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**By Email**

March 4, 2021

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Norfolk, Virginia 23510

Re: Mountain Valley Pipeline Project
USACE Nos: LRH-2015-00592-GBR; LPR-2015-798; NAO-2017-0898
VMRC No: 2017-1609
**Information Update**

Dear Messrs. Fannin, Pritts, Miller, Hardwick, and Owen:

On February 19 Mountain Valley provided an application to the U.S. Army Corps of Engineers (USACE) for an Individual Permit under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. This application was submitted jointly to the Huntington, Pittsburgh, and Norfolk Districts.

Mountain Valley also provided an application to the Virginia Department of Environmental Quality (VDEQ) for a Virginia Water Protection Permit and an application to the Virginia Marine Resources Commission (VMRC) to modify the Project's existing subaqueous lands permit.

Since the submission, Mountain Valley identified several updates to the tables listed below. The information is intended to completely replace the identified Tables in the applications.

- Table 2 (Stream Impacts)
- Table 3 (Wetland Impacts)
- Table 4 (Stream Impacts Summary)
- Table 5 (Wetland Impacts Summary)
- Table 8 (List of Affected Landowners): Mountain Valley is requesting that this Table is not subject to FOIA under Exemption 6.
- Table 15 (Crossing Method Determination Summary)
- Table 17 (Compensatory Wetland Mitigation)
- Table 18 (Compensatory Stream Mitigation)
- Table A-1 (West Virginia Stream Impacts)
- Table A-2 (West Virginia Wetland Impacts)
- Table A-3 (West Virginia Stream Impact Summary)
- Table A-4 (West Virginia Wetland Impact Summary)
- Table B-1 (Virginia Stream Impacts)
- Table B-2 (Virginia Wetland Impacts)
- Table B-3 (Virginia Stream Impact Summary)
- Table B-4 (Virginia Wetland Impact Summary)

The Mountain Valley Pipeline project team looks forward to working with you through the respective permitting processes. We welcome any comments or questions you may have regarding the enclosed information. Please feel free to contact me at (724) 873-3009 or MHoover@equitransmidstream.com.

Respectfully submitted,
MOUNTAIN VALLEY PIPELINE, LLC
by and through its operator,
EQM Gathering Opco, LLC
By:

Matthew S. Hoover
Environmental Permitting Supervisor

Enclosure (as stated)

cc: Teresa Spagna, USACE
Kayla Osborne, USACE
Kathy Emery, WVDEP

Scott Mandirola, WVDEP
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Melanie Davenport, VDEQ
Dave Davis, VDEQ

