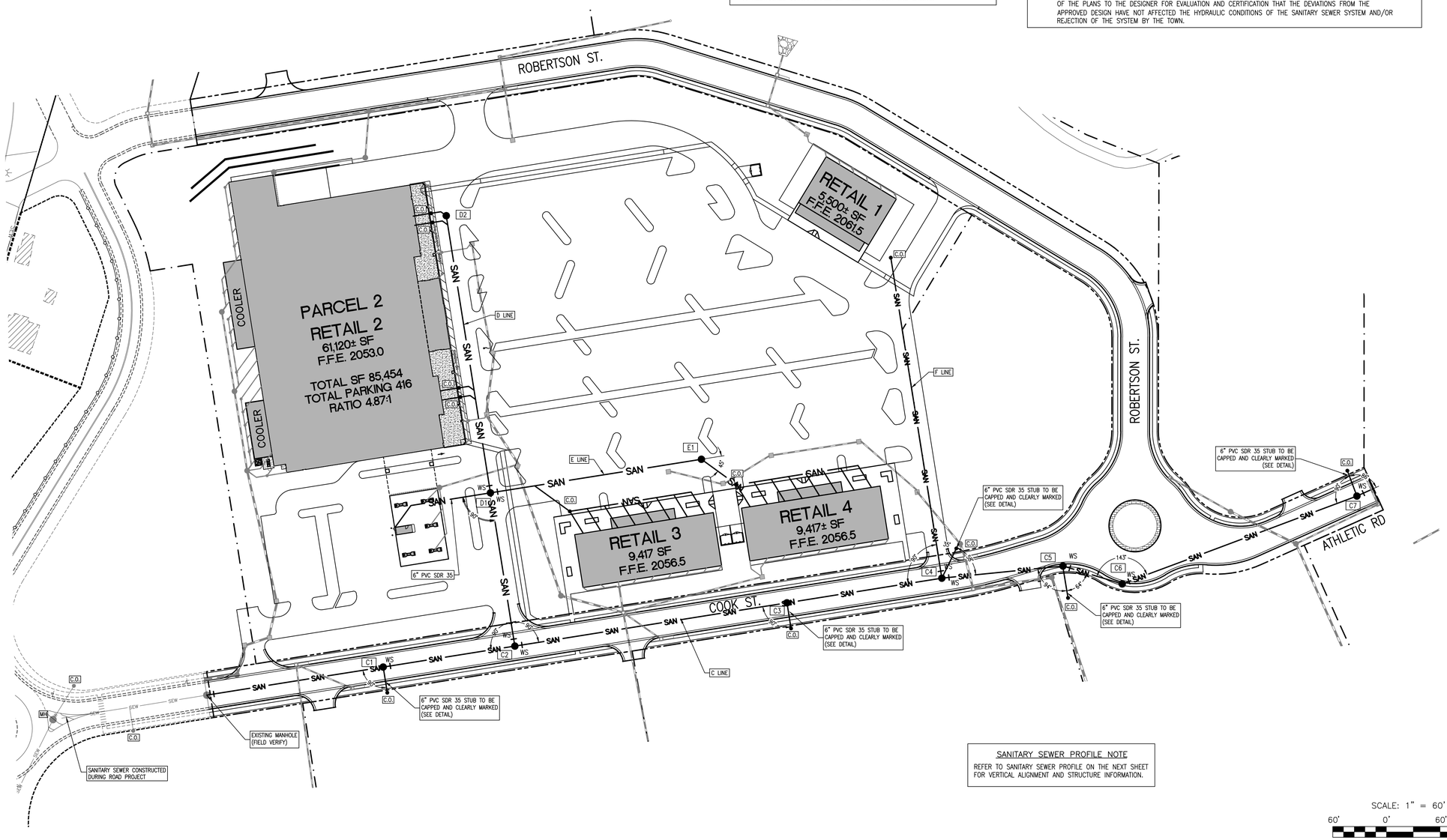
SS-3: ALL SEWER LATERALS MUST BE VISUALLY INSPECTED BY THE TOWN OF ABINGDON BEFORE ANY BACKFILLING IS BEGUN.

SS-4: LOW PRESSURE AIR TEST APPROVED BY THE TOWN OF ABINGDON REQUIRED ON ALL LINES 6 (SIX) INCHES OR GREATER IN DIAMETER.

SS-5: VACUUM TEST APPROVED BY THE TOWN OF ABINGDON REQUIRED ON ALL NEW MANHOLES.

SS-6: ALL MANHOLE COVERS ON MANHOLES TO BE MAINTAINED BY THE TOWN SHALL BE CLEARLY STAMPED WITH THE WORDS "TOWN OF ABINGDON SANITARY SEWER."

SS-7: THE CONTRACTOR SHALL KEEP AT THE JOB SITE AT ALL TIMES TWO (2) SETS OF APPROVED PLANS AND ONE (1) SET OF PROJECT SPECIFICATIONS FOR THE NEW SEWER. WITHIN FIVE (5) DAYS AFTER COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL RETURN TO THE DESIGN ENGINEER ONE (1) SET OF MARKED PLANS SHOWING THE SEWER LINE IN AN "AS-BUILT" CONDITION. THIS SHALL INCLUDE THE LOCATION OF ALL LATERALS, CLEANOUTS, TEES AND OTHER APPURTENANCES AND THE PERMANENT CONTROL POINTS AND/OR BENCHMARKS ON WHICH THE INFORMATION IS BASED. LOCATE ALL SEWER LATERAL CONNECTION POINTS BY INDICATING THE DISTANCE TO THE CENTER OF THE NEAREST MANHOLE AND THE OFFSET FROM THE SEWER MAIN. THE INFORMATION CONTAINED ON THESE "AS-BUILT" PRINTS WILL THEN BE TRANSFERRED TO THE ORIGINAL DRAWINGS BY THE DESIGN ENGINEER AND PRINTS DELIVERED TO THE TOWN OF ABINGDON PRIOR TO ACCEPTANCE AND USE OF THE SEWER LINE. THE PRINTS SHALL BE MARKED "AS-BUILT" OR "RECORD DRAWINGS" AND BEAR THE PROFESSIONAL SEAL OF THE DESIGNER. SIGNIFICANT UNAPPROVED PLAN DEVIATIONS MAY RESULT IN THE RETURN OF THE PLANS TO THE DESIGNER FOR EVALUATION AND CERTIFICATION THAT THE DEVIATIONS FROM THE APPROVED DESIGN HAVE NOT AFFECTED THE HYDRAULIC CONDITIONS OF THE SANITARY SEWER SYSTEM AND/OR REJECTION OF THE SYSTEM BY THE TOWN.



SANITARY SEWER PROFILE NOTE

REFER TO SANITARY SEWER PROFILE ON THE NEXT SHEET FOR VERTICAL ALIGNMENT AND STRUCTURE INFORMATION.

SCALE: 1" = 60'

60' 0' 60' 120'

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COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

THE MEADOWS
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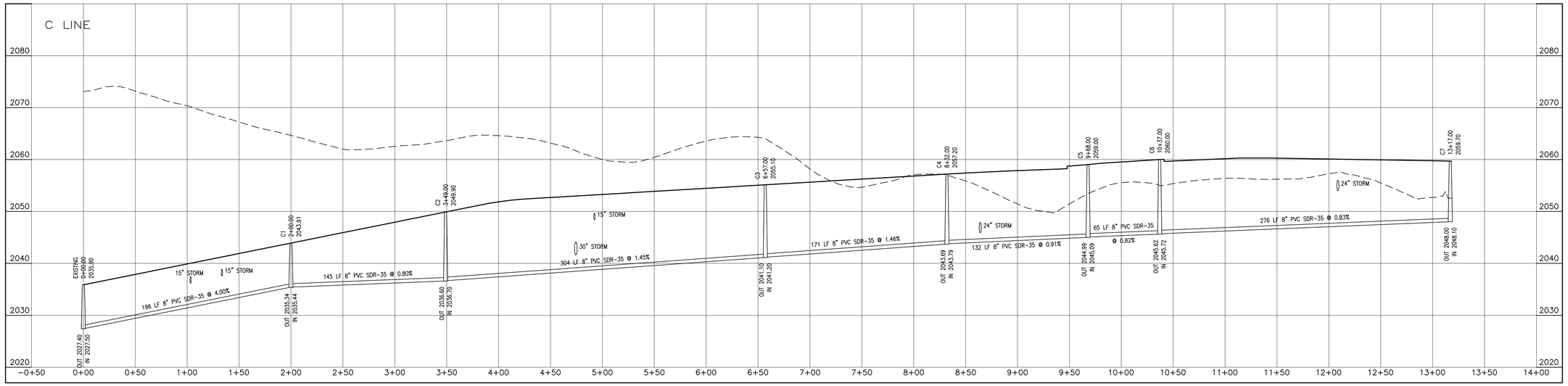

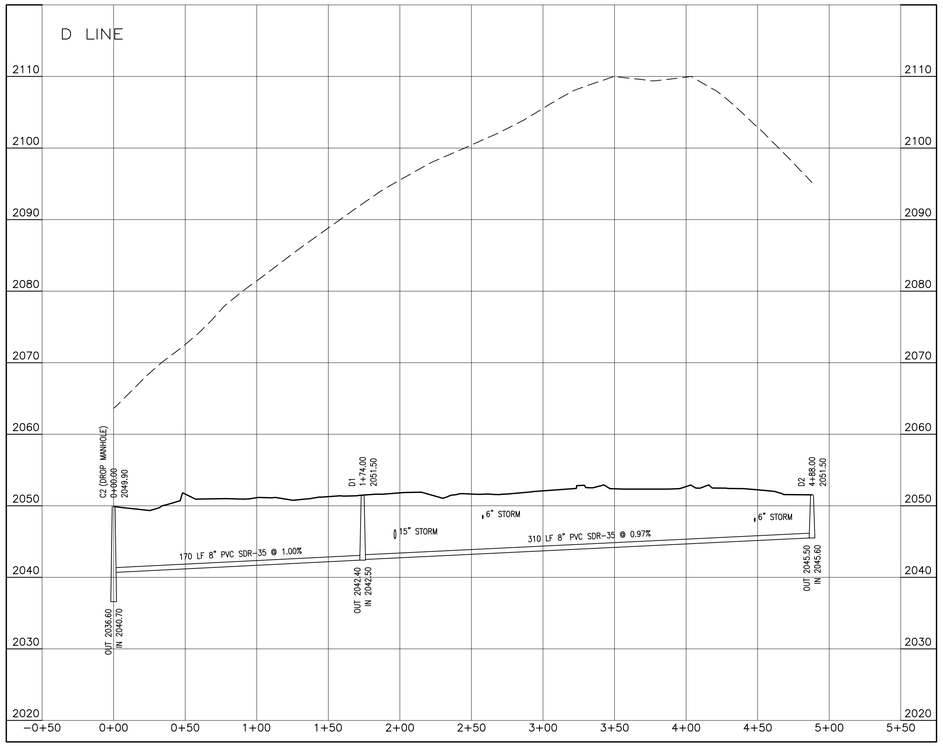

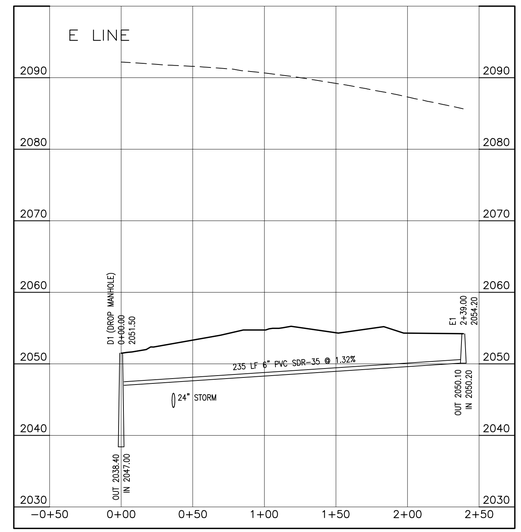

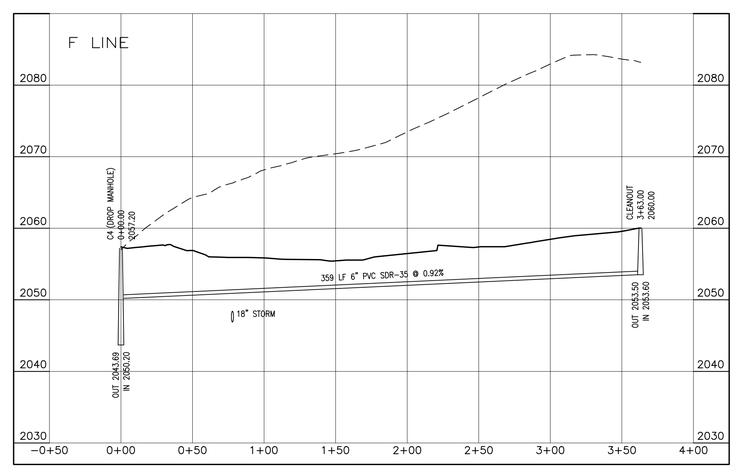

LEGEND

PROPOSED GRADE

EXISTING GROUND

VERT: 10' 0' 10' 20'
HORZ: 50' 0' 50' 100'

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WATER LINE NOTES

1. THE WATER LINE SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE WCSA GENERAL WATER LINE SPECIFICATIONS DATED JUNE 1, 2005, LATEST REVISION. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL MATERIALS TO WCSA FOR APPROVAL PRIOR TO CONSTRUCTION.

2. ALL CONNECTIONS TO THE EXISTING WATERLINES SHALL BE MADE BY THE WCSA. COORDINATE WITH WCSA A MINIMUM OF ONE WEEK BEFORE MAKING THE CONNECTION. FIELD VERIFY THE LOCATION OF THE EXISTING WATER LINE. WCSA WILL PROVIDE ALL MATERIALS NEEDED TO MAKE THE CONNECTION AND THE DEVELOPER SHALL REIMBURSE WCSA ACCORDING TO WCSA FEE SCHEDULE. NO WET TAP.

3. A MINIMUM OF 36" OF COVER SHALL BE PROVIDED OVER THE WATER LINE IN ALL AREAS. SEE SEPARATE NOTE AND DETAIL REGARDING WATER LINE COVER IN SPECIAL CROSSING SITUATIONS WITH SANITARY AND STORM SEWER PIPE.

4. WHERE THE WATER LINE CROSSES OVER A SANITARY OR STORM SEWER LINE, THE BOTTOM OF THE WATER LINE SHALL BE A MINIMUM OF 18" ABOVE THE TOP OF THE SEWER LINE OR THE SEWER LINE SHALL BE CONSTRUCTED OF PIPE COMPLYING WITH AWWA STANDARDS FOR WATER PIPE AND TESTED IN PLACE AT 50 PSI AND EXHIBIT NO LEAKAGE. WATERLINES SHALL BE LAID AT LEAST 10 FT. HORIZONTALLY FROM THE SEWER LINE AND SEWER MANHOLES. THERE MUST BE A VERTICAL CLEARANCE OF 18 INCHES BETWEEN THE BOTTOM OF THE WATERLINE AND THE TOP OF THE SEWER LINE FOR CROSSINGS. THE WCSA MUST BE CONTACTED AND APPROVE THE METHOD USED FOR ANY INSTANCE WHERE LOCAL CONDITIONS PREVENT THE ABOVE.

IF THE WATER LINE PASSES UNDER THE SEWER LINE, THERE SHALL BE A SEPARATION OF 18" MINIMUM FROM THE BOTTOM OF THE SEWER LINE AND THE TOP OF THE WATER LINE. THE SEWER LINE SHALL BE CONSTRUCTED OF WATER LINE PIPE AS DISCUSSED PREVIOUSLY AND ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING ON AND BREAKING THE WATER MAIN SHALL BE PROVIDED. THE WATER LINE PIPE SHALL BE LAID SO THAT THE LENGTH OF THE WATER PIPE IS CENTERED AT THE POINT OF CROSSING SO THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.

5. NO WATER PIPE SHALL PASS THROUGH OR COME INTO CONTACT WITH ANY PART OF A SEWER OR SEWER MANHOLE.

6. IN AREAS WHERE THE WATER LINE WILL BE INSTALLED IN FILL, THE CONTRACTOR SHALL PROVIDE THE TESTING NECESSARY TO CONFIRM THAT THE FILL MATERIAL COMPACTION IS SUITABLE FOR THE INSTALLATION OF THE WATER LINE. SOIL COMPACTION SHALL BE 98% OF MODIFIED PROCTOR.

7. THE WATER LINE AND FITTINGS SHALL BE UNLOADED, STORED, AND HANDLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND WITH APPLICABLE STANDARDS SUCH AS CHAPTER 4 OF AWWA STANDARD C-600, LATEST REVISION. ADDITIONAL GUIDANCE IS SUPPLIED IN SECTION 1.6 OF THE WCSA GENERAL WATER LINE SPECIFICATIONS.

8. THE PROPOSED MAIN LINE PIPE SHALL BE A 8" DUCTILE IRON WATER LINE PIPE IN ACCORDANCE WITH AWWA C151, LATEST REVISION. PIPE SHALL ALSO BE CEMENT LINED WITH A BITUMINOUS COAT ON THE INSIDE IN ACCORDANCE WITH AWWA C104, LATEST REVISION. JOINTS SHALL BE IN ACCORDANCE WITH AWWA C111. FITTINGS SHALL CONFORM TO AWWA C104 AND AWWA C110, LATEST REVISION. PIPE SHALL BE INSTALLED IN ACCORDANCE WITH WCSA REGULATIONS.

9. THE PIPE AND APPURTENANCES SMALLER THAN 2", INCLUDING THAT USED FOR SERVICE LINES FROM THE 8" WATER LINE TO THE METER ON EACH LOT SHALL BE TYPE K (SOFT TEMPER) COPPER TUBING WHEN BURIED AND TYPE L (HARD TEMPER) WHEN EXPOSED.

10. INSTALL THRUST BLOCKS AT ALL BENDS, TEES AND DEAD ENDS OF PIPE. REFER TO DETAILS FOR THRUST BLOCK DIMENSIONS. WRAP PIPE IN 6 MIL. PLASTIC BEFORE POURING THRUST BLOCK AGAINST PIPE.

11. THE TAPPING SADDLE FOR CONNECTING LATERALS TO THE MAIN WATER LINE SHALL BE HAVE STAINLESS STEEL STRAPS WITH A BRASS OR AN EPOXY COATED DUCTILE IRON BODY. SADDLES SHALL BE A MUELLER BR1S, FORD MODEL FC-101, OR A ROMAC 101S. THE CORPORATION SHOP SHALL BE A MUELLER B25008 OR FORD MODEL B1000. COVER PIPE ADJACENT TO TAP WITH A PROTECTIVE BLANKET PRIOR TO TAPPING.

12. METER BOXES SHALL BE MANUFACTURED BY ARMOR AND BE A 18" WHITE RECTANGULAR METER BOX, ITEM #194102. INSTALL AND MAINTAIN METER YOKE IN AN UPRIGHT POSITION.

13. VALVE BOXES SHALL BE PROVIDED FOR ALL GATE VALVES BELOW GRADE. VALVE BOXES SHALL CONSIST OF DUCTILE OR CAST IRON CONSTRUCTION AND HAVE A HEIGHT ADJUSTABLE SHAFT CAPABLE OF ADJUSTING A MINIMUM OF 1 FOOT. VALVE BOXES SHALL BE CENTERED OVER THE VALVE AND INSTALLED PLUMB. VALVE BOXES SHALL HAVE A REMOVABLE CAST OR DUCTILE IRON LID WHICH HAS THE WORD "WATER" CAST INTO THE DESIGN. A 2'x2'x6" THICK CONCRETE APRON SHALL BE POURED AROUND THE TOP OF ALL BOXES. VALVE BOXES SHALL BE TYLER 6850 OR 6860 SERIES OR AS APPROVED BY WCSA.

14. SPRINKLER RISER AND BACK FLOW PREVENTER TO BE INSTALLED INSIDE THE BUILDING.

15. GATE VALVES SHALL BE WEDGE TYPE, RESILIENT SEAT GATE VALVES MUELLER MODEL A-2360 OR AMERICAN FLOW CONTROL AFC-2500 OR AS APPROVED BY WCSA.

16. PLASTIC ENCASED ALUMINUM FOIL TAPE SHALL BE INSTALLED ABOVE ALL NONMETALLIC PIPE. THE TAPE SHALL BE COLOR CODED AND BEAR THE WORDS "POTABLE WATER LINE". THE MARKING TAPE SHALL BE LOCATED 12" TO 18" BELOW FINAL GRADE OR AT THE DEPTH RECOMMENDED BY THE TAPE MANUFACTURER. THE TAPE SHALL BE LINEGUARD DETECTABLE UNDERGROUND MARKING TAPE OR AS APPROVED BY WCSA.

17. FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED IN THESE PLANS, INCLUDING HARNESSING AND THRUST BLOCKING. ALL HYDRANTS SHALL BE PLUMB AND HAVE A FACTORY APPLIED BRIGHT RED FINISH. A GRAVEL DRAIN PIT WITH A MINIMUM VOLUME OF 0.5 CUBIC YARDS MUST BE PROVIDED FOR THE HYDRANT DRAIN. FIRE HYDRANTS SHALL BE MUELLER SUPER CENTURION 200, 5-1/4" OR AMERICAN FLOW CONTROL B-84-B, 5-1/4".

18. DEAD END WATER LINES SHALL BE TERMINATED A MINIMUM OF TWO PIPE JOINTS DOWNSTREAM OF THE GATE VALVE AND TERMINATED WITH A BLIND FLANGE BACKED BY A CONCRETE THRUST BLOCK.

19. THE WATER PIPE MAY BE DEFLECTED AT THE JOINT BUT THE OFFSET SHALL NOT EXCEED A 21" DEFLECTION FOR A 20' PUSH ON JOINT OF 8" WATER PIPE.

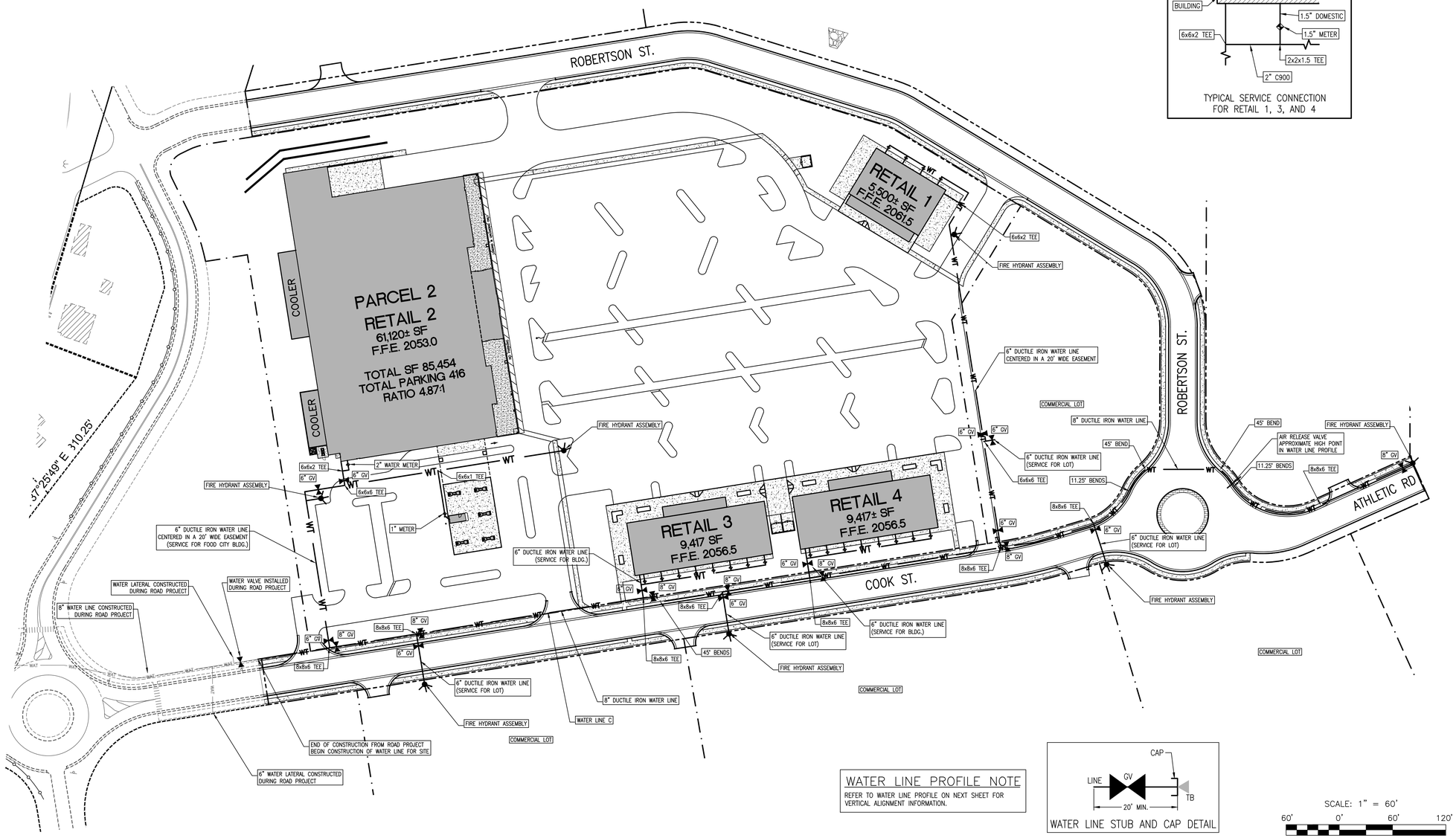
20. ALL TESTING OPERATIONS SHALL BE CONDUCTED IN THE PRESENCE OF THE WCSA INSPECTOR ON-SITE. THE CONTRACTOR IS ABSOLUTELY FORBIDDEN TO OPERATE ANY VALVES ON THE EXISTING WCSA SYSTEM WITHOUT THE APPROVAL AND ATTENDANCE OF THE INSPECTOR OR AUTHORIZED WCSA EMPLOYEE. THE TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE WCSA REGULATIONS. THE TEST PRESSURE FOR THE WATER LINES SHALL BE 200 PSI MINIMUM, BUT NOT LESS THAN 150% OF THE WORKING PRESSURE IN THE LINE AND THIS PRESSURE SHALL BE MAINTAINED FOR A PERIOD OF NOT LESS THAN TWO HOURS. THE SYSTEM SHOULD BE ALLOWED TO STABILIZE AT THE TEST PRESSURE BEFORE CONDUCTING THE HYDROSTATIC TEST.

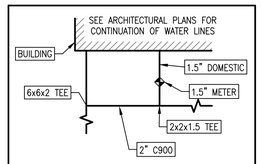
21. THE CONTRACTOR SHALL SUPPLY WCSA AS-BUILT PLANS OF THE WATER LINE SYSTEM SHOWING THE EXACT LOCATION OF ALL IMPROVEMENTS AND ADDITIONS MEASURED FROM A MINIMUM OF TWO UNIQUE LOCATIONS.

22. 12VAC5-590-1190 WATER SERVICES AND PLUMBING. WATER SERVICES AND PLUMBING SHALL CONFORM TO THE UNIFORM STATEWIDE BUILDING CODE.

LEGEND

	PROPOSED FIRE HYDRANT AND VALVE ASSEMBLY
GV	PROPOSED WATER VALVE
TB	PROPOSED THRUST BLOCK
WT	PROPOSED WATER LINE
WAT	EXISTING WATER LINE
GV	EXISTING WATER VALVE
FH	EXISTING FIRE HYDRANT





TYPICAL SERVICE CONNECTION FOR RETAIL 1, 3, AND 4

WATER LINE PROFILE NOTE

REFER TO WATER LINE PROFILE ON NEXT SHEET FOR VERTICAL ALIGNMENT INFORMATION.

