Virginia Department of Health
Sewage Handling and Disposal Advisory Committee (SHADAC) Meeting
Draft Meeting Summary

Date: October 14, 2021
Time: 10 am to 2 pm
Location: 109 Governor Street
5th Floor Large Conference Room
Richmond, VA 23219

Remote Location: Webinar using Webex

SHADAC Members

Lance Gregory – Virginia Department of Health (VDH)
Curtis Moore – Virginia Onsite Wastewater Recycling Association
Alan Brewer – Virginia Association of Counties
Colin Bishop – Manufacturer
John Schofield – Virginia Water Well Association
Laura Farley – Virginia Realtors
Valerie Rourke – Virginia Department of Environmental Quality

VDH Staff and Members of the Public

Anna Killius	Anthony Creech	Brent Hunsinger
Dave Tiller	Joshua Anderson	Marcia Degen
Skip Styles	Tanya Pettus	Zach Hirsch
Danna Revis	Adrian Joye	Tom Ashton
Trisha Lindsey		

Section 12VAC5-610-50 of the Sewage Handling and Disposal Regulations states that the SHADAC shall establish rules of order. On November 7, 2008, the SHADAC adopted rules which require at least eight voting members of the committee to be present for a quorum. Less than eight voting members of the SHADAC were present. Therefore, the meeting could not officially be called to order to conduct the business of the SHADAC. The group assembled elected to hear information from VDH and provide feedback.

1. Proposed Fast-track Amendments to the Sewage Handling and Disposal Regulations

Dr. Degen walked through the attached presentation regarding the changes made to the proposed fast track from the last version shared with the SHDAC. She noted there were very few changes. Changes that Dr. Degen noted were:

- Minor changed to #4 "All pumps utilized shall".
- Section 950 – minor edits, added Table 5.5 loading rates for TL-2 and TL-3.
- Created new section K to incorporate standards for trenches receiving treated effluent.

- Clarified 10 feet on both sides of a drainfield for an LGMI.
- New section 950K.3 added "after settling".
- Added a statement to clarify the elevated sand mounds are different than pads. Always require pressure distribution.

Feedback from participants on the proposed fast track, included:

- Six inches of cover after settling is the right concept, but how you enforce it is the issue. For mounds is 4:1 typical in Virginia. A lot of other states are 3:1.
- The term "shall" and "must" are used throughout; RIS requires "shall".
- If you had a property line with a pad on each side of it, would the proposed separations only apply to pads on the same lot.

Dr. Degen noted the separation would be within the design, not from pads on neighboring lots.

2. Overall Revisions to the Sewage Handling and Disposal Regulations
   - Subgroup sign ups.
   - Subgroup expectations.
   - Draft schedule for subgroups.

Mr. Gregory shared the list of participants that had signed up to join on or more of the subgroups for revising the regulations. Mr. Gregory noted that VDH expected the groups to meet 3 to 4 times prior to VDH developing a Notice of Intended Regulatory Action. He asked for feedback on development of a schedule for the subgroups.

Attendees suggested avoiding Friday's and avoiding overlapping meetings in case people want to participate in multiple subgroups. They also asked whether VDH would offer guidance on inclusion of environmental justice in the regulatory process.

3. Fee Regulations and Policy Revisions

Mr. Gregory noted that VDH would be working on a revision to the Fee Regulations to incorporated changes in the state budget language for repair, voluntary upgrade, and safe, adequate and proper fees.

4. 2022-2023 Chesapeake Bay Watershed Implementation Plan Milestones

Mr. Gregory shared with the workgroup that VDH and other state agencies were developing 2022-2023 milestones for the Chesapeake Bay Watershed Implementation Plan. He shared information on an upcoming meeting at DEQ to solicit feedback from stakeholders on suggested milestones.

5. American Rescue Plan Act – Septic and Well Funding Opportunities
   - Draft Plan.
   - Potential local partners – request for proposal.

- Community outreach.

To close out the meeting Mr. Gregory shared the attached presentation on VDH's plan to administer the $11.5 million in American Rescue Plan Act funds received for septic and well repairs. Mr. Gregory commented that VDH planned to provide 50% of the funds to local partners, such as planning district commissions. In areas where local partners are not available, VDH will administer the funds directly to homeowners. In order to qualify, homeowners would need to be at or below 200% of the federal poverty guidelines.

Adjourn

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Agenda

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Remote Location: Webinar using Webex (use instructions below to join)

Join from the meeting link:
https://vdhoep.webex.com/vdhoep/j.php?MTID=m0328f01fe8c768d571967fe2e734c535

Join by meeting number:
Meeting number (access code): 132 713 1921
Meeting password: JDgM6AUHS22

Tap to join form a mobile device (attendees only):
1-844-992-4726,,1327131921##United States Toll Free
+1-408-418-9388,,1327131921## United States Toll

Join by phone:
1-844-992-4726 United States Toll Free
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Agenda

Administrative (25 minutes)
1. Welcome and instruction on using Webex system. (5 minutes)
2. Approve agenda. (5 minutes)
3. Review summary from June 17, 2021 meeting. (5 minutes)
4. Review summary from August 18, 2021 meeting. (5 minutes)
5. Chairperson nominations. (5 minutes)

Public Comment Period (10 minutes)

Standing Agenda Items (5 minutes)
1. Issues related to internal VDH policies and processes. (5 minutes)
   - Open discussion (5 minutes)

Break (5 minutes)

Old Business (45 minutes)

1. Proposed Fast-track Amendments to the Sewage Handling and Disposal Regulations (45 minutes)

Break (5 minutes)

Old Business Continued (70 minutes)

2. Overall Revisions to the Sewage Handling and Disposal Regulations (30 minutes)
    - Subgroup sign ups.
    - Subgroup expectations.
    - Draft schedule for subgroups.
    -
3. Fee Regulations and Policy Revisions (10 minutes)
4. 2022-2023 Chesapeake Bay Watershed Implementation Plan Milestones (30 minutes)

Break (5 minutes)

Old Business Continued (60 minutes)

5. American Rescue Plan Act – Septic and Well Funding Opportunities (60 minutes)
    - Draft Plan.
    - Potential local partners – request for proposal.
    - Community outreach.

Adjourn

12VAC5-610 New Definitions Proposed:

“Infiltrative surface” means the designated interface where effluent moves from distribution piping, media, and fill to natural soil.

"Treatment level 2 effluent" or "TL-2 effluent" means secondary effluent as defined in 12VAC5-610-120 that has been treated to produce BOD_5 and TSS concentrations equal to or less than 30 mg/l each.

"Treatment level 3 effluent" or "TL-3 effluent" means effluent that has been treated to produce BOD_5 and TSS concentrations equal to or less than 10 mg/l each.

"Treatment unit" or "treatment system" means a method, technique, equipment, or process other than a septic tank or septic tanks used to treat sewage to produce effluent of a specified quality before the effluent is dispersed to a soil treatment area.

“Working volume” means the volume in a pump tank between the pump off level and the high water alarm level.

[No changes from 03 2021 version]

12VAC5-610-250. Procedures for Obtaining a Construction Permit for a Sewage Disposal System.