Mountain Valley PIPELINE LLC

**Table 2 (Stream Impacts)**

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-J62 | Right Fork Big Elk Creek | Harrison | Pittsburgh | 39.445033 | -80.482635 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-35 |
| S-B75/F49 | UNT to Goose Run | Harrison | Pittsburgh | 39.436571 | -80.475198 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | | 4-36 |
| S-B74 | Goose Run | Harrison | Pittsburgh | 39.436245 | -80.474976 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-36 |
| S-B79 | UNT to Big Elk Creek | Harrison | Pittsburgh | 39.423571 | -80.476278 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Temporary Access Road | 11 | - | 0.0004 | - | 2 | - | 4-39 |
| S-B79 | UNT to Big Elk Creek | Harrison | Pittsburgh | 39.423499 | -80.476392 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Permanent Access Road | - | 60 | - | 0.0021 | - | 7 | 4-39 |
| S-B79 | UNT to Big Elk Creek | Harrison | Pittsburgh | 39.423434 | -80.476486 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Temporary Access Road | 24 | - | 0.0008 | - | 4 | - | 4-39 |
| S-J54 | UNT to Little Tenmile Creek | Harrison | Pittsburgh | 39.400324 | -80.479967 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Permanent Access Road | - | 26 | - | 0.0048 | - | 23 | 4-43 |
| S-J51 | Little Tenmile Creek | Harrison | Pittsburgh | 39.398116 | -80.477174 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 20 | - | 0.0138 | - | 67 | - | 4-43 |
| S-A10a | Little Rockcamp Run | Harrison | Pittsburgh | 39.370005 | -80.484974 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 20 | - | 0.0055 | - | 27 | | 4-49 |
| S-B2a | UNT to Rockcamp Run | Harrison | Pittsburgh | 39.359262 | -80.493290 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 115 | - | 0.0211 | - | 341 | - | 4-51 |
| S-B3a | Rockcamp Run | Harrison | Pittsburgh | 39.358871 | -80.493707 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 97 | - | 0.0445 | - | 719 | - | 4-51 |
| S-A128 | Rockcamp Run | Harrison | Pittsburgh | 39.355569 | -80.4901 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Permanent Access Road | - | 29 | - | 0.032 | - | 155 | 4-51 |
| S-RR22 | UNT to Grass Run | Harrison | Pittsburgh | 39.342166 | -80.512422 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 20 | - | 0.0055 | - | 27 | | 4-55 |
| S-A11a | Grass Run | Harrison | Pittsburgh | 39.335511 | -80.522421 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 113 | - | 0.0311 | - | 502 | - | 4-56 |
| S-A11a-Braid-1 | Grass Run | Harrison | Pittsburgh | 39.335500 | -80.522502 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 11 | - | 0.0015 | - | 7 | - | 4-56 |
| S-A11a-Braid-2 | Grass Run | Harrison | Pittsburgh | 39.335410 | -80.522360 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 77 | - | 0.0088 | - | 143 | - | 4-56 |
| S-OP8 | UNT to Indian Run | Harrison | Pittsburgh | 39.320959 | -80.526445 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Temporary Access Road | - | 41 | - | 0.0047 | - | 23 | 4-59 |
| S-OP9 | UNT to Indian Run | Harrison | Pittsburgh | 39.320682 | -80.526449 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Temporary Access Road | - | 36 | - | 0.0025 | - | 12 | 4-59 |
| S-B6a | Indian Run | Harrison | Pittsburgh | 39.317309 | -80.527175 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Temporary Access Road | 30 | - | 0.0207 | - | 100 | - | 4-59 |
| S-B6a | Indian Run | Harrison | Pittsburgh | 39.317023 | -80.526157 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 20 | - | 0.0138 | - | 67 | - | 4-59 |
| S-B7a | UNT to Indian Run | Harrison | Pittsburgh | 39.316755 | -80.526222 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-59 |
| S-UU3 | Salem Fork | Harrison | Pittsburgh | 39.289870 | -80.517903 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 76 | - | 0.1047 | - | 1,689 | - | 4-66 |
| S-UU5 | Halls Run | Harrison | Pittsburgh | 39.253041 | -80.540508 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 79 | - | 0.0073 | - | 117 | - | 4-74 |
| S-K73 | Coburn Fork | Harrison | Pittsburgh | 39.243691 | -80.553966 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 110 | - | 0.0126 | - | 204 | - | 4-77 |
| S-K74 | UNT to Coburn Fork | Harrison | Pittsburgh | 39.243647 | -80.553903 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 36 | - | 0.0021 | - | 10 | - | 4-77 |
| S-K75 | UNT to Coburn Fork | Harrison | Pittsburgh | 39.243509 | -80.554028 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 96 | - | 0.0066 | - | 107 | - | 4-77 |
| S-K80 | UNT to Turtletree Fork | Harrison | Pittsburgh | 39.225747 | -80.550164 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | | 4-80 |
| S-CV9 | UNT to Turtletree Fork | Harrison | Pittsburgh | 39.22369 | -80.548273 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0009 | - | 4 | | 4-81 |
| S-K81 | Turtletree Fork | Harrison | Pittsburgh | 39.223263 | -80.547928 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 30 | - | 0.0028 | - | 13 | | 4-81 |
| S-CV10 | UNT to Turtletree Fork | Harrison | Pittsburgh | 39.221719 | -80.546951 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | | 4-81 |
| S-A106 | UNT to Kincheloe Creek | Harrison | Pittsburgh | 39.168435 | -80.577625 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 168 | - | 0.001 | - | 47 | - | 4-92 |
| S-A105 | UNT to Kincheloe Creek | Harrison | Pittsburgh | 39.168266 | -80.577815 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-92 |
| S-K94 | Kincheloe Creek | Lewis | Pittsburgh | 39.167831 | -80.578867 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Temporary Access Road | 18 | - | 0.0083 | - | 40 | - | 4-92 |
| S-K82 | UNT to Kincheloe Creek | Harrison | Pittsburgh | 39.167753 | -80.578181 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 110 | - | 0.0101 | - | 49 | - | 4-92 |
| S-K94 | Kincheloe Creek | Lewis | Pittsburgh | 39.167575 | -80.578144 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 79 | - | 0.0363 | - | 585 | - | 4-92 |
