

GENERAL NOTES

PRE-CONSTRUCTION MEETING AND CONSTRUCTION COMMENCEMENT:

1. All construction methods and materials shall conform to the Construction Standards and Specifications of Roanoke County, the Western Virginia Water Authority, and the Virginia Department of Transportation.
2. Stormwater Management Agreements with an attached 8 1/2" x 11" or 8 1/2" x 14" plat must be approved and recorded prior to the pre-construction meeting.
3. Once all required items are submitted to Roanoke County, the developer must contact the Development Review Coordinator to indicate that a pre-construction meeting needs to be scheduled. The pre-construction meeting will be scheduled with the owner/developer two (2) working days later.
4. All land disturbing projects that require approval of an erosion and sediment control plan, grading or clearing permit shall require that the applicant provide the name of an individual who will be responsible for land disturbing activities and that this individual hold a Responsible Land Disturber (RLD) Certificate from the Department of Environmental Quality. The Responsible Land Disturber can be anyone from the Project team that is certified by the Commonwealth of Virginia to be in charge of carrying out the land disturbing activity for the project.
5. It is the responsibility of the owner/developer to notify the certified Responsible Land Disturber and the Utility Contractor to attend the pre-construction meeting.
6. The Development Review Coordinator will schedule the pre-construction meeting with the County Review Engineer, the County Inspector, and the Western Virginia Water Authority and the Town of Vinton Public Works Department if applicable.
7. An approved set of plans, Storm Water Pollution Prevention Plan (SWPPP), VSPM coverage letter, and all permits must be available at the construction site at all times.
8. The developer and/or contractor shall supply all utility companies with copies of approved plans, advising them that all grading and installation shall conform to approved plans.
9. The project engineer will inform the owner/developer verbally and in writing of the County's obligation to perform inspections on site. Everyone in the meeting will be required to sign a pre-construction checklist indicating their knowledge of Roanoke County's obligation to perform inspections on site.
10. The Erosion Control Permit or Combined Erosion Control & VSPM Permit is given to the developer at this pre-construction meeting.
11. Notify Roanoke County prior to beginning installation of ESC measures. The County will inspect initial installations to ensure compliance with approved plan prior to start of grading. The developer SHALL contact the project inspector 24 hours before beginning any grading or construction on the property.
12. County inspectors must inspect storm drain / stormwater management / BMP installations during the process of installation. Please contact the site inspector 24 hours in advance.
13. All work shall be subject to inspection by Roanoke County, the Western Virginia Water Authority and the Virginia Department of Transportation Inspectors.
14. Contractors shall notify utilities of proposed construction at least two (2), but not more than ten (10) working days in advance. Area public utilities may be notified thru "Miss Utility": 1-800-552-7001 or VA 811.
15. The 100 year Floodway shall be staked prior to any construction.
16. Grade stakes shall be set for all curb and gutter, culvert, sanitary sewer and storm sewer at all times of construction.
17. Roanoke County shall be notified when a spring is encountered during construction.
18. Construction debris shall be containerized in accordance with the Virginia Litter Control Act. No less than one litter receptacle shall be provided on site.
19. The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets or rights of ways. It is the contractors responsibility to insure that the streets are in a clean, mud and dust free condition at all times.
20. Plan approval in no way relieves the developer or contractors of the responsibilities contained within the erosion and sediment control or stormwater management policies.
21. Field construction shall honor proposed drainage divides as shown on plans.
22. Field corrections shall be approved by the Roanoke County and/or the Western Virginia Water Authority and the Professional of Record, prior to such construction.
23. The developer or contractor shall supply the County and the Western Virginia Water Authority with correct As-Built plans before final acceptance.

VIRGINIA DEPARTMENT OF TRANSPORTATION:

1. Plan approval by Roanoke County does not guarantee issuance of any permits by the Virginia Department of Transportation.
2. A permit must be obtained from the Virginia Department of Transportation, Salem Residency Office prior to construction in the highway right-of-way.
3. The preliminary pavement designs should be based on a predicted sub-grade CBR value of 7.0 and with a Resiliency Factor (RF) of 2.0 as shown in the current edition of the Virginia Department of Transportation Pavement Design Guide for Subdivision and Secondary Roads. The sub-grade soil is to be tested by an independent laboratory and the results submitted to the Virginia Department of Transportation prior to base construction. Should the sub-grade CBR value and/or the RF value be less than the predicted values, additional base material will be required in accordance with Departmental specifications. Refer to the same manual as the number and locations of the required soil samples to be tested. All pavement designs shall be submitted to the Department for review and approval. The sub-grade shall be approved by the Virginia Department of Transportation prior to placement of the base. Base shall be approved by the Virginia Department of Transportation for depth, template, and compaction before the surface is applied.
4. Standard guardrail with safety ends and sections may be required on fills or in areas where hazards exist as deemed necessary. After completion of rough grading operations, the County Engineer and Virginia Department of Transportation shall be contacted to schedule a field review. Where guard rail is warranted, the standard shoulder width shall be provided and the guard rail shall be installed in accordance with the current edition of the VDOT Road and Bridge Standards as part of this development.
5. Standard street and traffic control signs shall be erected at each intersection by the developer prior to final street acceptance.
6. All traffic devices shall be in accordance with current edition of the "Manual on Uniform Traffic Control Devices" (MUTCD).
7. All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.

See Sheet N/A for Stormwater Site Statistics Table
See Sheet N/A for New BMP Information Table.

The Project Engineer shall provide electronic copies of the approved plans to the Development Review Coordinator within 5 working days of the pre-construction meeting.

The notes on this sheet shall not be modified.



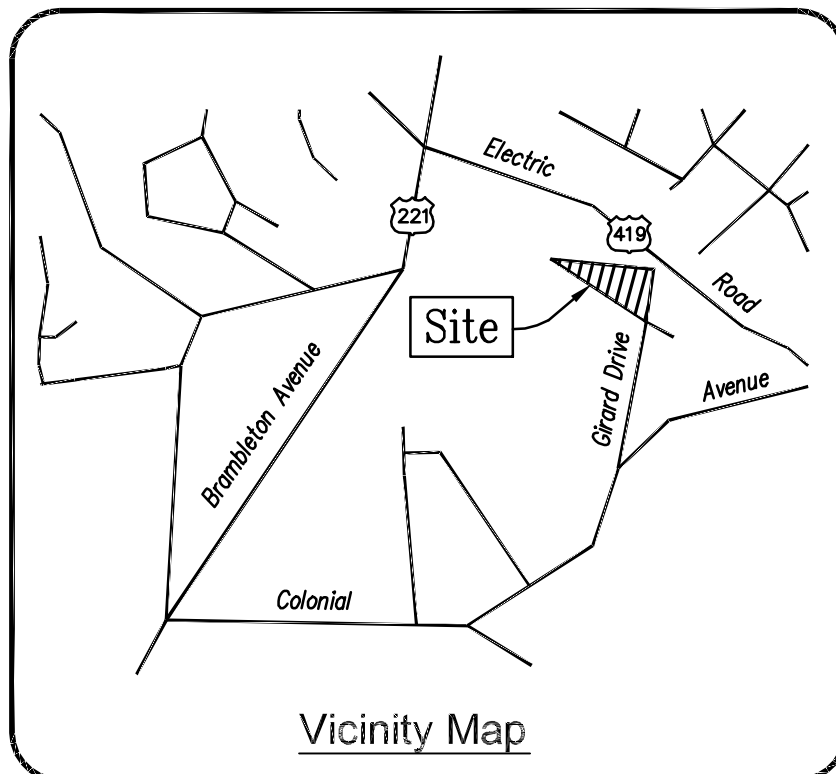
COUNTY OF ROANOKE, VA

NAME OF DEVELOPMENT	DEVELOPMENT PLAN FOR ETON HILL STORM DRAINAGE IMPROVEMENTS		I, _____, OWNER/DEVELOPER, AM AWARE OF THE SITE DESIGN REQUIREMENTS IMPOSED BY THIS SITE DEVELOPMENT PLAN, ALL REVISIONS THEREOF, AND OTHER APPLICABLE ROANOKE COUNTY CODES AND ORDINANCES.
MAGISTERIAL DISTRICT(S)	CAVE SPRING MAGISTERIAL DISTRICT		
OWNER (name, address, telephone)	VARIOUS		I HEREBY CERTIFY THAT I AGREE TO COMPLY WITH THESE REQUIREMENTS SHOWN ON THIS COVER SHEET UNLESS MODIFIED IN ACCORDANCE WITH LOCAL LAW.
DEVELOPER (name, address, telephone)	ROANOKE COUNTY DEVELOPMENT SERVICES		
ENGINEER, ARCHITECT OR SURVEYOR (name, address, telephone)	LUMSDEN ASSOCIATES, P.C. (540) 774-4411		
TAX MAP NO(S)	VARIOUS		

