

Enclosure 2

Appendix A – The EPA’s Rationale Regarding Identification of Sand Branch on Virginia’s 2024 303(d) list

VADEQ included Sand Branch on Virginia’s 2024 303(d) list as submitted to the EPA pursuant to CWA Section 303(d)(2). Chantilly Crushed Stone (CCS) had submitted comments to VADEQ during VADEQ’s public comment period on its draft 2024 303(d) list. In addition, CCS communicated directly with the EPA, asserting that Sand Branch should be omitted from Virginia’s 2024 303(d) list. The EPA has reviewed CCS’s comments and data and VADEQ’s responses and does not find a basis for disturbing VADEQ’s decision to include Sand Branch on the 2024 303(d) list.

Sand Branch is located in Loudoun and Fairfax Counties. It has been identified on Virginia’s 303(d) lists since the 2018 303(d) list on the basis of benthic macroinvertebrate sampling at two sampling locations on March 8 and August 31, 2016, and March 11 and September 17, 2020. Like many states, Virginia uses a state-specific set of metrics, called an index of biotic integrity, calculated from stream data collected within the state to assess the biological condition of its waters. Virginia historically has used an index of biological integrity called the Virginia Stream Condition Index (VSCI). VADEQ uses a VSCI score of 60 as the threshold for impairment determination statewide. The VSCI scores at DEQ Sampling Station 1ASAN001.45 (the more upstream station) range from 15.1 to 43.1. The VSCI scores at DEQ Sampling Station 1ASAN000.34 (the more downstream station) range from 9.6 to 53.3. In addition, as part of preliminary work for TMDL development, VADEQ has conducted a Benthic Stressor Analysis for the Sand Branch Watershed.¹ The Benthic Stressor Analysis identified pollutant stressors to the benthic community including Total Dissolved Solids (TDS), sulfate, Total Phosphorus, and sediment as probable stressors. The Benthic Stressor Analysis also identified contributing non-pollutant factors which cannot be addressed through TMDLs, consisting of underlying geology, land disturbance, percent imperviousness and degraded riparian buffer. The Benthic Stressor Analysis recommended TMDLs be developed for TDS (to address both conductivity and sulfates), sediment (in the form of total suspended solids) and total phosphorus.

In its April 23, 2025, communication to the EPA, CCS asserts reasons why it believes Sand Branch should be omitted from Virginia’s Section 303(d) list. CCS generally characterizes VADEQ as failing to assemble and evaluate existing and readily available water quality-related information provided by CCS (40 CFR 131.7(b)(5)) or failing to provide a technical, science-based rationale for not using certain information provided by CCS in making its 2024 impairment determination with regard to Sand Branch (40 CFR 131.7(b)(6)(iii)).

¹ VADEQ, 2021. Stressor Analysis to Identify Probable Stressors to the Impaired Benthic Macroinvertebrate Community in the Sand Branch Watershed.
<https://www.deq.virginia.gov/home/showpublisheddocument/10571/637662595915270000>

Many of the assertions made by CCS in its April 23, 2025, communication to the EPA and in a March 27, 2025, meeting with EPA staff had been previously communicated by CCS to VADEQ. VADEQ provided a response to comments from CCS on its draft 2024 303(d) list, in which VADEQ explained that it considered the information provided by CCS. Additionally, VADEQ incorporated by reference into its response an August 21, 2023, letter to CCS regarding VADEQ's work toward developing TMDLs for Sand Branch that addressed many similar assertions. In addition, VADEQ responded to many similar comments from CCS in connection with development of the Benthic Stressor Analysis and in Technical Advisory Committee work for Benthic TMDL Development. After reviewing CCS's comments made directly to the EPA and VADEQ's responses to CCS's comments as described herein, the EPA does not find sufficient basis to disturb VADEQ's decision to include Sand Branch in its 2024 303(d) list.