1. Construction permits are issued by the commissioner but all requests for a sewage disposal construction permit shall be directed initially to the district or local health department. . Formal plans and specifications are waived for designs with design flows less than or equal to 1000 gallons per day that are exempt from the license requirements for professional engineers under §§ 54.1-402A.11.

A. Type I. A Type I sewage disposal system is an individual sewage disposal system incorporating a septic tank and subsurface soil absorption (septic tank-subsurface drainfield) serving a single residence. The submission of an application is all that is normally necessary to initiate procedure for obtaining a permit under this subsection. If after a site investigation, it is determined that pumping, enhanced flow distribution (see 12VAC5-610-930 A) or low pressure distribution (see 12VAC5-610-940) is necessary, the system shall be considered a Type II system.

B. Type II. A Type II sewage disposal system is a sewage disposal system incorporating a septic tank and subsurface soil absorption system which serves a commercial or other establishment, more than a single family dwelling unit, or where pumping, enhanced flow distribution (see 12VAC5-610-930 A) or low pressure distribution (see 12VAC5-610-940) is necessary. The procedure for obtaining a permit includes the following steps:

1. The submission of an application;

2. A preliminary conference as necessary; and

3. The submission of informal plans, specifications, design criteria, and other data, as may be required by the district or local health department. Depending on the size and complexity of the system, the submission of formal plans and specifications may be required.

C. Type III. A Type III sewage disposal system includes sewage disposal systems other than a septic tank subsurface soil absorption system, and subsurface soil absorption systems, regardless of design, with design flows greater than 1,000 gpd. The procedure for obtaining a permit under this subsection includes the following steps:

1. The submission of an application;
2. A preliminary conference; and
3. The submission of formal plans, specifications and design criteria. Other supporting data may be required on a case-by-case basis.

When high strength wastes are proposed for subsurface disposal, the treatment methodology shall comply with the requirements found in 12VAC5-580-10 et seq. of the Sewage Regulations.

12VAC5-610-880. Pumping.

880 is split into General and then 2 new pump categories. The <2 fps was eliminated from the general category and is only found in 'conveyance pumps' for final treated TL2 or TL3 treated effluent.

A. Force mains. General.

1. Velocity. At pumping capacity, a minimum self-scouring velocity of two feet per second shall be maintained. A velocity of eight feet per second should not be exceeded.

2. Air relief valve. Air relief valves shall be placed at high points in the force main, as necessary, to relieve air locking.

3. Bedding. All force mains shall be bedded to supply uniform support along their length.

4. Protection against freezing. Force mains shall be placed deep enough to prevent freezing.

5. Location. Force mains shall not pass closer than 50 feet to any drinking water source unless pressure tested in place at pump shut-off head. Under no circumstances shall a force main come within 10 feet of a nonpublic drinking water source.

6. Materials of construction. All pipe used for force mains shall be of the pressure type with pressure type joints.

7. Anchors. Force mains shall be sufficiently anchored within the pump station and throughout the line length. The number of bends shall be as few as possible. Thrust blocks, restrained joints and/or tie rods shall be provided where restraint is needed.

8. Backfilling and tamping. Force main trenches shall be backfilled and tamped as soon as possible after the installation of the force main has been approved. Material for backfilling shall be free of large stones and debris.

B. Pumping station and pumps. General.

1. Sizing. Pumping station wet wells shall provide at least one quarter (1/4) day storage above the high level alarm set point. Actual volume between high and low level limits is determined on a case-by-case basis depending on the objective of pumping: (i) when low pressure dosing is utilized see 12VAC5-610-940 A for sizing requirements; (ii) when pumping to a gravity distribution box the wet well shall be sized to provide a working volume between 1/4 the daily flow and the daily flow; (iii) when pumping for the purpose of enhancing flow distribution (see 12VAC5-610-930 A) the working volume of the wet ~~wall~~ well shall be 0.6 of the volume of the percolation piping.

2. Materials. Materials for construction of pumping stations are the same as for septic tanks (see 12VAC5-610-810). All materials and equipment utilized in pumping stations shall be unaffected by the corrosive action of sewage.

3. Access. An access manhole terminating above the ground surface shall be provided. The manhole shall have a minimum width dimension of 24 inches and shall be provided with a shoe box type cover adequately secured.

4. Construction. Pumping stations constructed of precast or poured in place concrete shall conform with the construction requirements contained in 12VAC5-610-815 E. When precast concrete pipe is utilized for a pumping station, the pipe shall be placed on and bonded to a concrete pad at least six inches thick and having a width at least one foot greater than the diameter of the pipe. All pumping stations shall be watertight. All conduits entering or leaving the pumping stations shall be provided with a water stop. The influent pipe shall enter the pumping station at an elevation at least one inch higher than the maximum water level in the wet well (total usable volume).

5. Installation. Placement of pumping stations shall conform to the requirements for placement of septic tanks contained in 12VAC5-610-815 F.

6. Pumps. All pumps utilized shall be of the open face centrifugal, vertical turbine, or suction lift type designed to pump sewage. Pumps utilized for the sole purpose of pumping effluent to a higher elevation shall have a capacity approximately 2.5 times the average daily flow in gallons per minute but not less than five gallons per minute at the system head. Pumps utilized for the purpose of enhancing flow distribution (See 12VAC5-610-930 A) shall have a minimum capacity of 36 gallons per minute at system head per 1200 linear feet of percolation piping. Pumps discharging to a low pressure distribution system shall be sized in accordance with 12VAC5-610-940 A. Dual alternating pumps are required on systems 1800 linear feet or greater in accordance with 12VAC5-610-930 B. Pumps shall be so placed that under normal start conditions it shall be subjected to a positive suction head. When multiple pumps are used, each pump shall have its own separate suction line. Suitable shutoff valves shall be provided on the discharge line and suction line (if provided) for normal pump isolation. A check valve shall be placed in the discharge line between the pump and shutoff valve. When the pump discharge is at a lower elevation than the high liquid level in the pump station, an antisiphon device shall be provided on the pump discharge. Pumps shall be piped so that they can be removed for servicing without having to dewater the wet well.

7. Controls. Each pumping station shall be provided with controls for automatically starting and stopping the pumps ~~based on water level~~. When float type controls are utilized, they shall be placed so as to be unaffected by the flow entering the wet well. Provisions shall be made for automatically alternating the pumps. The electrical motor control center and master disconnect switch shall be placed in a secure location above grade and remote from the pump station. Each motor control center shall be provided with a manual override switch. The control panel shall be located to allow for working access, ~~and shall be set a minimum of 30 to 42 inches above~~ taking into consideration the finished ground surface elevation.

8. Alarms. A high water alarm with remote sensing and electrical circuitry separate from the motor control center circuitry shall be provided. The alarm shall be audiovisual and shall

alarm in an area where it may be easily monitored. When multiple pumps are utilized, an additional audiovisual alarm shall be provided to alarm when a pump motor fails to start on demand.

9. Ventilation. Positive ventilation shall be provided at pumping stations when personnel are required to enter the station for routine maintenance.

a. Wet wells. Ventilation may be either continuous or intermittent. Ventilation, if continuous, shall provide at least 12 complete air changes per hour; if intermittent, at least 30 complete air changes per hour. Such ventilation shall be accomplished by mechanical means.

b. Dry wells. Ventilation may be either continuous or intermittent. Ventilation, if continuous, shall provide at least six complete air changes per hour; if intermittent, at least 30 complete air changes per hour. Such ventilation shall be accomplished by mechanical means.