WATER AND SEWER NOTES

1. All construction methods and materials shall conform to the latest edition of the Design and Construction Standards and Specifications of the Western Virginia Water Authority (WVWA) available at www.westernvawater.org or by contacting the authority at 540-853-5700. The project shall also comply with the governing jurisdiction's standards and other agency standards (e.g. VDOT, DEQ, DCR, VDH, etc.) where applicable.
2. A minimum cover of three (3) feet is required on all WVWA water and sewer lines.
3. All existing utilities may not be shown in their exact locations. The contractor shall notify Miss Utility and shall verify location and elevation of all underground utilities in the areas of construction prior to starting work.
4. Please show all WVWA water and sewer utilities on any development plan.
5. The location of existing utilities across or along the line of proposed work are not necessarily shown on the plans and where shown are only approximately correct. The contractor shall on his own initiative and at no extra cost, locate all underground lines and structures and polelines as necessary. The contractor shall be responsible for any damage to underground structures. All damage incurred to existing utilities during construction shall be repaired at the contractor's expense.
6. Plan approval by the WVWA does not remove the contractor's responsibility to remove or relocate any existing conflicts found during construction.
7. The contractor shall maintain a minimum of 18" clearance vertically and two (2) feet minimum horizontally from the outside of pipe to outside of pipe with all other underground utilities. Where this cannot be achieved, additional measures in accordance with the WVWA standards shall be enforced.
8. All utility grade adjustments shall be in accordance with WVWA standards and are the responsibility of the contractor.
9. Field changes shall be submitted by the engineer of record to the locality and approved by the WVWA.

Western Virginia Water Authority
Availability letter number: N/A



LEGEND

Property Line

Right-of-way

Centerline

Minimum Building Line

Existing Storm Sewer

Existing Sanitary Sewer

Existing Water Main

Existing Contour

Proposed Contour

Proposed Drainage Divide

Proposed Limits of Clearing

Proposed Storm Sewer

Proposed Sanitary Sewer

Proposed Water Main

HYDRANT

VALVE

BLOWOFF

24" S.D.

8" M.H.

1045

1045

P

R/W

CL

MBL

MBL

SD

SD

SS

SS

V

V

PRIVATE UTILITIES

Underground utilities installed on private property or in private utility easements and building related storm drains shall be designed and installed per the current edition of the Virginia Uniform Statewide Building Code (including amendments). Design and installation requirements issued by the Western Virginia Water Authority that meet or exceed the USBC requirements are acceptable for private utilities. All private utilities are to be permitted through and inspected by the Roanoke County Inspections Office. Vaults, valves and other devices installed by or under the control of the Western Virginia Water Authority may not substituted for the code required devices.

PR #:	NOTES:
Revision Table	

SHEET No.	DESCRIPTION
1....	ROANOKE COUNTY COVER SHEET
2....	NOTES & DETAILS
3....	STORM DRAINAGE PLAN
4....	EROSION & SEDIMENT CONTROL PLAN
5....	EROSION & SEDIMENT CONTROL NOTES AND DETAILS

Sheet Index

SURVEY INFORMATION

Horizontal and vertical control surveys were performed in year: 2022
by: Lumsden Associates, P.C.

