

Lubber Run Storm Water Group and Civic Associations

January 13, 2022



Speakers

Aileen Winquist

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Labber Run Storm Water Group 10-year Capital Improvement Plan Recommendations												
Flooding caused by Virginia Bospital construction	Contraction cauting more runoff, flooding nearby homes	Construction causing flooding	David Existing in .ppt	Develop comprehensive water detention, overland relief plan for Lubber Run watershed, focused initially on areas affected by Virginia Hospital	overland relief							
			Jim O'Shra/JMLCA	nunoff Request VHC Skanska / Arlington County to deliver SWIFF approved engineering plans E&S drawings and any updates with focus on the impact on Lubber Ran watershed.	site planning							
Flooding from undercapacity storm sever	Storm wever is undercapacity and	Storm newer / culvert	Michael	DES staff proposed a possible simple remedy to								
which that undergrounds Lubber Run	cannot hold street run off during storms.	under capacity	Bruce/WWCA	Blackman 28 flooding - adding a relief pine between under capacity 15th 3c catch basin and main N Blackman 3c Labels Flux storm pipe. Initiate Site Sarvey, Site Plan and Site Design to identify cost. Secure funding and contract for this design-build project.	pipes							
Site Plans not adding sufficient	Lubber Run study published 2013	Storm sever / culvert	Michael	Complete a new storm sever capacity analysis for								
infratructure investment	identified undercapacity issue. Commercial development plans have not abated this situation, but have added volume to the system.	under capacity	Michael Bruce/WWCA	the area to include the impact of the new Bospital addition to the community Reach out to residents regarding easement paps to	analysis/study							
			Rauhala/WWCA	steach out to residents reparting easement pape to allow the opportunity to identify distributed detention options and complete stormwater infrastructure apprades. Repair failing stormwater outfalls to ensure system.	easements'responsibility							
			Rauhala/WWCA	nepair tailing normonater outsins to ensure system integrity and minimize adverse impacts on downstream properties and streams	overland relief							
FEMA updates to 100-year flood zone for many residents	FEMA trying to push many homes along Lubber Run into a 100-year flood zone, recent County elevation study supported	Increased flood zoning	David/Existing in .ppt	Provide farther support to homeowners near Lubber Rus, submit revised Letter of Map Revision (LOMR) with Arlington analysis results.	update LOMR							
Severe erosion along Lubber Run	County is not maintaining it's stormwater channels, causing severe erosion and tree loss to	Stormwater causing erosion	David/Existing in .ppt David/Existing in	Develop a prioritized list of required maintenance Get public easements clarified	maintenance easements/responsibility							
Flooding triggered by SFR Construction	New large homes are changing the flow of groundwater, causing coetly downtream water issues for neighbors. New homes with larger lot coverage sump pump and	Construction causing flooding	David Existing in .ppt	Provide funding support to affected legacy homeowners (homes constructed under legacy Zoning rules)	direct homeowner funding							
	patter flows to stormwater system.		David Existing in .ppt	Add stronger controls and enforcement of stormwater mitigation for new construction Lack of clear stormwater drain plan or clarity on	regulation enforcement							
			.ppt	responsibility causing water backups	easements'responsibility							
			David Existing in .ppt	Site plans for commercial building should add requirement to fund retention facilities on site	ete planning							
Maintenance of stormwater drains	Lack of clear stormwater drain plan or clarity on responsibility causing water backups	Iradequate stormwater easements and maintenance	David Existing in .ppt	Develop prioritized list of required maintenance and clarify easement/responsibility	maintenance							
Ballston Beaver Pond - lack of	Current project does not add	Lack of stormwater	David Existing in	Perform new elevation, topo, hydro studies of area								
improvements to stormwater detention	additional water detention	detention	.ppt	surrounding Balliton Beaver Fond to determine possibility of adding additional water determine	analysis/study							
Potential stormwater impacts caused by	Increases to impervious soil will	Construction causing	David Existing in	Ensure stormwater mitigation measures are	site planning							
future Langeton Boulevard redevelopment	cause more downstream flooding	flooding	.ppt	required for new development and enforce those	ete paneng							
Understeed culvert at Lubber Run Park & Arlington Boulevard	Understand culvert causes increased flooding of Lubber Run Park during heavy storms	Storm sever / culvert under capacity	David/Existing in .ppt	Work with Virginia to develop a plan to add additional drainage under Arlington Boulevard Recommend that Arlington County engage or	pipes							
			Forest	facilitate a professional hydrology and engineering study to determine appropriate culvert sizes for all of Lubber Run to confirm inadequate sizing of culvert, particularly at Arlington Blvd. This would provide them the necessary data to work with	analysisistudy							
			Liss/ Arlington Forest	Recommend that Arlington County Parks remove downed trees from Lubber Run Park that have the potential to float down stream during flooding, fiather restricting water flow through the culvert under Arlington Blvd.	maintenance							
New construction/tree removal causes	More rainfall (climate chance)	Construction causing	Kate/BCA	Arrual public assessment of water table levels;								
changes in underground water pathways affecting downhill neighbors	raises water table; construction of larger homes pushes underground water away and on to downhill properties; water comes through	flooding	and the same of th	nestrictions of basement store, requirement that new construction direct water away from adjacent/downhill properties.	new regulations							
Over population of deer in Lubber Run Park	Over population of deer depleats the understory of Lubber Run	Deer overpopulation exacerbating runoff	Liss/Arlington Forest	The county has recently completed a drone study regarding deer population. Encourage the County								
	Park, increasing run off and erotion.			to take immediate and appropriate action, including culling deer if warranted.	wildlife							
Lack of funding to commit to Storm Water Management in Arlington	Arlington County appears to lack the resources to adequately address increasing challenges of storm water management. Further, residents and businesses have no incentive to improve	Lack of county resources to work issues.	Liss/Arlington Forest	Recommend that Arlington County consider establishing a stormwater service file based on imperious surfaces on each property. —This would require substantial effort on the part of the county, and may be difficult to implement.								
	storm water management				dominater service fee/utilit							