WATER LINE STUB AND CAP DETAIL

SCALE: 1" = 60'

60' 0' 60' 120'

REVISIONS

NO.	DATE	DESCRIPTION

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SEAL

COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

THE MEADOWS
ABINGDON, VA

owner
Marathon Reality Corporation
1 Food City Circle
Abingdon, Virginia 24210

APPALACHIA DESIGN SERVICES
INCORPORATED

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Blountville, TN 37617
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DRAWN BY:	JSYJ
CHECKED BY:	JBL

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WATER LINE PLAN

DRAWING NO:

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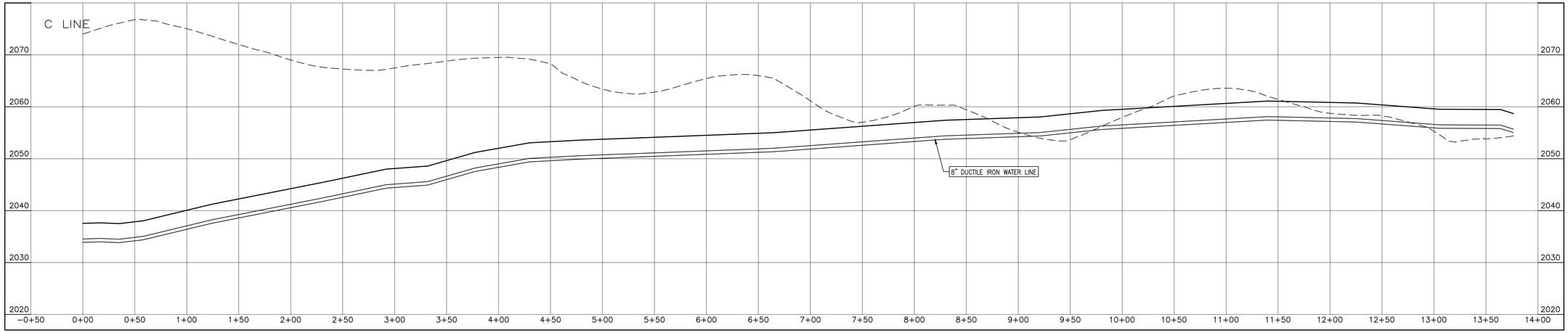

LEGEND

PROPOSED GRADE

EXISTING GROUND

VERT: 10' 0' 10' 20'
HORZ: 50' 0' 50' 100'

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WATER LINE
PROFILES

DRAWING NO:

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GENERAL NOTES

1. UTILITY POLE RELOCATION AND ELECTRIC SERVICE LINE AND STREET LIGHTING INSTALLATION SHALL BE COORDINATED WITH APPALACHIAN ELECTRIC POWER COMPANY. THE UTILITY CONTRACTOR SHALL ALSO COORDINATE WITH THE TELEPHONE AND CABLE COMPANIES FOR THE INSTALLATION OF THEIR LINES.
2. THE UTILITY CONTRACTOR SHALL COORDINATE WITH ATMOS ENERGY REGARDING THE INSTALLATION OF THE GAS LINE.
3. THE UTILITY CONTRACTOR SHALL COORDINATE WITH THE TOWN OF ABINGDON REGARDING THE INSTALLATION OF THE SANITARY SEWER SYSTEM.
4. THE UTILITY CONTRACTOR SHALL COORDINATE WITH WCSA REGARDING THE INSTALLATION OF THE WATER LINE.
5. SEE ARCHITECTURAL PLANS FOR CONTIUATION OF ALL UTILITIES.

SITE/CIVIL

CAUTION – NOTICE TO CONTRACTOR

The Contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The Contractor must call the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to relocate all existing utilities which conflict with the proposed improvements shown on the plans.

NOTICE

LOCATION OF ALL UTILITIES AND UNDERGROUND STRUCTURES SHOWN ARE APPROXIMATE AND THOSE SHOWN ARE NOT NECESSARILY ALL OF THE EXISTING UTILITIES AND STRUCTURES. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATION AND THE EXISTENCE OF ALL UTILITIES AND UNDERGROUND STRUCTURES.

SITE LIGHTING NOTE:

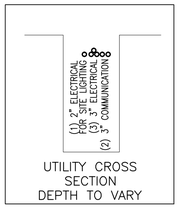
PROPOSED R.O.W. SITE LIGHTING LAYOUT & PHOTOMETRIC PLAN TO BE PROVIDED BY AEP.
ALL PRIVATE SITE LIGHTING LAYOUT & PHOTOMETRIC PLAN TO BE PROVIDED BY ARCHITECT WITH BUILDING PLANS.
ALL SITE LIGHTING SHALL CONFORM TO THE REQUIREMENTS OF THE TOWN OF ABINGDON.

LEGEND

GAS	PROPOSED GAS LINE
UGU	PROPOSED UNDERGROUND POWER AND COMMUNICATIONS
OHU	PROPOSED OVERHEAD POWER AND COMMUNICATIONS
CON	PROPOSED CONDUIT
E CON	EXISTING CONDUIT
G	EXISTING GAS LINE
OHU	EXISTING OVERHEAD UTILITY
	EXISTING CREEK
	EXISTING BOUNDARY LINE
	EXISTING ADJOINER LINE
	EXISTING UTILITY POLE
	EXISTING LIGHT/SIGNAL POLE

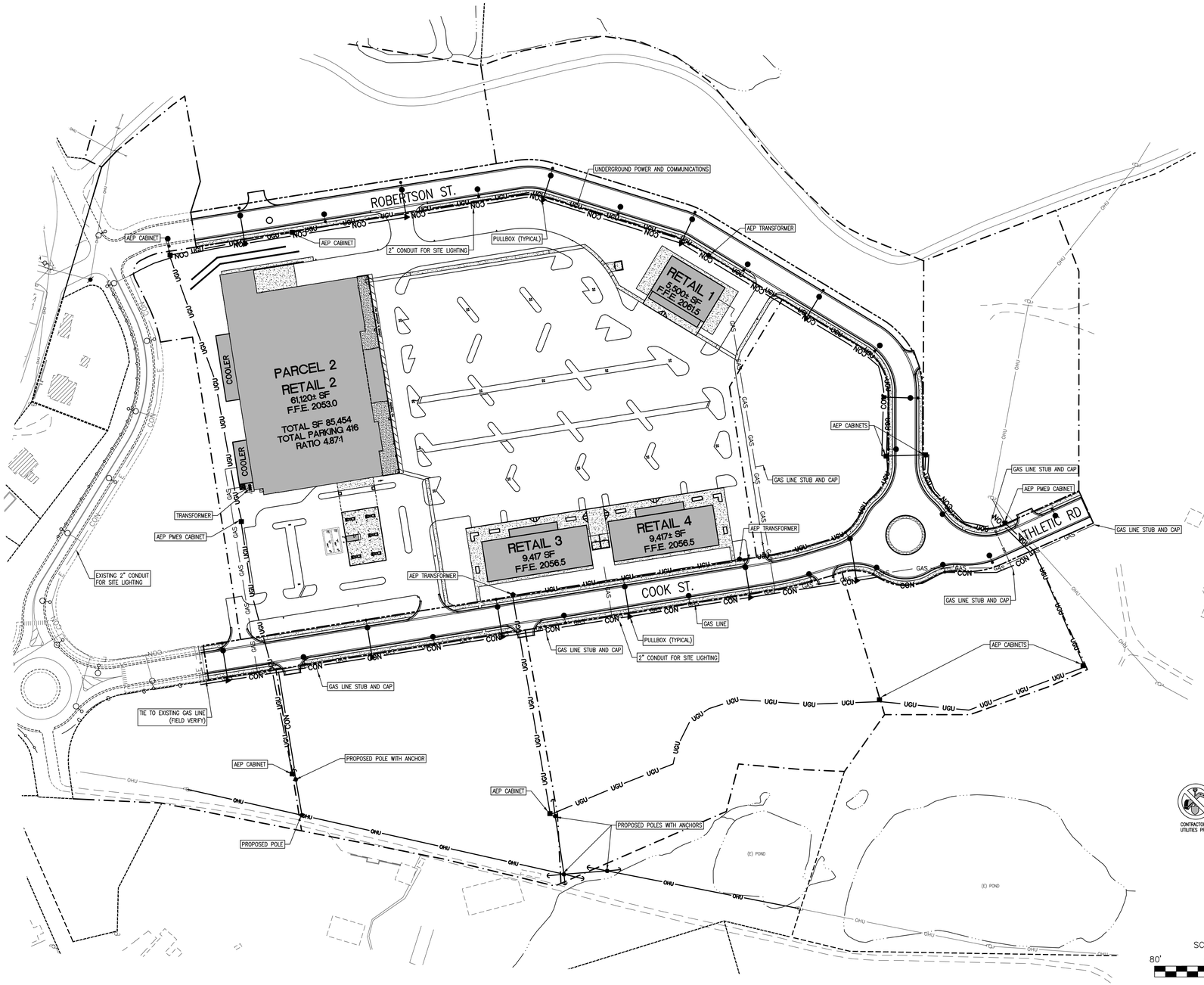
COMMUNICATION NOTE:

CABLE AND TELEPHONE WILL EACH NEED ONE 3" CONDUIT, FOR A TOTAL OF (2) TO STUB UP WITH POWER AT ALL TRANSFORMERS AND PEDESTALS THAT WILL SERVE CUSTOMERS 5FT. FROM TRANSFORMERS AND 3FT. FROM POWER PEDESTAL.



UTILITY CROSS SECTION
DEPTH TO VARY

SITE LIGHTING NOTE:
ALL SITE LIGHTING WITHIN R.O.W. PER TOWN OF ABINGDON SPECIFICATIONS FOR FIXTURE, POLE, ETC..



CALL THREE WORKING DAYS
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MISS VIRGINIA UTILITY

CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION

SCALE: 1" = 80'

80' 0' 80' 160'

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JONATHAN B. LEWIS
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6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

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CHECKED BY:	JBL

DRAWING TITLE:

UTILITY PLAN

DRAWING NO:

C17 OF 34

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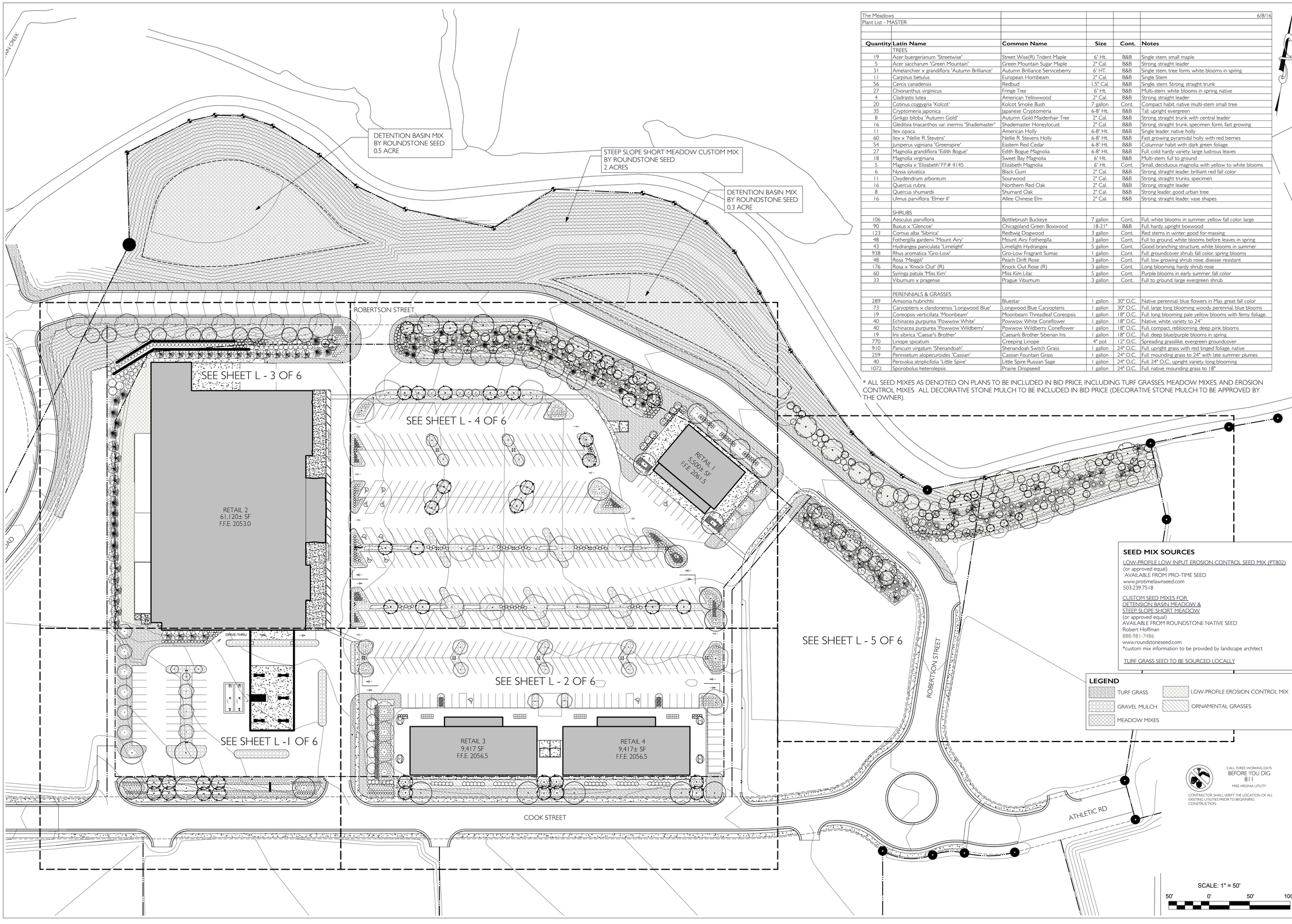

The Meadows
Plant List - MASTER

6/8/16

Quantity	Latin Name	Common Name	Size	Cont.	Notes
	TREES				
19	Acer buergerianum 'Streetwise'	Street Wise(R) Trident Maple	6' Ht.	B&B	Single stem, small maple
5	Acer saccharum 'Green Mountain'	Green Mountain Sugar Maple	2" Cal.	B&B	Strong, straight leader
31	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	6' HT.	B&B	Single stem, tree form, white blooms in spring
11	Carpinus betulus	European Hornbeam	2" Cal.	B&B	Single Stem
56	Cercis canadensis	Redbud	1.5" Cal.	B&B	Single, stem. Strong, straight trunk
27	Chionanthus virginicus	Fringe Tree	6' Ht.	B&B	Multi-stem, white blooms in spring, native
4	Cladrastis lutea	American Yellowwood	2" Cal.	B&B	Strong, straight leader
20	Cotinus coggygria 'Kolcot'	Kolcot Smoke Bush	7 gallon	Cont.	Compact habit, native multi-stem small tree
35	Cryptomeria japonica	Japanese Cryptomeria	6-8' Ht.	B&B	Tall, upright, evergreen
8	Ginkgo biloba 'Autumn Gold'	Autumn Gold Maidenhair Tree	2" Cal.	B&B	Strong, straight trunk with central leader
16	Gleditsia triacanthos var. inermis 'Shademaster'	Shademaster Honeylocust	2" Cal.	B&B	Strong, straight trunk, specimen form, fast growing
11	Ilex opaca	American Holly	6-8' Ht.	B&B	Single leader, native holly
60	Ilex x 'Nellie R. Stevens'	Nellie R. Stevens Holly	6-8' Ht.	B&B	Fast growing pyramidal holly with red berries
54	Juniperus virginiana 'Greenspire'	Eastern Red Cedar	6-8' Ht.	B&B	Columnar habit with dark green foliage
27	Magnolia grandiflora 'Edith Bogue'	Edith Bogue Magnolia	6-8' Ht.	B&B	Full, cold hardy variety, large lustrous leaves
18	Magnolia virginiana	Sweet Bay Magnolia	6' Ht.	B&B	Multi-stem, full to ground
5	Magnolia x 'Elizabeth' P.P.# 4145	Elizabeth Magnolia	6' Ht.	Cont.	Small, deciduous magnolia with yellow to white blooms
6	Nyssa sylvatica	Black Gum	2" Cal.	B&B	Strong, straight leader, brilliant red fall color
11	Oxydendrum arboreum	Sourwood	2" Cal.	B&B	Strong, straight trunks, specimen
16	Quercus rubra	Northern Red Oak	2" Cal.	B&B	Strong, straight leader
8	Quercus shumardii	Shumard Oak	2" Cal.	B&B	Strong leader, good urban tree
16	Ulmus parviflora 'Elmer II'	Allee Chinese Elm	2" Cal.	B&B	Strong, straight leader, vase shapes
	SHRUBS				
106	Aesculus parviflora	Bottlebrush Buckeye	7 gallon	Cont.	Full, white blooms in summer, yellow fall color, large
90	Buxus x 'Glencoe'	Chicagoland Green Boxwood	18-21"	B&B	Full, hardy, upright boxwood
123	Cornus alba 'Sibirica'	Redtwig Dogwood	3 gallon	Cont.	Red stems in winter, good for massing
48	Fothergilla gardenii 'Mount Airy'	Mount Airy Fothergilla	3 gallon	Cont.	Full to ground, white blooms before leaves in spring
43	Hydrangea paniculata 'Limelight'	Limelight Hydrangea	5 gallon	Cont.	Good branching structure, white blooms in summer
938	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	1 gallon	Cont.	Full groundcover shrub, fall color, spring blooms
48	Rosa 'Meiggili'	Peach Drift Rose	3 gallon	Cont.	Full, low growing shrub rose, disease resistant
176	Rosa x 'Knock Out' (R)	Knock Out Rose (R)	3 gallon	Cont.	Long blooming, hardy shrub rose
60	Syringa patula 'Miss Kim'	Miss Kim Lilac	5 gallon	Cont.	Purple blooms in early summer, fall color
33	Viburnum x pragense	Prague Viburnum	3 gallon	Cont.	Full to ground, large evergreen shrub
	PERENNIALS & GRASSES				
289	Amsonia hubrichtii	Bluestar	1 gallon	30" O.C.	Native perennial, blue flowers in May, great fall color
73	Caryopteris x clandonensis 'Longwood Blue'	Longwood Blue Caryopteris	1 gallon	30" O.C.	Full, large long blooming woody perennial, blue blooms
19	Coreopsis verticillata 'Moonbeam'	Moonbeam Threadleaf Coreopsis	1 gallon	18" O.C.	Full, long blooming pale yellow blooms with ferny foliage.
40	Echinacea purpurea 'Powwow White'	Powwow White Coneflower	1 gallon	18" O.C.	Native, white variety to 24"
40	Echinacea purpurea 'Powwow Wildberry'	Powwow Wildberry Coneflower	1 gallon	18" O.C.	Full, compact, reblooming, deep pink blooms
19	Iris sibirica 'Caesar's Brother'	Caesar's Brother Siberian Iris	1 gallon	18" O.C.	Full, deep blue/purple blooms in spring
770	Liriope spicatum	Creeping Liriope	4" pot	12" O.C.	Spreading grasslike, evergreen groundcover
910	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	1 gallon	24" O.C.	Full, upright grass with red tinged foliage, native
259	Pennisetum alopecuroides 'Cassian'	Cassian Fountain Grass	1 gallon	24" O.C.	Full, mounding grass to 24" with late summer plumes
40	Perovskia atriplicifolia 'Little Spire'	Little Spire Russian Sage	1 gallon	24" O.C.	Full, 24" O.C., upright variety, long blooming
1072	Sporobolus heterolepsis	Prairie Dropseed	1 gallon	24" O.C.	Full, native, mounding grass to 18"

* ALL SEED MIXES AS DENOTED ON PLANS TO BE INCLUDED IN BID PRICE, INCLUDING TURF GRASSES, MEADOW MIXES, AND EROSION CONTROL MIXES. ALL DECORATIVE STONE MULCH TO BE INCLUDED IN BID PRICE (DECORATIVE STONE MULCH TO BE APPROVED BY THE OWNER).

SEED MIX SOURCES

LOW-PROFILE LOW INPUT EROSION CONTROL SEED MIX (PT802)
(or approved equal)
AVAILABLE FROM PRO-TIME SEED
www.protimelawnseed.com
503.239.7518

CUSTOM SEED MIXES FOR
DETENSION BASIN MEADOW &
STEEP SLOPE SHORT MEADOW
(or approved equal)
AVAILABLE FROM ROUNDSTONE NATIVE SEED
Robert Hoffman
888-981-7486
www.roundstoneseed.com
*custom mix information to be provided by landscape architect

TURF GRASS SEED TO BE SOURCED LOCALLY

LEGEND

- TURF GRASS
- GRAVEL MULCH
- MEADOW MIXES
- LOW-PROFILE EROSION CONTROL MIX
- ORNAMENTAL GRASSES

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SEAL

COMMONWEALTH OF VIRGINIA
QUINN WHITE CRAUGHWELL
LAC. No. 001372
LANDSCAPE ARCHITECT

PROJECT:

THE MEADOWS

Marathon Realty Corp.
1 Food City Circle
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SCALE:	1" = 50'-0"
SCALE GUIDE:	
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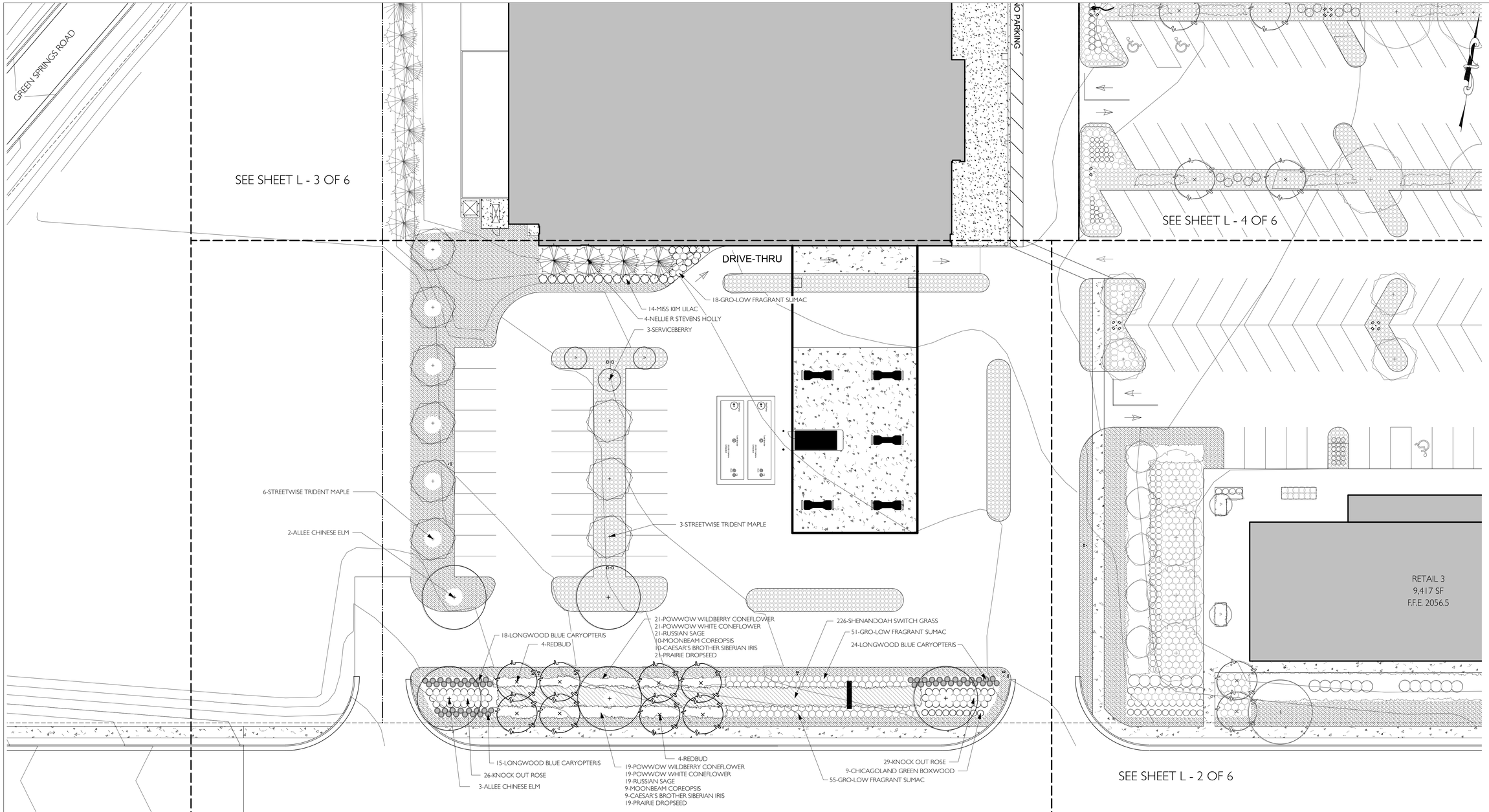
PROJ ADMIN:	JBL
DRAWN BY:	QWC
CHECKED BY:	NBB

DRAWING TITLE:

LANDSCAPING PLAN

DRAWING NO:

L - 0 OF **6**



The Meadows 6/8/16
Plant List - L - 1 OF 6

Quantity	Latin Name	Common Name	Size	Cont.	Notes
	TREES				
9	Acer buergerianum 'Streetwise'	Street Wise(R) Trident Maple	6" Ht.	B&B	Single stem, small maple
3	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	6' HT.	B&B	Single stem, tree form, white blooms in spring
8	Cercis canadensis	Redbud	1.5" Cal.	B&B	Single, stem. Strong, straight trunk
4	Ilex x 'Nellie R. Stevens'	Nellie R. Stevens Holly	6-8' Ht.	B&B	Fast growing pyramidal holly with red berries
5	Ulmus parviflora 'Elmer II'	Allee Chinese Elm	2" Cal.	B&B	Strong, straight leader, vase shapes
	SHRUBS				
9	Buxus x 'Glencoe'	Chicagoland Green Boxwood	18-21"	B&B	Full, hardy, upright boxwood
124	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	1 gallon	Cont.	Full, groundcover shrub, fall color, spring blooms
55	Rosa x 'Knock Out' (R)	Knock Out Rose (R)	3 gallon	Cont.	Long blooming, hardy shrub rose
14	Syringa patula 'Miss Kim'	Miss Kim Lilac	5 gallon	Cont.	Purple blooms in early summer, fall color
	PERENNIALS & GRASSES				
57	Caryopteris x clandonensis 'Longwood Blue'	Longwood Blue Caryopteris	1 gallon	30" O.C.	Full, large long blooming woody perennial, blue blooms
19	Coreopsis verticillata 'Moonbeam'	Moonbeam Threadleaf Coreopsis	1 gallon	18" O.C.	Full, long blooming pale yellow blooms with ferny foliage.
40	Echinacea purpurea 'Powwow White'	Powwow White Coneflower	1 gallon	18" O.C.	Native, white variety to 24"
40	Echinacea purpurea 'Powwow Wildberry'	Powwow Wildberry Coneflower	1 gallon	18" O.C.	Full, compact, reblooming, deep pink blooms
19	Iris sibirica 'Caesar's Brother'	Caesar's Brother Siberian Iris	1 gallon	18" O.C.	Full, deep blue/purple blooms in spring
226	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	1 gallon	24" O.C.	Full, upright grass with red tinged foliage, native
40	Perovskia atriplicifolia 'Little Spire'	Little Spire Russian Sage	1 gallon	24" O.C.	Full, 24" O.C., upright variety, long blooming
40	Sporobolus heterolepsis	Prairie Dropseed	1 gallon	24" O.C.	Full, native, mounding grass to 18"

NOTES:

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LANDSCAPE ARCHITECT SHALL APPROVE ALL PLANTINGS PRIOR TO INSTALLATION.

SEEDING & MULCHING NOTES:

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(2) PARKING LOT ISLANDS TO BE MULCHED WITH DECORATIVE STONE, TO BE APPROVED BY THE OWNER.