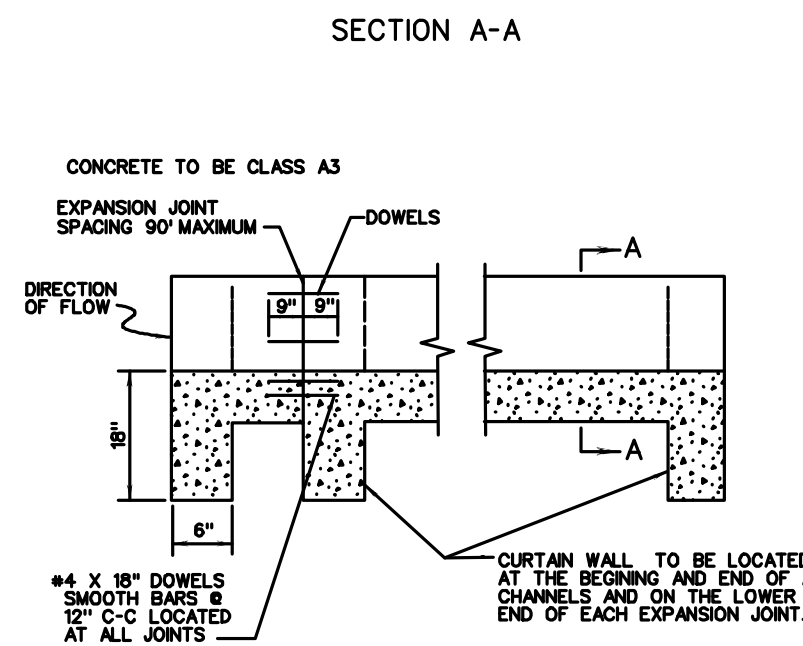
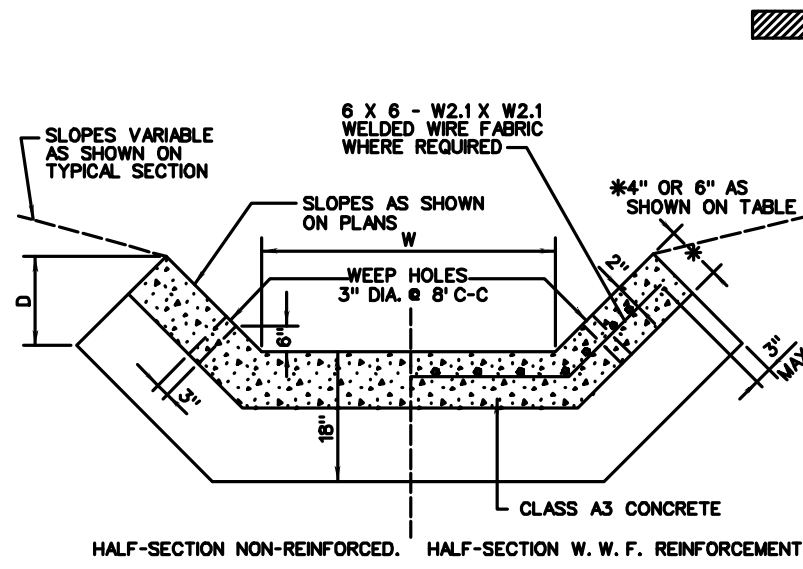
All vertical elevations must be referenced to the National Geodetic Vertical Datum of 1988
Source of topography is from field survey dated: 2022.

See Sheet No. 3 for Benchmark Information

Boundary was performed by: Lumsden Associates, P.C., dated: 2022

The professional seal and signature certifies the boundary survey and topographic mapping to be accurate and correct.

QUANTITY & COST ESTIMATE					
ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
SUBTOTAL					
10% CONTINGENCY					
ESTIMATED TOTAL					
BY SEALING THE PLANS, THE DESIGN PROFESSIONAL HEREBY CERTIFIES THAT THE FOREGOING ESTIMATE REFLECTS THE CURRENT IMPROVEMENT COSTS OF THIS PROJECT.					



INDICATES CHANNEL WHERE WIRE MESH REINFORCEMENT IS NOT REQUIRED.