C. Pumps Integral to Treatment Systems. Pumps integral to treatment systems are pumps that move wastewater within the treatment unit and are required to achieve the desired effluent quality, 12VAC5-610-880.A and B do not apply to these integral pumps that are internal to a treatment systems.

D. Conveyance pumps and pump stations that move TL-2 or TL-3 final effluent to a soil dispersal system shall comply with the following. This does not apply to pumps integral to treatment systems.

1. 12VAC5-610-880.A. shall apply except that the minimum velocity in the force main may be reduced to 1 foot per second.

2. Pump station wet wells shall provide at least one quarter (1/4) day storage above the high level alarm set point. Alternatively, storage may be provided in a treatment tank such as a recirculation tank, but the maximum water level must be 1 inch below the invert from the septic tank.

3. 12-VAC5-610-880.B 2, 3, 4, 5, 7, 8 and 9 shall apply.

4. All pumps utilized shall be of the open face centrifugal, vertical turbine, or suction lift type designed to pump sewage. Pumps utilized for the purpose of enhancing flow distribution (See 12VAC5-610-930 A) shall have a minimum capacity of 36 gallons per minute at system head per 1200 linear feet of percolation piping. Pumps discharging to a low pressure distribution system shall be sized in accordance with 12VAC5-610-940. Dual alternating pumps are required on systems 1800 linear feet or greater in accordance with 12VAC5-610-930 B. Pumps shall be so placed that under normal start conditions it shall be subjected to a positive suction head. When multiple pumps are used, each pump shall have its own separate suction line. Suitable shutoff valves shall be provided on the discharge line and suction line (if provided) for normal pump isolation. A check valve shall be placed in the discharge line between the pump and shutoff valve. When the pump discharge is at a lower elevation than the high liquid level in the pump

station, an anti-siphon device shall be provided on the pump discharge. Pumps shall be piped so that they can be removed for servicing without having to dewater the wet well.

12VAC5-610-950. Absorption area design.

A. The absorption area is the undisturbed soil medium utilized for absorption of the effluent. The absorption area includes the infiltrative surface in the absorption trench and the soil between and around the trenches when trenches are used.

B. Suitability of soil horizon. The absorption trench bottom shall be placed in the soil horizon or horizons with an average estimated or measured percolation rate less than 120 minutes per inch. Soil horizons are to be identified in accordance with 12VAC5-610-480. The soil horizon must meet the following minimum conditions:

1. It shall have an estimated or measured percolation rate equal to or less than 120 minutes per inch;

2. The soil horizon or horizons shall be of sufficient thickness so that at least 12 inches of absorption trench sidewall is exposed to act as an infiltrative surface; and

3. If no single horizon meets the conditions in subdivision 2 of this subsection, a combination of adjacent horizons may be utilized to provide the required 12-inch sidewall infiltrative surface. However, no horizon utilized shall have an estimated or measured percolation rate greater than 120 minutes/inch.

C. Placement of absorption trenches below soil restrictions~~-~~. Placement of the soil absorption trench bottom below soil restrictions as defined in 12VAC5-610-490 D, whether or not there is evidence of a perched water table as indicated by free standing water ~~or~~ gray mottlings or redoxymorphic features ~~coloration~~, requires a special design based on the following criteria:

1. The soil horizon into which the absorption trench bottom is placed shall be a Texture Group I, II or III soil or have an estimated or measured percolation rate of less than 91 minutes per inch.

2. The soil horizon shall be a minimum of three feet thick and shall exhibit no characteristics that indicate wetness on restriction of water movement. The absorption trench bottom shall be placed so that at least two feet of the soil horizon separates the trench bottom from the water table or rock. At least one foot of the absorption trench side wall shall penetrate the soil horizon.

3. A lateral ground water movement interceptor (LGMI) shall be placed upslope of the absorption area. The LGMI shall be placed perpendicular to the general slope of the land. The invert of the LGMI shall extend into, but not through, the restriction and shall extend for a distance of 10 feet on ~~either~~ both sides of the absorption area (See 12VAC5-610-700 D 3).

4. Pits shall be constructed to facilitate soil evaluations as necessary.

D. Sizing of absorption trench area for septic tank effluent.

1. Required area. The total absorption trench bottom area required shall be based on the average estimated or measured percolation rate for the soil horizon or horizons into which the absorption trench is to be placed. If more than one soil horizon is utilized to meet the sidewall infiltrative surface required in subsection B of this section, the absorption trench bottom area shall be based on the average estimated or measured percolation rate of the "slowest" horizon. The trench bottom area required in square feet per 100 gallons (Ft^2/100 Gals) of sewage applied for various soil percolation rates is tabulated in Table 5.4. The area requirements are based on the equation:

$\log y = 2.00 + 0.008 (x)$

where $y = Ft^2$/100 Gals

x = Percolation rate in minutes/inch

Notwithstanding the above, the minimum absorption area for single family residential dwellings shall be 400 square feet.

2. Area reduction. See Table 5.4 for area reduction when gravelless material or low pressure distribution is utilized. A reduction in area shall not be permitted when flow diversion is utilized with low pressure distribution. When gravelless material is utilized, the design width of the trench shall be used to calculate minimum area requirements for absorption trenches.

E. Minimum cross section dimensions for absorption trenches.

1. Depth. The minimum trench sidewall depth as measured from the surface of the mineral soil shall be 12 inches when placed in a landscape with a slope less than 10%. The installation depth shall be measured on the downhill side of the absorption trench. When the installation depth is less than 18 inches, the depth shall be measured from the lowest elevation in the microtopography. All systems shall be provided with at least 12 inches of cover to prevent frost penetration and provide physical protection to the absorption trench; however, this requirement for additional cover shall not apply to systems installed on slopes of 30% or greater. Where additional soil cover must be provided to meet this minimum, it must be added prior to construction of the absorption field, and it must be crowned to provide positive drainage away from the absorption field. The minimum trench depth shall be increased by at least five inches for every 10% increase in slope. Sidewall depth is measured from the ground surface on the downhill side of the trench.

2. Width. All absorption trenches utilized with gravity distribution shall have a width of from 18 inches to 36 inches. All absorption trenches utilized with low pressure distribution shall have a width of eight inches to 24 inches.

F. Lateral separation of absorption trenches. The absorption trenches shall be separated by a center to center distance no less than three times the width of the trench for slopes up to 10%. However, where trench bottoms are two feet or more above rock, pans and impervious strata, the absorption trenches shall be separated by a center to center distance no less than three times the

width of the trench for slopes up to 20%. The minimum horizontal separation distance shall be increased by one foot for every 10% increase in slope. In no case shall the center to center distance be less than 30 inches.

G. Slope of absorption trench bottoms.

1. Gravity distribution. The bottom of each absorption trench shall have a uniform slope not less than two inches or more than four inches per 100 feet.

2. Low pressure distribution. The bottom of each absorption trench shall be uniformly level to prevent ponding of effluent.

H. Placement of absorption trenches in the landscape.

1. The absorption trenches shall be placed on contour.

2. When the ground surface in the area over the absorption trenches is at a higher elevation than any plumbing fixture or fixtures, sewage from the plumbing fixture or fixtures shall be pumped.