Agenda – Based on Spreadsheet provided by the Group

Agenda – information requested

VA Hospital

N Buchanan St Flooding

Status of FEMA appeal (for Abingdon Rd. Area)

Erosion in Lubber Run channel and easement clarification

Flooding and Single Family Home Construction

Maintenance of Storm Drainage System

- Easements
- Ballston Pond additional detention feasibility

Langston Blvd. Planning considerations

Culvert at Lubber Run Park and Rt. 50

Ground water levels and flooding basements

Deer Population in Lubber Run Park

Feasibility of Utility billing based on impervious area

VA Hospital

Hospital is a vital community asset

Hospital installed on site detention (much of site was already impervious – hence they improved the situation)

Hospital agreed to install overland relief channel

Construction issues are being handled by site inspectors

Flooding in watershed appears to be related to system limitations not hospital specifically

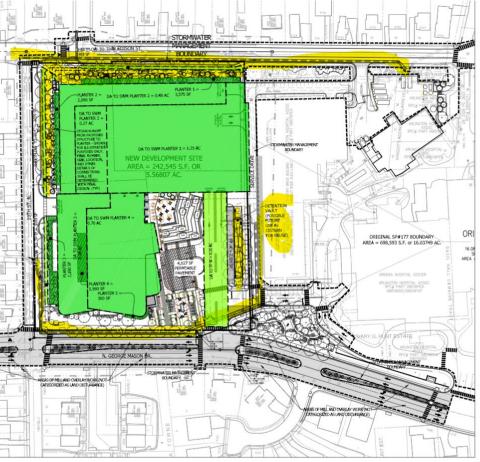
Currently working on analysis of <u>entire watershed</u> to determine solutions to flooding (see upcoming slide)

- Detention sites evaluated
- Pipe upgrades evaluated
- Will address updated Capacity Study Also RAMP
- 10-year design storm for piped system/100-year overland relief path being evaluated

VA Hospital – a few details



Site was already mostly impervious – see air photo



Note Detention, Pipe Upgrades, Overland Flow path



AREA OF MILL AND OVERLAY (NO LAND DISTURBANCE)

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WATER QUALITY NARRATIVE.