CALL THREE WORKING DAYS
BEFORE YOU DIG
811
MISS VIRGINIA UTILITY

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

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- ☐ CONCEPT DESIGN
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- ☐ CONSTRUCTION ADMINISTRATION

SEAL

COMMONWEALTH OF VIRGINIA
QUINN NORTH CHALCHWELL
LIC. No. 001372
LANDSCAPE ARCHITECT

PROJECT:

THE MEADOWS

Marathon Realty Corp.
1 Food City Circle
Abingdon, Virginia 24210

APPALACHIA DESIGN SERVICES
INCORPORATED

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Blountville, TN 37617
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LANDSCAPING PLAN

DRAWING NO:

L - 1 OF **6**

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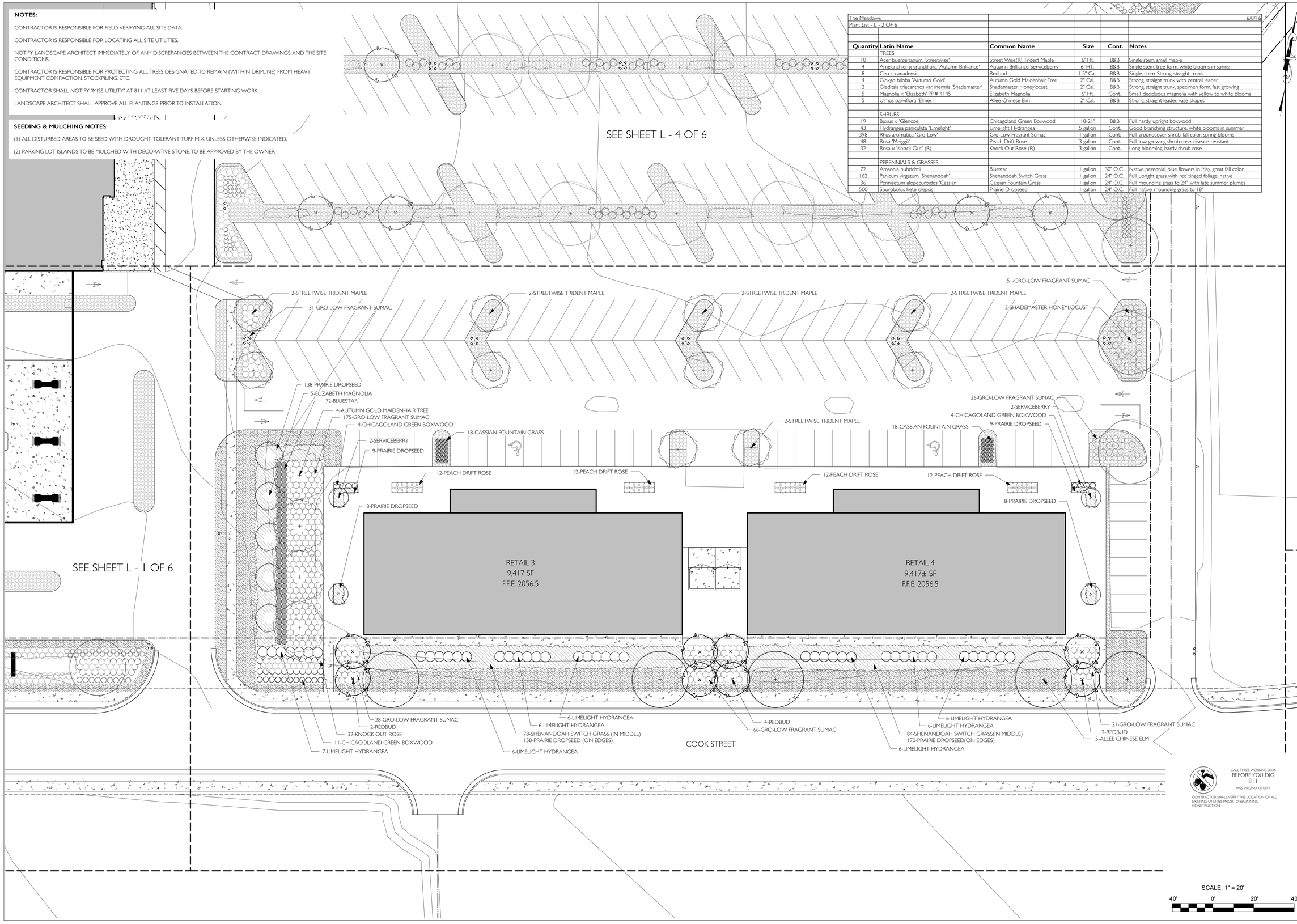
The Meadows 6/8/16
Plant List - L - 2 OF 6

Quantity	Latin Name	Common Name	Size	Cont.	Notes
	TREES				
10	Acer buergerianum 'Streetwise'	Street Wise(R) Trident Maple	6' Ht.	B&B	Single stem, small maple
4	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	6' HT.	B&B	Single stem, tree form, white blooms in spring
8	Cercis canadensis	Redbud	1.5" Cal.	B&B	Single, stem. Strong, straight trunk
4	Ginkgo biloba 'Autumn Gold'	Autumn Gold Maidenhair Tree	2" Cal.	B&B	Strong, straight trunk with central leader
2	Gleditsia triacanthos var. inermis 'Shademaster'	Shademaster Honeylocust	2" Cal.	B&B	Strong, straight trunk, specimen form, fast growing
5	Magnolia x 'Elizabeth' P.P.# 4145	Elizabeth Magnolia	6' Ht.	Cont.	Small, deciduous magnolia with yellow to white blooms
5	Ulmus parviflora 'Elmer II'	Allee Chinese Elm	2" Cal.	B&B	Strong, straight leader, vase shapes
	SHRUBS				
19	Buxus x 'Glencoe'	Chicagoland Green Boxwood	18-21"	B&B	Full, hardy, upright boxwood
43	Hydrangea paniculata 'Limelight'	Limelight Hydrangea	5 gallon	Cont.	Good branching structure, white blooms in summer
398	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	1 gallon	Cont.	Full, groundcover shrub, fall color, spring blooms
48	Rosa 'Meigpil'	Peach Drift Rose	3 gallon	Cont.	Full, low growing shrub rose, disease resistant
32	Rosa x 'Knock Out' (R)	Knock Out Rose (R)	3 gallon	Cont.	Long blooming, hardy shrub rose
	PERENNIALS & GRASSES				
72	Amsonia hubrichtii	Bluestar	1 gallon	30" O.C.	Native perennial, blue flowers in May, great fall color
162	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	1 gallon	24" O.C.	Full, upright grass with red tinged foliage, native
36	Pennisetum alopecuroides 'Cassian'	Cassian Fountain Grass	1 gallon	24" O.C.	Full, mounding grass to 24" with late summer plumes
500	Sporobolus heterolepsis	Prairie Dropseed	1 gallon	24" O.C.	Full, native, mounding grass to 18"



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COMMONWEALTH OF VIRGINIA
QUINN WHITE CHAUGHWELL
LAC No. 001372
LANDSCAPE ARCHITECT

PROJECT:

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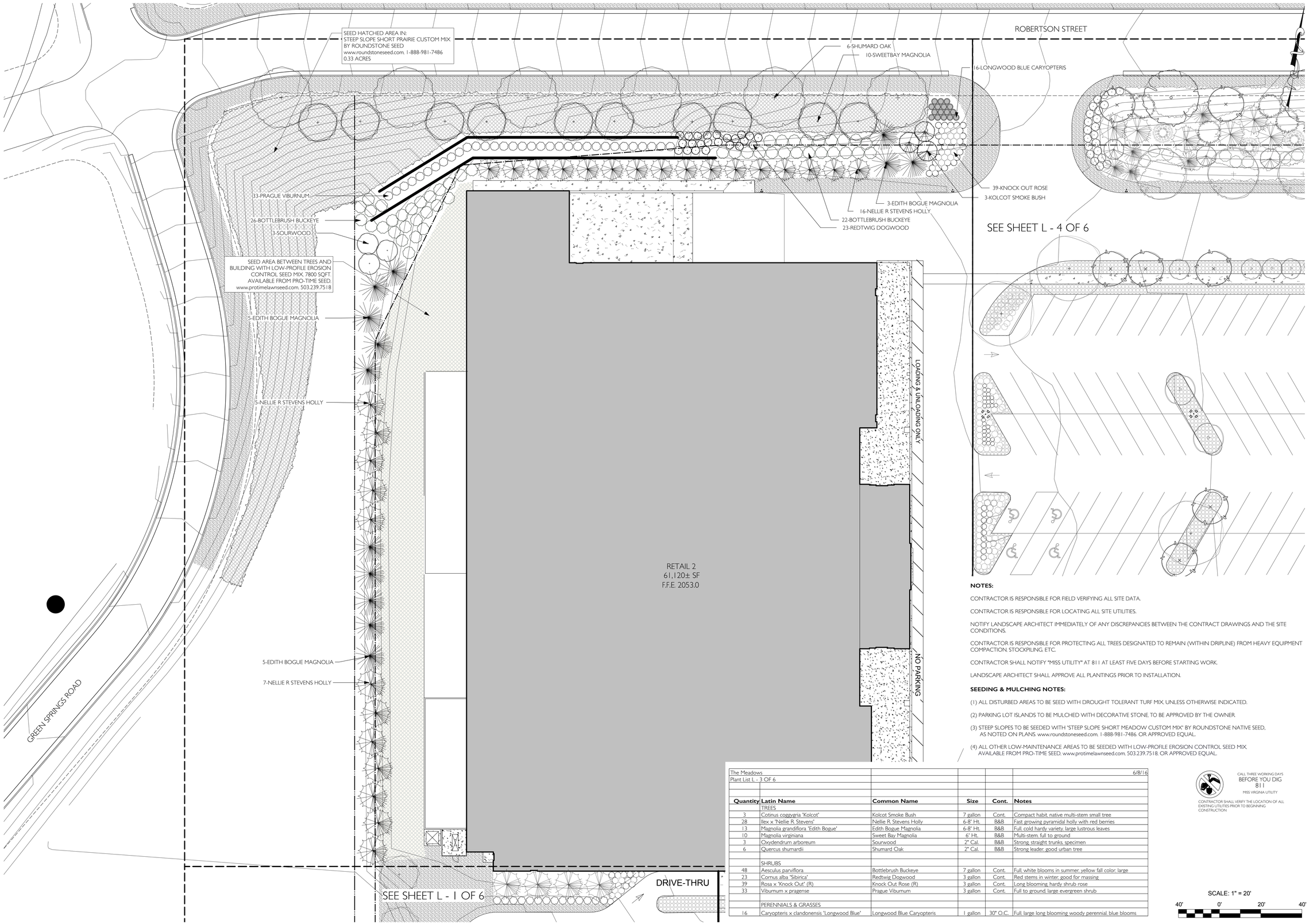
CHECKED BY:	NBB

DRAWING TITLE:

LANDSCAPING PLAN

DRAWING NO:

L - 2 OF **6**



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(3) STEEP SLOPES TO BE SEEDED WITH "STEEP SLOPE SHORT MEADOW CUSTOM MIX" BY ROUNDSTONE NATIVE SEED, AS NOTED ON PLANS. www.roundstoneseed.com. 1-888-981-7486. OR APPROVED EQUAL.

(4) ALL OTHER LOW-MAINTENANCE AREAS TO BE SEEDED WITH LOW-PROFILE EROSION CONTROL SEED MIX, AVAILABLE FROM PRO-TIME SEED. www.protimelawnseed.com. 503.239.7518. OR APPROVED EQUAL.

The Meadows
Plant List L - 3 OF 6

6/8/16

Quantity	Latin Name	Common Name	Size	Cont.	Notes
	TREES				
3	Cotinus coggygria 'Kolcot'	Kolcot Smoke Bush	7 gallon	Cont.	Compact habit, native multi-stem small tree
28	Ilex x 'Nellie R. Stevens'	Nellie R. Stevens Holly	6-8' Ht.	B&B	Fast growing pyramidal holly with red berries
13	Magnolia grandiflora 'Edith Bogue'	Edith Bogue Magnolia	6-8' Ht.	B&B	Full, cold hardy variety, large lustrous leaves
10	Magnolia virginiana	Sweet Bay Magnolia	6' Ht.	B&B	Multi-stem, full to ground
3	Oxydendrum arboreum	Sourwood	2" Cal.	B&B	Strong, straight trunks, specimen
6	Quercus shumardii	Shumard Oak	2" Cal.	B&B	Strong leader, good urban tree
	SHRUBS				
48	Aesculus parviflora	Bottlebrush Buckeye	7 gallon	Cont.	Full, white blooms in summer, yellow fall color, large
23	Cornus alba 'Sibirica'	Redtwig Dogwood	3 gallon	Cont.	Red stems in winter, good for massing
39	Rosa x 'Knock Out' (R)	Knock Out Rose (R)	3 gallon	Cont.	Long blooming, hardy shrub rose
33	Viburnum x pragense	Prague Viburnum	3 gallon	Cont.	Full to ground, large evergreen shrub
	PERENNIALS & GRASSES				
16	Caryopteris x clandonensis 'Longwood Blue'	Longwood Blue Caryopteris	1 gallon	30" O.C.	Full, large long blooming woody perennial, blue blooms

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40' 0' 20' 40'

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SEAL

COMMONWEALTH OF VIRGINIA
QUINN NEITE CHAUGHWELL
Lic. No. 0401372
LANDSCAPE ARCHITECT

PROJECT:

THE MEADOWS

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1 Food City Circle
Abingdon, Virginia 24210

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LANDSCAPING PLAN

DRAWING NO:

L - 3 OF **6**

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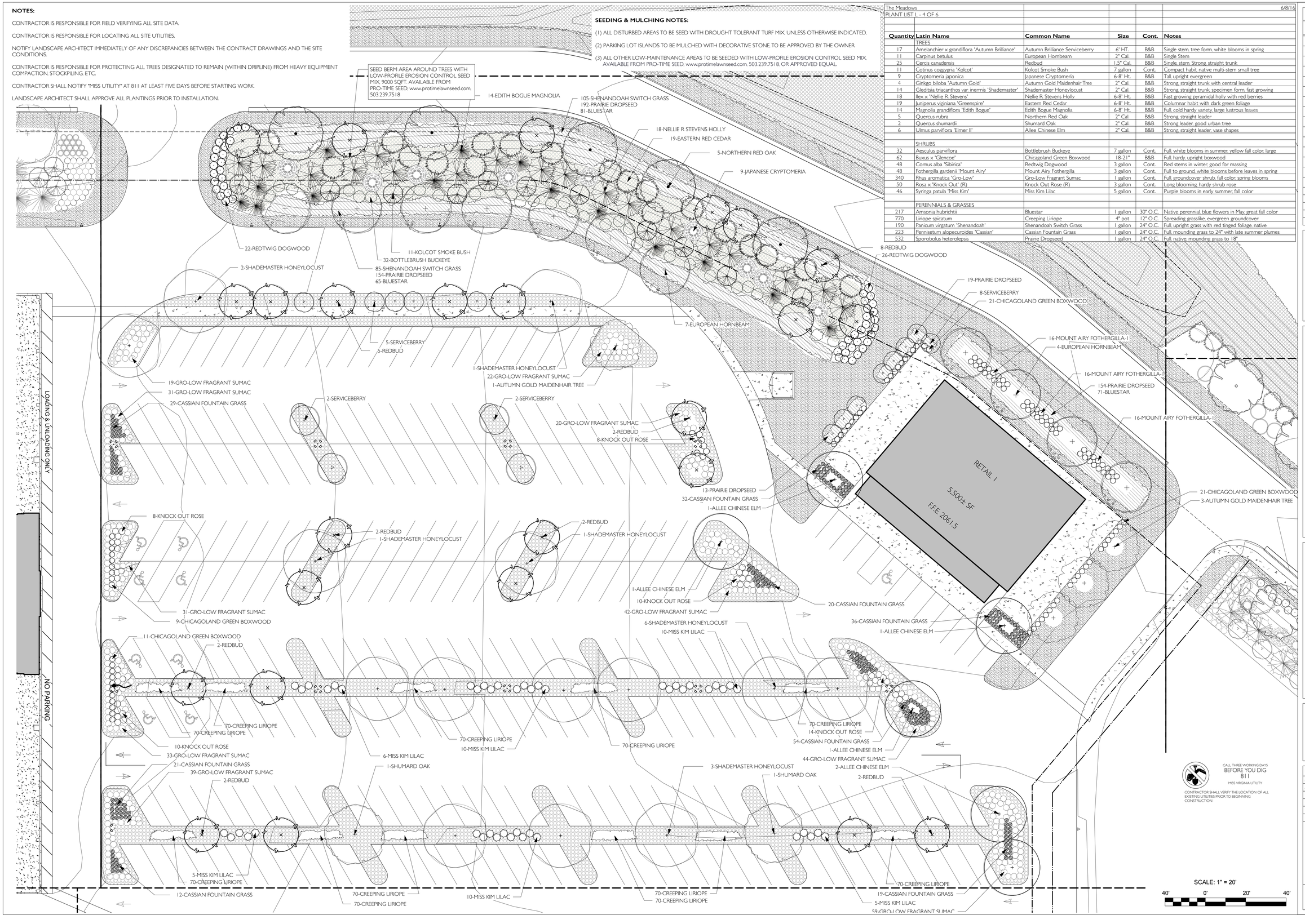

The Meadows 6/8/16
PLANT LIST L - 4 OF 6

Quantity	Latin Name	Common Name	Size	Cont.	Notes
	TREES				
17	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	6' HT.	B&B	Single stem, tree form, white blooms in spring
11	Carpinus betulus	European Hornbeam	2" Cal.	B&B	Single Stem
25	Cercis canadensis	Redbud	1.5" Cal.	B&B	Single, stem. Strong, straight trunk
11	Cotinus coggygria 'Kolcot'	Kolcot Smoke Bush	7 gallon	Cont.	Compact habit, native multi-stem small tree
9	Cryptomeria japonica	Japanese Cryptomeria	6-8' Ht.	B&B	Tall upright evergreen
4	Ginkgo biloba 'Autumn Gold'	Autumn Gold Maidenhair Tree	2" Cal.	B&B	Strong, straight trunk with central leader
14	Gleditsia triacanthos var. inermis 'Shademaster'	Shademaster Honeylocust	2" Cal.	B&B	Strong, straight trunk, specimen form, fast growing
18	Ilex x 'Nellie R. Stevens'	Nellie R. Stevens Holly	6-8' Ht.	B&B	Fast growing pyramidal holly with red berries
19	Juniperus virginiana 'Greenspire'	Eastern Red Cedar	6-8' Ht.	B&B	Columnar habit with dark green foliage
14	Magnolia grandiflora 'Edith Bogue'	Edith Bogue Magnolia	6-8' Ht.	B&B	Full, cold hardy variety, large lustrous leaves
5	Quercus rubra	Northern Red Oak	2" Cal.	B&B	Strong, straight leader
2	Quercus shumardii	Shumard Oak	2" Cal.	B&B	Strong leader, good urban tree
6	Ulmus parviflora 'Elmer II'	Allee Chinese Elm	2" Cal.	B&B	Strong, straight leader, vase shapes
	SHRUBS				
32	Aesculus parviflora	Bottlebrush Buckeye	7 gallon	Cont.	Full, white blooms in summer, yellow fall color, large
62	Buxus x 'Glencoe'	Chicagoland Green Boxwood	18-21"	B&B	Full, hardy, upright boxwood
48	Cornus alba 'Sibirica'	Redtwig Dogwood	3 gallon	Cont.	Red stems in winter, good for massing
48	Fothergilla gardenii 'Mount Airy'	Mount Airy Fothergilla	3 gallon	Cont.	Full to ground, white blooms before leaves in spring
340	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	1 gallon	Cont.	Full, groundcover shrub, fall color, spring blooms
50	Rosa x 'Knock Out' (R)	Knock Out Rose (R)	3 gallon	Cont.	Long blooming, hardy shrub rose
46	Syringa patula 'Miss Kim'	Miss Kim Lilac	5 gallon	Cont.	Purple blooms in early summer, fall color
	PERENNIALS & GRASSES				
217	Amsonia hubrichtii	Bluestar	1 gallon	30" O.C.	Native perennial, blue flowers in May, great fall color
770	Liriope spicatum	Creeping Liriope	4" pot	12" O.C.	Spreading grasslike, evergreen groundcover
190	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	1 gallon	24" O.C.	Full, upright grass with red tinged foliage, native
223	Pennisetum alopecuroides 'Cassian'	Cassian Fountain Grass	1 gallon	24" O.C.	Full, mounding grass to 24" with late summer plumes
532	Sporobolus heterolepsis	Prairie Dropseed	1 gallon	24" O.C.	Full, native, mounding grass to 18"

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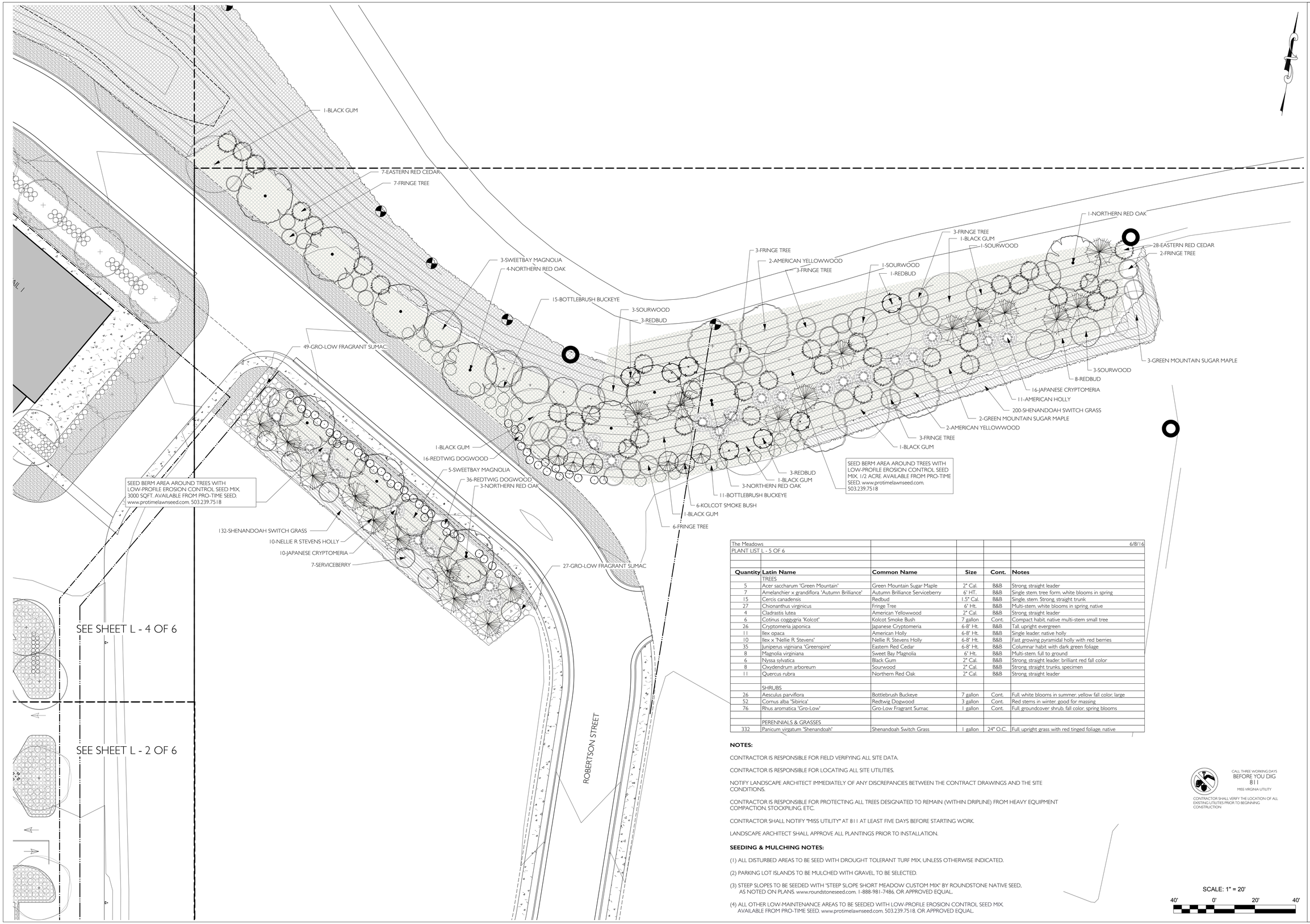
L - 4 OF **6**



The Meadows					6/8/16
PLANT LIST L - 5 OF 6					
Quantity	**Latin Name**	**Common Name**	**Size**	**Cont.**	**Notes**
	TREES				
5	Acer saccharum 'Green Mountain'	Green Mountain Sugar Maple	2" Cal.	B&B	Strong, straight leader
7	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	6' HT.	B&B	Single stem, tree form, white blooms in spring
15	Cercis canadensis	Redbud	1.5" Cal.	B&B	Single, stem. Strong, straight trunk
27	Chionanthus virginicus	Fringe Tree	6' Ht.	B&B	Multi-stem, white blooms in spring, native
4	Cladrastis lutea	American Yellowwood	2" Cal.	B&B	Strong, straight leader
6	Cotinus coggygria 'Kolcot'	Kolcot Smoke Bush	7 gallon	Cont.	Compact habit, native multi-stem small tree
26	Cryptomena japonica	Japanese Cryptomeria	6-8' Ht.	B&B	Tall, upright evergreen
11	Ilex opaca	American Holly	6-8' Ht.	B&B	Single leader, native holly
10	Ilex x 'Nellie R. Stevens'	Nellie R. Stevens Holly	6-8' Ht.	B&B	Fast growing pyramidal holly with red berries
35	Juniperus virginiana 'Greenspire'	Eastern Red Cedar	6-8' Ht.	B&B	Columnar habit with dark green foliage
8	Magnolia virginiana	Sweet Bay Magnolia	6' Ht.	B&B	Multi-stem, full to ground
6	Nyssa sylvatica	Black Gum	2" Cal.	B&B	Strong, straight leader, brilliant red fall color
8	Oxydendrum arboreum	Sourwood	2" Cal.	B&B	Strong, straight trunks, specimen
11	Quercus rubra	Northern Red Oak	2" Cal.	B&B	Strong, straight leader
	SHRUBS				
26	Aesculus parviflora	Bottlebrush Buckeye	7 gallon	Cont.	Full, white blooms in summer, yellow fall color, large
52	Cornus alba 'Sibirica'	Redtwig Dogwood	3 gallon	Cont.	Red stems in winter, good for massing
76	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	1 gallon	Cont.	Full, groundcover shrub, fall color, spring blooms
	PERENNIALS & GRASSES				
332	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	1 gallon	24" O.C.	Full, upright grass with red tinged foliage, native

NOTES:

CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL SITE DATA.

CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL SITE UTILITIES.

NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND THE SITE CONDITIONS.

CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL TREES DESIGNATED TO REMAIN (WITHIN DRIPLINE) FROM HEAVY EQUIPMENT COMPACTION, STOCKPILING, ETC.

CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 811 AT LEAST FIVE DAYS BEFORE STARTING WORK.

LANDSCAPE ARCHITECT SHALL APPROVE ALL PLANTINGS PRIOR TO INSTALLATION.

SEEDING & MULCHING NOTES:

(1) ALL DISTURBED AREAS TO BE SEED WITH DROUGHT TOLERANT TURF MIX, UNLESS OTHERWISE INDICATED.

(2) PARKING LOT ISLANDS TO BE MULCHED WITH GRAVEL, TO BE SELECTED.

(3) STEEP SLOPES TO BE SEEDED WITH "STEEP SLOPE SHORT MEADOW CUSTOM MIX" BY ROUNDSTONE NATIVE SEED, AS NOTED ON PLANS. www.roundstoneseed.com. 1-888-981-7486. OR APPROVED EQUAL.

(4) ALL OTHER LOW-MAINTENANCE AREAS TO BE SEEDED WITH LOW-PROFILE EROSION CONTROL SEED MIX, AVAILABLE FROM PRO-TIME SEED. www.protimelawnseed.com. 503.239.7518. OR APPROVED EQUAL.