Data Age

As noted above, Sand Branch was originally identified as impaired from benthic macroinvertebrate assessments on the 2018 303(d) list and has been identified on each subsequent 303(d) lists. The basis of the 2024 listing remains macroinvertebrate data collected in 2016 and 2020. CCS asserts that the benthic macroinvertebrate bioassessment data is now older than five years and therefore VADEQ has insufficient data to list the stream as impaired. VADEQ assembled and evaluated the existing and readily available macroinvertebrate data and information consistent with 40 CFR § 130.7(b)(5) in its 2024 303(d) list submission. In order to evaluate such data and information in accordance with 40 CFR § 130.7(b)(5), the state cannot exclude data from consideration solely based on its age.² While CCS has noted the age of the macroinvertebrate data, CCS has not identified any technical, science-based reason why the age of the data should be a basis for not using it in this instance. See 40 CFR § 130.7(b)(6)(iv). The macroinvertebrate data was existing and readily available data for the state to evaluate in its list decision, and it was reasonable for VADEQ to use this data in the absence of more recent data or information demonstrating that this data no longer reflects water quality conditions.

Sufficiency of Flow

CCS asserts that Sand Branch does not contain sufficient natural flow to qualify as a "navigable water" or "waters of the United States" as those terms are used in 33 U.S.C. §§ 1313(c)(2)(A) & 1362(7)³ because, according to CCS, the upper portion of Sand Branch currently does not flow

² See *Sierra Club v. Leavitt*, 488 F.3d 904, 913-14 (11th Cir. 2007) (finding that a state failed to evaluate data within the meaning of 40 CFR § 130.7(b)(5) where it applied a hard-line approach excluding data based on age).

³ The term "navigable waters" is defined at 33 U.S.C. § 1362(7) as "the waters of the United States, including the territorial seas." The EPA and the U.S. Army Corps of Engineers have further defined the term "waters of the United States" in regulations. The amended regulations defining "waters of the United States"—40 C.F.R. § 120.2(a) (2023); 33 C.F.R. § 328.3(a) (2023)—are currently enjoined in Virginia. See *West Virginia v. EPA*, 669 F. Supp. 3d 781, 789, 819 (D.N.D. 2023) (enjoining the 2023 rule as to Virginia and 23 other states). The EPA is thus applying in Virginia the "pre-2015" regulatory regime, consistent with the Supreme Court's decision in *Sackett v. Environmental Protection Agency*, 598 U.S. 651 (2023). See EPA, Pre-2015 Regulatory Regime (updated Mar. 18, 2024), <https://www.epa.gov/wotus/pre-2015-regulatory-regime>.

perennially and, even if it does, the flow is due to augmentation from human sources. CCS also appears to assert that the upper portion of Sand Branch is a man-made feature pre-dating the CWA and therefore would not qualify as a navigable water for CWA purposes.

As stated in the Decision Rationale, the EPA's action regarding Virginia's 303(d) list does not extend to any waterbodies, or portions of waterbodies, that are not "waters of the United States" as that term is used in 33 U.S.C. § 1362(7). To the extent Sand Branch is not a "navigable water" within the meaning of the CWA, the EPA is taking no action to approve or disapprove its inclusion in Virginia's 303(d) list. Taking a weight of the evidence approach, the EPA finds insufficient bases to disturb VADEQ's inclusion of Sand Branch in Virginia's 2024 303(d) list.

CCS comments that "there cannot be impairment because the [upper portion of Sand Branch] does not have sufficient natural flow so as to constitute a segment under Section 303 and the listing process." To the extent that CCS's comments refer to the "upper" and "lower" portions of the stream, Sand Branch is represented by one assessment unit (VAN-A22R_SAN01A18) on Virginia's 2024 303(d) list. States must define assessment units to report on the condition of their waters and have some discretion as to how they do so. VADEQ describes their primary considerations for assessment unit delineation in their Water Quality Assessment Guidance Manual.