I. Lateral ground water movement interceptors. Where subsurface, laterally moving water is expected to adversely affect an absorption system, a lateral ground water movement interceptor (LGMI) shall be placed upslope of the absorption area. The LGMI shall be placed perpendicular to the general slope of the land. The invert of the LGMI shall extend into, but not through, the restriction and shall extend for a distance of 10 feet on either side of the absorption area.

Table 5.4.
Area Requirements for Absorption Trenches Receiving Septic Tank Effluent.

Percolation Rate (Minutes/Inch)	Area Required (Ft^2/100 Gals)			Area Required (Ft^2/Bedroom)		
	Gravity	Gravity Gravelless	Low Pressure Distribution	Gravity	Gravity Gravelless	Low Pressure Distribution
5	110	83	110	165	124	165
10	120	90	120	180	135	180
15	132	99	132	198	149	198
20	146	110	146	218	164	218

25	158	119	158	237	178	237
30	174	131	164	260	195	255
35	191	143	170	286	215	260
40	209	157	176	314	236	264
45	229	172	185	344	258	279
50	251	188	193	376	282	293
55	275	206	206	412	309	309
60	302	227	217	452	339	325
65	331	248	228	496	372	342
70	363	272	240	544	408	359
75	398	299	251	596	447	375
80	437	328	262	656	492	394
85	479	359	273	718	539	409
90	525	394	284	786	590	424
95	575	489	288	862	733	431
100	631	536	316	946	804	473
105	692	588	346	1038	882	519
110	759	645	379	1138	967	569
115	832	707	416	1248	1061	624
120	912	775	456	1368	1163	684

J. Controlled blasting. When rock or rock outcroppings are encountered during construction of absorption trenches the rock may be removed by blasting in a sequential manner from the top to remove the rock. Percolation piping and sewer lines shall be placed so that at least one foot of compacted clay soil lies beneath and on each side of the pipe where the pipe passes through the area blasted. The area blasted shall not be considered as part of the required absorption area.

Section K establishes that all trenches must be constructed using standard methods and materials. The shallowest sidewall on a gravel trench is 12 inches. The shallowest sidewall on a gravelless product in 8 inches. It reiterates that timed dosing is required when trenches are less than 12 inches deep. There is an allowance for approved manufacturer products to deviate from the sidewall and the dosing. To date these have been sand lined treatment products that are being used for dispersal.

K. Trenches receiving TL-2 or better quality effluent are exempt from the increase in trench depth with slope and the cover requirements as found in 12VAC5-610-950.E. The following additional requirements shall apply.

1. Soil dispersal loading rates shall not exceed the values in Table 5.5.

2. The minimum vertical standoff to a limiting feature shall be maintained under the entire infiltrative surface in accordance with 12VAC5-613

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3. The minimum soil cover over the absorption area after settling is 6 inches. ~~—~~ On sloping sites, cover shall be tied back into the existing slope to facilitate stabilization of the slope and maintenance of the site. The soil cover, with amendments as needed, shall be of a quality, character, and fertility suitable to establish a vegetative cover that is uniform and sufficiently mature to survive and inhibit erosion.

4. The minimum installation depth is equal to the sidewall of the dispersal system construction as defined in 12VAC5-930.F, 12VAC5-610-950.E.1, and 12VAC5-610-940 (gravelless). On sloping sites, the minimum installation depth is measured on the downhill side.

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5. When trenches are installed at less than 12 inches from the ground surface, timed dosing shall be used to disperse the effluent.

6. For slopes up to 15 percent slope, there are not any soil texture group limitations for shallow placed trenches receiving TL-2 or TL-3 effluent. For slopes over 15 percent, trench systems installed in Texture Group III and IV soils, are limited to a 12 inch or greater installation depth.

7. Designs supported by Division approved manufacturer's design manuals may deviate from 12VAC5-610-950.K4 and K5.

Commented [DM(1]: *DEQ – this suggested language is based on 9VAC25-840-40 of the Sediment and Erosion Control Regulations, which state that a "Virginia Erosion and Sediment Control Plan must be consistent with … 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."]*

9. Not withstanding the above, the minimum absorption area for a single family residential dwelling receiving TL-2 or better quality effluent shall be 400 square feet.

Table 5.5 Soil Absorption Area Loading Rates for Systems Receiving TL-2 or TL-3 Effluent

	TL-2 Effluent				TL-3 Effluent			
Percolation Rate (mpi)	Pressure Trench* Loading (gpd/ft^2)	Gravity Trench* Loading (gpd/ft^2)	Drip** Loading) (gpd/ft^2)	Pad/Mound Loading** (gpd/ft^2)	Pressure Trench* Loading (gpd/ft^2)	Gravity Trench* Loading (gpd/ft^2)	Drip** Loading (gpd/ft^2)	Pad/Mound Loading** (gpd/ft^2)
5	1.8	1.80	0.60	1.20	3.0	3.00	1.00	1.66
10	1.67	1.67	0.56	1.11	2.67	2.67	0.89	1.66
15	1.53	1.53	0.51	1.02	2.33	2.33	0.78	1.66
20	1.4	1.40	0.47	0.93	2.0	2.00	0.67	1.66
25	1.30	1.30	0.43	0.86	1.75	1.75	0.58	1.33
30	1.2	1.13	0.40	0.80	1.5	1.41	0.50	1.11
35	1.10	0.98	0.37	0.73	1.38	1.22	0.46	0.95
40	1.00	0.84	0.33	0.66	1.25	1.05	0.42	0.83
45	0.90	0.73	0.30	0.60	1.13	0.91	0.38	0.74
50	0.8	0.62	0.27	0.53	1.0	0.77	0.33	0.67
55	0.76	0.57	0.25	0.50	0.94	0.71	0.31	0.61
60	0.71	0.51	0.24	0.47	0.89	0.64	0.30	0.55
65	0.67	0.46	0.22	0.44	0.83	0.57	0.28	0.51
70	0.62	0.41	0.21	0.41	0.78	0.51	0.26	0.48
75	0.58	0.36	0.19	0.38	0.72	0.46	0.24	0.44
80	0.53	0.32	0.18	0.35	0.67	0.40	0.22	0.42
85	0.49	0.28	0.16	0.33	0.61	0.35	0.20	0.39
90	0.44	0.24	0.15	0.30	0.56	0.30	0.19	0.37
95	0.4	0.20	0.13	0.27	0.5	0.25	0.17	0.35
100	0.37	0.19	0.12	0.25	0.46	0.23	0.15	0.33
105	0.34	0.17	0.11	0.23	0.43	0.21	0.14	0.32
110	0.31	0.16	0.10	0.21	0.39	0.19	0.13	0.30
115	0.28	0.14	0.09	0.19	0.35	0.18	0.12	0.29

120	0.25	0.13	0.08	0.17	0.32	0.16	0.11	0.28

*Loading rates to trenches, whether gravity or pressure dosed, are based on the gallons per day of wastewater applied to the bottom of the trench.

**Loading rates to drip systems, pads, and mounds are based on the infiltrative surface area provided and are on an aerial basis.

12VAC5-610-960. Elevated sand mound.