CALL THREE WORKING DAYS
BEFORE YOU DIG
811
MISS VIRGINIA UTILITY

CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION

SCALE: 1" = 20'

40' 0' 20' 40'

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- ☐ CONCEPT DESIGN
- ☐ DESIGN DEVELOPMENT
- ☐ CONSTRUCTION BIDDING PHASE
- ☒ CONSTRUCTION DOCUMENTS
- ☐ CONSTRUCTION ADMINISTRATION

SEAL

PROJECT:

THE MEADOWS

Marathon Realty Corp.
1 Food City Circle
Abingdon, Virginia 24210

APPALACHIA DESIGN SERVICES
INCORPORATED

245 Birch Street
Blountville, TN 37617
Phone: (423) 323-1206
Fax: (423) 323-1732

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DRAWING INFORMATION

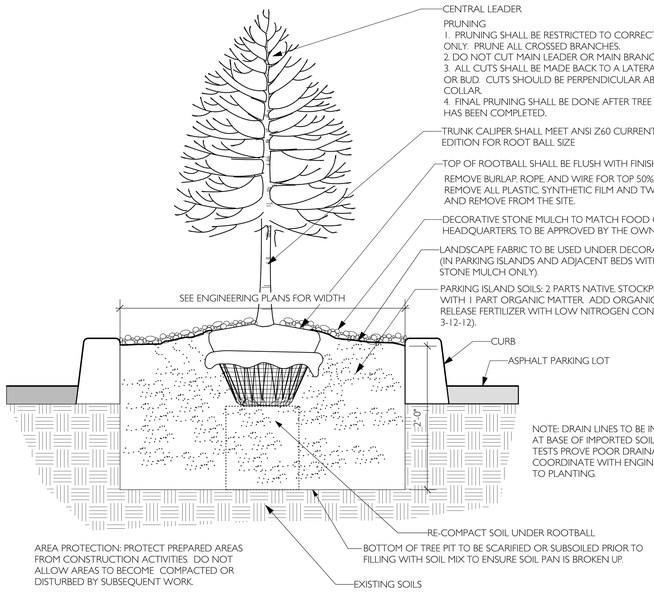
SCALE:	1" = 20'-0"
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ. ADMIN:	JBL
DRAWN BY:	QWC
CHECKED BY:	NBB

DRAWING TITLE:

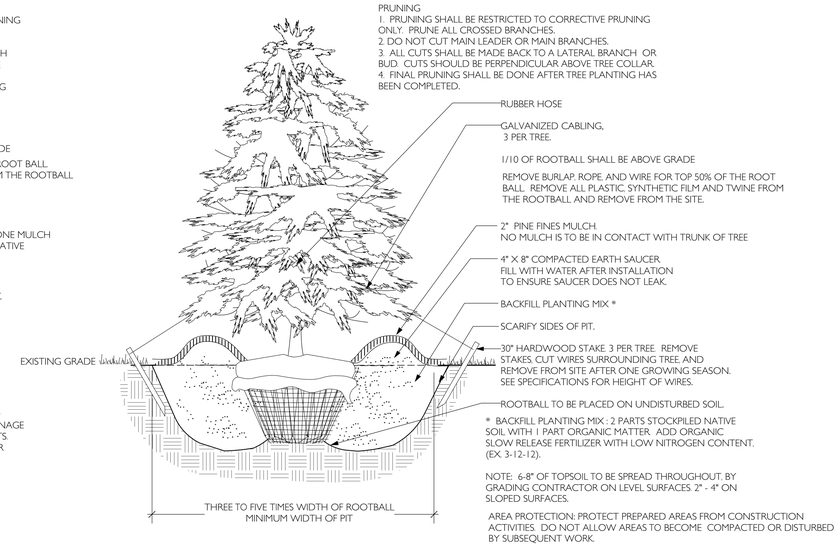
LANDSCAPING PLAN

DRAWING NO:

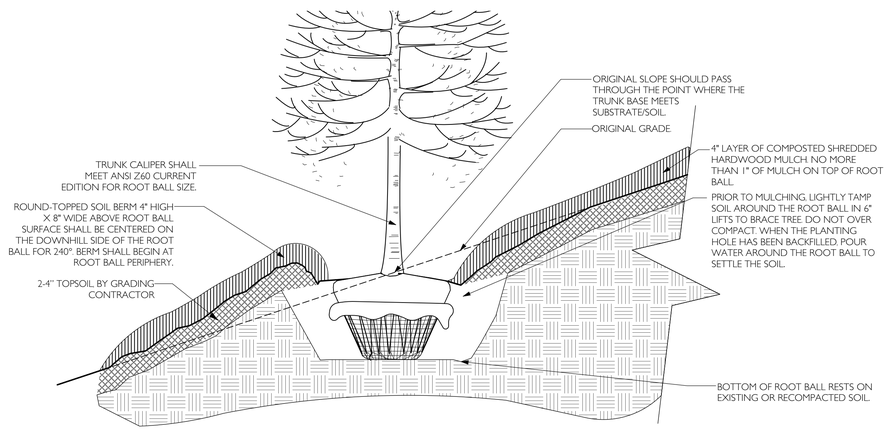
L - 5 OF **6**



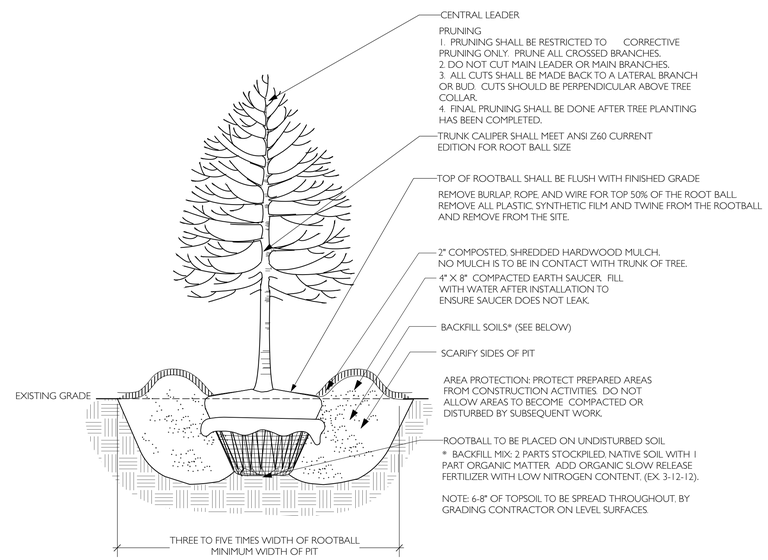
TREE PLANTING IN PARKING ISLANDS



EVERGREEN TREE PLANTING

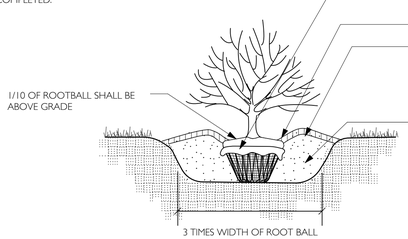


TREE PLANTING ON A SLOPE



TREE PLANTING IN CLAY SOILS (WITH STAKES)

PRUNING
1. PRUNING SHALL BE RESTRICTED TO CORRECTIVE PRUNING ONLY. ALL DEAD OR DAMAGED BRANCHES SHALL BE REMOVED.
2. ALL CUTS SHALL BE MADE BACK TO A LATERAL BRANCH OR BUD.
3. FINAL PRUNING SHALL BE DONE AFTER SHRUB PLANTING HAS BEEN COMPLETED.



REMOVE BURLAP, ROPE, AND WIRE FROM TOP 50% OF THE ROOT BALL. REMOVE ALL PLASTIC, SYNTHETIC FILM AND TWINE FROM THE ROOTBALL AND REMOVE FROM THE SITE.

2" COMPOSTED, SHREDDED HARDWOOD MULCH.

30" DIA. EARTH SAUCER (3" HT.) MAINTAIN A CIRCULAR SHAPE AROUND SHRUB

SCARIFY SIDES & BOTTOM OF PIT.

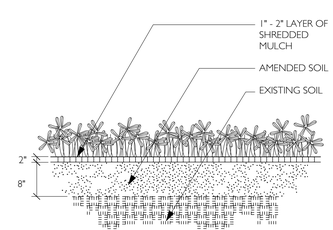
ROOTBALL TO BE PLACED ON UNDISTURBED SOIL

BACKFILL PLANTING MIX : 2 PARTS NATIVE SOIL WITH 1 PART ORGANIC MATTER. ADD ORGANIC SLOW RELEASE FERTILIZER WITH LOW NITROGEN CONTENT. (EX. 3-12-12).

NOTE: 6-8" OF TOPSOIL TO BE SPREAD THROUGHOUT, BY GRADING CONTRACTOR ON LEVEL SURFACES.

• AREA PROTECTION: PROTECT PREPARED AREAS FROM CONSTRUCTION ACTIVITIES. DO NOT ALLOW AREAS TO BECOME COMPACTED OR DISTURBED BY SUBSEQUENT WORK.

SHRUB PLANTING



• ALL PLANTING AREAS SHALL BE TILLED TO A DEPTH OF 8", UNLESS AREA IS LOCATED WITHIN AN EXISTING TREE'S ROOT ZONE

* EACH PERENNIAL TO BE CAREFULLY PLACED IF IT IS PLANTED WITHIN AN EXISTING TREE'S ROOT ZONE AND ORGANIC MATTER ADDED AS NECESSARY PER PLANT.

• TEST SOIL FOR PH AND ORGANIC CONTENT. AMEND TO ACHIEVE A PH BETWEEN 6.0 AND 6.5 AND AN ORGANIC CONTENT OF AT LEAST 2-5%.

• APPLY PRE-EMMERGENT BELOW MULCH LAYER. APPLY AT 1/2 STRENGTH - READ LABEL FOR SPECIFICATONS.

• MULCH 1" - 2" DEPTH WITH COMPOSTED, SHREDDED HARDWOOD MULCH.

• PLANT AS PER TECHINICAL NOTES AND SPECIFICATIONS.

• PROTECT PREPARED AREAS FROM CONSTRUCTION ACTIVITIES. DO NOT ALLOW AREAS TO BECOME COMPACTED OR DISTURBED BY SUBSEQUENT WORK.

PERENNIAL PLANTING

TECHNICAL NOTES:

Scope of Work:

The landscape contractor shall be responsible for furnishing and installing all plant material shown on the landscaping plans and plant list, as submitted with the contract.
The landscape contractor shall have investigated the sources of supply and satisfied himself/herself that he/she can supply all the plants specified on the drawings in the size, variety and quality noted before submitting the bid. Failure to take this precaution will not relieve the successful bidder from the responsibility for furnishing and installing all the plant material in strict accordance with the contract requirements.

All material will conform to the current issue of the American Standard for Nursery Stock published by the American Nursery & Landscape Association (ANLA). Plant material must be selected from nurseries that have been inspected and certified by state plant inspectors. Plant material to be installed as per these planting details included on this sheet. Landscape architect to approve plant material prior to installation. All plant material shall be thoroughly watered the day it is planted. The landscape contractor is responsible for watering all new plant material on site until the project has reached final inspection and acceptance.

Substitutions:

It is the landscape contractor's responsibility to make every reasonable effort to find the material specified by these plans. The landscape contractor may offer substitutions to the owner's representative for consideration if plant availability presents a problem. The landscape contractor shall notify the owner's representative if there are known diseases or insect resistant species that can be substituted for a selected pest-prone plant. The contractor shall submit a base bid as per plan plus price clarifications for all recommended substitutions. It is the intent to eliminate post-bid substitutions. However, in the event that the contract material has become unavailable, an appropriate substitution must be approved by the owner's representative.

Warranty:

The landscape contractor's warranty for plant materials shall be for a minimum one (1) year period, excluding annuals, commencing on the date of initial acceptance. All plants shall be alive and in satisfactory growth at the end of the guarantee period.

Utilities and Underground Features:

• The landscape contractor shall notify the owner's representative, utility companies, and/or the general contractor in advance of construction to locate utilities. It is the responsibility of the landscape contractor to locate private underground features, such as irrigation lines ,landscape lighting, drain systems, etc.
• The correction of undisclosed subsurface conditions such as rocks, roots, stumps, clay pans or other obstacles encountered in excavation work that are not apparent at the time of estimating or indicated on the soil analysis may result in additional costs to the owner.
Upon discovery of undisclosed conditions, the landscape contractor shall notify the landscape architect of any items to be corrected and associated cost, if any, before corrective measures are taken.

General Conditions:

Prior to amending soils, the landscape contractor or owner shall clear the surface of all trash, debris, and stones larger than 1" in diameter, brush, weeds, wire, and other objects that would interfere with soil preparation.
Installation of all utilities and irrigation mainlines shall be completed prior to beginning soil work. The soil shall not be tilled or amended when the soil's moisture level is above field capacity or when the soil is frozen. Grades after amendment, tilling, and fine grading in the specified area shall conform to civil engineer drawings and shall be maintained true and even. The landscape contractor shall maintain grades and protect soils from erosion, compaction, and contamination until planting/seeding/sodding operations begin.

Soils:

• Topsoil to be placed by the grading contractor:
- Slopes: Minimum of 2", Maximum of 4"
- Level Surfaces: Minimum of 6", Maximum of 8"
• Reuse existing stockpiled topsoil before importing any new soils.
• Prior to developing recommendations for soil modifications, an analysis of existing soil conditions and stockpiled soils shall be performed by the landscape contractor or designated representative. All soil modifications shall be based on the results of the soil analysis.
1. Soils should be assessed for the following: pH value, minerals, organic content, and mechanical analysis, and compaction. For each soil area identified, or for every 10,000 sqft. area, one composite soil sample (1 cup) consisting of a minimum of eight (8) core samples at a depth of 6-8" shall be combined and sent for analysis by a reputable laboratory. Testing to include percentage of organic matter.
a. Minimum soil modification required including:
- nutrient and ph adjustments
- addition of organic matter to the existing soils
- tilling of existing soils except within dripline of existing vegetation, or where tilling would be otherwise detrimental to any existing vegetation to remain within planting area.
2. Soils should be tested for drainage. A sample hole should be dug and filled with water. If water drains less than 1" per hour, the soil is considered poorly drained. If an area of poor drainage exists where plants are to be installed and the plants are inappropriate for such conditions, the landscape contractor shall notify the owner's representative. If deemed necessary by the owner's representative, the plants shall be relocated, the contract shall be adjusted to allow for drainage correction at the owner's expense, or the plant selection modified by the owner's representative to accommodate poor drainage.
• During the delivery and installation of soils and drainage, the landscape contractor shall perform in a professional manner, coordinating activities so as not to interfere unduly with the work of other trades and leaving work area(s) neat and clean of litter and debris at the close of each workday. Any damaged areas caused by the landscape contractor shall be restored to their original condition.
• Imported soils shall generally attempt to match existing soil texture, unless otherwise indicated. Imported soil shall not contain toxic substances harmful to plant growth, pesticide residues, stones, plants, large roots and other debris over 1.5 inches. Soils shall be free of bermudagrass, quackgrass, Johnsongrass, mugwort, nutsedge, poison ivy, canada thistle, or other invasive weeds. Imported soil shall not be harvested, transported, and/or graded when soil moisture exceed field capacity or is frozen. Contractor shall protect soil stockpiles from erosion, saturation, or weed growth using plastic sheeting or tarps.
• Prior to installing any Planting Soil from stockpiles or Planting Soil Mixes blended off site, the owner's representative shall approve the condition of the subgrade and the previously installed subgrade preparation and the installation of any subsurface drainage.

Bed Preparation and Planting Detail Specification Adjustments For Clay Soil and/or Heavily Compacted Post Construction Soils:

General:
1. Landscape contractor is not to work under wet conditions.
2. Landscape contractor is to avoid compaction by equipment or foot traffic.

Subsoiling For Heavy Compaction
Use soil penetrometer to determine compaction levels and presence of soil pan. Where heavily compacted soils are over 250psi, it will be necessary to subsoil to a depth of 24" at intervals of 24" when soil is dry. Subsoiling should be performed after soil amendments have been added and prior to tilling.

Importing Soils
• In areas where imported soils are installed above existing subsoil that is less than 250 psi of compaction, scarify the subgrade material prior to installing Planting Soil. Scarify the subsoil of the subgrade to a depth of 3 – 6 inches with the teeth of the back hoe or loader bucket, tiller or other suitable device.Immediately install the Planting Soil. Protect the loosened area from traffic. DO NOT allow the loosened subgrade to become compacted.
• In the event that the loosened area becomes overly compacted, loosen the area again prior to installing the Planting Soil.
• Install the Planting Soil in 12 - 18 inch lifts to the required depths. Apply compacting forces to each lift as required to attain the required compaction. Scarify the top of each lift prior to adding more Planting Soil by dragging the teeth of a loader bucket or backhoe across the soil surface to roughen the surface.

Bed Preparation:
• After Planting Soil Mixes are installed in planting bed areas and just prior to the installation of shrub or groundcover plantings, spread 3 – 4 inches of Compost over the beds and roto till into the top 4 - 6 inches of the Planting Soil.
• Lightly firm tilled soils and establish finely graded soil surface free of divets and depressions.
• Ensure positive drainage away from buildings and other structures. Make changes in grade gradual.
• Blend slopes into level areas.

Bed Preparation Specifications For Sod/Seed:

General:
1. Add ground limestone where necessary to bring pH above 7.0. Test soil to determine pH prior to amending Lime shall be distributed at a rate determined by soil tests and shall be incorporated into the soil to a depth of 6".
2. No tilling to be done in tree root zones; all work in these areas to be done by hand.
3. Establish finely graded soil surface free of divots and depressions. Ensure positive drainage away from buildings and other structures. Make changes in grade gradual. Blend slopes into level areas.

Specific Soil Conditions for Bed Preparation:
• Post-construction soils/heavy compaction
-Place 2" of organic matter.
-Subsoil to a depth of 12".
-Till organic matter with existing soil to a depth of 8" and lightly firm.

Organic Matter:

The following is a list of the types of organic matter that may be used as soil amendments.
1. Yard debris mature compost – leaves, grass clippings and prunings screened through a 1/2" screen and containing less than 1% man-made inerts.
2. Bio-solids and yard debris compost – polymer or naturally dewatered bio-solids and yard debris that have been composted according to EPA standards, and screened through a 1/2" screen.
3. Bio-solids and wood chips compost – polymer or naturally dewatered bio-solids that have been composted with wood chips according to EPA standards, and screened through a 1/2" screen.
4. Animal manure mature compost made from poultry, swine, cattle or equine manures composted with bedding, wood waste or yard debris.
5. Composted organic fines from wood waste - a product derived from the processing of wood mulch containing a minimum of 75% sawdust and dust size products.

CALL THREE WORKING DAYS BEFORE YOU DIG 811
MISS VIRGINIA UTILITY
CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- ☐ CONCEPT DESIGN
- ☐ DESIGN DEVELOPMENT
- ☐ CONSTRUCTION BIDDING PHASE
- ☒ CONSTRUCTION DOCUMENTS
- ☐ CONSTRUCTION ADMINISTRATION

SEAL

COMMONWEALTH OF VIRGINIA
QUINN WHITE CHAUDHWELL
Lic. No. 001372
LANDSCAPE ARCHITECT

PROJECT:

THE MEADOWS

Marathon Realty Corp.
1 Food City Circle
Abingdon, Virginia 24210

APPALACHIA DESIGN SERVICES
INCORPORATED

245 Birch Street
Blountville, TN 37617
Phone: (423) 323-1206
Fax: (423) 323-1732

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DRAWING INFORMATION

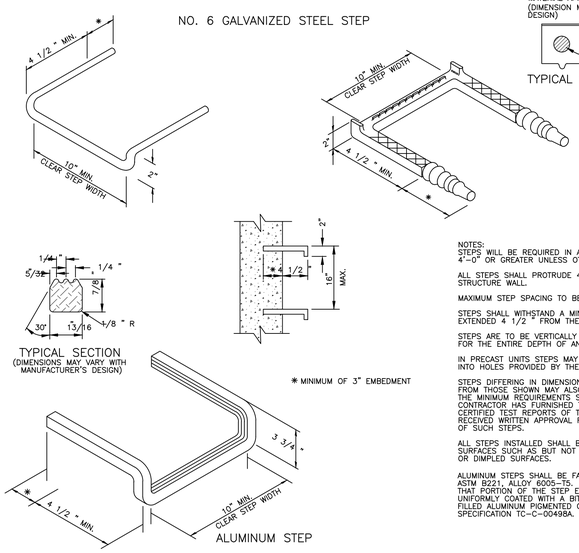
SCALE:	NTS
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	JBL
DRAWN BY:	QWC
CHECKED BY:	NBB

DRAWING TITLE:

LANDSCAPING PLAN

DRAWING NO:
L - 6 OF 6

ST-1



NOTES:
STEPS WILL BE REQUIRED IN ALL STRUCTURES WITH A DEPTH OF 4'-0" OR GREATER UNLESS OTHERWISE NOTED ON THE PLANS.

ALL STEPS SHALL PROTRUDE 4 1/2 " FROM INSIDE FACE OF STRUCTURE WALL.

MAXIMUM STEP SPACING TO BE 16" C-C.

STEPS SHALL WITHSTAND A MINIMUM FORCE OF 300 POUNDS WHEN EXTENDED 4 1/2 " FROM THE FACE OF THE SUPPORT.

STEPS ARE TO BE VERTICALLY ALIGNED AND UNIFORMALY SPACED FOR THE ENTIRE DEPTH OF ANY STRUCTURE.

IN PRECAST UNITS STEPS MAY BE CAST IN PLACE, MORTARED INTO HOLES PROVIDED BY THE FABRICATOR, OR DRIVEN.

STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THEY MEET THE MINIMUM REQUIREMENTS SHOWN HEREON AND THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS AND CERTIFIED TEST REPORTS OF THE PROPOSED SUBSTITUTE AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.

ALL STEPS INSTALLED SHALL BE PROVIDED WITH SLIP-RESISTANT SURFACES SUCH AS BUT NOT LIMITED TO, CORRUGATED KNURLED, OR DIMPLED SURFACES.

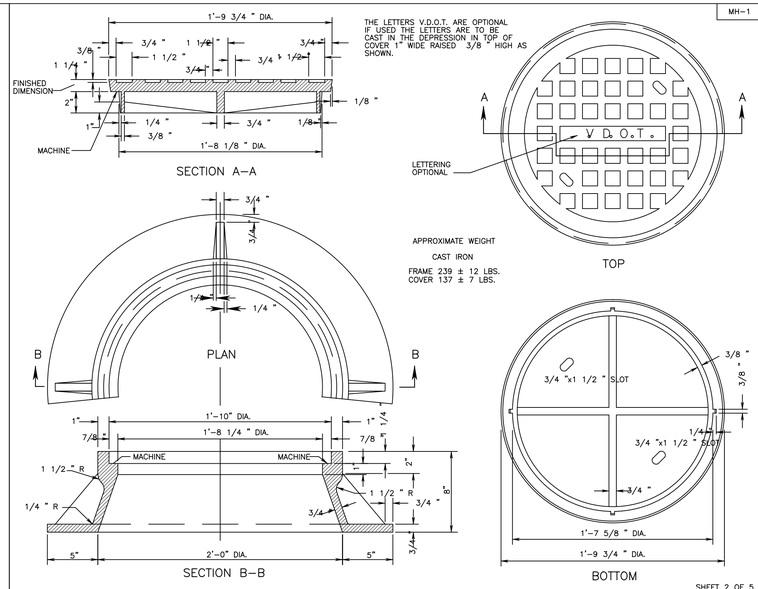
ALUMINUM STEPS SHALL BE FABRICATED IN ACCORDANCE WITH ASTM B221, ALLOY 6005-T5.
THAT PORTION OF THE STEP ENCASED IN MASONRY SHALL BE UNIFORMLY COATED WITH A BITUMINOUS, SOLVENT TYPE, ASBESTOS FILLED ALUMINUM PIGMENTED COATING CONFORMING TO FEDERAL SPECIFICATION TC-C-00498A.

106.09

STANDARD STEP
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE	SPECIFICATION REFERENCE
NONE 302	224 302

MH-1



SHEET 2 OF 5

STANDARD MANHOLE FRAME AND COVER
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
224 302

MH-1

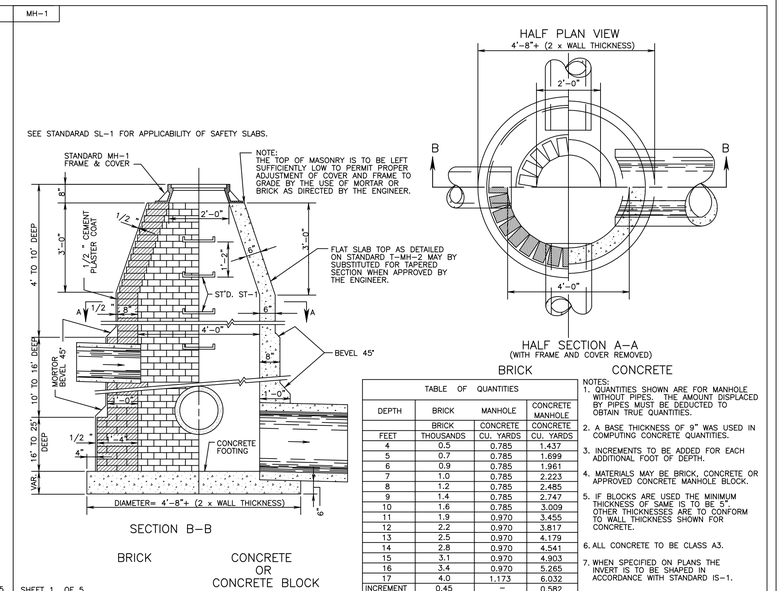


TABLE OF QUANTITIES			
DEPTH	BRICK	MANHOLE	CONCRETE MANHOLE
	BRICK	CONCRETE	CONCRETE
FEET	THOUSANDS	CU. YARDS	CU. YARDS
4	0.5	0.785	1.437
5	0.7	0.785	1.699
6	0.9	0.785	1.961
7	1.0	0.785	2.223
8	1.2	0.785	2.485
9	1.4	0.785	2.747
10	1.6	0.785	3.009
11	1.9	0.970	3.455
12	2.2	0.970	3.817
13	2.5	0.970	4.179
14	2.8	0.970	4.541
15	3.1	0.970	4.903
16	3.4	0.970	5.265
17	4.0	1.173	6.032
INCREMENT	0.45	--	0.582

NOTES:
1. QUANTITIES SHOWN ARE FOR MANHOLE WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES.
2. A BASE THICKNESS OF 9" WAS USED IN COMPUTING CONCRETE QUANTITIES.
3. INCREMENTS TO BE ADDED FOR EACH ADDITIONAL FOOT OF DEPTH.
4. MATERIALS MAY BE BRICK, CONCRETE OR APPROVED CONCRETE MANHOLE BLOCK.
5. IF BLOCKS ARE USED THE MINIMUM THICKNESS OF SAME IS TO BE 5", OTHER THICKNESSES ARE TO CONFORM TO WALL THICKNESS SHOWN FOR CONCRETE.
6. ALL CONCRETE TO BE CLASS A3.
7. WHEN SPECIFIED ON PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1.

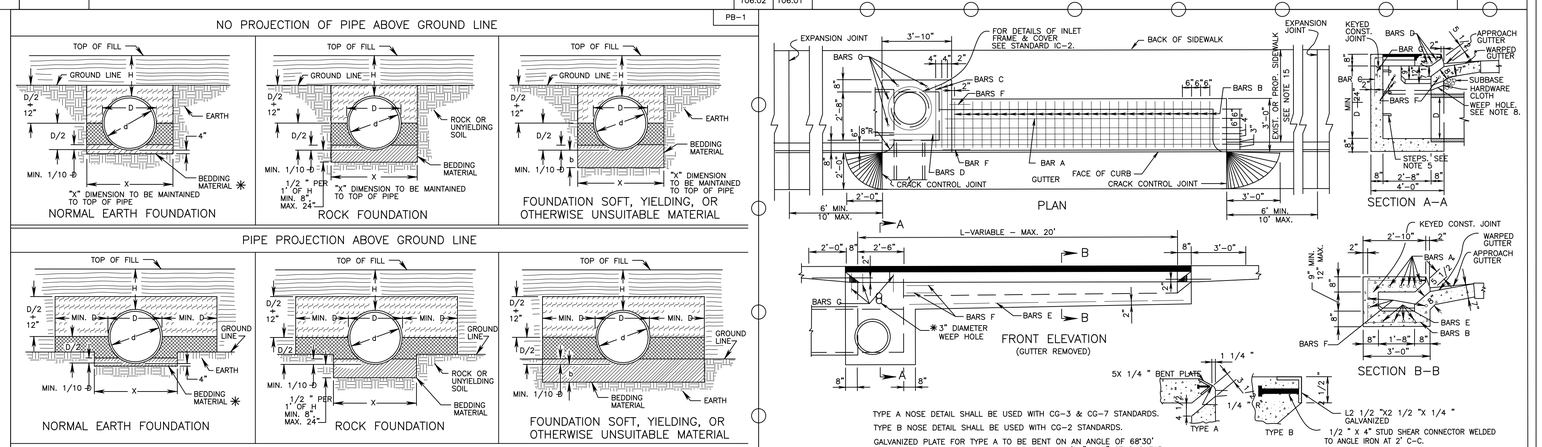
SHEET 1 OF 5

MANHOLE FOR 12" – 48" PIPE CULVERTS
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
302

106.02 106.01

PB-1



CULVERTS LESS THAN d = 36"
X = D+ 24"
CULVERTS WHERE d = 36" AND OVER
X = D+ 36"
METHOD "A" PIPE BEDDING SHALL BE USED AS FOLLOWS UNLESS OTHERWISE NOTED ON PLANS:
RIGID PIPE
WHEN H IS LESS THAN OR EQUAL TO 30'
FLEXIBLE PIPE
AS SHOWN ON TABLES
* MAY BE ELIMINATED UNDER ENTRANCE PIPE EXCEPT FOR PLASTIC PIPE INSTALLATIONS, WHERE DIRECTED BY THE ENGINEER.

H = HEIGHT OF COVER MEASURED FROM TOP OF DRAINAGE STRUCTURE TO FINISHED GRADE.
D = OUTSIDE DIAMETER OF PIPE.
d = INSIDE DIAMETER OF PIPE.
b = DEPTH AS SHOWN ON PLANS OR TO FIRM BEARING SOIL.
** FOR PLASTIC PIPE INSTALLATIONS, CLASS BACKFILL MATERIAL SHALL BE USED IN LIEU OF CLASS I.