SQUARE YARDS PER LIN. FT. OF PAVED CHANNEL											
CONC. THICK-NESS	D	W									
		1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
11 SIDE SLOPES											
4"	1'	0.425	0.536	0.648	0.759	0.870	0.981	1.092	1.203	1.314	1.425
	2'	0.740	0.851	0.962	1.073	1.184	1.295	1.406	1.517	1.628	1.740
	3'	1.054	1.165	1.276	1.387	1.498	1.609	1.721	1.832	1.943	2.054
	4'	1.368	1.479	1.590	1.702	1.813	1.924	2.035	2.146	2.257	2.368
	5'	1.682	1.794	1.905	2.016	2.127	2.238	2.349	2.460	2.571	2.682
6"	1'	0.997	1.258	1.519	1.780	2.041	2.302	2.563	2.774	2.986	3.247
	2'	1.697	2.058	2.419	2.780	3.141	3.502	3.863	4.224	4.585	4.946
	3'	2.397	2.858	3.319	3.780	4.241	4.702	5.163	5.624	6.085	6.546
	4'	3.097	3.658	4.219	4.780	5.341	5.902	6.463	7.024	7.585	8.146
	5'	3.797	4.458	5.119	5.780	6.441	7.102	7.763	8.424	9.085	9.746
1:1 SIDE SLOPES											
4"	1'	0.512	0.623	0.734	0.845	0.956	1.067	1.178	1.289	1.401	1.512
	2'	0.852	1.023	1.195	1.367	1.538	1.710	1.881	2.053	2.224	2.395
	3'	1.192	1.424	1.655	1.887	2.118	2.350	2.581	2.812	3.044	3.275
	4'	1.532	1.824	2.115	2.407	2.698	2.989	3.280	3.571	3.862	4.153
	5'	1.872	2.214	2.555	2.896	3.237	3.578	3.919	4.260	4.601	4.942
6"	1'	0.852	1.023	1.195	1.367	1.538	1.710	1.881	2.053	2.224	2.395
	2'	1.452	1.744	2.035	2.326	2.617	2.908	3.199	3.490	3.781	4.072
	3'	2.052	2.444	2.835	3.226	3.617	4.008	4.399	4.790	5.181	5.572
	4'	2.652	3.144	3.635	4.126	4.617	5.108	5.599	6.090	6.581	7.072
	5'	3.252	3.844	4.435	5.026	5.617	6.208	6.799	7.390	7.981	8.572
2:1 SIDE SLOPES											
4"	1'	0.606	0.719	0.830	0.941	1.052	1.164	1.275	1.386	1.497	1.608
	2'	1.006	1.218	1.429	1.640	1.851	2.062	2.273	2.484	2.695	2.906
	3'	1.406	1.718	2.029	2.340	2.651	2.962	3.273	3.584	3.895	4.206
	4'	1.806	2.218	2.629	3.040	3.451	3.862	4.273	4.684	5.095	5.506
	5'	2.206	2.618	3.029	3.440	3.851	4.262	4.673	5.084	5.495	5.906
6"	1'	1.006	1.218	1.429	1.640	1.851	2.062	2.273	2.484	2.695	2.906
	2'	1.606	1.918	2.229	2.540	2.851	3.162	3.473	3.784	4.095	4.406
	3'	2.206	2.618	3.029	3.440	3.851	4.262	4.673	5.084	5.495	5.906
	4'	2.806	3.218	3.629	4.040	4.451	4.862	5.273	5.684	6.095	6.506
	5'	3.406	3.818	4.229	4.640	5.051	5.462	5.873	6.284	6.695	7.106

NOTES:
DEPTH (D) AND WIDTH (W) TO BE AS SHOWN ON PLANS.
WEEP HOLES ARE TO BE PROVIDED ON ALL CHANNELS WHERE W IS EQUAL TO OR GREATER THAN 4' AND D IS EQUAL TO OR GREATER THAN 2'.
WEEP HOLE WITH 12" X 12" PLASTIC HARDWARE CLOTH 1/4" MESH OR GALVANIZED STEEL WIRE MESH 0.03 INCH NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE BOTTOM OF THE CHANNEL.

CONCRETE DITCH DETAIL

NOT TO SCALE

SITE AND ZONING TABULATIONS

TAX MAP ID: 077.17-02-33.00, 077.17-02-34.00, 077.17-02-35.00, 077.17-02-36.00, 077.17-02-37.00, 077.17-02-38.00, 077.17-02-39.00, 077.17-02-40.00, 077.17-02-41.00, 077.17-02-42.00, 077.17-02-43.00, 077.17-02-44.00, 077.17-02-45.00, & 077.17-02-46.00

CURRENT ZONING: R-1 LOW DENSITY RESIDENTIAL

EXISTING USE: SINGLE FAMILY RESIDENTIAL

PROPOSED USE: UNCHANGED

GENERAL NOTES

- OWNER/DEVELOPER: ROANOKE COUNTY DEVELOPMENT SERVICES, BOX 29800 ROANOKE, VA 24018
- THE BOUNDARIES ARE THE DIRECT RESULT OF A FIELD SURVEY BY LUMSDEN ASSOCIATES, P.C.
- TOPOGRAPHY DATA BASED ON A FIELD SURVEY BY LUMSDEN ASSOCIATES, P.C. IN 2022.
- NO CURRENT TITLE REPORT HAS BEEN FURNISHED FOR THE SUBJECT PROPERTIES.
- NO PORTION OF THE SUBJECT PROPERTY IS LOCATED WITHIN THE LIMITS OF FLOOD HAZARD AREA. THIS OPINION IS BASED ON AN INSPECTION OF THE FLOOD INSURANCE RATE MAP #51161C0232G, DATED SEPTEMBER 28, 2007.
- NO CONSTRUCTION/FIELD REVISIONS ARE ALLOWED WITHOUT THE APPROVAL OF THE CONSULTING ENGINEER, ROANOKE COUNTY, AND/OR THE VIRGINIA DEPARTMENT OF TRANSPORTATION.
- ANY NEW ALIGNMENTS, CHANGES IN GRADES, ALTERNATE PIPE SIZES, MANHOLES, OR ESC MEASURES WILL REQUIRE A NEW SET OF PLANS STAMPED BY THE CONSULTING ENGINEER. PLAN SHEETS CAN BE 8.5 x 11 IF THE INFORMATION IS LEGIBLE AND WITHIN THE LIMITS OF THE APPROVED PLANS.
- ANY TOPOGRAPHIC CHANGES FROM THE APPROVED PLANS MAY REQUIRE ADDITIONAL DRAINAGE STRUCTURES AND EASEMENTS AS DEEMED NECESSARY BY ROANOKE COUNTY.