A. An elevated sand mound is a soil absorption system that incorporates ~~low~~ pressure distribution and sand filtration to produce treated sewage prior to absorption in the natural underlying soil. The elevated sand mound utilizes less gross soil area than most other soil absorption systems. Elevated sand mounds differ from pads in that elevated sand mounds are always an above ground system, may receive septic tank effluent, always require pressure distribution and the infiltrative surface follows the natural ground surface and contour of the site,.

~~B. Mound systems are considered Type III systems (see 12VAC5-610-250 C).~~

C. Mound systems receiving septic tank effluent shall be designed and constructed in accordance with the Wisconsin Mound Soil Absorption System Siting, Design and Construction Manual prepared by the Small Scale Waste Management Project, School of Natural Resources, College of Agricultural and Life Sciences, University of Wisconsin-Madison dated January ~~1990~~2000 or its successor. Drip dispersal or low pressure distribution shall be used.

D. The manual referred to in subsection C of this section shall be used for the designated construction of elevated sand mounds. The following criteria are required for all elevated sand mound systems in addition to the requirements found in the manual.

~~1. The construction permit shall require permanent water saving devices; however, there shall be no corresponding reduction in the basal area. The construction permit shall be recorded and indexed in the grantor index under the holder's name in the land records of the clerk of the circuit court having jurisdiction over the site of the sewage disposal system pursuant to 12VAC5-610-250 J.~~

2. The proposed mound site shall be fenced, roped or otherwise secured, and marked, to prevent damage by vehicular traffic. Activities on the mound site shall be severely limited in order to protect it to the greatest extent possible.

~~3. Formal plans and specifications, prepared by a licensed professional engineer in accordance with 12VAC5-610-250 G, shall be required and must be approved by the health department prior to any site-disturbing activities.~~

4. ~~The local health department shall be notified at least 48 hours before any work begins on the site, including delivery of materials~~. The mound must be constructed during dry weather and soil conditions. ~~The contractor shall schedule a conference with the local health department to review the plans and specifications prior to beginning any phase of construction, including delivery of materials.~~

5. Wooded sites shall not be used unless it is shown by the applicant that the wooded site is the only site available, and if the applicant can demonstrate that the site can be properly prepared ~~(plowed)~~. If a wooded site is used, trees shall be removed by cutting them off at ground level, leaving the stumps in place. The cut trees shall be removed using methods that

do not require driving equipment over the mound site and that do not result in the removal of any soil from the site. Larger basal areas may be required on wooded sites.

6. When the depth to a restriction, shrink-swell soils or a water table is less than 24 inches, pretreatment sufficient to produce a ~~secondary~~ TL-2 or better quality effluent may be used to reduce these distances as shown in Table X~~4.4.~~

7. The minimum absorption area for single family residential dwellings shall be 400 square feet.

E. Elevated sand mounds receiving TL-2 or better quality effluent shall adhere to the following additional design criteria;

1. The basal area (interface of fill sand and original soil surface) loading rate shall not exceed the values found in Table 5.5 for pads/mounds.

2. The minimum sand depth under the dispersal system is 6 inches.

3. The minimum soil cover over the absorption area after settling is 6 inches. The finished sideslopes cannot exceed 1:4 (rise:run); ~~Soil cover material shall support vegetative growth.~~ The soil cover, with amendments as needed, shall be of a quality, character, and fertility suitable to establish a vegetative cover that is uniform and sufficiently mature to survive and inhibit erosion.

4. Vertical separation to limiting features as found in 12VAC5-613 shall be maintained under the entire infiltrative surface of the basal area.

5. Designs supported by Division approved manufacturer's design manuals may deviate from pressure dosing but require dosing to a gravity distribution system at a minimum.

Commented [DM(1]: *From July 2021 Changes made to be consistent with 950.K.*

DEQ – this suggested language is based on 9VAC25-840-40 of the Sediment and Erosion Control Regulations, which state that a "Virginia Erosion and Sediment Control Plan must be consistent with … 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."]

12VAC5-610-966. Pads. [NEW section]

A. A pad is an absorption area wider than 3 feet but not longer than 100 feet with a level infiltrative surface where the bottom of the pad meets the original soil. The minimum standoff to a limiting feature in accordance with 12VAC5-613 is to be met under the entire infiltrative surface.

B. The minimum effluent quality dispersed to a pad is TL2 and pad bottom loading rates shall not exceed the values for pads noted in Table 5.5.

C. ~~Pads are generally installed on contour with the longest dimension of the pad following the contour.~~ The longest dimension of the basal area of the pad, its length, shall be oriented parallel to the natural surface topographic contours. Minor deviations from surface contours are acceptable as long as the bottom of the pad is level (the entire bottom surface of the pad is at the same elevation, not to exceed 10% of the depth of the pad from the ground surface or plus or minus 2 inches, whichever is less), and intersects a similar soil horizon across its surface.

D. Pads and trenches may be used together in a single system when the respective pad or trench subsystems ~~each zone~~ follow the respective design criteria found in this chapter and are separated by a minimum of 6 feet between the sidewall of the pad and the trench. When multiple pads are used on a site, the pads must be separated by the width of the pad as measured perpendicular to the natural surface topographic contour.~~the slope.along the contour~~. ~~This separation applies to reserve pad areas as well.~~ ~~Reserve pad areas must be upslope of an active pad area~~.

E. Pads shall be limited to sites with slopes 10% or less.

~~A.~~ F. Dosing. All pads must be dosed. Pad systems over 1,000 gallons per day must be pressure dosed. When pads are installed at less than 12 inches from the ground surface, timed dosing shall be used to disperse the effluent~~. Pads may be dosed a maximum of 6 times per day. Dose volume shall be less than or equal to 20% of the design wastewater flow~~ [OR ~~maximum of 6 doses per day.~~.

G. The minimum absorption area for single family residential dwellings shall be 400 square feet.

H. Pad Constructon.

a. Gravel pads shall have a minimum installation depth of 12 inches, unless in Texture Group I or II soils where the installation depth can be reduced to 8 inches. On sloping sites, the minimum installation depth is measured on the downhill side. The construction of the pad's gravity percolation line and gravel bedding shall follow 12VAC5-610-930E with the exception that the bottom of the pad is level and not sloping. Piping shall have a maximum center to center spacing of 9 feet.

b. Gravel pads utilizing low pressure distribution shall follow 12VAC5-940 for construction and dosing cycle (volume). Gravel pads using low pressure distribution shall have a minimum installation depth of 12 inches, unless in Texture Group I or II soils where the installation depth can be reduced to 8 inches. On sloping sites, the minimum installation depth is measured on the downhill side. Piping shall have a maximum center to center spacing of 9 feet.

c. Pads utilizing gravelless material as found in 12VAC5-610-930F shall follow 12VAC5-630F and the manufacturer's instructions on minimum depth of installation, but in no case shall a pad be

Commented [DM(1]: Phrase added to address comment of 'what is the tolerance for level' From GMP 147.

Commented [DM(2R1]: From SHADAC – should be a tolerance such as 10% of the total depth of the pad. But that could get excessive on deep pads. Modified to include 10% tolerance but kept 2 as a maximum.

Commented [DM(3]: Comment received: What Is a zone?
Response: See modified language – Any clearer?

Commented [DM(4]: Comment received: How do you characterize the loading rate of trenches and pads?
The loading rates are defined in Table 5.5 for both pads and trenches.