BEDDING MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.
CLASS I BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.
CLASS II BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS. **
EMBANKMENT

SPECIFICATION REFERENCE
302 303

INSTALLATION OF PIPE CULVERTS AND STORM SEWERS CIRCULAR PIPE BEDDING AND BACKFILL – METHOD "A"
VIRGINIA DEPARTMENT OF TRANSPORTATION

107.01

STANDARD CURB DROP INLET
12" – 30" PIPE: MAXIMUM DEPTH (H) = 8'

REVISIONS		
NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE
- CONCEPT DESIGN
- [x] DESIGN DEVELOPMENT
- CONSTRUCTION BIDDING PHASE
- CONSTRUCTION DOCUMENTS
- CONSTRUCTION ADMINISTRATION

SEAL
COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

GREEN SPRING RD. RELOCATION

VDOT
Bonham Road
Abingdon, Virginia 24202

APPALACHIA DESIGN SERVICES
INCORPORATED
245 Birch Street
Blountville, TN 37617
Phone: (423) 323-1206
Fax: (423) 323-1732

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DRAWING INFORMATION	
SCALE:	AS SHOWN
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:

CONSTRUCTION DETAILS ON-SITE/PUBLIC

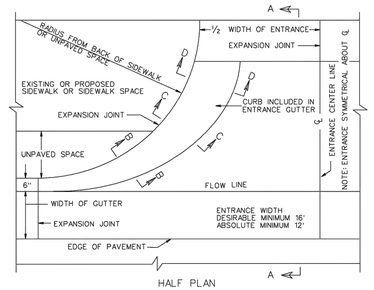
DRAWING NO:

D1 OF 34

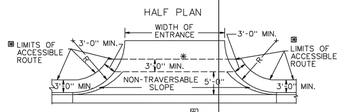
\\FS\PROJECTS\ADS\ADS - THE MEADOWS Project Drawings\Current\MEADOWS FC DET.dwg, CONST-D1, 6/8/2016 12:38:44 PM, Computer 2, 1:1

REVISED ON 1-04

CG-9D



HALF PLAN



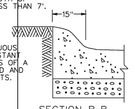
ACCESSIBLE ROUTE DETAIL

ADDITIONAL RIGHT-OF-WAY IS REQUIRED IF THE LIMITS OF ACCESSIBLE ROUTE EXTEND BEYOND EXISTING OR PROPOSED VDOT RIGHT-OF WAY.

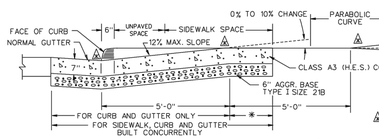
DETAIL TO BE USED WHEN THE COMBINED WIDTH OF UNPAVED SPACE AND SIDEWALK SPACE IS LESS THAN 7'.

ACCESSIBLE ROUTE IS DEFINED AS A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PERSONS WITH MOBILITY IMPAIRMENTS.

* IF ACCESSIBLE ROUTES ARE BEING PROVIDED, A MINIMUM 3' TRAVERSABLE WIDTH IS REQUIRED.



SECTION B-B

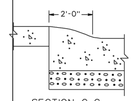


SECTION A-A

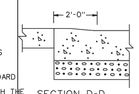
POINT OF GRADE CHANGE

** 12 % MAXIMUM INCREASE IN SLOPE AT MINIMUM 10' INTERVALS
*** 3 % MAXIMUM DECREASE IN SLOPE FOR FIRST 10' INTERVAL AND 8 % MAXIMUM DECREASE FOR SUCCEEDING MINIMUM 10' INTERVALS

WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB CONFIGURATION.



SECTION C-C



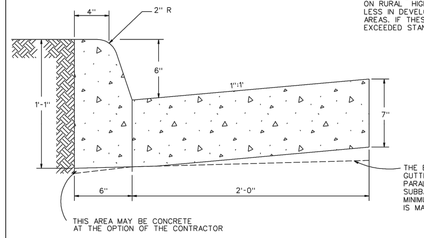
SECTION D-D

STANDARD ENTRANCE GUTTER

VIRGINIA DEPARTMENT OF TRANSPORTATION

203.03

SPECIFICATION REFERENCE	SPECIFICATION REFERENCE
502	105 502



NOTES:

1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
3. COMBINATION CURB & GUTTER HAVING A RADIUS OF 300 FEET OR LESS (ALONG FACE OF CURB) SHALL BE PAID FOR AS RADIAL COMBINATION CURB & GUTTER.
4. FOR USE WITH STABILIZED OPEN-GRADED DRAINAGE LAYER, THE BOTTOM OF THE CURB AND GUTTER SHALL BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE COURSES AND TO THE DEPTH OF THE PAVEMENT.
5. THIS CURB MAY BE USED WHEN DESIGN SPEED IS 40 MPH OR LESS ON RURAL HIGHWAYS AND 45 MPH OR LESS IN DEVELOPED URBAN & SUBURBAN AREAS. IF THESE DESIGN SPEEDS ARE EXCEEDED STANDARD CG-7 IS REQUIRED.

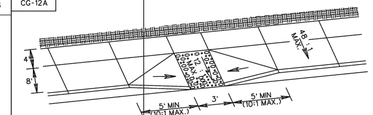
COMBINATION 6" CURB & GUTTER

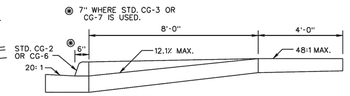
VIRGINIA DEPARTMENT OF TRANSPORTATION

201.03

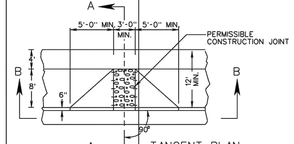
REVISED ON 7-01 REVISED ON 3-03 REVISED ON 1-04

CG-6 CG-12A

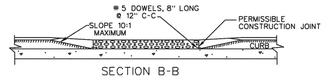




SECTION A-A



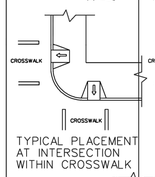
TANGENT PLAN



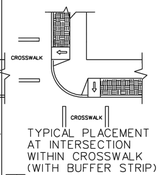
SECTION B-B

LIMITS OF EXPOSED AGGREGATE SIDEWALK

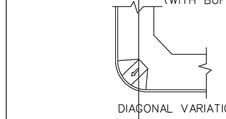
ACCESSIBLE ROUTE IS DEFINED AS A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PERSONS WITH MOBILITY IMPAIRMENTS.



TYPICAL PLACEMENT AT INTERSECTION WITHIN CROSSWALK



TYPICAL PLACEMENT AT INTERSECTION WITHIN CROSSWALK (WITH BUFFER STRIP)



DIAGONAL VARIATION

NOTES :
THIS DESIGN TO BE USED FOR CONSTRUCTION THAT INCORPORATES WIDER SIDEWALK. LANDING (48" WIDE) REQUIRED AT TOP OF CURB RAMP. MINIMUM CURB RAMP LENGTH 8 FT. FOR NEW CONSTRUCTION, 6 FT. FOR ALTERATIONS.
CURB RAMP FLOOR TO BE CLASS A-3 CONCRETE (CLASS A-4 IF PRECAST) WITH SLIP RESISTANT INTEGRAL DETECTABLE WARNING SURFACE COVERING THE ENTIRE WIDTH OF THE RAMP FLOOR (RAMP FLOOR MAY BE PRECAST OR CAST IN PLACE). THE DETECTABLE WARNING SHALL BE PROVIDED BY AN EXPOSED AGGREGATE FINISH. RAMP SHALL NOT EXCEED A MAXIMUM SLOPE OF 12:1.
SLOPING SIDES OF CURB RAMP MAY BE POURED MONOLITHICALLY WITH RAMP FLOOR OR BY USING PERMISSIBLE CONSTRUCTION JOINT WITH REQUIRED BARS.
IF RAMP FLOOR IS PRECAST, HOLES MUST BE PROVIDED FOR DOWEL BARS SO THAT ADJOINING FLARED SIDES CAN BE CAST IN PLACE AFTER PLACEMENT OF PRECAST RAMP FLOOR. PRECAST CONCRETE SHALL BE CLASS A-4.
REQUIRED BARS ARE TO BE NO. 5 X 8" PLACED 1' CENTER TO CENTER ALONG BOTH SIDES OF THE RAMP FLOOR, MID-DEPTH OF RAMP FLOOR. MINIMUM CONCRETE COVER 1½".
CURB RAMPS WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICES FOR HYDRAULIC CEMENT CONCRETE SIDEWALK AND EXPOSED AGGREGATE SIDEWALK, COMPLETE-IN-PLACE.
CURB/CURB AND GUTTER SLOPE TRANSITIONS ADJACENT TO TO CURB RAMPS ARE INCLUDED IN PAYMENT FOR CURB/CURB AND GUTTER.
WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB AND CONFIGURATION.
CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
THEY ARE TO BE PROVIDED AT INTERSECTIONS WHEREVER AN ACCESSABLE ROUTE IS WITHIN THE RIGHT OF WAY OF A HIGHWAY FACILITY CROSSES A CURB REGARDLESS OF WHETHER SIDEWALK IS EXISTING, PROPOSED, OR NONEXISTENT. THEY MUST BE LOCATED WITHIN PEDESTRIAN CROSSWALKS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER, AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES.
EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. WILL ALSO AFFECT PLACEMENT.

PERPENDICULAR CURB RAMP
(ACCESS FOR MOBILITY IMPAIRMENTS)

VIRGINIA DEPARTMENT OF TRANSPORTATION

201.03 203.05

SPECIFICATION REFERENCE
105 502

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- [ ] CONCEPT DESIGN
- [x] DESIGN DEVELOPMENT
- [ ] CONSTRUCTION BIDDING PHASE
- [ ] CONSTRUCTION DOCUMENTS
- [ ] CONSTRUCTION ADMINISTRATION

SEAL

COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO. -

PROJECT:

GREEN SPRING RD. RELOCATION

VDOT
Bonham Road
Abingdon, Virginia 24202

APPALACHIA DESIGN SERVICES
INCORPORATED

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DRAWING INFORMATION	
SCALE:	AS SHOWN
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

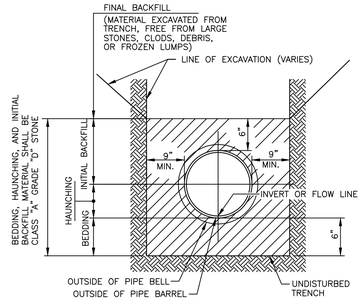
DRAWING TITLE:

CONSTRUCTION DETAILS ON-SITE/PUBLIC

DRAWING NO:

D2 OF 34

\\Fs1\PROJECTS\ADS\ADS- THE MEADOWS\Project Drawings\Current\MEADOWS FC DET.dwg, CONST-D2, 6/8/2016 12:38:47 PM, Computer 2, 1:1

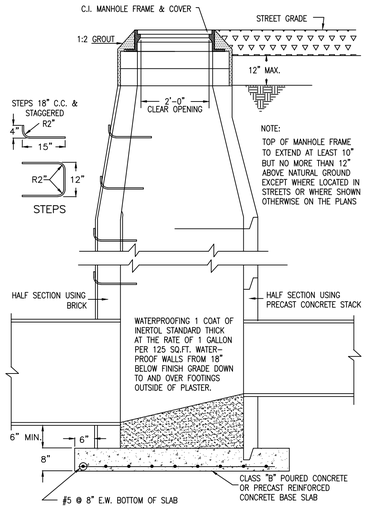


NOTE:

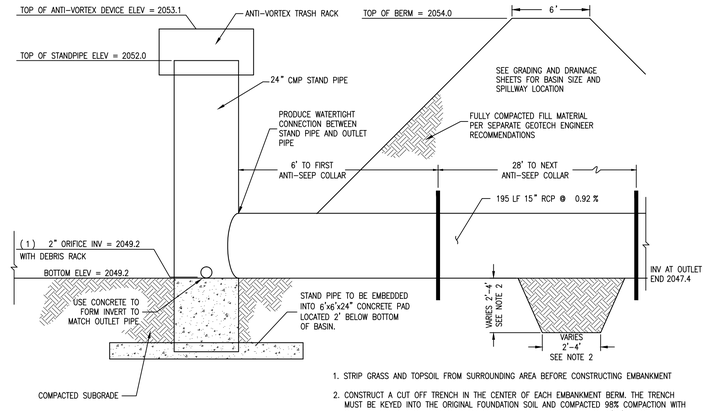
1. PIPE TRENCH TO BE EXCAVATED AND BACKFILLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS

2. PIPE TRENCH TO BE BACKFILLED WITH COMPACTED STONE TO PAVEMENT SUBGRADE IF PIPE IS LOCATED UNDER SIDEWALK OR PAVEMENT

PIPE BEDDING



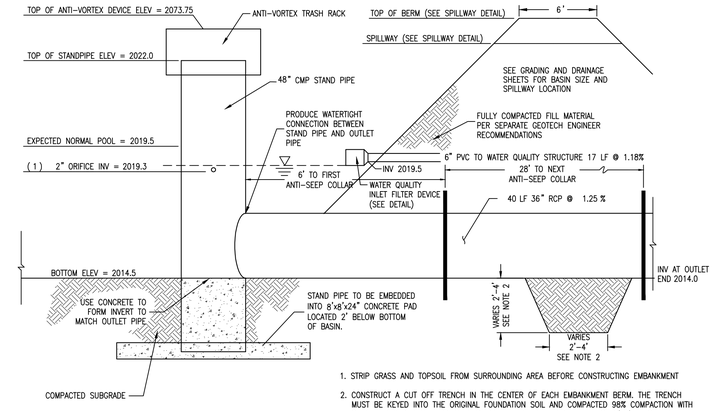
STORM SEWER MANHOLE



1. STRIP GRASS AND TOPSOIL FROM SURROUNDING AREA BEFORE CONSTRUCTING EMBANKMENT

2. CONSTRUCT A CUT OFF TRENCH IN THE CENTER OF EACH EMBANKMENT BERM. THE TRENCH MUST BE KEYED INTO THE ORIGINAL FOUNDATION SOIL AND COMPACTED 98% COMPACTION WITH CLAY. IF KEYED INTO HARD, CLAY SOILS THE TRENCH MAYBE A MIN. OF 2'x2'. IF OTHER CONDITIONS ARE ENCOUNTERED, THE TRENCH SHOULD BE A MAX. OF 4'x4'. FOLLOW GEOTECHNICAL ENGINEERS RECOMMENDATIONS.

DETENTION BASIN 3 STAND PIPE



1. STRIP GRASS AND TOPSOIL FROM SURROUNDING AREA BEFORE CONSTRUCTING EMBANKMENT

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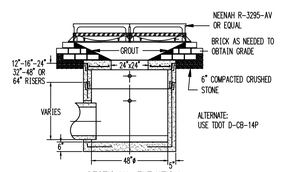
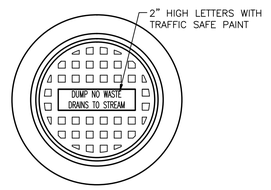
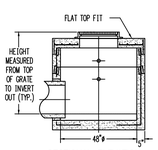
RETENTION/DETENTION BASIN 5 STAND PIPE



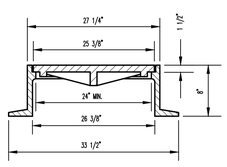
SECTIONAL ELEVATION
DOUBLE CATCH BASIN DETAIL



TOP VIEW



SECTIONAL ELEVATION

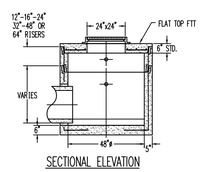


SECTION

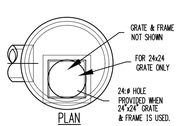
TRAFFIC

RING 190 lbs.
COVER 150 lbs.

TOTAL 340 lbs.



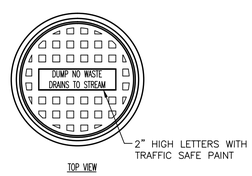
SECTIONAL ELEVATION



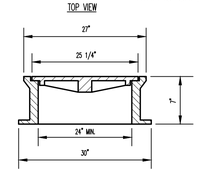
PLAN

NOTES:
CONCRETE - 4000 PSI
ALL STEEL REINFORCEMENT DESIGN CONFORMS TO ASTM C-478 SPECIFICATIONS.
TYPE PSI-PF SAFETY STEPS PROVIDED AT 16" CC WHEN HEIGHT OF STRUCTURE EXCEEDS 4'-0".
ALL JOINTS ARE MORTAR FILLED UNLESS OTHERWISE SPECIFIED.
STRUCTURE DIAMETERS MAY VARY ACCORDING TO PIPE SIZES AND CONFIGURATIONS.
LIFT HOLES PROVIDED IN ALL BASE AND RISER SECTIONS.
APPROPIATELY SIZED OPENING PROVIDED TO SUIT OTHER GRATES.

CATCH BASIN



TOP VIEW



SECTION

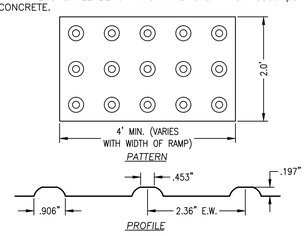
NON-TRAFFIC

RING 105 lbs.
COVER 105 lbs.

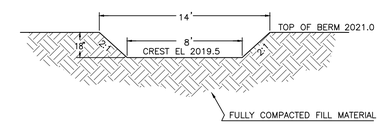
TOTAL 210 lbs.

STORM SEWER MANHOLE COVER

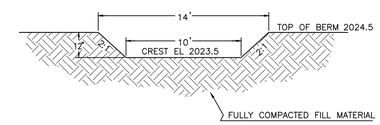
NOTES:
1. DETECTABLE WARNINGS SHALL MEET THE SPECIFICATIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA).
2. DETECTABLE WARNINGS SHALL BE OF THE PAVER TYPE AND CONFORM WITH MANUFACTURERS SPECIFICATIONS.
3. WIDTH OF DETECTABLE WARNING AREA SHALL BE A MINIMUM OF 4 FEET AND VARY WITH WIDTH OF RAMP.
4. LENGTH OF DETECTABLE WARNING AREA SHALL BE 2 FEET REGARDLESS OF SECTION WIDTH.
5. DETECTABLE WARNING AREA CAN BE SQUARE WHERE USED IN A CURB RADIUS.
6. DETECTABLE WARNING DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
7. PAVERS SHALL BE 6" THICK AND CAST FROM 5000 psi CONCRETE.



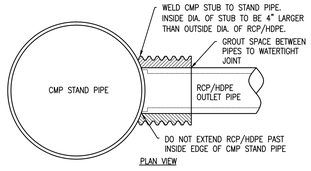
TRUNCATED DOMES



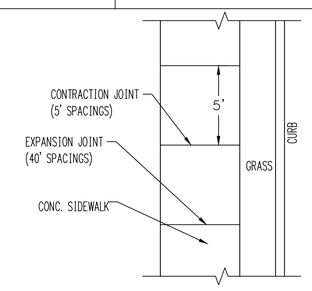
DETENTION BASIN 4 SPILLWAY



RETENTION/DETENTION BASIN 5 SPILLWAY



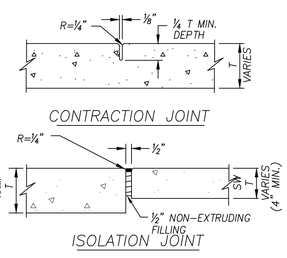
PIPE CONNECTION



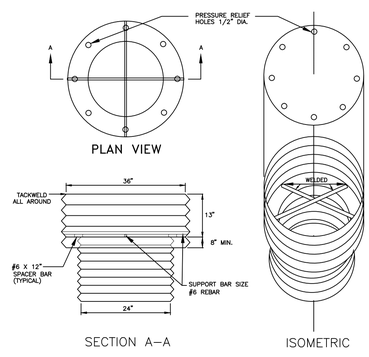
NOTES:

1. EXPANSION JOINTS OF 1/2" X 3-1/2" PREMOLDED JOINT FILLER MATERIAL SHALL BE INSTALLED AT 40' SPACINGS (MAX.) ALONG THE SIDEWALK AND AT CONNECTIONS TO HANDICAP RAMPS AND CURBS. THE JOINTS SHALL EXTEND 1/2" OF THE FINISHED CONCRETE SURFACE.
2. CONTRACTION JOINTS OF THE WEAKENED PLANE TYPE SHALL BE 1-1/4" DEEP, SPACED AT 5' INTERVALS AND TOOL ROUNDED BEFORE BROOMING.
3. SIDEWALK SHALL BE CONSTRUCTED OF 4000 PSI CONCRETE AND BE A MIN. OF 4" THICK.
4. SIDEWALK SHALL BE CURED AND FINISHED IN ACCORDANCE WITH VDOT REGULATIONS.

SIDEWALK DETAILS



JOINT DETAILS

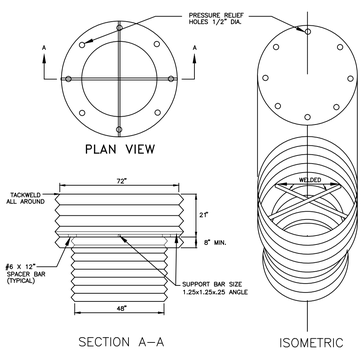


TOP IS 16 GAGE CORRUGATED METAL OR 1/8" STEEL PLATE. PRESSURE RELIEF HOLES MAY BE OMMITTED, IF ENDS OF CORRUGATIONS ARE LEFT FULLY OPEN WHEN THE TOP IS ATTACHED.

CYLINDER IS 16 GAGE CORRUGATED METAL PIPE OR FABRICATED FROM 1/8" STEEL PLATE

NOTES:
1. THE CYLINDER MUST BE FIRMLY FASTENED TO THE TOP OF THE RISER.
2. SUPPORT BARS ARE WELDED TO THE TOP OF THE RISER OR ATTACHED BY STRAPS BOLTED TO TOP OF RISER.

ANTI-VORTEX DEVICE DESIGN BASIN 3



TOP IS 14 GAGE CORRUGATED METAL OR 1/8" STEEL PLATE. PRESSURE RELIEF HOLES MAY BE OMMITTED, IF ENDS OF CORRUGATIONS ARE LEFT FULLY OPEN WHEN THE TOP IS ATTACHED.

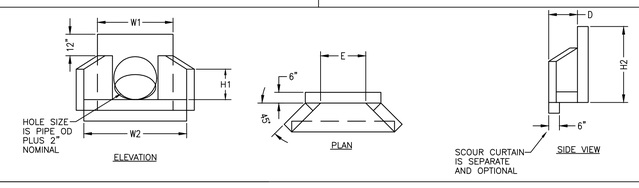
CYLINDER IS 14 GAGE CORRUGATED METAL PIPE OR FABRICATED FROM 1/8" STEEL PLATE

NOTES:
1. THE CYLINDER MUST BE FIRMLY FASTENED TO THE TOP OF THE RISER.
2. SUPPORT BARS ARE WELDED TO THE TOP OF THE RISER OR ATTACHED BY STRAPS BOLTED TO TOP OF RISER.

ANTI-VORTEX DEVICE DESIGN BASIN 5

CIRCULAR PIPE SIZE ø	ELLIPTICAL PIPE SIZE	W1	W2	H1	H2	D	E	TONS
THROUGH 18"	–	3'-2"	4'-2"	1'-3.5"	3'-2"	1'-3"	1'-9.5"	0.84
21" – 24"	23" x 14"	3'-6.5"	4'-9.5"	1'-5"	3'-6.5"	1'-5.5"	2'-1.5"	1.02
27" – 30"	30" x 19"	4'-0.5"	5'-10"	1'-10.5"	4'-0.5"	1'-8.5"	2'-8"	1.36
36"	38" x 24"	4'-7.5"	6'-6.5"	2'-4"	4'-7.5"	1'-9"	3'-3"	1.66

PRECAST WINGWALL



NOTES:
CONCRETE - 4000 psi
PIPE OPENING - PIPE O.D. PLUS 2" NOMINAL.
OPENING MAY BE ADJUSTED TO ACCOMODATE PIPE SKEWS UP TO 45°.
CMP SLEEVE W/ CONNECTING BAND MAY BE PRECAST INTO WALL WHERE CMP CULVERT IS SPECIFIED.

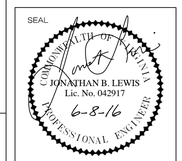
REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- [ ] CONCEPT DESIGN
- [x] DESIGN DEVELOPMENT
- [ ] CONSTRUCTION BIDDING PHASE
- [ ] CONSTRUCTION DOCUMENTS
- [ ] CONSTRUCTION ADMINISTRATION

SEAL



ADS PROJ. NO.: -

PROJECT:

GREEN SPRING RD. RELOCATION

VDOT
Bonham Road
Abingdon, Virginia 24202

APPALACHIA DESIGN SERVICES
INCORPORATED

245 Birch Street
Blountville, TN 37617
Phone: (423) 323-1206
Fax: (423) 323-1732

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DRAWING INFORMATION

SCALE:	AS SHOWN
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

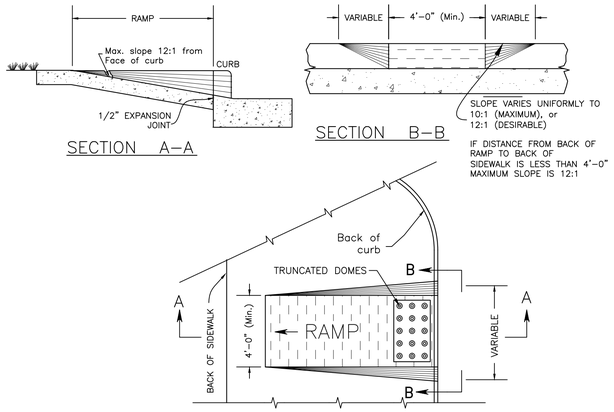
DRAWING TITLE:

CONSTRUCTION DETAILS
OFF-SITE/PRIVATE

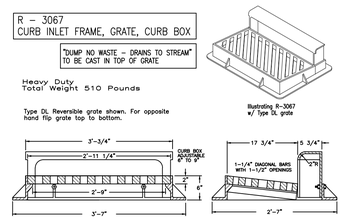
DRAWING NO:

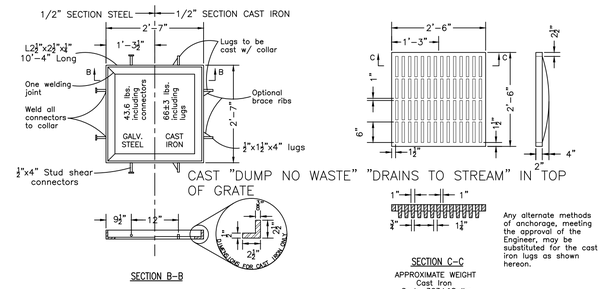
D3 OF 34

\\FS\PROJECTS\ADS\ADS- THE MEADOWS\Project Drawings\Current\MEADOWS FC DET.dwg, CONST-DTL, 6/8/2016 12:38:51 PM, Computer 2, 1:1



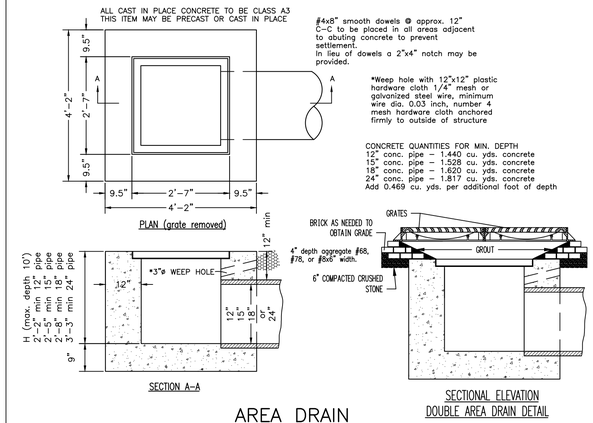
HANDICAP RAMP



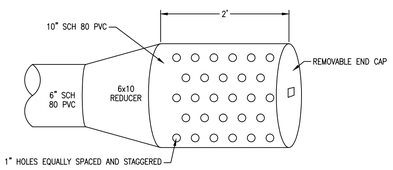


AREA DRAIN GRATE

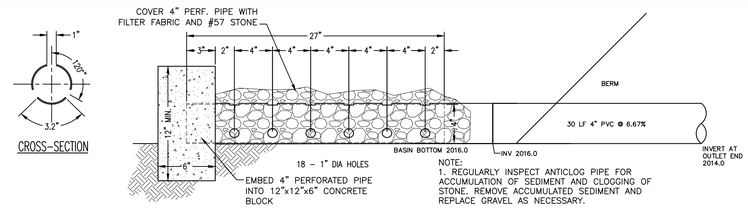
USE NEENAH R–3574–2D FOR DOUBLE AREA DRAINS OR EQUIVALENT



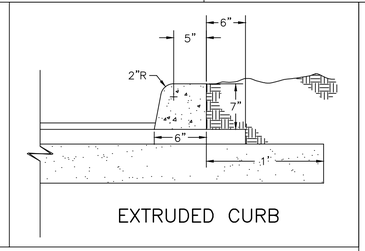
AREA DRAIN



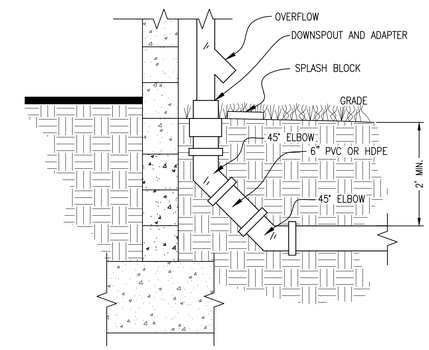
WATER QUALITY INLET FILTER DEVICE



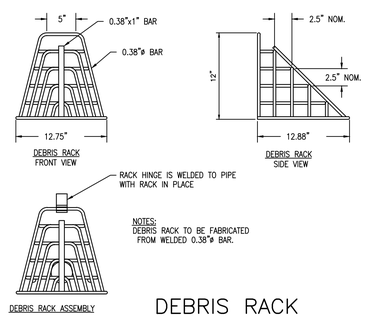
DETENTION BASIN 4 OUTLET PIPE



EXTRUDED CURB

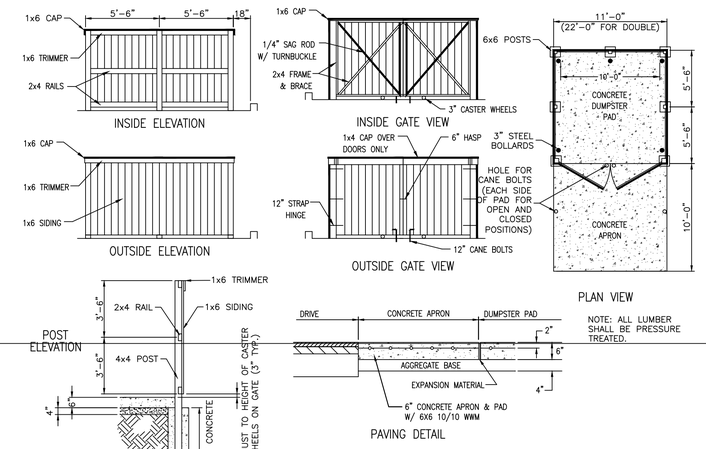


ROOF DOWNSPOUT AND ADAPTER



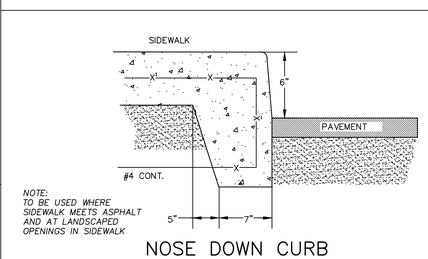
DEBRIS RACK

(SUBMIT SHOP DRAWINGS FOR SUBSTITUTIONS)

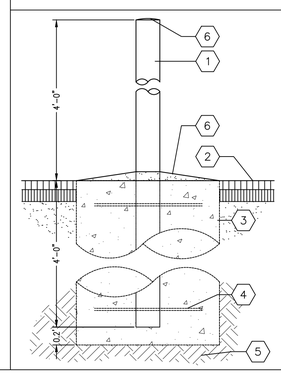


DUMPSTER ENCLOSURE

FOR DUMPSTERS BETWEEN RETAIL BUILDINGS 3 AND 4



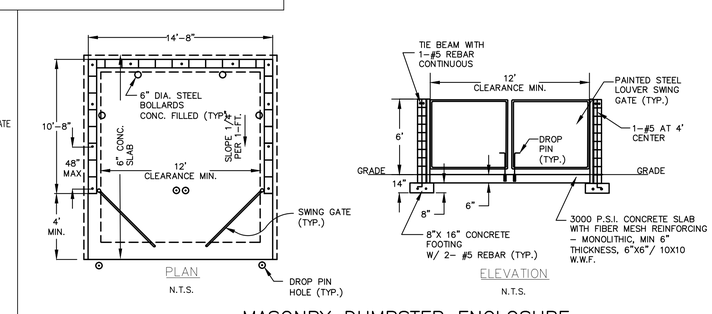
NOSE DOWN CURB



KEYED NOTES

1. 6"ø STANDARD STL. PIPE CONCRETE FILLED LOCATIONS SHOWN ON PLAN. PROVIDE 1/4" WELDED CLOSURE PLATE AT BOTTOM. PAINT EXPOSED PIPE YELLOW.
2. TOP OF PAVEMENT.
3. 24"ø CONCRETE FOUNDATION. USE SONOTUBE FORM.
4. 3/8"ø WELDED HOOPS. 18"ø TOP, BOTTOM, AND CENTER.
5. SOLID UNDISTURBED SOIL.
6. PROVIDE PITCH, SMOOTH CONCRETE FINISH.