CONSTRUCTION NOTES

- ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT COUNTY OF ROANOKE STANDARDS AND SPECIFICATIONS AND THE CURRENT EDITION OF VDOT'S ROAD AND BRIDGE STANDARDS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER AND THE ENGINEER OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS OBTAINED FROM ANY AUTHORITY ISSUING PERMITS.
- THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY EXISTING CONDITIONS PRIOR TO STARTING CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION.
- SEE VDOT ROAD AND BRIDGE STANDARDS FOR STORM DRAIN DETAILS.
- THE CONTRACTOR AND OR OWNER SHALL PROVIDE A STORAGE CONTAINER FOR TEMPORARY STORAGE AND DISPOSAL OF LAND CLEARANCE DEBRIS AND BUILDING MATERIALS. ON-SITE BURIAL OF MATERIAL SHALL NOT BE PERMITTED.
- CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON THE PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK BY CONTACTING MISS UTILITY. CONTACT SITE ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS. IF THERE APPEARS TO BE A CONFLICT, AND UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THIS PLAN, CALL "MISS UTILITY" OF CENTRAL VIRGINIA AT 1-800-552-7001.
- IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO CLEAN OUT ANY EXISTING STORM SEWER SYSTEM IN THE EVENT THEY BECOME SILTED OR BLOCKED IN ANY WAY DUE TO THE PROPOSED DEVELOPMENT.
- ROANOKE COUNTY DEVELOPMENT SERVICES SHALL COORDINATE REMOVAL AND RELOCATION OF SMALL LANDSCAPING PLANTS CONFLICTING WITH CONSTRUCTION WITH INDIVIDUAL PROPERTY OWNERS.
- ROANOKE COUNTY DEVELOPMENT SERVICES SHALL COORDINATE WITH SURVEYOR TO RESET PROPERTY MONUMENTATION LOST IN THE COURSE OF CONSTRUCTION.

GRADING NOTES

- AREAS TO BE GRADED SHALL BE CLEARED OF ALL VEGETATION, STRUCTURES, AND OTHER PHYSICAL FEATURES IN PREPARATION OF GRADING.
- TOPSOIL SHALL BE REMOVED FROM THE CLEARED AREA AND STOCKPILED FOR FUTURE USE.
- FILL MATERIAL SHALL BE FREE FROM ORGANIC MATTER AND ROCKS LARGER THAN 6 INCHES IN DIAMETER.
- FILL MATERIAL SHALL BE PLACED AND COMPACTED IN EIGHT (8) INCH LOOSE LIFTS AND COMPACTED TO AT LEAST NINETY-FIVE (95) PERCENT OF THE MATERIAL'S MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698, STANDARD PROCTOR. MAINTAIN MOISTURE CONTENT OF FILL MATERIAL WITHIN THREE (3) PERCENT OF OPTIMUM TO ATTAIN REQUIRED COMPACTION DENSITY.
- A QUALIFIED GEOTECHNICAL ENGINEER, LICENSED IN THE STATE OF VIRGINIA, SHOULD BE CONSULTED CONCERNING SOIL STABILITY, SLOPE STABILIZATION, SOIL COMPACTION, TESTING, AND OTHER SOIL CHARACTERISTICS. LUMSDEN ASSOCIATES ASSUMES NO RESPONSIBILITY OR LIABILITY RELATING TO FAILURES RESULTING FROM SAME.

Dig With CARE
Keep Virginia Safe!

Call Miss Utility at before you dig.

Allow the required time for marking.

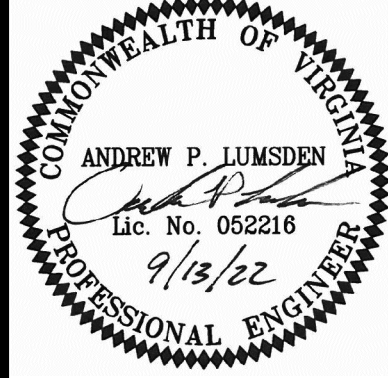
Respect the marks.