Commented [DM(5]: Applying the separation distance to pads was discussed by SHADAC and the separation distance is problematic. It was added to protect the reserve area, but others noted that the regs already require the reserve to be protected.

Commented [DM(6]: Received a comment that dosing should be addressed for pads. Options:
(1) From2001 Mound Component Manual for private onsite WWTS – 20% of design flow or less
(2) Alternatively Alabama using a maximum of 6 doses per day.

From June SHADAC – Remove this criteria for max doses.

installed at less than 8 inches from the original soil surface. Gravelless material shall have a maximum center to center spacing of 9 feet. On sloping sites, the minimum installation depth is measured on the downhill side.

~~a.~~d. Designs supported by a Division approved manufacturer's design manual may deviate from the maximum slope, depth of installation, separation distance between pads, and timed dosing when the dispersal area is constructed in accordance with the approved manual.

F. The minimum soil cover over the absorption area after settling shall be~~is~~ 6 inches. If the cover is mounded above grade, the finished sideslope cannot exceed 1:4 (rise:run). ~~Soil cover material shall support vegetative growth~~. The soil cover, with amendments as needed, shall be of a quality, character, and fertility suitable to establish a vegetative cover that is uniform and sufficiently mature to survive and inhibit erosion.

Commented [DM(7]: Some manufacturer manuals already allow closer separation distances for narrow pads than allowed by the proposed reg. This recognizes the option to reduce the separation distance between pads when supported by an approved manual.

Commented [DM(8]: ***Changes consistent with soil cover in other sections.***

DEQ – this suggested language is based on 9VAC25-840-40 of the Sediment and Erosion Control Regulations, which state that a "Virginia Erosion and Sediment Control Plan must be consistent with … 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."]

SHDR Revision Subgroups				
Subgroup Name	**Responsibility**	**VDH Members**	**SHADAC Members**	**Other Interested Stakeholders**
Programmatic Changes (7)	Incorporation of private Sector designs, etc.	Justin Stanley	Laura Farley (Virginia Realtors)	Anna Killius (James River Association)
		Brianna Cornett		John Sawdy
		AJ Austin		Tom Ashton
Administrative / APA (5)	all of SHDR Parts I and II	Karri Atwood	Laura Farley (Virginia Realtors)	John Sawdy
		Justin Stanley		Danna Revis
Sites and Soils (14)	all sections relating to approvable sites and soils for OSS	Steve Thomas	Matt Tolley (VAPPS)	Anna Killius (James River Association)
		Todd Shearin	Colin Bishop (Manufacturer)	Jeff Walker
		Rich Michniak	Kim Harper (VEHA)	Tom Ashton
		Justin Stanley		Danna Revis
		Gary Thomas		
		Brent McCord		
		Jordan Rosales		
Installation / Inspection (9)	emphasis on inspection of OSS installations since the transition of services	Justin Stanley	Laura Farley (Virginia Realtors)	Tom Ashton
		Gary Thomas	Matt Tolley (VAPPS)	Danna Revis
		Andy Carter	Bill Timmins	
			Kim Harper (VEHA)	
LGMI Placement and Design (4)	worksmithing LGMI sections; require treatment; direct dispersal?	Scott Vogel		Tom Ashton
		Justin Stanley		
		Gary Thomas		
Separation Distances / Setbacks (4)	researching science and other regs to make sure our setbacks are adequate	Justin Stanley	Kim Harper (VEHA)	Skip Styles (Wetlands Watch)
		Anthony Creech		
Design Flow (4)	Table 5.1; researching science and other regs to make sure our design flows are adequate	Justin Stanley	Kim Harper (VEHA)	John Sawdy
		Ryder Bunce		
System Safety / Child-Proofing (3)	adding a requirement for child-proofing septic tank lids and risers; research other states; work with Family Health	Lance Gregory	Bill Timmins	
		Justin Stanley		
Minimum Installation Depth (6)	wordsmithing min. installation depth section	Steve Elgin	Kim Harper (VEHA)	Jeff Walker
		Brian Stanley		Tom Ashton
		Justin Stanley		
Minimum Drainfield Size (3)	researching science and other regs to make sure our square footage requirements for perc rates are adequate	Justin Stanley		Tom Ashton
		Andy Carter		
Sewage Hauling/ Pump and Haul (4)	wordsmithing pump and haul sections	Jim Bowles	Bill Timmins	John Sawdy
		Justin Stanley		
System Component Specifications (2)	review requirements for OSS component specifications (material, fall, bedding, etc.)	Justin Stanley		John Sawdy
GMP Inclusion (2)	review GMPs and include in Regs	Justin Stanley		John Sawdy
Consideration for the Impacts of Climate Change (12)	develop consideration for the impacts of climate change on onsite sewage systems	Lance Gregory	Laura Farley (Virginia Realtors)	Anna Killius (James River Association)
		Anthony Creech	Valerie Rourke (DEQ)	Skip Styles (Wetlands Watch)
		Justin Stanley	Colin Bishop (Manufacturer)	Patrick Fanning (Chesapeake Bay Foundation)
		Jordan Rosales		Brent Hunsinger (Friends of the Rappahannock)
				Danna Revis
Environmental Justice	Overarching review of regulations and proposed changes	All subgroups		

American Recovery Plan Act and Other Funding for Septic and Well Improvements

Lance Gregory
Director
Division of Onsite Sewage and Water Services,
Environmental Engineering, and Marina Programs
Virginia Department of Health
Lance.Gregory@vdh.virginia.gov

ARPA Funding For Septic and Well

- FY 2022 - $5,750,000
- FY 2023 and 2024: $5,750,000

$5,750,000 to the Department of Health (601) to provide improvement funds for well and septic systems for homeowners at or below 200 percent of the federal poverty guidelines.

Persons in Household	200% Federal Poverty Guidelines
1	$25,760
2	$34,840
3	$43,920
4	$53,000
5	$62,080
6	$71,160
7	$80,240
8	$89,320

Key Objectives

- Improve the health of Virginians and provide additional protection to Virginia's communities through the assurance of adequate wastewater treatment and safe drinking water.
- Minimize overhead to use the greatest amount possible of the available funding to put projects in the ground.
- Prioritize outreach to historically disadvantaged communities and hot spots identified through the Virginia Wastewater Data Viewer.