PIPE BOLLARD



MASONRY DUMPSTER ENCLOSURE

FOR DUMPSTER AT RETAIL BUILDING 1

REVISIONS		
NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- CONCEPT DESIGN
- ☑ DESIGN DEVELOPMENT
- CONSTRUCTION BIDDING PHASE
- CONSTRUCTION DOCUMENTS
- CONSTRUCTION ADMINISTRATION

SEAL

COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

GREEN SPRING RD. RELOCATION

VDOT
Bonham Road
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DRAWN BY:	JSYJ
CHECKED BY:	JBL

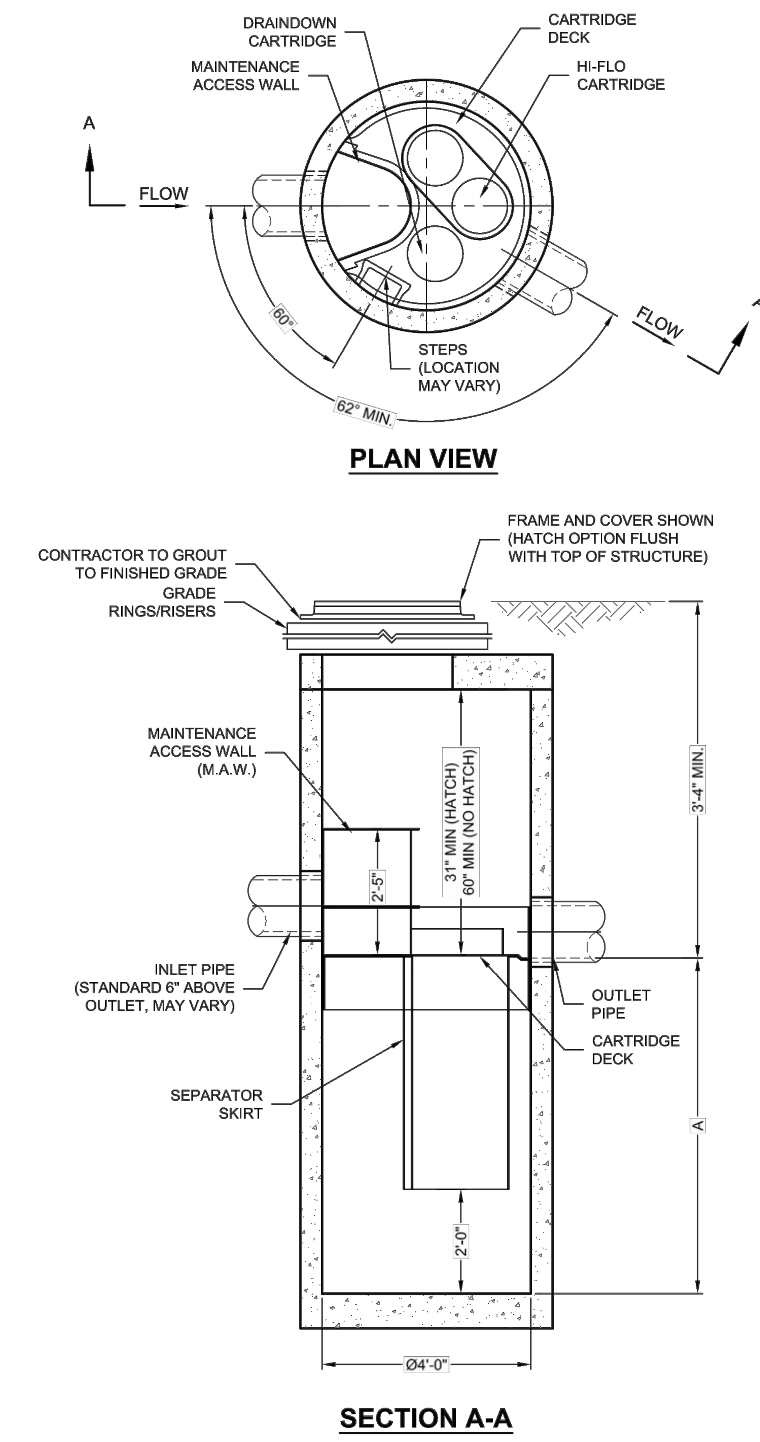
DRAWING TITLE:

CONSTRUCTION DETAILS OFF-SITE/PRIVATE

DRAWING NO:

D4 OF 34

U:\Appalachia Design Services\ADS - THE MEADOWS\Project Drawings\Current\MEADOWS FC DET.dwg, CONST-D4, 6/8/2016 12:38:54 PM, Computer 2, 1:1



Jellyfish® Filter

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENT NO. 8,287,726; 8,221,618 & US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

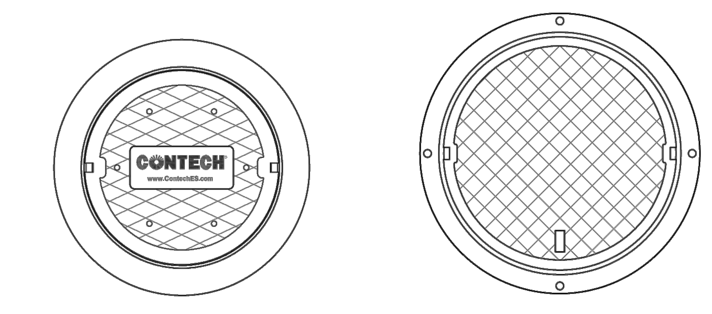
JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN. Ø48" MANHOLE JELLYFISH PEAK TREATMENT CAPACITY IS 0.45 CFS. IF THE SITE CONDITIONS EXCEED 0.45 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE DEPTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-5"	5'-3"	4'-2"	3'-2"
FLOW RATE HIGH-FLO / DRAINDOWN (cfs) (per cart)	0.18 / 0.09	0.13 / 0.065	0.09 / 0.045	0.05 / 0.025
MAX. CARTS HIGH-FLO / DRAINDOWN	2 / 1			

BMP 1



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

HATCH
(Ø36" CAST INTO SLAB)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			*
WATER QUALITY FLOW RATE (cfs)			*
PEAK FLOW RATE (cfs)			*
RETURN PERIOD OF PEAK FLOW (yrs)			*
# OF CARTRIDGES REQUIRED (HF / DD)			* / *
CARTRIDGE SIZE			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*

NOTES/SPECIAL REQUIREMENTS:

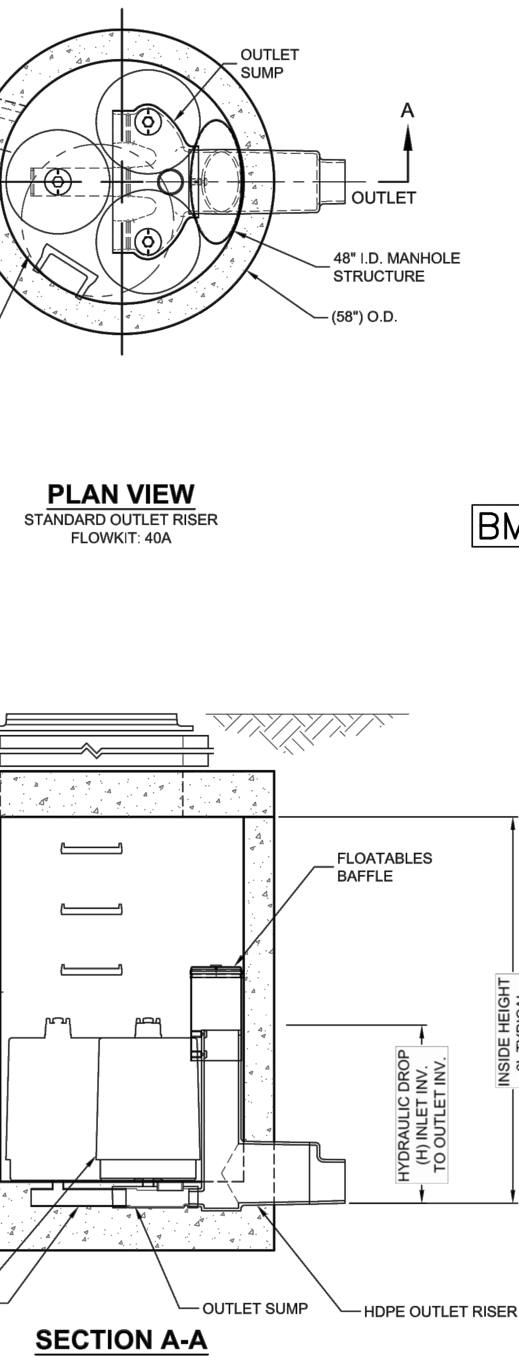
* PER ENGINEER OF RECORD

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

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

JELLYFISH JF4
STANDARD DETAIL
OFFLINE CONFIGURATION



The Stormwater Management StormFilter®

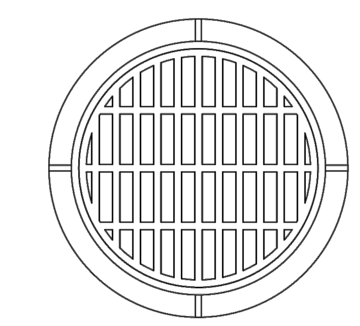
STORMFILTER DESIGN NOTES

STORMFILTER TREATMENTCAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (3). VOLUME SYSTEM IS ALSO AVAILABLE WITH MAXIMUM 3 CARTRIDGES. Ø48" MANHOLE STORMFILTER PEAK HYDRAULIC CAPACITY IS 1.0 CFS. IF THE SITE CONDITIONS EXCEED 1.0 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"		18"		LOW DROP	
RECOMMENDED HYDRAULIC DROP (H)	3.05'		2.3'		1.8'	
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/ft²	1 gpm/ft²	2 gpm/ft²	1 gpm/ft²	2 gpm/ft²	1 gpm/ft²
CARTRIDGE FLOW RATE (gpm)	22.5	11.25	15	7.5	10	5

BMP 2 AND BMP 3



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

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			*
WATER QUALITY FLOW RATE (cfs)			*
PEAK FLOW RATE (cfs)			*
RETURN PERIOD OF PEAK FLOW (yrs)			*
# OF CARTRIDGES REQUIRED			*
CARTRIDGE FLOW RATE			*
MEDIA TYPE (CSF, PERLITE, ZPG, GAC, PHS)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 39 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPE(S).
5. CONTRACTOR TO PROVIDE AND INSTALL CONNECTOR TO THE OUTLET RISER STUB. STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. IF OUTLET PIPE IS LARGER THAN 8 INCHES, CONTRACTOR TO REMOVE THE 8 INCH OUTLET STUB AT MOLDED IN CUT LINE. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
6. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

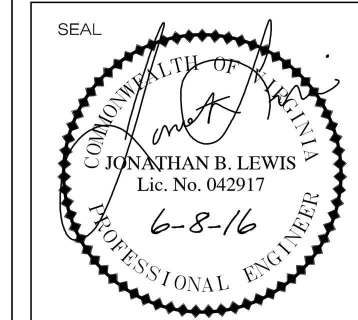
CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFMH48
STORMFILTER
STANDARD DETAIL

REVISIONS		
NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE
- CONCEPT DESIGN
- ☑ DESIGN DEVELOPMENT
- CONSTRUCTION BIDDING PHASE
- CONSTRUCTION DOCUMENTS
- CONSTRUCTION ADMINISTRATION

SEAL:



ADS PROJ. NO.: -

PROJECT:

GREEN SPRING RD. RELOCATION

VDOT
Bonham Road
Abingdon, Virginia 24202

APPALACHIA DESIGN SERVICES
INCORPORATED
245 Birch Street
Blountville, TN 37617
Phone: (423) 323-1206
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PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:

CONSTRUCTION DETAILS OFF-SITE/PRIVATE

DRAWING NO:

D5 OF 34

PERMANENT SEEDING MIXTURE:

THE SEEDING INFORMATION PROVIDED BELOW IS FOR GENERAL COMPLIANCE WITH EROSION & SEDIMENT CONTROL REQUIREMENTS. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL TECHNICAL REQUIREMENTS.

LIME: AS REQUIRED BY SOIL TEST. AGRICULTURAL LIMESTONE CONTAINING MINIMUM OF 85 PERCENT CARBONATES. MINIMUM GRADATION: 100 PERCENT PASSING A 10 MESH SIEVE; 98 PERCENT A 20 MESH SIEVE; 55 PERCENT A 60 MESH SIEVE; AND 40 PERCENT A 10 MESH SIEVE.

FERTILIZER: SHALL BE GRANULAR, OR PELLETED; COMPLETE COMMERCIAL TYPE WITH 50 PERCENT OF THE NITROGEN IN SLOWLY AVAILABLE FORM. ALL FERTILIZER SHALL BE A COMMERCIAL BALANCED FORMULA WITH AT BEST 25 PERCENT ORGANIC MATERIAL, AND SHALL CONFORM TO APPLICABLE STATE FERTILIZER LAWS. IT SHALL BE UNIFORM IN COMPOSITION, IN GRANULAR FORM DRY AND FREE–FLOWING. FOR ALL GRASS AND LAWN AREAS IT SHALL HAVE A MINIMUM GUARANTEED ANALYSIS OF 15 PERCENT NITROGEN, 30 PERCENT PHOSPHORUS, AND 15 PERCENT POTASH.

SEED: ALL PERMANENT GRASS SEED SHALL BE MANUFACTURED BY A SEED COMPANY THAT CAN GUARANTEE ALL SEED SHALL BE FREE OF NOXIOUS WEED SEEDS, CLEANED GRADE A RECENT CROP SEED. SEED COMPANY SHALL PROVIDE GUARANTEED GERMINATION OF 80 PERCENT.

SEED MIXTURE SHALL CONSIST OF (PROPORTIONED BY WEIGHT):

KENTUCKY BLUEGRASS (MIX OF 3 VARIETIES) 25%

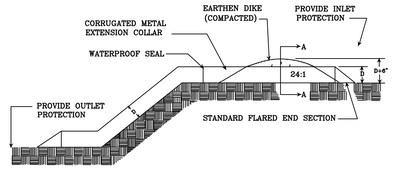
TURF TYPE TALL FESCUE (REBEL 3D, TITAN 2, SHENANDOAH, FINELAWN 88, ANTHEM) 75%

APPLICATION: SEEDING SHALL BE APPLIED BETWEEN MARCH 1 AND MAY 15, OR AUGUST 16 AND OCTOBER 31. CAST SEEDS AT 4 POUNDS PER THOUSAND SQUARE FEET.

MULCH: SHALL BE CLEAN WHEAT OR BARLEY STRAW, FREE FROM NOXIOUS WEED SEED AND OTHER HARMFUL MATERIAL. COMMERCIAL PRODUCTS MAY BE USED WITH APPROVAL.

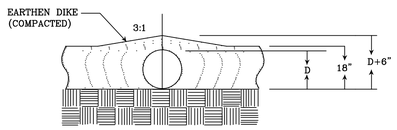
BINDER: SHALL BE FIBER MULCH BASED TACK BINDER SUCH AS "ENVIRO–BLEND" BY CONWED OR EQUAL. APPLY AT 25 LBS. PER THOUSAND SQUARE FEET ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

PERMANENT SEEDING MIXTURE (PS)
(STD. & SPEC. 3.32)



SECTION VIEW

NOTE: SEDIMENT MAY BE CONTROLLED AT OUTLET IF UPLAND PONDING WILL CREATE PROBLEMS

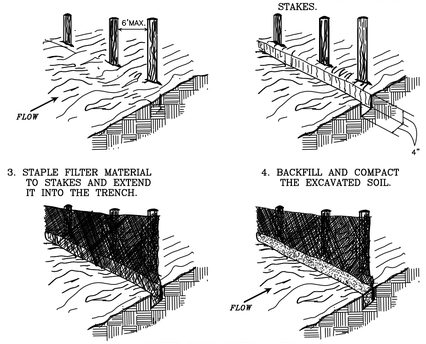


SECTION A – A

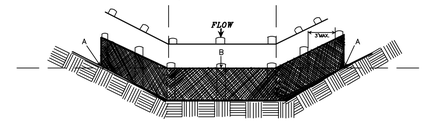
TEMPORARY SLOPE DRAIN (TSD)
(STD. & SPEC. 3.15)

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)

1. SET THE STAKES.
2. EXCAVATE A 4"X 4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.
3. STAPLE FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



SHEET FLOW INSTALLATION (PERSPECTIVE VIEW)



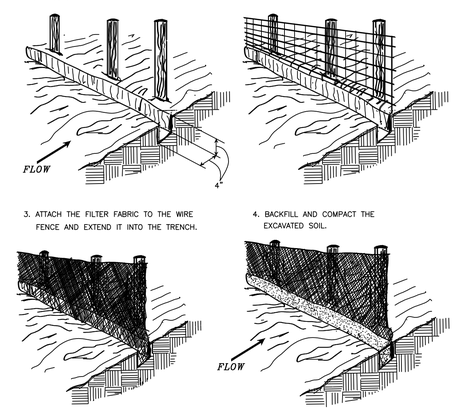
POINTS A SHOULD BE HIGHER THAN POINT B.

DRAINAGEWAY INSTALLATION (FRONT ELEVATION)

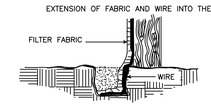
SILT FENCE (SF)
(STD. & SPEC. 3.05)

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)

1. SET POSTS AND EXCAVATE A 4"X4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
2. STAPLE WIRE FENCING TO THE POSTS.
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.

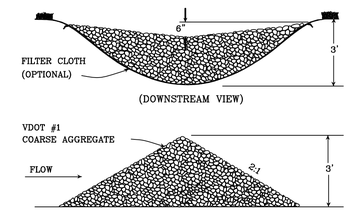


EXTENSION OF FABRIC AND WIRE INTO THE TRENCH.

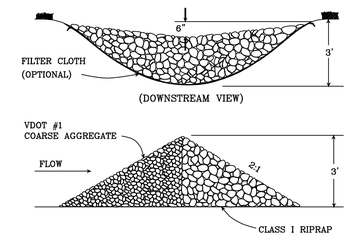


SUPER SILT FENCE (SSF)
(STD. & SPEC. 3.05)

2 ACRES OR LESS OF DRAINAGE AREA:

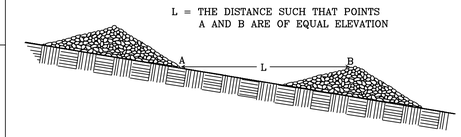


2–10 ACRES OF DRAINAGE AREA:



SPACING BETWEEN CHECK DAMS

L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION



CHECK DAM (CD)
(STD. & SPEC. 3.20)

TEMPORARY SEEDING MIXTURE:

THE SEEDING INFORMATION PROVIDED BELOW IS FOR GENERAL COMPLIANCE WITH EROSION & SEDIMENT CONTROL REQUIREMENTS. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL TECHNICAL REQUIREMENTS.

FERTILIZER: SHALL MEET REQUIREMENTS OF FEDERAL SPECIFICATION O F 241. PROVIDE FERTILIZER THAT IS COMPLETE, INORGANIC, UNIFORM IN COMPOSITION, AND SUITABLE FOR APPLICATION WITH APPROVED EQUIPMENT. PROPORTIONS OF FERTILIZER NUTRIENTS SHALL BE THE FOLLOWING:

10 LBS. OF ACTUAL NITROGEN
10 LBS. OF ACTUAL PHOSPHATE
10 LBS. OF ACTUAL POTASH

TEMPORARY SEED MIXTURE: SHALL HAVE THE FOLLOWING CHARACTERISTICS:

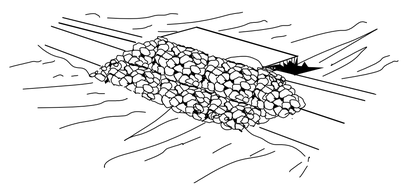
SEEDING DATE	SPECIES	PERCENTAGES (MINIMUM)			SEEDING RATE LBS. PER ACRE
		WGT.	PURITY	GERM.	
02/15–03/30	OATS	100	98	85	96
05/01–08/31	MILLET	100	98	80	40
09/01–11/15	RYE	100	96	85	140

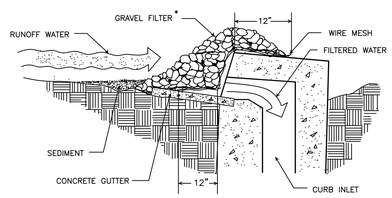
LIME: SHALL BE GROUND AGRICULTURAL GRADE LIMESTONE CONTAINING NOT LESS THAN 85 PERCENT CALCIUM AND MAGNESIUM CARBONATES. FINENESS SHALL BE SUCH THAT 100 PERCENT WILL PASS A NO. 20 SIEVE, AND NOT LESS THAN 50 PERCENT WILL PASS A NO. 100 SIEVE. BURNT LIME OR HYDRATED LIME MAY BE SUBSTITUTED IN EQUIVALENT CARBONATES, IF REQUESTED.

MULCH: TYPE I MULCH SHALL BE CURLEX BLANKET EROSION CONTROL FABRIC BLANKET. THE FABRIC SHALL BE MANUFACTURED OF MATERIALS WHICH DEGRADE IN 6 TO 8 MONTHS UNDER OUTDOOR EXPOSURE. TYPE II MULCH COMPOSED OF THRESHED STRAW OF CEREAL GRAIN, PINE NEEDLES, OR WOOD FIBER SHALL BE FREE OF OBJECTIONABLE WEED SEEDS OR OTHER HARMFUL MATERIAL.

BINDER: SYNTHETIC MULCH BINDER FOR USE WITH TYPE II MULCH: CURASOL, DCA 70, PETROSET, OR TERRA TACK.

TEMPORARY SEEDING MIXTURE (TS)
(STD. & SPEC. 3.31)



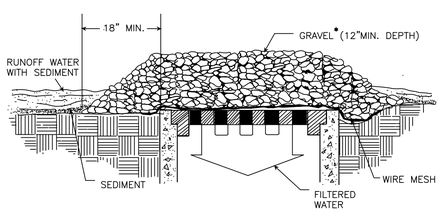


SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

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

CURB INLET SEDIMENT FILTERS (IP)
(STD. & SPEC. 3.07)

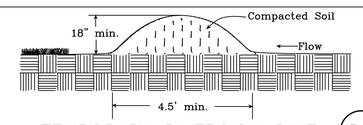


SPECIFIC APPLICATION

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

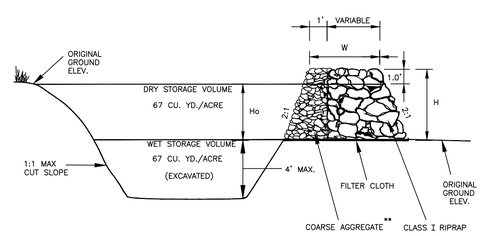
* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE.