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THE FINAL SIZES AND LOCATIONS OF THE PROPOSED SWM/BMP FACILITIES MAY BE ADJUSTED WITH THE CIMIL ENGINEERED PLAN. ADDITIONAL SWM/ BMP FACILITIES MAYBE PROMDED AT THE FINAL CIVIL ENGINEERED PLAN AS NECESSARY TO COMPLY WITH THE 2014 SWM REGULATIONS.

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OVERLAND RELIEF NARRATIVE

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Inundation Zones - RAMP

Note: multiple analyses indicate similar inundation zones and flooding areas – FEMA, Floodfactor.com, RAMP and Stormwater Capacity Study

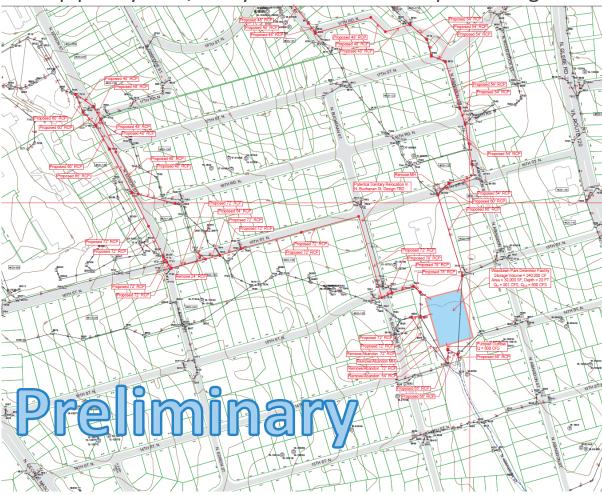
N. Buchanan St. Flooding Solutions

Currently working on analysis of entire watershed to determine solutions to flooding

- Detention sites evaluated
- Pipe upgrades evaluated
- Will address updated Capacity Study Also RAMP

10-year design storm for piped system/100-year overland relief path being

evaluated



Status of FEMA Appeals



DEPARTMENT OF ENVIRONMENTAL SERVICES

Office of Sustainability and Environmental Management

Office of Sustainability and Environmental Management

2100 Clarendon Boulevard, Suite 705, Arlington, VA 22201

October 18, 2021

Lee Brancheau FEMA Region III Office 615 Chestnut St. One Independence Mall 6th Floor Philadelphia. PA 19106-4404

VIA EMAIL: legrande.brancheau@fema.dhs.gov

RE: Appeal of Preliminary FIRM 51013C0038D for Lubber Run between Wilson Blvd. and N Carlin Springs Rd. in Arlington County, Virginia

Dear Mr. Brancheau,

I am writing to appeal the preliminary floodplain mapping of the reach of Lubber Run located between Wilson Blvd. and N. Carlin Springs Road depicted on Preliminary FIRM 51013C0038D. The location is circled in red on the reduced size Preliminary FIRM panel shown below.

The basis for this appeal is the use of new field run topographic survey data, photographic data, the incorporation of this data in the digital terrain model, and an analysis that counters new water surface elevations and Special Flood Hazard Area (SFHA) boundaries based on the new, more accurate data. A map showing our proposed revised mapping of the floodplain for the referenced reach of Lubber Run is attached. Other supporting maps and a summary of the analysis is attached along with. Shapefiles and analysis files in a zip file.

Please let us know if you have any questions or concerns or require additional information. Thank you for your consideration of this Appeal.

Sincerely

Elizaboth I. Thurbor D.E.