VADEQ has determined that the weight of the evidence demonstrates that both VADEQ sampling stations in Sand Branch contain flow year-round. As noted by VADEQ in its August 21, 2023, letter to CCS:

Since 2015, DEQ water quality monitoring staff and DEQ biologists have conducted water quality monitoring (32 events, year-round) and biological monitoring (four events, spring and fall) on Sand Branch at two stations, one upstream (1ASAN001.45) and one downstream (1ASAN000.34). DEQ water compliance staff has also conducted water quality monitoring of several permitted discharges in the watershed, including that of Chantilly Crushed Stone, Inc.'s discharge from Outfall 001 (VPDES Permit No. VAG840106) from 2014 -2018 (17 events). Based upon staff observations during these monitoring events, flow has been present in the stream channel at Outfall 001 and both monitoring locations sufficient to collect samples. Additionally, a continuous monitoring sonde was deployed by DEQ at 1ASAN000.34 from August 10, 2020 – August 26, 2020, and December 10, 2020 – February 10, 2021, during which time water quality samples were collected and recorded every 15 minutes, exhibiting there was continually sufficient flow for the frequent readings to be taken.

Discharge Monitoring Report (DMR) data submitted quarterly by Chantilly Crushed Stone, Inc. indicates that discharges occurred during each reporting period since 2006, and the average monthly flows were approximately 0.75 MGD (based upon DMRs submitted from 2015-2020).

While CCS asserts that the presence of average monthly flow does not necessarily mean that the stream flows each and every day, VADEQ states that the biological taxa found in 2016 and 2020 in Sand Branch indicate that those portions of the stream have consistent flow during the spring and fall biological sampling windows for appropriate use and application of VSCI. The EPA has reviewed the macroinvertebrate taxa collected in Sand Branch; the taxa are indicative of at least seasonal, and likely perennial, flow.

In addition, as CCS notes, the contributing watershed for Sand Branch is 800 acres. That is greater than the 17-acre watershed which generally will yield perennial flow in the Triassic Basin.⁴ To the extent CCS asserts that the upper portion of Sand Branch would not meet the definition of “Headwater,” set forth in 33 CFR 330.2, the term “Headwater” is relevant for purposes of the Corps of Engineers’ Nationwide Permit program and is not a concept used to determine whether a waterbody qualifies as “waters of the United States” for CWA purposes.

CCS’s comments emphasize the “natural” flow in the upper portion of Sand Branch and assert that Sand Branch should not be included because a portion of its flow is contributed by effluent. CCS also appears to assert that the upper portion of Sand Branch is not waters of the United States because it is human-made: “The upgradient station, Station 1ASAN001.45 38.92555556, -77.487, is documented in a location with human-created alteration, another factor in concluding the feature is not a water of the United States.” Human-made or human-altered waterbodies can be “waters of the United States” as that term is used in 33 U.S.C. § 1362(7). That has been the case under current implementation and under every past definition of “waters of the United States” (including the 2020 Navigable Waters Protection Rule (NWPR)) and under the pre-2015 regulatory regime that the EPA currently applies in Virginia. The fact that a stream’s flow is augmented by effluent does not change the analysis. Effluent-dependent streams can be “waters of the United States” under current and all prior definitions, including the 2020 NWPR,⁵ the pre-2015 regulations utilized in the pre-2015 regulatory regime, and the 2023 rule as amended.⁶

VADEQ did review the Perennial Stream Assessment dated October 28, 2022, completed by Groundwater & Environmental Service Inc. (GES). DEQ noted that the assessment was conducted on a single day during which “CCS provided a period of non-discharge to the stream during the assessment and for several days prior to the assessment, in order to restore the natural hydrology of the stream.” VADEQ noted that the current, ongoing condition of the stream included augmentation by CCS’s discharge. Moreover, impaired status was based upon

⁴ Russell, Periann 2008. [Mapping Headwater Streams: Intermittent and Perennial Headwater Stream Model Development and Spatial Application](#). Final Report for Federal Highway Administration Contract Feasibility Study WBS: 36486.4.2.

⁵ 85 FR 22250, 22275 (April 21, 2020) (disagreeing with a comment that groundwater must be the source of perennial and intermittent flow in jurisdictional tributaries and noting: “The requirement for a groundwater flow source could also render effluent-dependent streams non-jurisdictional”).