Excavate carefully.

Lumsden Associates, P.C.
ENGINEERS | SURVEYORS | PLANNERS

4664 BRAMBLETON AVENUE
P.O. BOX 20669
ROANOKE, VIRGINIA 24018

PHONE: (540) 774-4411
FAX: (540) 772-9445
WWW.LUMSDENPC.COM



ETON HILL STORM DRAINAGE IMPROVEMENTS

PREPARED FOR
ROANOKE COUNTY DEVELOPMENT SERVICES

CAVE SPRING MAGISTERIAL DISTRICT
ROANOKE COUNTY, VIRGINIA

REVISIONS		DESCRIPTION	DATE	NO.
				1
				2
				3
				4
				5

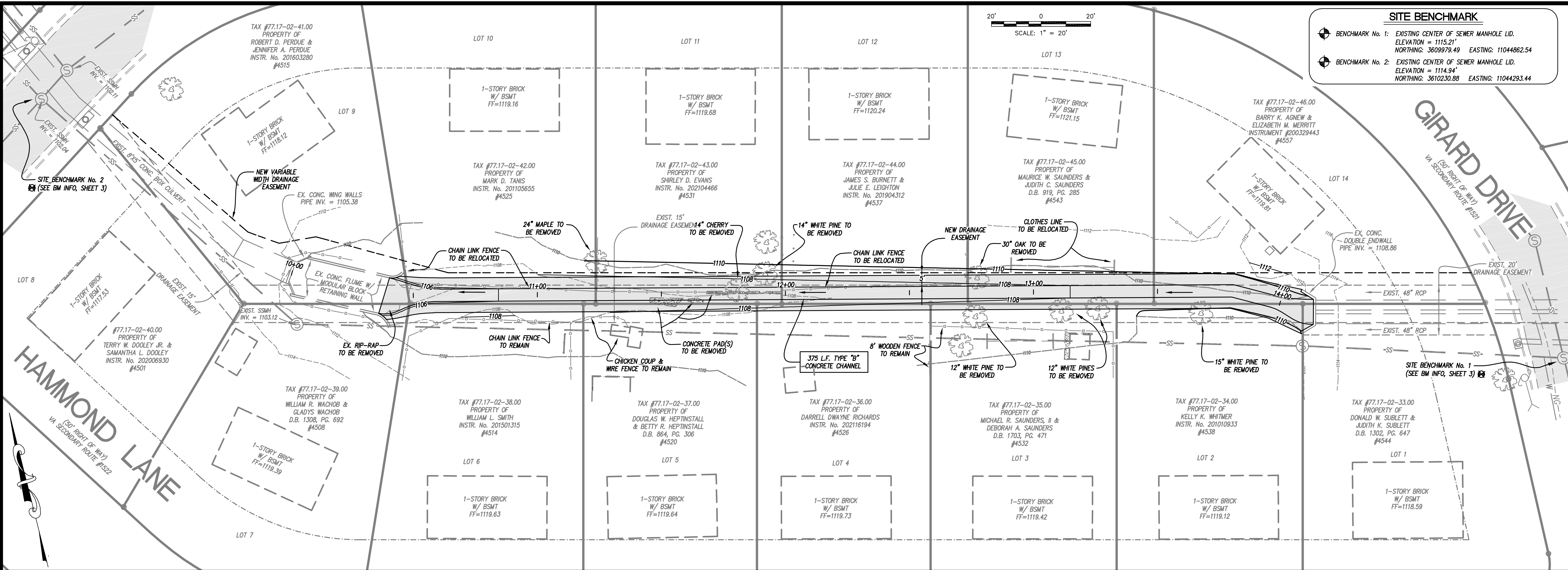
DATE: September 13, 2022

SCALE: AS SHOWN

COMMISSION NO: 22-106 & 05-088

SHEET 2 OF 5

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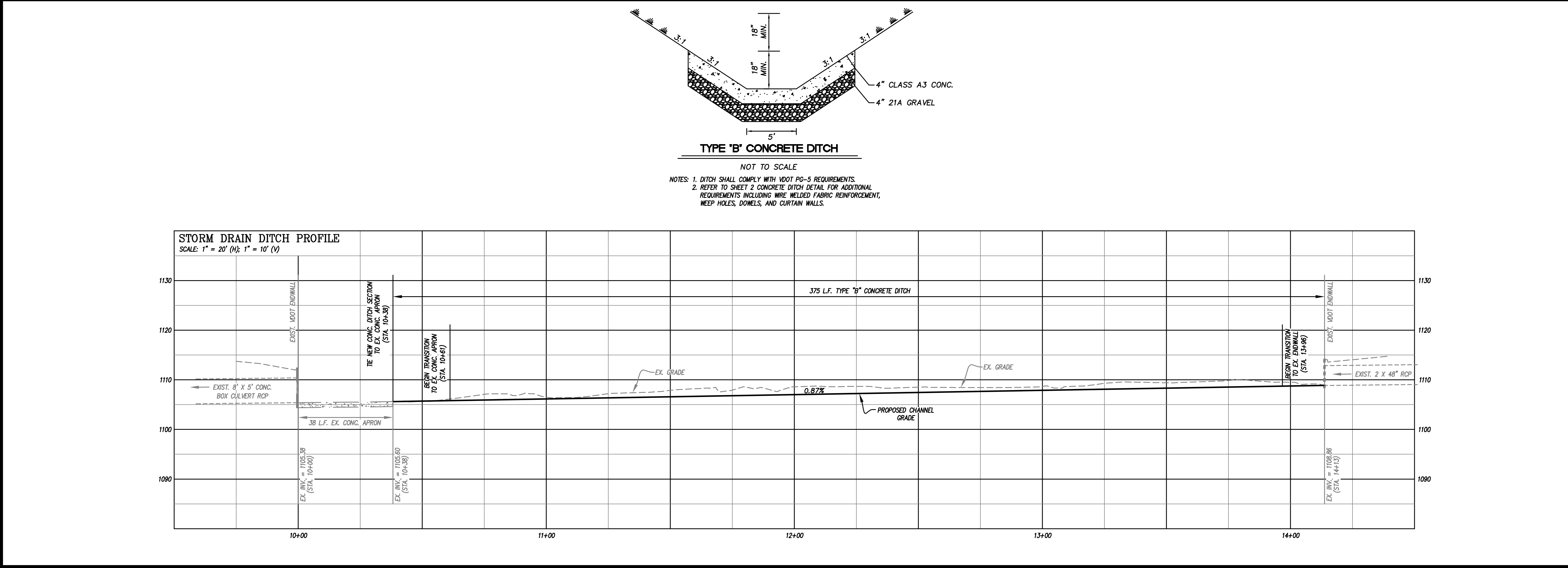
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COMMONWEALTH OF VIRGINIA
ANDREW P. LUMSDEN
Lic. No. 052216
9/13/22
PROFESSIONAL ENGINEER

ETON HILL STORM DRAINAGE IMPROVEMENTS
PREPARED FOR
ROANOKE COUNTY
DEVELOPMENT SERVICES
GAVE SPRING MAGISTERIAL DISTRICT
ROANOKE COUNTY, VIRGINIA



MINIMUM STANDARDS CONTINUED:

- a. 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:
 - a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or constructed receiving channel, pipe or storm sewer system. For these 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; and
 - (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 channel to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel bed or banks; or
 - (2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances; or
 - (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 flow rate from a ten-year storm to increase when runoff outfalls into a man-made channel; or
 - (4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.