Department of Environmental Services

Office of Sustainability and Environmental Management Stormwater Infrastructure

Arlington County
2100 Clarendon Boulevard, Suite 705
Arlington, Virginia 22201
703-228-3363 Ethurber@arlingtonva.us

Appeal submitted on Oct. 18

Updated community Sept. 13, 2021

Receipt of models and other materials acknowledged by FEMA on Nov. 24, 2021

No additional update from FEMA (except rejection of one resident appeal, dated Dec. 28, which came Jan. 12, 2022)

- No information on their mapping update platform
- Latest communication from FEMA on Jan. 5,
 2022 stated that they are working on the review of the appeal and will be communicating 'soon'

Communication expected within 2 weeks) for the schedule for Preliminary Maps is to hold — Preliminary becoming final (FEMA would issue Letter of Final Determination) In Fall 2022

Currently working on Updating the County Floodplain Ordinance

Update of County Floodplain Ordinance

Required within 6 months of Letter of Final Determination

New Ordinance must conform to the minimum standards of the NFIP (National Flood Insurance Program)

State of Virginia has developed a model ordinance which meets NFIP minimum requirements, so must conform with that.

Proposed Ordinance must be reviewed and approved by VA DCR and FEMA

Proposed Ordinance must be adopted by County Board

Currently targeting June 2022 for advertising of Ordinance, adoption by Board in July 2022

More information will be forthcoming as we hear from FEMA this month (or not)

If we do not hear from FEMA this month, the schedule may be delayed

Note that it may be easier for FEMA to reject Appeals and issue Letter of Final Determination and hold the existing schedule.

Potential Changes to County Floodplain Ordinance

(per model ordinance)

Note: All items listed are only draft and not final

Regulation of uses within the 0.2% annual probability flood zone (500 year) – restriction on locating specific types of facilities in this flood zone – such restrictions are new to Arlington County

- Restricted uses are emergency services, medical services, government records storage facilities.
- Would require a special exception

Increase residential freeboard from 12 inches to 18 inches for construction of lowest floor elevation (includes basement) above BFE

Increase non-residential freeboard from 12 inches to 18 inches for lowest floor elevation (includes basement) above BFE

Can floodproof to two feet instead of one foot

Accessory Structures more strictly regulated

Accessory Dwelling units more strictly regulated

Broaden and increase the authority of the Floodplain Administrator

Appurtenant or 'Accessory Structure'

- **Structure Size** the footprint of the structure can be no greater than 600 square feet in area
- Characteristics
 - Not be used for human habitation
 - Be useable only for parking of vehicles or limited storage
 - Be constructed with flood damage-resistant materials below the base flood elevation
 - Be constructed and placed to offer the minimum resistance to the flow of floodwaters
 - Be anchored to prevent flotation
- Have electrical service and mechanical equipment elevated to or above the base flood elevation



Accessory Dwelling Unit - 750 sq. ft. or less

- Structure size the footprint can be no bigger than 750 square feet in area.
- Occupancy it can house no more than three people.
- Characteristics include a separate entrance, its own kitchen and bathroom, and must pass a fire-safety regulation inspection.



Flood Insurance Rate Map Update Schedule Reminder

9/18/20: Preliminary maps released

October 2020: County notify property owners

11/18/20: Public meeting

11/19 -12/19/20: 30 day general comment period begins after public meeting – the County submitted comments on several areas, including Abingdon St.

July 2021: 90 day technical appeal period will begin approximately in July 2021. Property owner can submit data to appeal or revise floodplain designation.

Spring 2022 (approx.): FEMA will issue letter of final determination. County will need to update ordinance.

Fall, 2022 (approx.): New FIRMS will be effective

Erosion in Lubber Run Channel



Acknowledgment that erosion is occurring

Current Budget has no funding for any significant channel Maintenance

There are multiple other channels that also need Maintenance. To-date, no prioritization analysis has been completed.

Consideration for new funding will be part of upcoming budget processes (starting Fall 2021)

- Cannot go into details so early in the process
- No decisions on any aspects of CIP have been made yet

EASEMENTS

Still problematic in some locations
No good access to channel
Insufficient width

Flooding Concerns Related to Single Family Home Construction

Help for landowners – currently no program in place

Improve Regulations

- LDA 2.0
- Update IDF curves per RAMP recommendations
- Flood Resilient Design Guidelines Manual currently under development
- Drainage Maintenance plans and responsibility
 - Clarify responsibility
 - Currently County can only maintain if in public right of way or if in recorded easements
 - County attempts to obtain easements
 - Issues with width required for easements
 - Voluntary acquisition at this time
 - Inlets on private property (even if in public easement) should be kept free and clear of debris by landowners