⁶ “Specifically, relatively permanent waters may include tributaries in which flow is driven more by various water management regimes and practices, such as tributaries with extensive flow alteration (e.g., diversions, bypass channels, water transfers) and effluent-dependent streams.” 88 FR 3004, 3085 (Jan. 18, 2023).

samples taken at both the upstream and downstream stations, and all agree the downstream station is located in perennial flow. The EPA reviewed the GES Sand Branch and Reference Reach HEC Hydrologic and Hydraulic Analysis report (2024) CCS provided in the IR comment. It provides information on hydrologic alteration and does not provide information to indicate that the stream flow is not supportive of taxa that require perennial stream flow or that stream flow does not support use of VSCI.

The fact that in an August 31, 2023, letter to CCS, VADEQ stated that the upper segment of Sand Branch is perennial based on Loudoun County's 2009 Stream Assessment does not appear to be an intentional misrepresentation of the 2009 Stream Assessment.

Impairing Pollutant

To the extent CCS asserts that Sand Branch should be omitted from Virginia's 2024 303(d) list because VADEQ has not identified an impairing pollutant on the 2024 303(d) list, VADEQ responded that it has conducted a Benthic Stressor Analysis for the Sand Branch Watershed, which identified stressors to the benthic community including Total Dissolved Solids (TDS), sulfate, Total Phosphorus, and Sediment as probable stressors. The Benthic Stressor Analysis also identified non-pollutant contributing factors that cannot be addressed through TMDLs, consisting of underlying geology, land disturbance, percent imperviousness and degraded riparian buffer. The Benthic Stressor Analysis recommended TMDLs be developed for TDS (to address both conductivity and sulfates), sediment (in the form of total suspended solids) and total phosphorus. It has long been the EPA's interpretation that, a water found to be impaired for narrative standards through biological assessments should be listed unless it is demonstrated that the cause of the impairment is something other than a pollutant.⁷ Where a waterbody may be experiencing both hydrologic and/or habitat alteration and excessive levels of one or more pollutants, the waterbody would appropriately be placed in both Category 4C and Category 5.⁸

⁷ EPA, 2001. 2002 Integrated Water Quality Monitoring and Assessment Report Guidance. https://www.epa.gov/sites/default/files/2015-10/documents/2002_02_13_tmdl_2002wqma.pdf; EPA, 2003. Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(D) and 305(b) of the Clean Water Act; TMDL-01-03. https://www.epa.gov/sites/default/files/2015-10/documents/2003_07_23_tmdl_tmdl0103_2004rpt_guidance.pdf; EPA, 2005. Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act.; EPA, 2023. Information Concerning 2024 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions. https://www.epa.gov/system/files/documents/2023-03/2024IRmemo_032923.pdf. ("This is based on, among other things, Sections 303(d)(1)(A) (states must identify waters not meeting applicable WQS) and 303(d)(1)(C) (for listed waters, TMDLs must be written for 'pollutants').")

⁸ See Memorandum from Benita Best-Wong, Director, Office of Wetlands, Oceans and Watersheds, to Water Division Directors 1-10, *Information Concerning 2016 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions* (Aug. 13, 2015) at p. 15; Memorandum from Brian Frazier, Acting Director, Office of Wetlands, Oceans and Watersheds, to Water Division Directors 1-10, *Information Concerning 2024 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions* (March 29, 2023) at Appendix G, p. 40.

CCS acknowledges in its comments that levels of TDS are elevated within Sand Branch. With respect to the TDS levels, CCS asserts that elevated levels of TDS are to be expected and derive from natural conditions of the Triassic Basin, while at the same time also asserting that the elevated TDS levels are caused by excessive use of road salt in the winter and that TDS is contributed by nonpoint source runoff due to development in the watershed. VADEQ provided analysis demonstrating that the concentrations of TDS and conductivity in Sand Branch are not consistent with, and are much higher than, natural background concentrations, including those for the Triassic Basin. In addition, the EPA evaluated natural background in Sand Branch using the EPA's Freshwater Explorer⁹, which models the predicted background conductivity of Sand Branch at 113.9 $\mu\text{S}/\text{cm}$. The conductivity values at the benthic macroinvertebrate monitoring stations were observed to be ten times higher (1,225 $\mu\text{S}/\text{cm}$) than the predicted background conductivity. Moreover, CCS has acknowledged that there are anthropogenic sources (road salt, runoff from development) of TDS in the watershed.