- d. The applicant shall provide evidence of permission to make the improvements.
- e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development of the subject project.
- f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP for the 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 dissipater 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 runoff 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 and man-made channels if the practices are designed to:
 - (i) detain the water quality volumes and release it over 48 hours;
 - (ii) detain and release over 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 no less than or equal to the peak flow rate from the site used when it was in 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 10.1-562 or 10.1-570 of the Act.
- m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of 10.1-561 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (10.1-60.3.2 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 4VAC50-60-48 of the Virginia Stormwater Management Program (VSWMP) Permit Regulations.
- n. Compliance with the water quantity minimum standards set out in 4VAC50-60-66 of the Virginia Stormwater Management Program (VSWMP) Permit Regulations shall be deemed to satisfy the requirements of Minimum Standard 19.

EROSION CONTROL NARRATIVE

STORMWATER MANAGEMENT CONSIDERATION:
THIS MAINTENANCE PROJECT IS NOT SUBJECT TO STORMWATER MANAGEMENT REQUIREMENTS IN ACCORDANCE WITH SEC. 23-1.3(c)(4) OF THE ROANOKE COUNTY CODE OF ORDINANCES AS THE TOTAL PROPOSED LAND DISTURBANCE IS LESS THAN 1-ACRE.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

- TOTAL DISTURBED AREA = 0.35 AC. = 15,200 SQ. FT.