EASEMENTS

Still problematic in some locations

No good access to channel

Insufficient width

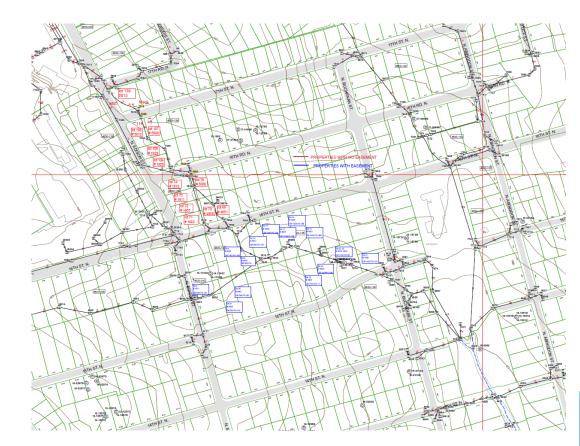
Site Plans for Commercial Properties



Maintenance – current funding is not adequate

EASEMENTS – see previous slide
Still problematic in some locations
No good access to channel
Insufficient width

Easements





298

NORTH

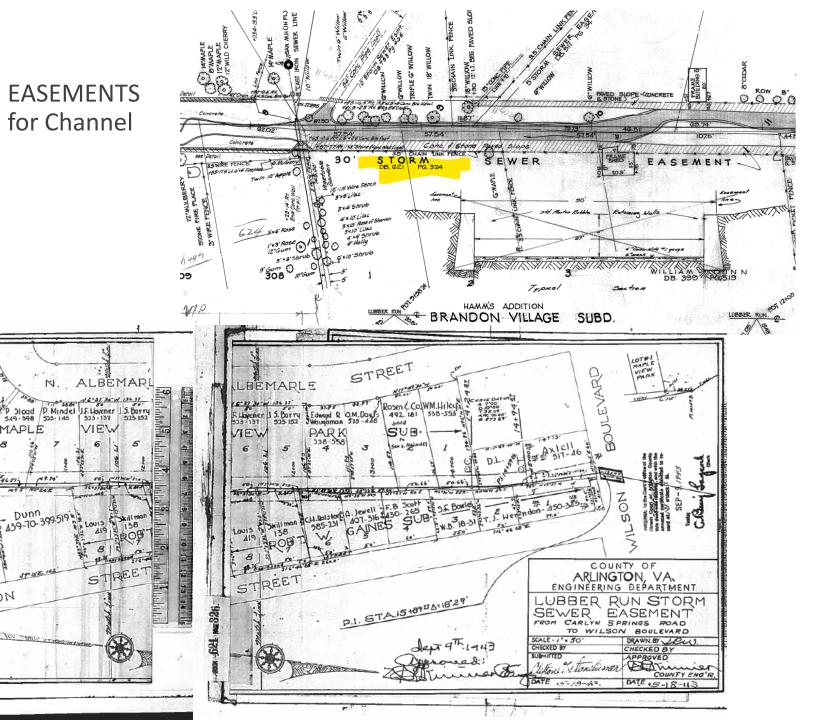
Fokin Pr. 7 T.J. Broyhill

STREET

EASEMENTS for Channel

L.L. Buntyn

ABINGDON



Maintenance of Storm Drainage System Ballston Pond and Additional Detention

Maintenance – current funding is not adequate

Ballston Pond – Feasibility of Adding Detention

- Currently does not seem feasible due to constraints with I-66 elevations and need for freeboard
- Potentially could submit LOMR to adjust flows from pond and possibly lower BFE downstream