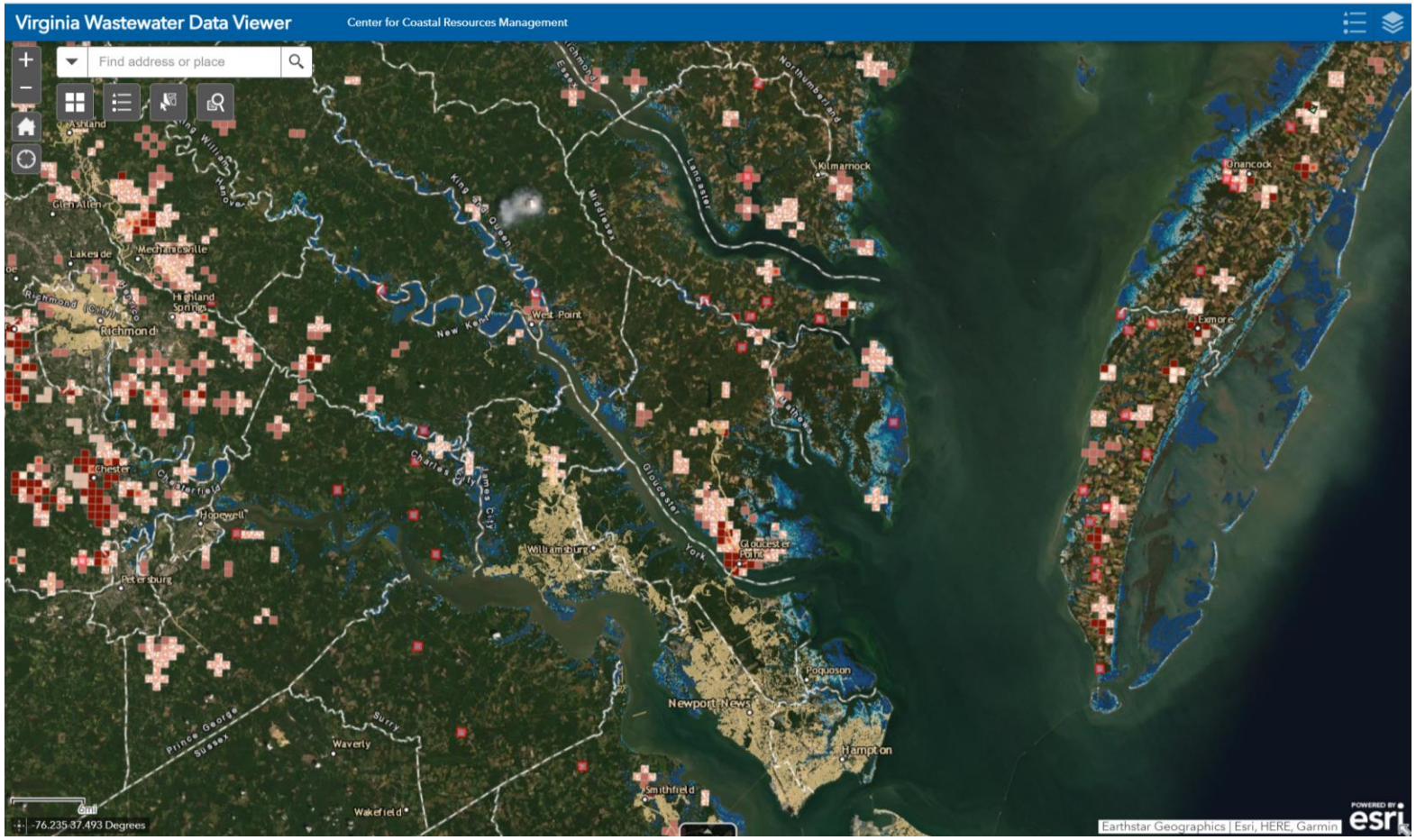
Projects Covered by ARPA Funds

- Repair failing septic systems.
- Replace straight pipes and privies.
- Conventional, alternative, or sewer connection.
- Alternate system O&M.
- Replace inadequate private wells.
- Properly abandoned unused wells.
- New wells or water connection.

Local Partners

- Plan for 50% of funds to be distributed to local partners for implementation.
  - PDCs, SWCDs, Nonprofits
- Working to identify potential partners.
  - Wastewater Infrastructure Working Group Roundtables.
  - Local health departments.
  - Website updates.
- Partner outreach event(s) in late October.

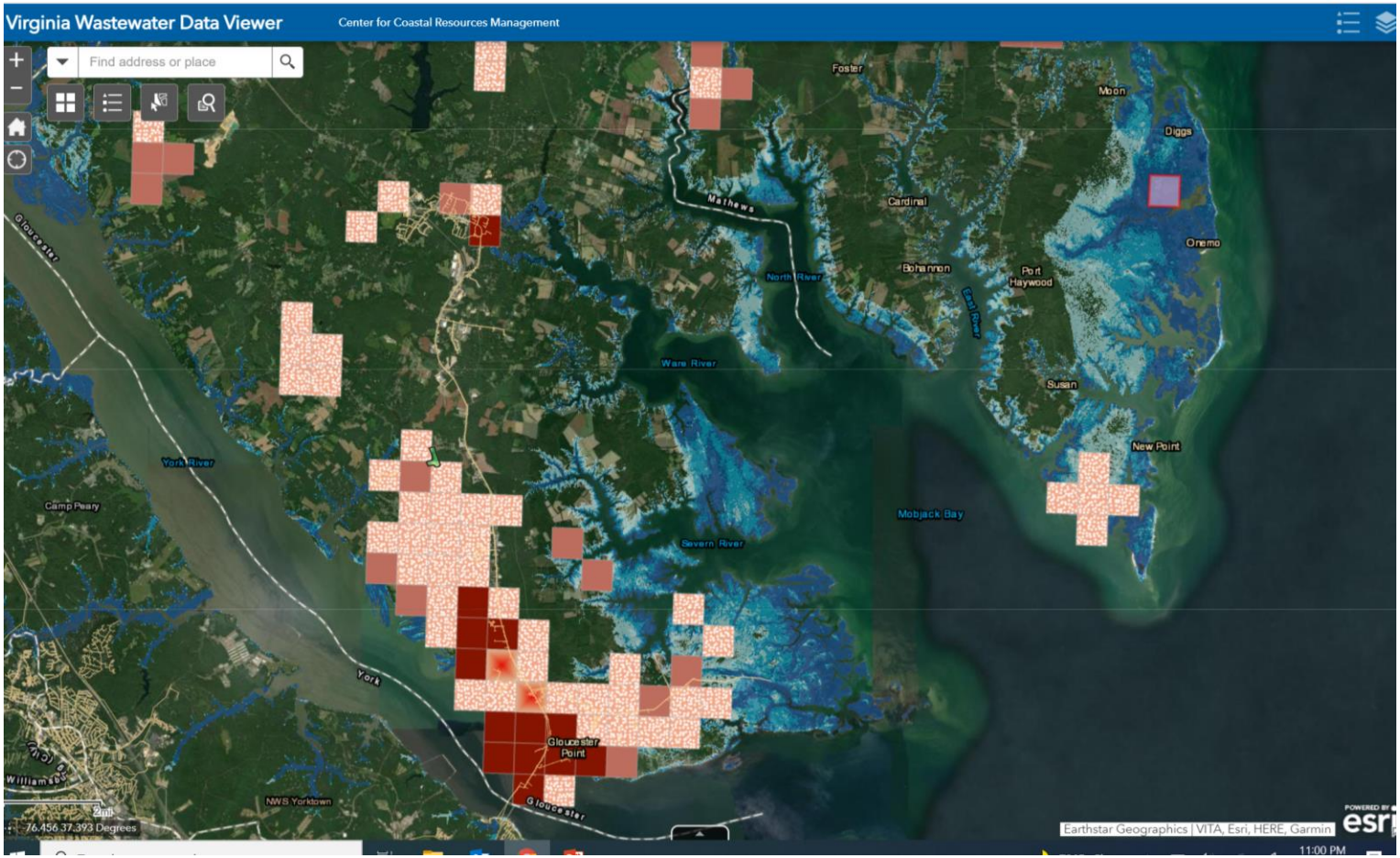
Identification of VDH Projects



Sources: Center for Coastal Resources Management at the Virginia Institute for Marine Science (VIMS), College of William and Mary