To the extent CCS points to nonpoint source runoff as the source of elevated levels of TDS and/or sediment in Sand Branch, it is appropriate for states to include waters impaired by nonpoint sources on their 303(d) lists.¹⁰

To the extent CCS comments that Sand Branch should not be identified on the 2024 303(d) list because DEQ has not quantified natural and nonpoint source background for conductivity, dissolved and undissolved solids prominent in this Triassic Watershed, such quantification is not a prerequisite for identification of an impairment on a 303(d) list. Source identification and allocation occurs as part of TMDL development. VADEQ appropriately evaluated, and used, all-readily available data to determine benthic macroinvertebrate impairment for Sand Branch in Category 5.

Finally, CCS asserts that VADEQ failed to account for sources of PFAS as a potentially impairing pollutant. In its 2023 letter, VADEQ explains the information it evaluated to determine that PFAS is not a likely stressor to the benthic community in Sand Branch. Regardless, even if the aquatic community in Sand Branch is impaired due to contribution of PFAS from those sources, it is impaired due to a pollutant and therefore appropriately included on the 303(d) list.

Macroinvertebrate Sampling and Analysis

CCS's assertion that VADEQ failed to respond to the EPA's comments on the draft 2024 IR regarding use of macroinvertebrate data is incorrect. The EPA did not comment on Sand Branch specifically or on macroinvertebrate collection generally. The EPA's comments were limited to other waters that VADEQ had placed in Categories 2 and 3, and VADEQ appropriately responded to those comments.

⁹ Cormier S., Wharton C., Olson J., U.S. EPA Freshwater Explorer. V: 0.1. U.S. Environmental Protection Agency. July 2021. <https://arcg.is/KHb9S>

¹⁰ *Pronsolino v. Nastri*, 291 F.3d 1123, 1126 (9th Cir. 2002)

CCS posits that Sand Branch should be omitted from the 303(d) List due to asserted flaws in macroinvertebrate collection or analysis. Among other things, CCS asserts that using VSCI in the Triassic Basin is scientifically inappropriate because VSCI is a statewide index that does not account for the unique characteristics of the Triassic Basin. VADEQ responded that several streams similar in size to Sand Branch and within the same ecoregion were used to develop and validate VSCI.

To the extent CCS asserts that certain samples are not representative of conditions or comparable to VSCI because of the sampling date, all samples are within the VSCI sample index period. This index period is defined in VSCI protocols. VADEQ explains those protocols have been robustly developed, validated¹¹, and scientifically reviewed and that all monitoring events occurred within acceptable sampling windows outlined in DEP's Biological Monitoring Quality Assurance Project Plan for Wadeable Streams and Rivers. Moreover, none of the samples achieve or exceed the VSCI impairment threshold score of 60. To the extent CCS asserts that the March samples coincide with high levels of conductivity due to road salt usage, that observation supports that the impairment correlates to the presence of a pollutant.

To the extent CCS asserts that VADEQ did not collect a sufficient number of individual macroinvertebrates to perform the VSCI analysis, the EPA has reviewed VADEQ's data and determined that VADEQ achieved its target of 200 +/- 10% (180-220) macroinvertebrates, outlined in their Biological Monitoring Quality Assurance Project Plan For Wadeable Streams and Rivers for all Sand Branch samples. To the extent CCS implies that VSCI cannot be a reliable tool for assessments because it does not evaluate 300 organisms, VADEQ explains VSCI protocols have been robustly developed, validated, and scientifically reviewed.

CCS's comment that macroinvertebrate scores are higher in the upper portion of Sand Branch than those downstream is not a basis for excluding Sand Branch from the 303(d) List. The lower downstream scores may reflect a variety of inputs, and regardless, the upstream macroinvertebrate scores do not achieve the VSCI impairment threshold score of 60.