DROP INLET SEDIMENT FILTERS (IP)
(STD. & SPEC. 3.07)

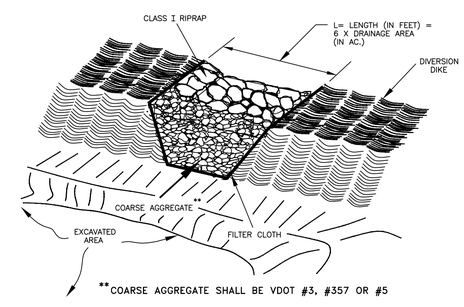


TEMPORARY DIVERSION DIKE (DD)
(STD. & SPEC. 3.09)

TEMPORARY SEDIMENT TRAP SUMMARY TABLE		
ID	B-1	B-2
DRAINAGE AREA (ACRES)	3	1.22
TOTAL STORAGE VOLUME (CY)	402	163.5
WET STORAGE VOLUME (CY)	215	83
WET STORAGE DIMENSIONS	35 x 70	20 x 42
DRY STORAGE VOLUME (CY)	207.5	91.8
DRY STORAGE DIMENSIONS	49 x 84	34 x 56
H - EMBANKMENT HEIGHT (FT)	2.5	2.5
Ho - OUTLET HEIGHT (FT)	1.5	1.5
W - TOP WIDTH (FT)	2.5	2.5
L - OUTLET LENGTH (FT)	18	7
SIDE SLOPES	2 to 1	2 to 1
OUTLET PROTECTION DIMENSIONS	CLASS I / 10'W X 10'L	CLASS I / 10'W X 10'L



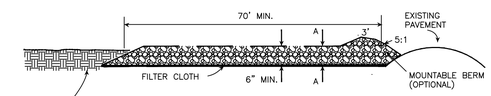
CROSS SECTION OF OUTLET



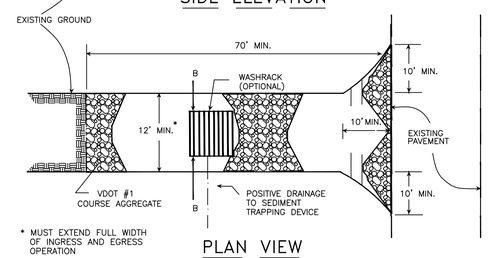
**COARSE AGGREGATE SHALL BE VDOT #3, #357 OR #5

TEMPORARY SEDIMENT TRAP
(STD. & SPEC. 3.13)

(TST)

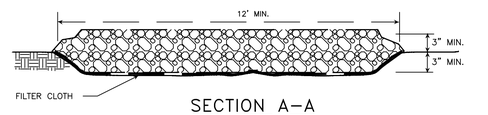


SIDE ELEVATION

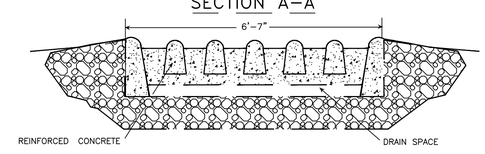


* MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION

PLAN VIEW



SECTION A–A



SECTION B–B

CONSTRUCTION ENTRANCE
(STD. & SPEC. 3.02)

(CE)

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- [ ] CONCEPT DESIGN
- [x] DESIGN DEVELOPMENT
- [ ] CONSTRUCTION BIDDING PHASE
- [ ] CONSTRUCTION DOCUMENTS
- [ ] CONSTRUCTION ADMINISTRATION

SEAL

COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

GREEN SPRING RD. RELOCATION

VDOT
Bonham Road
Abingdon, Virginia 24202

APPALACHIA DESIGN SERVICES INCORPORATED

245 Birch Street
Blountville, TN 37617
Phone: (423) 323-1206
Fax: (423) 323-1732

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DRAWING INFORMATION

SCALE:	AS SHOWN
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

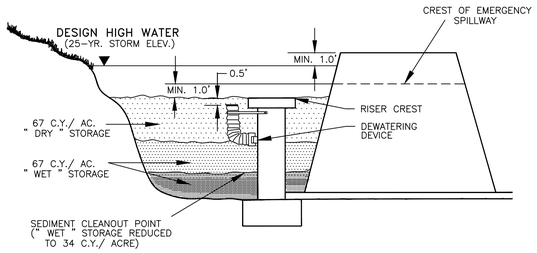
DRAWING TITLE:

EROSION CONTROL DETAILS

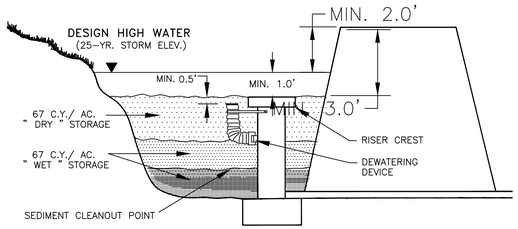
DRAWING NO:

D6 OF 34

\\FS\PROJECTS\ADS\ADS- THE MEADOWS\Project Drawings\Current\MEADOWS FC DET.dwg, ESC-D6, 6/8/2016 12:29:01 PM, Computer 2, 1:1



DESIGN ELEVATIONS WITH EMERGENCY SPILLWAY



DESIGN ELEVATIONS WITHOUT EMERGENCY SPILLWAY

(RISER PASSES 25-YR. EVENT)

SB

SEDIMENT BASIN

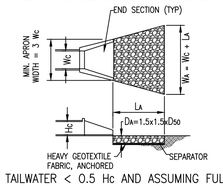
(STD. & SPEC. 3.14)

SEE SCHEDULE ON SHEET C7

RIP RAP PAD DIMENSIONS

STRUCTURE ID	DF CFS	Wc IN	Hc IN	Wa FT	La FT	Da IN	Dso IN
23	4.22	15	15	9.5	8.0	12.0	5.0
103	90.31	48	48	30	26.0	22.5	10.0
110	15.74	24	24	15.0	13.0	12.0	5.0
5	50.08	36	36	23.0	20.0	16.0	7.0

DF = DESIGN FLOW
Hc = HEIGHT OF CULVERT
Wc = WIDTH OF CULVERT
La = LENGTH OF RIP-RAP APRON
Wa = WIDTH OF RIP-RAP APRON AT END
Dso = MEDIAN RIP-RAP SIZE
Dmax = MAXIMUM SIZE OF RIP-RAP = 1.5 Dso
Da = DEPTH OF RIP-RAP APRON = 1.5 Dmax
SEPARATOR = GEOTEXTILE UNDERLAYMENT OR GRAVEL FILTER BLANKET



TAILWATER < 0.5 Hc AND ASSUMING FULL CULVERT FLOW (LOW TAILWATER CONDITIONS)

OUTLET PROTECTION

STD & SPEC 3.03
CONSTRUCTION ROAD STABILIZATION

CRS

Practice Description

The temporary stabilization of access roads, subdivision roads, parking areas, and other on-site vehicle transportation routes with stone immediately after grading, to reduce the erosion of temporary roadbeds by construction traffic during wet weather, and to prevent having to regrade permanent roadbeds between the time of initial grading and final stabilization.

Conditions Where Practice Applies

Wherever stone-base roads or parking areas are constructed, whether permanent or temporary, for use by construction traffic.

Construction Specifications

Temporary Access Roads and Parking Areas

1. Temporary roads shall follow the contour of the natural terrain to the extent possible. Slopes should not exceed 10 percent.
2. Temporary parking areas should be located on naturally flat areas to minimize grading. Grades should be sufficient to provide drainage but should not exceed 4 percent.
3. Roadbeds shall be at least 14 feet wide for one-way traffic and 20 feet wide for two-way traffic.
4. All cuts and fills shall be 2:1 or flatter to the extent possible.
5. Drainage ditches shall be provided as needed and shall be designed and constructed in accordance with STORMWATER CONVEYANCE CHANNEL, Std. & Spec. 3.17.

CONST. ROAD STABILIZATION

CRS

6. The roadbed or parking surface shall be cleared of all vegetation, roots and other objectionable material.
7. A 6-inch course of VDOT #1 Coarse Aggregate shall be applied immediately after grading or the completion of utility installation within the right-of-way. Filter fabric may be applied to the roadbed for additional stability. Design specifications for filter fabric can be found within Std. & Spec. 3.02, TEMPORARY STONE CONSTRUCTION ENTRANCE. In "heavy duty" traffic situations (see Table 3.02-A), stone should be placed at an 8- to 10-inch depth to avoid excessive dissipation or maintenance needs.

Permanent Roads and Parking Areas

Permanent roads and parking areas shall be designed and constructed in accordance with applicable VDOT or local criteria except that an initial base course of gravel of at least 6 inches shall be applied immediately following grading.

Vegetation

All roadside ditches, cuts, fills and disturbed areas adjacent to parking areas and roads shall be stabilized with appropriate temporary or permanent vegetation according to the applicable standards and specifications contained in this handbook.

Maintenance

Both temporary and permanent roads and parking areas may require periodic top dressing with new gravel. Seeded areas adjacent to the roads and parking areas should be checked periodically to ensure that a vigorous stand of vegetation is maintained. Roadside ditches and other drainage structures should be checked regularly to ensure that they do not become clogged with silt or other debris.

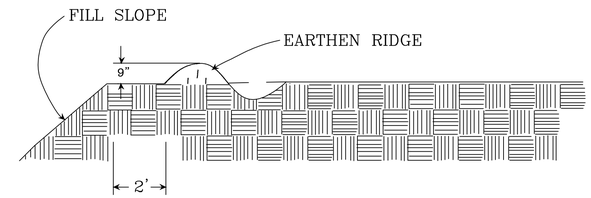
CONST. ROAD STABILIZATION

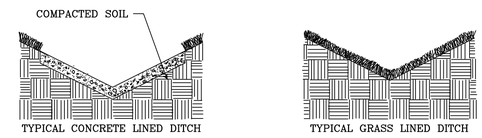
CRS

TEMPORARY FILL DIVERSION

(STD. & SPEC. 3.10-1)

FD

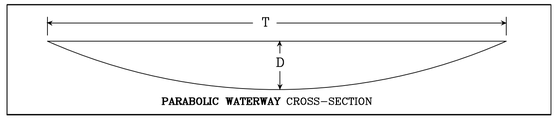




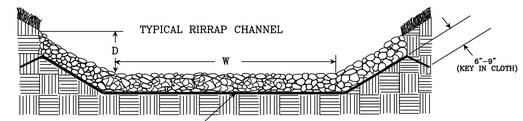
TYPICAL CONCRETE LINED DITCH

TYPICAL GRASS LINED DITCH

TYPICAL VEE CROSS-SECTIONS

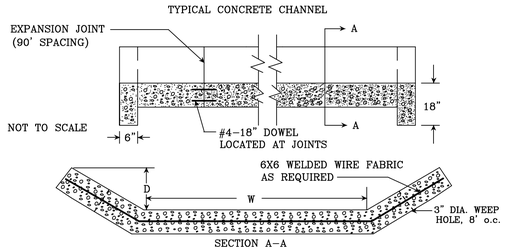


PARABOLIC WATERWAY CROSS-SECTION



FILTER CLOTH — NOTE: ALTHOUGH FILTER CLOTH IS PREFERED, A GRANULAR FILTER MAY BE SUBSTITUTED FOR FILTER CLOTH. (FOR PHYSICAL REQUIREMENTS, SEE STD. & SPEC. 3.19, RIPRAP)

TYPICAL CONCRETE CHANNEL



TRAPEZOIDAL WATERWAY CROSS-SECTIONS

SCC

STORMWATER CONVEYANCE CHANNEL

(STD. & SPEC. 3.17-1)

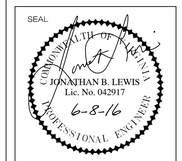
REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE

- [ ] CONCEPT DESIGN
- [x] DESIGN DEVELOPMENT
- [ ] CONSTRUCTION BIDDING PHASE
- [ ] CONSTRUCTION DOCUMENTS
- [ ] CONSTRUCTION ADMINISTRATION

SEAL



ADS PROJ. NO.: -

PROJECT:

GREEN SPRING RD. RELOCATION

VDOT
Bonham Road
Abingdon, Virginia 24202

APPALACHIA DESIGN SERVICES
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245 Birch Street
Blountville, TN 37617
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DRAWING INFORMATION

SCALE:	AS SHOWN
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

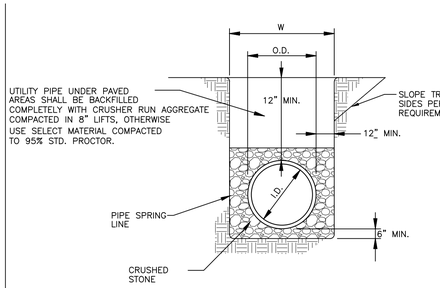
DRAWING TITLE:

EROSION CONTROL DETAILS

DRAWING NO:

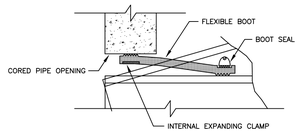
D7 OF 34

\\FS\PROJECTS\ADS\ADS - THE MEADOWS\Project Drawings\Current\MEADOWS EC DET.dwg, ESC-D7, 6/8/2016 12:29:06 PM, Compuset 2, 1:1

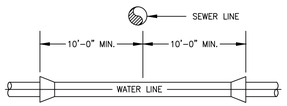


NOTE: DETAIL SHOWN IS FOR POLYVINYL CHLORIDE (PVC) SANITARY SEWER LINE. FOR DUCTILE IRON (D.I.) WATER LINE, BEDDING WILL ONLY BE REQUIRED WHERE TRENCH ROCK IS ENCOUNTERED OR AS OTHERWISE INDICATED. THE BEDDING FOR D.I. WATER LINE SHALL EXTEND FROM A POINT 6" BELOW THE PIPE TO THE PIPE SPRING LINE.

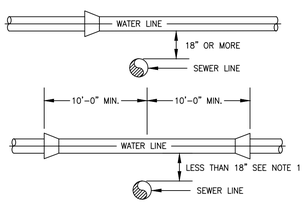
SEWER LINE BEDDING

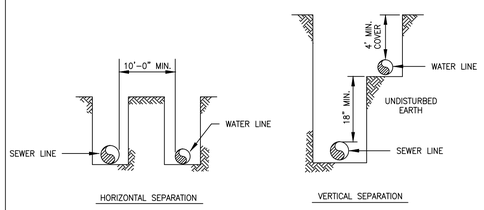


FLEXIBLE BOOT FOR SANITARY MANHOLES



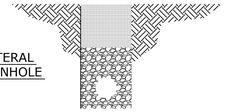
NOTE: 1. SEWER LINE TO BE CONSTRUCTED OF WATER LINE MATERIAL & PRESSURE TESTED PER LOCAL UTILITY REGULATIONS

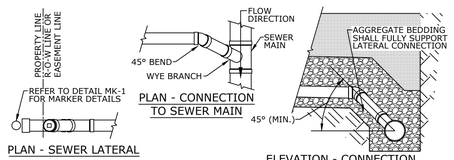


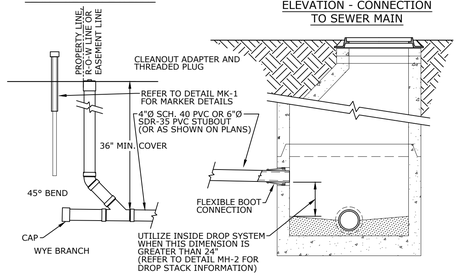


WATER & SEWER SEPARATION

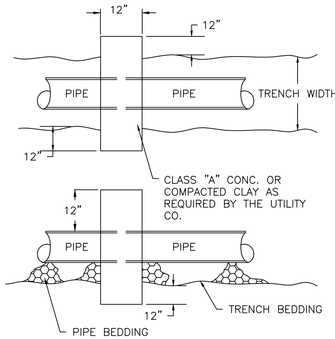
SANITARY SEWER STANDARD LATERAL CONNECTION TO SEWER MAIN OR MANHOLE



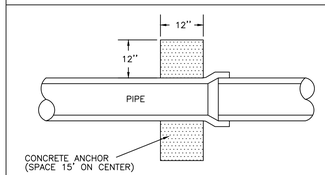




NOTES:
1. REFER TO THE TOWN'S SANITARY SEWER SYSTEM CONSTRUCTION AND CONNECTION CRITERIA FOR ADDITIONAL INFORMATION.
2. THIS DETAIL APPLIES TO ALL SANITARY SEWER LATERAL CONNECTIONS THAT ARE NOT STUBOUT CONNECTIONS TO MANHOLES.
3. ALL LATERALS SHALL HAVE A MINIMUM SLOPE OF 1/4" PER FOOT.

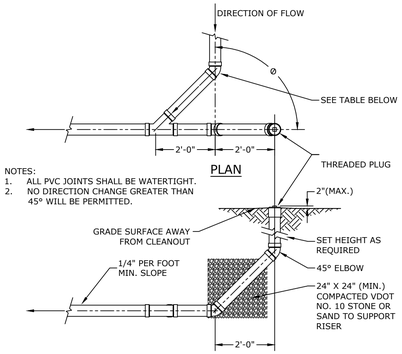


CONCRETE WATERSTOP



TYPICAL SECTION CONCRETE ANCHOR

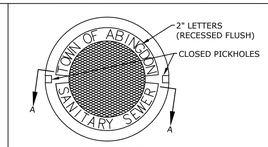
SANITARY SEWER CLEANOUT DETAIL



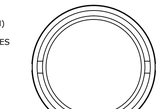
NOTES:
1. ALL PVC JOINTS SHALL BE WATERTIGHT.
2. NO DIRECTION CHANGE GREATER THAN 45° WILL BE PERMITTED.

FITTINGS REQUIRED FOR EACH CLEANOUT

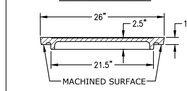
Ø	WYE	45° BEND	22.5° BEND	11.25° BEND	CLEANOUT ADAPTOR
56°	1	2	0	1	1
67.5°	1	2	1	0	1
78.75°	1	2	1	1	1
90°	1	3	0	0	1



TOP OF COVER

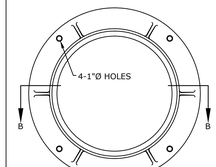


BOTTOM OF COVER

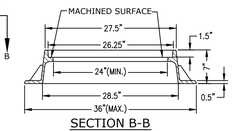


SECTION A-A

NOTES:
1. THE LETTERS "TOWN OF ABINGDON SANITARY SEWER" SHALL BE CAST INTO THE COVER.
2. MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH ASTM A48, CLASS 35B FOR GREY IRON AND ASTM A536 FOR DUCTILE IRON.



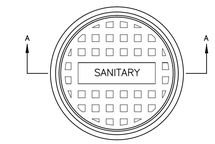
TOP OF FRAME



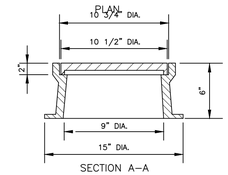
SECTION B-B

STANDARD MANHOLE FRAME AND COVER

MATERIAL: CAST IRON
COATING: BLACK BITUMINOUS PAINT
WEIGHT: FRAME 63 LBS.
COVER 27 LBS.

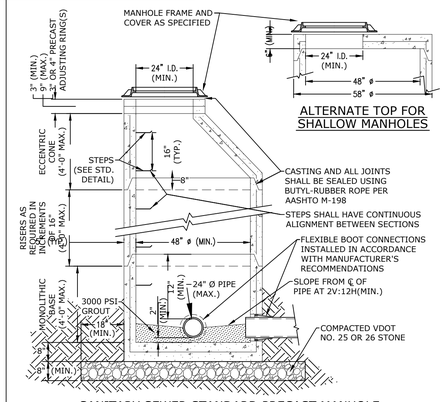


PLAN



SECTION A–A

CLEANOUT COVER

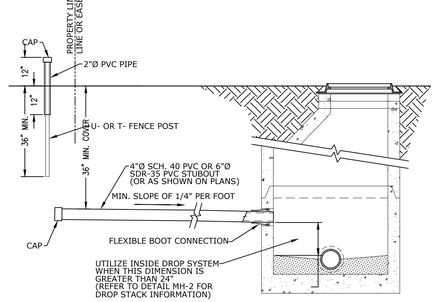


ALTERNATE TOP FOR SHALLOW MANHOLES

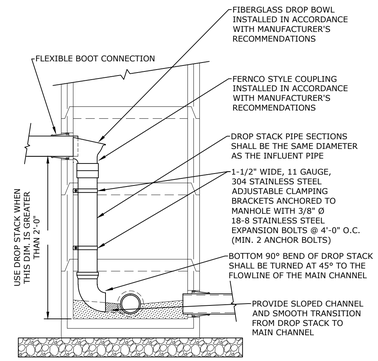
SANITARY SEWER STANDARD PRECAST MANHOLE

NOTES:
1. MATERIALS AND FABRICATION SHALL BE IN ACCORDANCE WITH ASTM C478.
2. PROVIDE A MAXIMUM OF 2 LIFT HOLES PER PRECAST SECTION. PLUG LIFT HOLES WITH RUBBER PLUG AND GROUT FOR WATERTIGHT SEAL PRIOR TO BACKFILLING.
3. ALL PRECAST MANHOLES TO BE SUPPLIED BY A CERTIFIED PRECAST PLANT.

NOTES:
1. REFER TO THE TOWN'S SANITARY SEWER SYSTEM CONSTRUCTION AND CONNECTION CRITERIA FOR ADDITIONAL INFORMATION.
2. THIS DETAIL APPLIES ONLY TO STUBOUT CONNECTIONS TO MANHOLES.



SANITARY SEWER STANDARD STUBOUT CONNECTION AND MARKER



SANITARY SEWER STANDARD PRECAST DROP MANHOLE

NOTES:
1. MATERIALS AND FABRICATION SHALL BE IN ACCORDANCE WITH ASTM C478.
2. PROVIDE A MAXIMUM OF 2 LIFT HOLES PER PRECAST SECTION. PLUG LIFT HOLES WITH RUBBER PLUG AND GROUT FOR WATERTIGHT SEAL PRIOR TO BACKFILLING.
3. THE LOCATION OF STEPS SHALL NOT CONFLICT WITH DROP STACK ASSEMBLY.
4. PVC PIPING IN DROP STACK SHALL BE SDR 35 WITH SOLVENT WELDED JOINTS.
5. REFER TO SHEET MH-1 "STANDARD PRECAST MANHOLE" FOR ADDITIONAL DETAILS AND REQUIREMENTS.
6. ALL PRECAST MANHOLES TO BE SUPPLIED BY A CERTIFIED PRECAST PLANT.

REVISIONS

NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE
- CONCEPT DESIGN
- ☑ DESIGN DEVELOPMENT
- CONSTRUCTION BIDDING PHASE
- CONSTRUCTION DOCUMENTS
- CONSTRUCTION ADMINISTRATION

SEAL
COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

GREEN SPRING RD. RELOCATION

VDOT
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Abingdon, Virginia 24202

APPALACHIA DESIGN SERVICES
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SCALE:	AS SHOWN
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

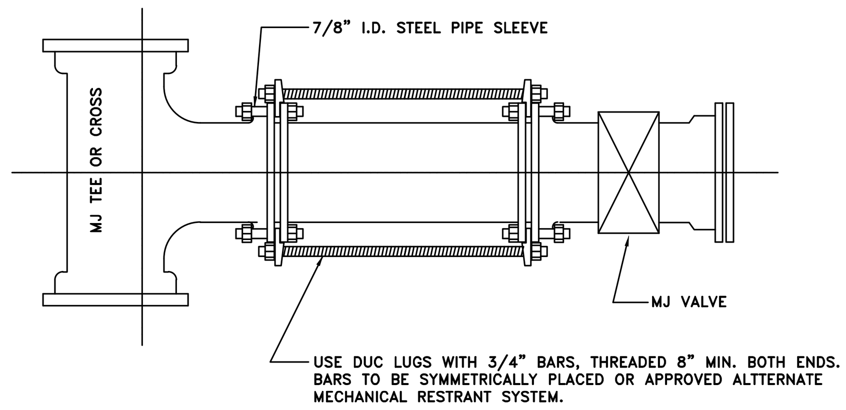
DRAWING TITLE:

SANITARY SEWER DETAILS

DRAWING NO:

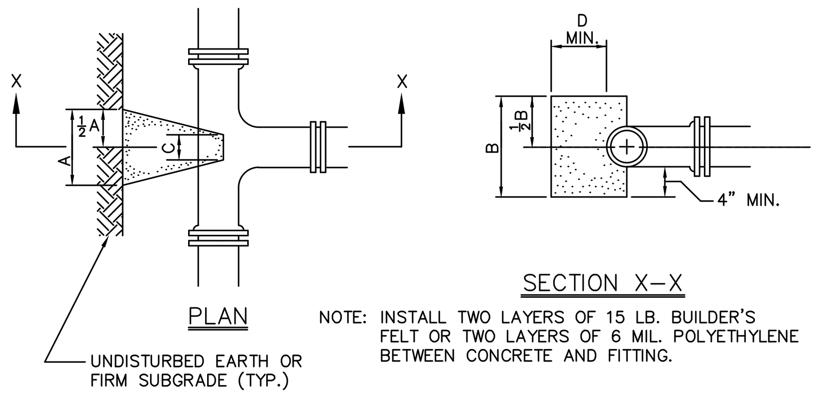
D9 OF 34

V:\S-PROJECTS\ADS-ADS- THE MEADOWS\Project Drawings\Current\MEADOWS FC DET.dwg, SEW-DR, 6/8/2016 12:39:09 PM, Computer 2, 1:1



VALVE SIZE	NUMBER OF 3/4" BARS REQUIRED	MAX. LENGTH OF SPIGOT PIPE
3"	2	24"
4"	4	24"
6"	4	27"
8"	4	27"
10"	4	27"
12"	6	27"
14"	6	30"
16"	8	36"
20"	12	36"
24"	16	36"
30"	20	42"

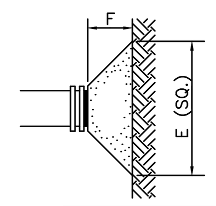
METHOD OF STRAPPING VALVE TO MAIN



NOTE: INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING.

TEE	BRANCH DIAMETER										
	3"	4"	6"	8"	10"	12"	14"	16"	20"	24"	30"
A	12"	12"	16"	18"	26"	30"	36'	40"	48"	60"	80"
B	12"	16"	20"	30"	32"	42"	49"	56"	72"	80"	96"
C	8"	8"	12"	12"	12"	12"	14'	16"	24"	24"	24"
D	6"	6"	8"	9"	10"	12"	13"	14"	18"	20"	24"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

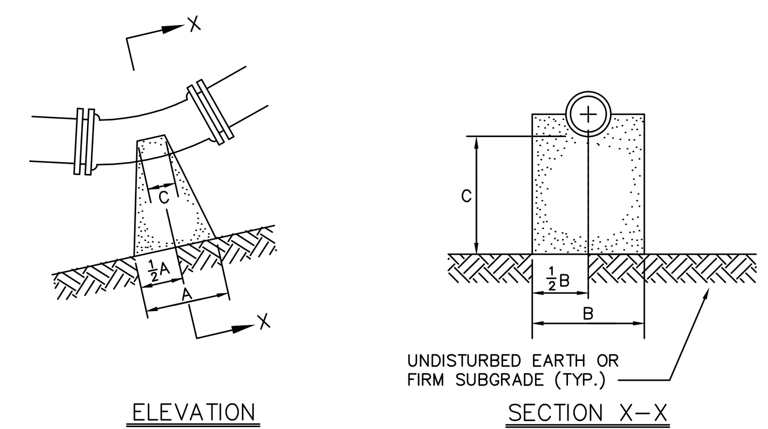


NOTE: INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING.

PLUG	PIPE DIAMETER										
	3"	4"	6"	8"	10"	12"	14"	16"	20"	24"	30"
E	14"	16"	21"	29"	36"	41"	47"	54"	64"	75"	88"
F	8"	8"	10"	10"	12"	14"	15"	16"	18"	20"	24"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

THRUST BLOCK DETAILS TEES, TAPPING SLEEVES, PLUGS & CAPS

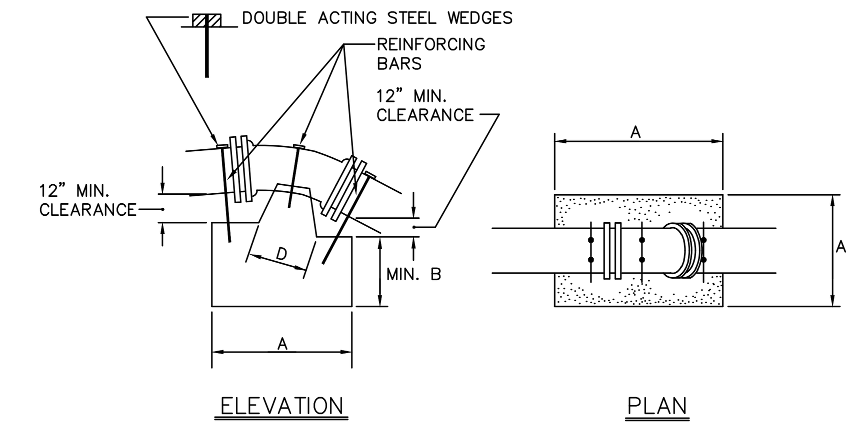


NOTE: INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING.

BEND		PIPE DIAMETER										
		3"	4"	6"	8"	10"	12"	14"	16"	20"	24"	30"
11 1/4°	A	6"	6"	6"	8"	8"	8"	10"	13"	15"	22"	32"
	B	12"	12"	14"	16"	18"	24"	26"	28"	32"	36"	40"
	C	8"	8"	8"	8"	8"	8"	8"	9"	10"	12"	14"
22 1/2°	A	6"	6"	10"	11"	15"	16"	20'	25"	33"	39"	43"
	B	12"	12"	14"	16"	18"	24"	26"	28"	32"	36"	40"
	C	8"	8"	8"	8"	9"	9"	10"	12"	14"	16"	18"
45°	A	10"	12"	14"	21"	19"	32"	40'	48"	66"	72"	98"
	B	12"	12"	14"	16"	18"	24"	26'	28"	32"	42"	48"
	C	8"	8"	8"	8"	12"	14"	16'	18"	24"	30"	36"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

THRUST BLOCK DETAILS LOWER VERTICAL BENDS



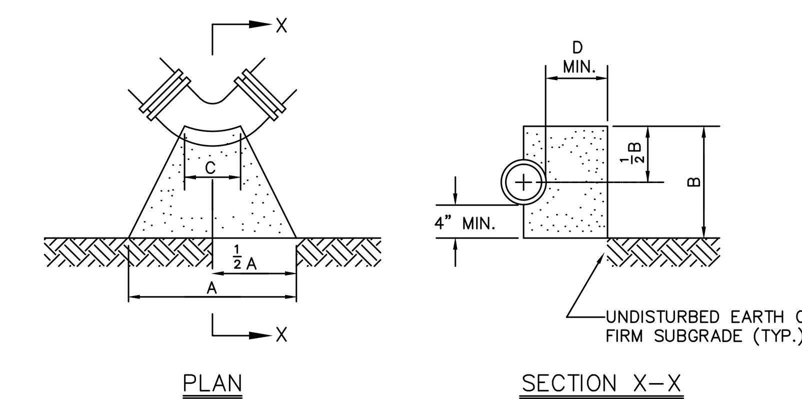
NOTE:
1. EMBED REINFORCING BARS MINIMUM OF 36 DIAMETERS INCLUDING HOOK.
2. PAINT EXPOSED BARS WITH TWO COATS OF BITUMINOUS PAINT.
3. WHERE 4 BARS ARE REQUIRED, PLACE 2 BARS SYMMETRICALLY AROUND FITTING.
4. INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6MIL POLYETHYLINE BETWEEN CONCRETE AND FITTING.