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

Identification of VDH Projects



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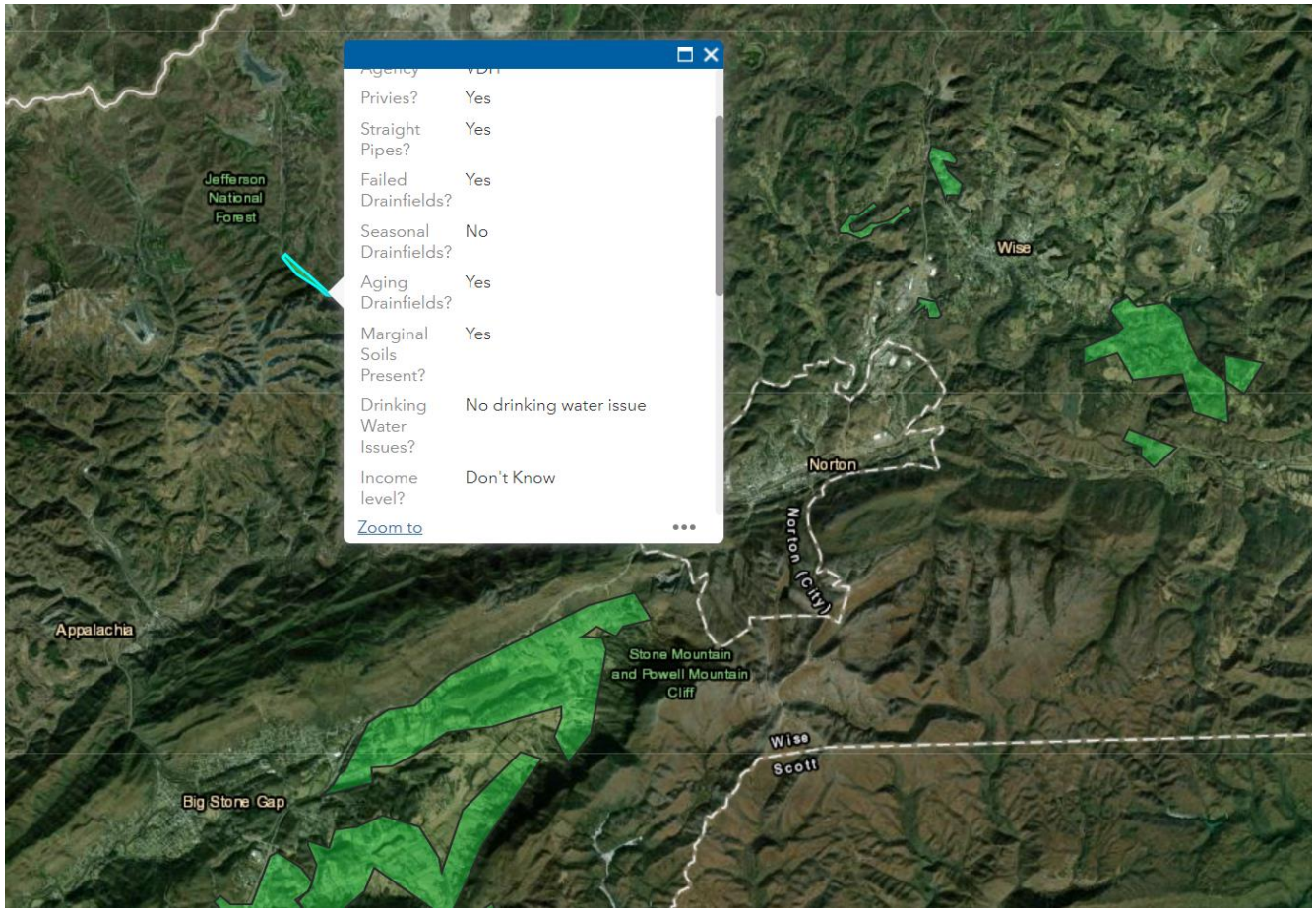


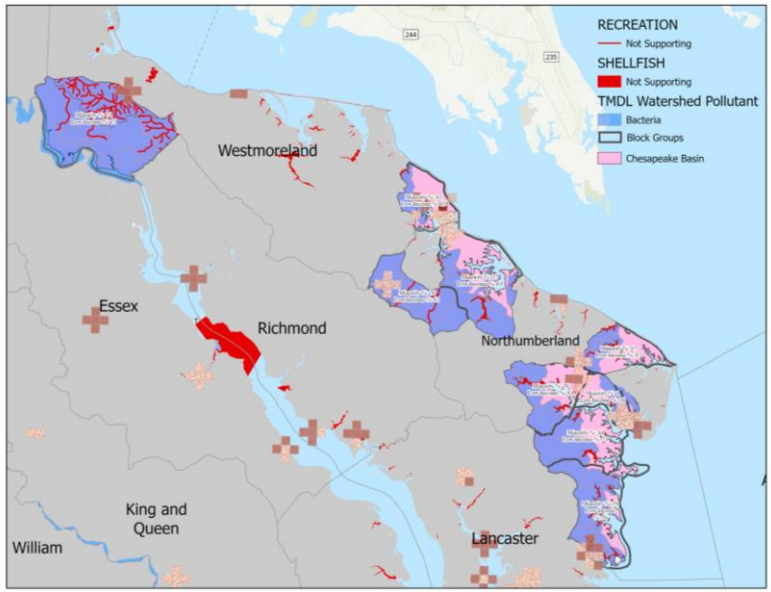
Sources: Center for Coastal Resources Management at the Virginia Institute for Marine Science (VIMS), College of William and Mary

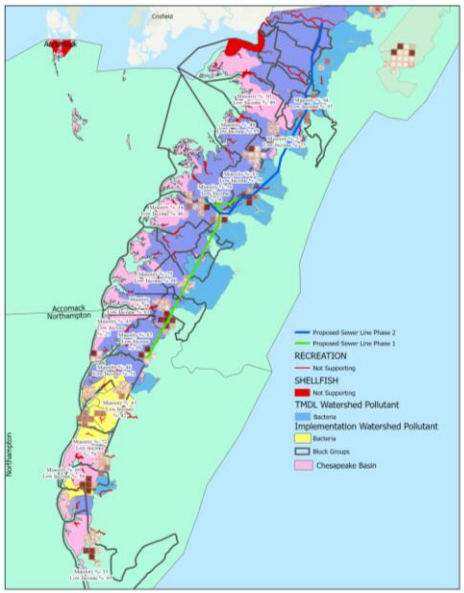
Virginia Environmental Endowment and Smithfield Foundation Grant

- $300,000 from VEE.
- $200,000 from Smithfield Foundation.
- Septic repairs in the Lower James River Watershed.
- 29 eligible owners.
- $420,709 earmarked.
- Lessons learned:
  - Flexibility.
  - Building trust.
  - Working directly with contractors.
  - Increasing system cost.

Other Funding Opportunities

- U.S. EPA Most Effective Basins.
- SERCAP Loans.
- DHCD Indoor Plumbing Rehabilitation.





Source: DEQ, Department of Water, Chesapeake Bay