CCS's reliance on the EPA's Factsheet on Water Quality Parameters, Macroinvertebrates (July 2021, EPA 841F21007E) is unavailing. CCS focuses on the statement in the Factsheet that: "because macroinvertebrates are affected by multiple pollutants, using them to identify or track a specific pollutant of concern is challenging." Nothing in that statement, the Factsheet, or in the EPA's Stressor Identification Guidance Document is inconsistent with analysis of macroinvertebrate samples as a means to identify whether a waterbody is achieving its designated aquatic life use. EPA, Factsheet on Water Quality Parameters, Macroinvertebrates (July 2021, EPA 841F21007E). Stressor identification is not synonymous with assessment of impairment for 303(d) listing purposes.

¹¹ VADEQ, 2006. Using Probabilistic Monitoring Data to Validate the Non-Coastal Virginia Stream Condition Index. VADEQ Technical Bulletin WQA/2006-001.
<https://www.deq.virginia.gov/home/showpublisheddocument/4319/637461491379900000>

Whether Sand Branch should be moved to Category 4C

CCS also asserts that VADEQ misapplied the terms “pollution” and “water quality limited segment,” and that Sand Branch should be moved from Category 5 of the 2024 IR (the 303(d) list) to Category 4C. In places, CCS appears to assert that the presence of Total Dissolved Solids (TDS), Total Phosphorus, and Sediment in Sand Branch is due, in whole or in part, to the presence of those pollutants in flow contributed by effluent. From there, CCS appears to assert that the presence of the probable stressors is a function of flow alteration caused by contribution of effluent, and therefore the segment should be included in Category 4C.

CCS misinterprets the scope of Category 4C, which is an opportunity to identify non-pollutant causes of impairments (whereas Category 5, the 303(d) list, is used to identify pollutant causes of impairments requiring TMDLs). With respect to hydrologic alteration (also called flow alteration) and habitat alteration, Category 4C encompasses impairments, for example, that are caused by the physical alteration of the stream, such as the absence of flow or periods of excessive flow causing habitat scour. The presence of pollutants in the stream at elevated levels delivered in effluent contributing to stream flow is not a basis for removing an impaired segment from Category 5. In addition, CCS appears to assert that more recent land development changes have resulted in higher and more variable flows in Sand Branch following precipitation, resulting in potential habitat alteration. As noted elsewhere, the Benthic Stressor Analysis conducted in 2021 identified probable stressors to the benthic community including Total Dissolved Solids (TDS), sulfate, Total Phosphorus, and Sediment. The Benthic Stressor Analysis also identified non-pollutant contributing factors that cannot be addressed through TMDLs, consisting of underlying geology, land disturbance, percent imperviousness and degraded riparian buffer. The Benthic Stressor Analysis recommended TMDLs be developed for TDS (to address both conductivity and sulfates), sediment (in the form of total suspended solids) and total phosphorus. It has long been the EPA’s interpretation that, a water found to be impaired for narrative standards through biological assessments should be listed unless it is demonstrated that the cause of the impairment is something other than a pollutant. CCS has not identified additional development since 2021 that would change these conclusions.

As stated above, where a waterbody may be experiencing both hydrologic and/or habitat alteration and excessive levels of one or more pollutants, the waterbody would appropriately be placed in both Category 4C and Category 5.¹²

Public Participation Procedure

¹² See Memorandum from Benita Best-Wong, Director, Office of Wetlands, Oceans and Watersheds, to Water Division Directors 1-10, *Information Concerning 2016 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions* (Aug. 13, 2015) at p. 15; Memorandum from Brian Frazier, Acting Director, Office of Wetlands, Oceans and Watersheds, to Water Division Directors 1-10, *Information Concerning 2024 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions* (March 29, 2023) at Appendix G, p. 40.

As set forth in the Decision Rationale and consistent with its Continuing Planning Process (CPP), VADEQ made a draft list available for public notice and comment from April 22, 2024, through May 22, 2024, and responded to comments. VADEQ submitted the IR to the EPA on March 28, 2025, but has not made the final IR public. CCS communicated that since VADEQ did not make the final IR public prior to submission to the EPA, VADEQ has violated public participation requirements. Nothing in Virginia's CPP requires that, following the initial public notice and comment period, VADEQ make the subsequent final draft list available to the public prior to submission to the EPA for action pursuant to 33 U.S.C. § 1313(d)(2).