C = NUMBER AND SIZE OF REINFORCING BARS
D = DIMENSION OF PIPE DIAMETER

BEND		PIPE DIAMETER										
		3"	4"	6"	8"	10"	12"	14'	16"	20"	24"	30"
11 1/4°	A	18"	18"	24"	24"	27"	30"	34'	39"	48"	54"	60"
	B	18"	18"	18"	24"	24"	27"	28'	30"	30"	36"	36"
	C	3#5	3#5	3#5	3#6	3#6	3#6	3#6	3#6	3#8	3#8	3#8
22 1/2°	A	18"	24"	30"	33"	42"	48"	51'	54"	66"	72"	84"
	B	18"	18"	24"	27"	27"	30"	43"	36"	42"	48"	54"
	C	3#5	3#5	3#5	3#6	3#6	4#6	4#6	4#6	3#8	4#8	4#8
45°	A	24"	30"	26"	42"	48"	54"	57"	60"	90"	98"	120"
	B	18"	24"	24"	30"	33"	36"	39'	42'	48"	54"	60"
	C	3#5	3#5	3#5	3#6	4#6	4#6	4#8	4#8	4#8	4#8	4#9

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

THRUST BLOCK DETAILS UPPER VERTICAL BENDS



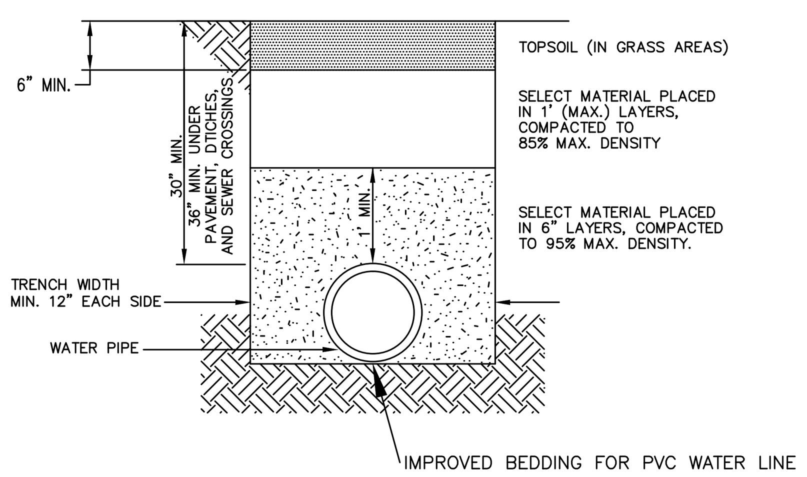
NOTE: INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING.

PIPE DIA.	45° BEND					90° BEND				
	A	B	C	D	E	A	B	C	D	E
3"	9"	12"	6"	6"	4"	12"	12"	6"	12"	6"
4"	9"	12"	6"	6"	4"	16"	12"	6"	12"	6"
6"	12"	14"	6"	8"	4"	21"	14"	6"	18"	6"
8"	18"	16"	8"	9"	6"	30"	16"	8"	18"	9"
10"	24"	18"	8"	10"	6"	36"	24"	10"	18"	9"
12"	30"	20"	12"	12"	9"	48"	24"	12"	18"	12"
14"	27"	25"	12"	13"	9"	54'	27"	14'	19'	12"
16"	42"	30"	12"	15"	9"	60"	30"	16"	21"	12"
20"	56"	30"	12"	16"	16"	72"	40"	20"	21"	24"
24"	60"	36"	12"	21"	24"	84"	48"	24"	24"	30"
30"	72"	48"	16"	27"	24"	108"	60"	30"	24"	36"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

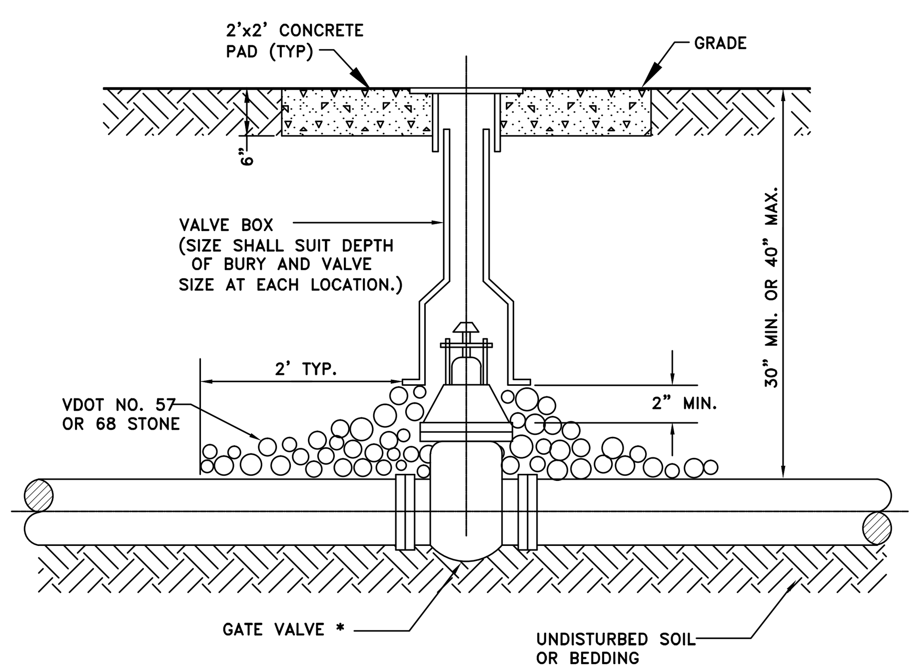
E = ADDITIONAL LENGTH TO BE ADDED TO DIMENSION A FOR EACH ADDITIONAL 50 PSI PRESSURE UP TO 300 PSI

THRUST BLOCK DETAILS 45° – 90° BENDS



NOTES:
1. ROLLING COMPACTION NOT ALLOWED UNTIL DEPTH OF BACKFILL EXCEEDS 12".
2. WATER LINE TO BE BACKFILLED WITH COMPACTED STONE TO SUBGRADE WHEN LOCATED UNDER PAVED AREAS.

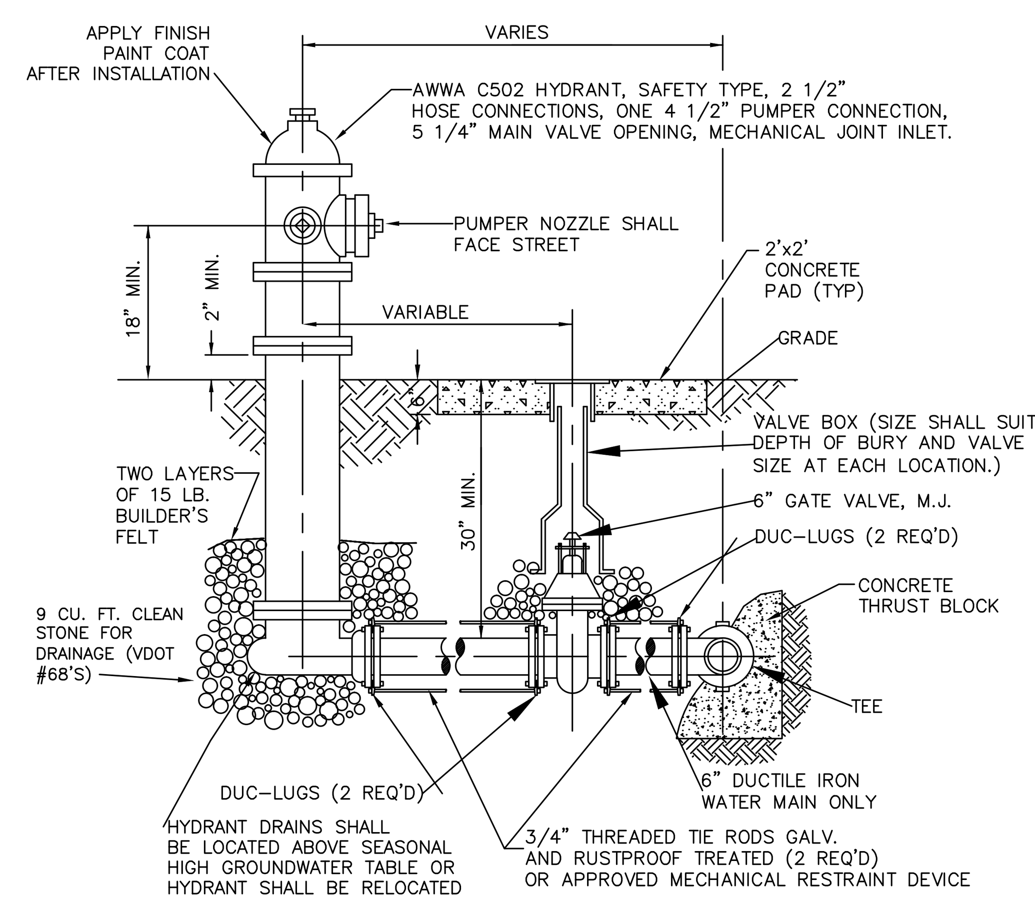
WATERLINE TYPICAL TRENCH & BACKFILL



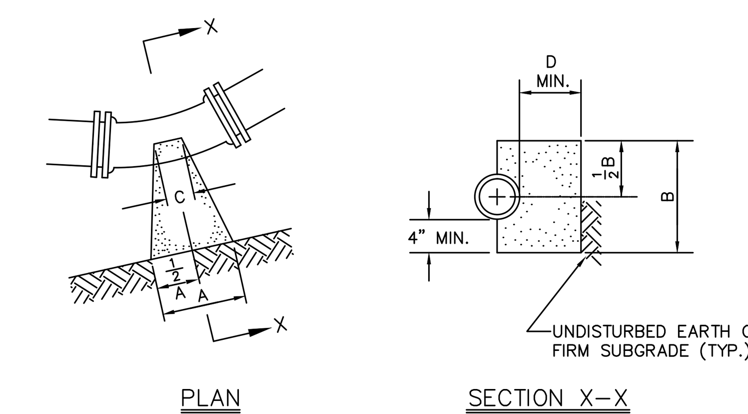
TYPICAL VALVE INSTALLATION

* BUTTERFLY VALVE INSTALLATION SIMILAR EXCEPT OPERATOR IS OFFSET

NOTE:
COMPLETE FIRE HYDRANT ASSEMBLY INCLUDES BRANCH PIPE, FITTINGS, GATE VALVE AND BOX, THRUST BLOCK AND RODS.



FIRE HYDRANT ASSEMBLY



NOTE: INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING.

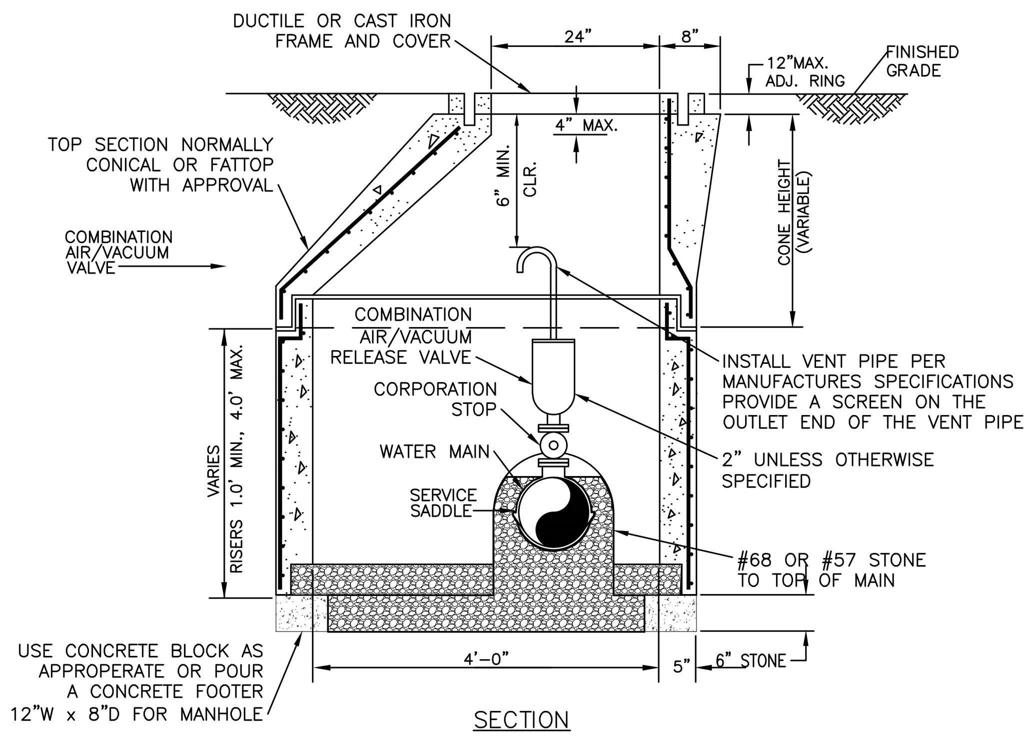
PIPE DIA.	11 1/4° BEND					22 1/2° BEND				
	A	B	C	D	E	A	B	C	D	E
3"	4"	12"	4"	6"	2"	6"	12"	6"	7"	2"
4"	4"	12"	4"	6"	2"	6"	12"	6"	7"	2"
6"	6"	14"	6"	7"	2"	8"	14"	6"	8"	2"
8"	8"	16"	8"	7"	2"	12"	16"	8"	8"	4"
10"	9"	18"	8"	8"	4"	15"	18"	8"	10"	4"
12"	12"	20"	12"	9"	4"	18"	20"	12"	12"	6"
14"	14'	22"	12"	9"	4'	21"	22"	12"	13'	6"
16"	15"	24"	12"	9"	6"	24"	24"	12"	15"	6"
20"	30"	12"	10"	10"	6"	30"	30"	12"	18"	9"
24"	18"	36"	12"	12"	6"	36"	36"	12"	18"	9"
30"	24"	42"	16"	14"	9"	48"	42"	16"	21"	12"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

E = ADDITIONAL LENGTH TO BE ADDED TO DIMENSION A FOR EACH ADDITIONAL 50 PSI PRESSURE UP TO 300 PSI

THRUST BLOCK DETAILS 11 1/4° – 22 1/2° BENDS

NOTES:
1. MANHOLE TO MEET CURRENT REQUIREMENTS OF ASTM C-478.
2. CONCRETE TO BE 4000 PSI MINIMUM COMPRESSIVE STRENGTH.
3. ALL REINFORCING STEEL TO MEET CURRENT REQUIREMENTS OF ASTM A-615.
4. COLD APPLIED JOINT SEALER (SAHOM-98) SHALL BE USED IN ADDITION TO THE JOINT SPECIFIED.
5. CORPORATION STOP SHALL BE SAME SIZE AS AIR VALVE
6. DO NOT LOCATE IN AREAS SUBJECT TO FLOODING



AIR RELEASE VALVE

REVISIONS		
NO.	DATE	DESCRIPTION

ACTIVE DESIGN PHASE
- [ ] CONCEPT DESIGN
- [x] DESIGN DEVELOPMENT
- [ ] CONSTRUCTION BIDDING PHASE
- [ ] CONSTRUCTION DOCUMENTS
- [ ] CONSTRUCTION ADMINISTRATION

SEAL:
COMMONWEALTH OF VIRGINIA
JONATHAN B. LEWIS
Lic. No. 042917
6-8-16
PROFESSIONAL ENGINEER

ADS PROJ. NO.: -

PROJECT:

GREEN SPRING RD. RELOCATION

VDOT
Bonham Road
Abingdon, Virginia 24202

APPALACHIA DESIGN SERVICES
INCORPORATED

245 Birch Street
Blountville, TN 37617
Phone: (423) 323-1206
Fax: (423) 323-1732

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DRAWING INFORMATION	
SCALE:	AS SHOWN
SCALE GUIDE:	
DWG ISSUED:	6-8-16
PROJ ADMIN:	TJK
DRAWN BY:	JSYJ
CHECKED BY:	JBL

DRAWING TITLE:

WATER LINE DETAILS

DRAWING NO:

D8 OF 34

\\Fs\PROJECTS\ADS\ADS- THE MEADOWS\Project Drawings\Current\MEADOWS FC DET.dwg, WST-D9, 6/8/2016 12:39:12 PM, Composer 2, 1:1

Town of Abingdon
Planning Commission
Case Brief

Planning Commission Meeting Date: June 27, 2016

3) Preliminary Subdivision Plat Review: Michael Noonkester, owner, 28357 Osceola Road, Abingdon, VA 24211; Matthew Bundy, representative, 321 W Main Street, Abingdon, VA 24210. Proposed 4 lot subdivision, 1103 Empire Drive, zone OI (Office & Institutional), located at Tax Map No. 106-7-1A.

The property has been before the Planning Commission and Town Council at various times over the past 11 years. A brief summary of those cases is listed below:

1) 8/22/2005 – Request to rezone property from AFOS to O&I District. Recommended favorably by PC and adopted by TC on Sept. 12, 2005.
2) 12/15/2008 – Request for Special Use Permit for use of light industry within the O&I District. Recommended favorably by PC and adopted by TC on January 5, 2009. This special use permit is no longer valid. Per Sec. 17-3-4, applicant has 18 months to construct improvements necessary to the use for which the permit is granted.
3) 9/26/2011 – Request for Special Use Permit for use of light industry within the O&I District. Recommended favorably by PC. At the Oct. 12, 2011, TC meeting, the applicant announced that they had withdrawn their request. Several members of the adjacent residential neighborhood voiced concerns concerning the proposed use of the property as light industrial.
4) 12/17/2012 – Request for preliminary plat approval with variances. Recommended favorably to applicant to move forward with Final Plat preparation.
5) 5/29/2013 – Request for final plat approval with variances. Recommended favorably to TC subject to receipt of all pertinent requirements by the Town Engineer.

The applicant met with town staff on June 6, 2016, to discuss the proposed subdivision. The applicant indicates that he wishes to subdivide the property into two separate lots. The zoning (and thus the uses associated with O&I zoning) are **not** part of the consideration of this particular request. Town staff made a few suggestions for additional information to be shown on the plat, but generally supports the request for a subdivision. We are aware that there have been concerns with past proposals on the property from adjacent property owners in the neighborhood located to the North. While we are **not** considering potential uses, it is worthwhile for us to note that any subdivision greatly reduces potential density of any future uses – in effect limiting potentially contentious uses of the property as it relates to adjacent residential neighborhoods.

The applicant is requesting a variance from the Town Council with respect to the installation of curb & gutter and sidewalks. Town staff believes that we do not have jurisdiction over the area in question, since the right-of-way for Empire Dr. is under VDOT control and the area lies within Washington County (outside of the Town's jurisdiction). Any such improvements would be at the discretion of the property owner or in conjunction with VDOT and/or Washington County.

A report from the Town Engineer is included in your packet.

4) **Preliminary Subdivision Plat Review: Marathon Realty Corp., owners, P.O. Box 518, Abingdon, VA 24212; Stephen Spangler, representative, P.O. Box 518, Abingdon, VA 24212. Proposed 10 lot subdivision, property located near 440 Green Spring Road, commonly known as the "Meadows" development project, zoned B-2 (General Business). Including all or portions of Tax Map Numbers 105-A-39, 021-1-5B, & 021-1-5.**

A proposed 10 lot subdivision plat has been included in your packet as a "PRELIMINARY PLAT". It is required that Planning Commission review all preliminary plats and determine whether or not they generally conform to the requirements of the subdivision ordinance and zoning ordinance. Once the PC approves the preliminary plat, the procedure is for the applicant to move forward with preparing a "FINAL PLAT", which will also require review by both Planning Commission AND Town Council. A preliminary plat does not require Town Council approval.

The town staff (Public Works Dept. and Planning Dept.) have thoroughly reviewed the included preliminary plat and have generally found it to be within compliance with the Code for preliminary plat submittals. Included in your packet is a report from the Town Engineer.

5) **Certificate of Appropriateness: Marathon Realty Corp., owners, P.O. Box 518, Abingdon, VA 24212; Application for Certificate of Appropriateness for new construction, roads, landscaping, signage, located near 440 Green Spring Road, Abingdon, VA 24210, including all or portions of Tax Map Numbers 021-1-5B.**

The COA process is ***typically*** approved at the Planning Commission level. However, Sec. 18-9-7, paragraph 3 indicates that in a case where the site is governed by a Special Use Permit, "Such certificate of appropriateness shall be advisory to the town council…". Thus, the Planning Commission's role at this juncture is to make a *recommendation* to the Town Council. The COA will ultimately be approved by the Council.

Consideration of the COA request **does not** require a public hearing, nor does it require public commentary or questioning. As such, the Town is not under any obligation to provide public notice. However, the staff felt that with a project of this size, it would be a gesture of goodwill to provide public notice to adjacent and nearby property owners.

The Planning Department sent out notices to all property owners within a 250 ft. radius of the development giving the date and time for the Planning Commission meeting as well as some other pertinent information regarding where citizens could find additional information about the project proposal. The Code of the Town of Abingdon gives the Commission the following guidance with respect to consideration of COA's:

In making its determinations, the planning commission may consider any architectural feature which influences appearance, such as, but not limited to motif and style, color, texture and materials, configuration, orientation, mass, shape, height and location of buildings, location and configuration of parking areas, landscaping and buffering.

In order to make this complex COA request a bit easier to digest, I am going to break it down into the required components as listed in the Code and provide the language that the Code requires PC to consider for approval per Section 18-9-8 "Design Standards". A brief staff commentary follows each individual component.

A) Site Plan

a. Overall Site layout

Site planning. In addition to the requirements of section 18-2 et seq., the following standards are required in the entrance corridor overlay district:

(1) Parking lot layouts shall respond to the topographic characteristics of the site.

(2) the number of access points to parking lots from a street will be minimized and shall relate to other existing curb cuts whenever possible.

(3) Parking lots will be interconnected on adjacent parcels whenever possible.

(4) Small, landscaped and interconnected parking lots, rather than large, central parking lots shall be encouraged.

(5) Parking lots shall not dominate the image of a site.

(6) Where sidewalks exist adjacent to individual project sites pedestrian access from the sidewalk into individual project sites as well as within sites and between sites shall be provided.

(7) The planning commission is permitted to reduce the parking space requirement when the interests of the town are better served.

Staff Commentary

It is the opinion of the staff that the preliminary site plans submitted meet the general requirements required by the Code. Corridor guidelines are just that – guidelines – and as such are inherently subjective. One item is worthy of note is related to #7 – reduction of required parking. The site being considered will have a total of 85,454 sq. ft. of leasable floor space. Using the parking requirement of

5.5 spaces for each 1,000 sq. ft. of leasable floor space, that will yield a required 470 parking spaces. [85,454/1000 = 85.454 * 5.5 = 469.997 or 470 spaces]. That equates to (roughly) a 11% reduction in required parking. Arguments can be made that less parking will reduce impervious surfaces and provide for more environmentally sensitive approaches to land use. This results in lower stormwater runoff, room for additional landscaping and green spaces, and similar benefits. It is the opinion of the staff that a reduction in parking is warranted and should be added as a condition to the approval recommendation to Town Council.

b. Lighting Plans

Lighting.
(1) Lighting should be in keeping with the design of the complex.
(2) Lighting should be of uniform style for each project site.
(3) Lighting should be contained within the site and designed to limit spillover to streets and adjacent properties and to minimize the amount of light that is directed to the sky.
(4) Light poles shall not exceed 24 feet in height.

<u>Staff Commentary</u>

Light details are included in the packet and include 24' posts on 3' concrete bases, which are typical for high-traffic areas such as parking lots to prevent damage to the light posts. It is evident that the applicant has taken care to minimize light leakage at the property lines and upwards towards the sky by using cut-off fixtures. The included lighting plan shows that the light will be directed internal to the site itself and that light leakage will be minimal at the property lines. It is the opinion of staff that the lighting plan conforms to the requirements of the Code.

B) Landscaping Plan

(a) *Landscaping.*
(1) Landscaping shall be used to soften the visual impact of development and enhance the appearance of the area.
(2) Landscaping shall be sufficient to soften the visual effects of parking lots, reduce the effective visual mass of large buildings, and provide screening between the development, the street and surrounding lots.
(3) Landscape buffers, shall be provided adjacent to public streets of sufficient size to permit street trees and plantings to be installed to reduce the visibility into parking lots.
(4) Landscaping shall be compatible with landscaping on adjacent properties.
(5) Landscaping shall be of a high quality and designed in a professional manner.

<u>Staff Commentary</u>

The landscaping plan was designed by Quinn Craughwell, an Abingdon native. As a professional landscape architect, Quinn has gone to great lengths to provide a landscape plan that is comprehensive and diverse. The level of landscaping shown in the proposed plans ***far*** exceeds any requirements of the Code. Great care has been given to provide landscaping features such as berms, grasses, trees, and shrubs which will help mitigate any viewshed issues from the Creeper Trail or adjacent properties. It is the opinion of staff that this landscaping plan exceeds the expectations of the Code.

(b) Architectural Plan

Architecture.

(1) Materials, colors and general style of buildings within a development should be coordinated.

(2) Heating and air conditioning units, ventilation units, and mechanical equipment shall be screened from view from public streets.

(3) Loading docks, trash containers, mechanical equipment and any sites for storage facilities shall be screened from view from public streets.

(4) The effective visual mass of large buildings should be reduced by variations in roof line, building angles, dimension, relief, color, architectural detailing and landscaping.

(5) Architectural styles, building and roofing materials, and colors shall be reflective of the traditional architecture of Abingdon. This may be accomplished through building scale, materials, and forms, all of which may be embodied in architecture which is contemporary as well as traditional.

(6) Trademark buildings and related features including signs shall be modified to meet these design standards.

Staff Commentary

Architectural review is perhaps the most controversial component of any design application due to the subjective nature of design. Architecture can be assessed objectively: functional performance, structural stability and durability, public health and safety, and financial feasibility, for example. However, design is inherently *subjective*. As the old joke goes, “Put three architects in a room together and you’ll get five opinions”. The same goes for staff, citizens, and even board members.

Staff have reviewed the included architectural renderings ***to ensure they comply with the guidelines listed above***. Of course, every individual will have different tastes and, as such, offer different opinions. It is the opinion of staff that the applicant has met the criteria listed above and has offered a well thought-out plan which is respectful of the requests of the board, staff, and the sentiments offered by the public in the various forums and outlets for public engagement.

(c) Signage Plan

The COA process asks for signage information to be submitted as part of the COA application. However, the Planning Commission has historically permitted the zoning administrator and/or town manager (or their designee) to approve signage for projects located within the Entrance Corridor Overlay District administratively. This is completed outside of the Planning Commission's regular meeting by town staff.

Marathon Realty is proposing to submit a request for signage under Sec. 21-7 "Comprehensive Signage Plan" requirements of the code. The applicant has tentatively scheduled to bring this request to the July 25, 2016, Planning Commission meeting for recommendation to the August 1, 2016, Town Council meeting. Town Council will make the final determination for the comprehensive signage plan.

Town staff believes that allowing the developer to submit plans under this provision of the code would yield a better product for the town's citizens. The process will require the applicant to submit a full signage plan for Planning Commission review (and approval or modification) at a future meeting date (scheduled for 7/25/16). Town staff recommends that Planning Commission condition their COA approval upon the applicant submitting a comprehensive signage plan for the development within 3 months of the June 27, 2016, PC meeting date for PC consideration.

Town Staff recommends the following actions by the Planning Commission:

1. **Recommend approval of the Certificate of Appropriateness to the Town Council with the following conditions:**
    a. **Applicant shall request a Comprehensive Signage Plan within three (3) months of June 27, 2016.**
    b. **A reduction of the amount of parking as required by the Code is permitted (from 470 spaces down to 416).**