EASEMENTS – see previous slide

Still problematic in some locations

No good access to channel

Insufficient width

Ballston Pond Project

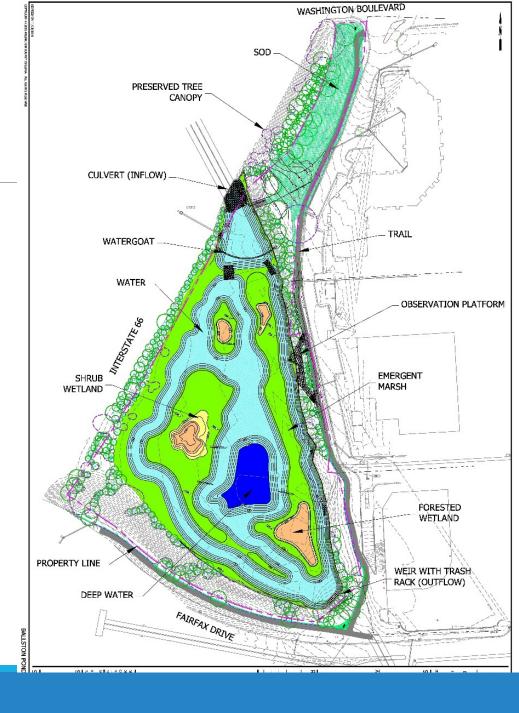
Construction start – December 2021

Construction length- 12- 18 months

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	Flow Area	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)
Lubber	2291	1%	1676	236	244.56	241.93	7.14	270.37	150.72

Ballston Pond Design:

- 1. Improve ecological function
- 2. Improve water quality function
- 3. Improve interpretive function
- 4. Maintains flood attenuation function (actually increases it slightly by approximately 30%)
- 5. Does not increase base flood elevation
- 6. Maintains freeboard for I-66



Ballston Pond Design

The original pond was designed to reduce peak flows by 30%, and the new design will maintain that flood mitigation.

The project will remove accumulated sediment from the pond and route water all throughout the pond area in new flow channels, as opposed to flowing directly along one side of the pond as it does now.

There will be regular maintenance after the project is done.

The County has pollution reduction regulations in addition to flood mitigation. This project was designed to maintain the flood mitigation of the pond, and also to add water quality treatment.

Langston Boulevard Planning District

Stormwater modelling was completed to assist this effort

Currently working with the planning team to identify opportunities and areas of need

Some detention opportunities have been identified

Link to the planning effort documents and contacts to planners:

<u>Plan Langston Boulevard – Official Website of Arlington County Virginia Government</u> (arlingtonva.us)

CONTACT US

planlangstonblvd@arlingtonva.us

Coordinator

Natasha Alfonso-Ahmed 703-228-3691

Communications & Engagement

Rachel LaPiana 703-228-0059





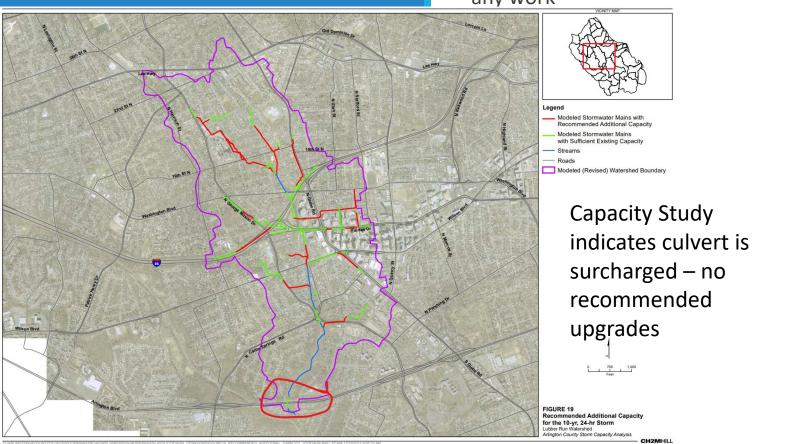
Culvert at Lubber Run Park and Rt. 50

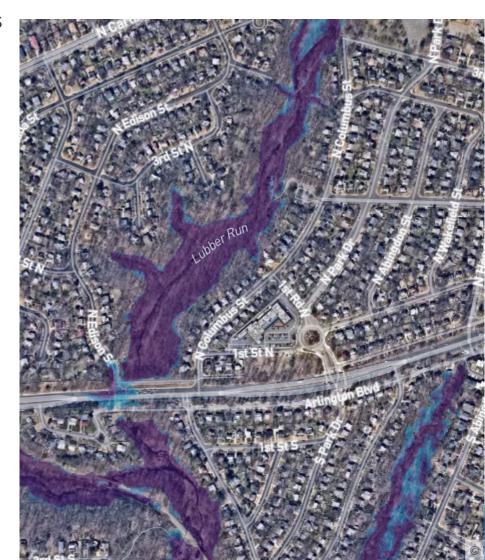
Coordinate with VDOT

Study to determine Size – Capacity Study did not identify any recommended upgrades

Parks to remove debris and downed trees

- Currently Parks does remove debris
- Sometimes our WSS Bureau removes the debris
- Must have public easements to do any work

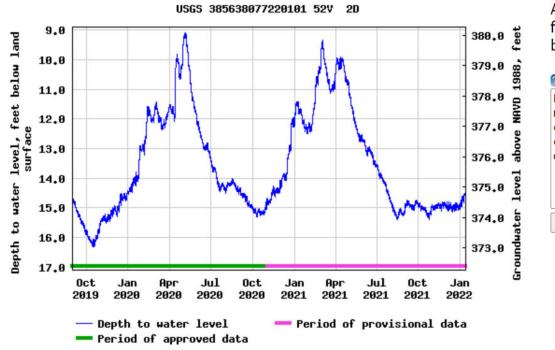




Instantaneous-data availability statement

Depth to water level, feet below land surface

Most recent instantaneous value: 14.38 01-12-2022 12:15 EST



Add up to 2 mo for "Depth to we below land surfa

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Enter up to 2 sit
numbers separatec
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consists of 8 to
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Create <u>presentation-quality</u> / <u>stand-alone</u> graph. Subscribe to <u>@ WaterAlert</u>

Field Visit data is no longer available on this page, please go to the new Monitoring Location pages to see th

Ground water and Basement Flooding

Arlington does not operate any groundwater monitoring wells.

USGS does have groundwater monitoring wells – we sometimes refer to nearby wells for groundwater condition information.

Groundwater levels are typically higher in the winter/spring when plants are dormant, and then go down in late spring/summer as plants are growing/taking up water.

Rainfall amounts can affect groundwater levels.

https://waterdata.usgs.gov/va/nwis/uv/?site_no=3 85638077220101&PARAmeter_cd=72019,72020

Deer Population in Lubber Run Park

County recently did deer population survey using drones

Arlington has 290 deer at a minimum as surveyed on non-Federal properties.

Four areas of the County showed in excess of 20 animals per square mile, higher than most experts agree is healthy for regeneration of native plants.

Next step is assessment possible management strategies.

DPR is lead agency on this effort.

https://www.arlingtonva.us/files/sharedassets/public/parks-amp-recreation/documents/arlington-county-deer-survey-and-next-steps.pdf



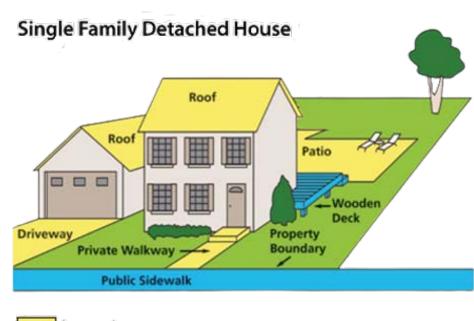
Storm Water Utility – billing based on Impervious Area

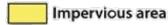
The County undertook a feasibility study in 2020-2021 to examine the possibility of converting current stormwater fee (based on real estate assessment) to a utility fee (based on impervious cover).

The effort is moving forward with an engagement phase in 2022. An advisory group will be created to provide input and public meetings will be held (likely in summer timeframe).

If approved, the utility would go into effect in FY24.

https://www.arlingtonva.us/Government/Programs/Sustaina bility-and-Environment/Stormwater/Stormwater-Utility-Feasibility-Study





Questions?