| S-I67 | Smoke Camp Run | Lewis | Pittsburgh | 39.137145 | -80.577026 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-99 |
| S-J43 | Right Fork Freemans Creek | Lewis | Pittsburgh | 39.120579 | -80.581328 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 22 | - | 0.0126 | - | 61 | - | 4-102 |
| S-J44 | UNT to Right Fork Freemans Creek | Lewis | Pittsburgh | 39.114730 | -80.586203 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 79 | - | 0.0073 | - | 117 | - | 4-103 |
| S-K46 | UNT to Left Fork Freemans Creek | Lewis | Pittsburgh | 39.080252 | -80.581430 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 93 | - | 0.0043 | - | 21 | - | 4-109 |
| S-B67 | Left Fork Freemans Creek | Lewis | Pittsburgh | 39.079556 | -80.581346 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 22 | - | 0.0061 | - | 29 | - | 4-110 |
| S-B69 | UNT to Left Fork Freemans Creek | Lewis | Pittsburgh | 39.077790 | -80.582932 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Temporary Access Road | 86 | - | 0.0030 | - | 14 | - | 4-110 |
| S-H184 | UNT to Left Fork Freemans Creek | Lewis | Pittsburgh | 39.069684 | -80.580583 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-111 |
| S-H184a | UNT to Left Fork Freemans Creek | Lewis | Pittsburgh | 39.069645 | -80.580591 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-111 |
| S-H180 | UNT to Left Fork Freemans Creek | Lewis | Pittsburgh | 39.068217 | -80.581025 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 68 | - | 0.0203 | - | 327 | - | 4-111 |
| S-ST18 | UNT to Mobley Run | Wetzel | Huntington | 39.561766 | -80.540136 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | Permanent Access Road | 21 | - | 0.0049 | - | 23 | - | 4-2 |
| S-WX3 | UNT to Mobley Run | Wetzel | Huntington | 39.560611 | -80.545823 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | ATWS | 21 | - | 0.0024 | - | 12 | - | 4-1 |
| S-A1a | North Fork Fishing Creek | Wetzel | Huntington | 39.553946 | -80.545046 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030201 | Pipeline ROW | 80 | - | 0.0641 | - | 1,034 | - | 4-3 |
| S-A3a | UNT to North Fork Fishing Creek | Wetzel | Huntington | 39.551814 | -80.545633 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 80 | - | 0.0166 | - | 267 | - | 4-4 |
| S-J66 | UNT to North Fork Fishing Creek | Wetzel | Huntington | 39.546030 | -80.544314 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0014 | | 7 | | 4-5 |
| S-A5a | UNT to Fallen Timber Run | Wetzel | Huntington | 39.534241 | -80.540995 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 30 | - | 0.0028 | - | 13 | - | 4-8 |
| S-A6a | Fallen Timber Run | Wetzel | Huntington | 39.534023 | -80.540889 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030201 | Timber Mat Crossing | 20 | - | 0.0092 | - | 44 | - | 4-9 |
| S-A125 | Price Run | Wetzel | Huntington | 39.503477 | -80.532902 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030201 | Timber Mat Crossing | 20 | - | 0.0161 | - | 78 | - | 4-19 |
| S-A124 | UNT to Price Run | Wetzel | Huntington | 39.503288 | -80.532680 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 100 | - | 0.0276 | - | 445 | - | 4-19 |
| S-A118 | UNT to Price Run | Wetzel | Huntington | 39.502399 | -80.523520 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 79 | - | 0.0109 | - | 176 | - | 4-20 |
| S-A120 | Stout Run | Wetzel | Huntington | 39.489914 | -80.522135 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | Temporary Access Road | 8 | - | 0.0011 | - | 5 | - | 4-23 |
| S-A120 | Stout Run | Wetzel | Huntington | 39.489890 | -80.522083 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | Permanent Access Road | - | 26 | - | 0.0036 | - | 15 | 4-23 |
| S-A120 | Stout Run | Wetzel | Huntington | 39.489866 | -80.522029 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | Temporary Access Road | 9 | - | 0.0012 | - | 6 | - | 4-23 |
| S-A120 | Stout Run | Wetzel | Huntington | 39.489712 | -80.520728 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-23 |
| S-A119 | UNT to Stout Run | Wetzel | Huntington | 39.489589 | -80.520532 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 134 | - | 0.0154 | - | 74 | - | 4-23 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-QR34 | UNT to Stout Run | Wetzel | Huntington | 39.489140 | -80.520658 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030201 | Permanent Access Road | - | 125 | - | 0.0072 | - | 24 | 4-23 |
| S-QR34 | UNT to Stout Run | Wetzel | Huntington | 39.489062 | -80.520519 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030201 | Temporary Access Road | 8 | - | 0.0004 | - | 2 | - | 4-23 |
| S-J60 | Sams Run | Wetzel | Huntington | 39.474354 | -80.511825 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0064 | - | 31 | - | 4-26 |
| S-J56 | Manion Run | Wetzel | Huntington | 39.464315 | -80.502077 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-28 |
| S-J56 | Manion Run | Wetzel | Huntington | 39.464105 | -80.502318 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030201 | Temporary Access Road | 23 | - | 0.0054 | - | 26 | - | 4-28 |
| S-J56 | Manion Run | Wetzel | Huntington | 39.463899 | -80.502594 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030201 | Permanent Access Road | - | 41 | - | 0.0095 | - | 46 | 4-28 |
| S-J59 | UNT to Manion Run | Wetzel | Huntington | 39.462705 | -80.504726 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Permanent Access Road | - | 7 | - | 0.0005 | - | 2 | 4-28 |
| S-J59 | UNT to Manion Run | Wetzel | Huntington | 39.462684 | -80.504736 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Temporary Access Road | 10 | - | 0.0007 | - | 3 | - | 4-28 |
| S-J58 | UNT to Manion Run | Wetzel | Huntington | 39.462546 | -80.505386 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030201 | Permanent Access Road | 26 | - | 0.0030 | - | 14 | - | 4-28 |
| S-K77 | Traugh Fork | Doddridge | Huntington | 39.229029 | -80.552534 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 37 | - | 0.0034 | - | 54 | - | 4-80 |
| S-K77 | Traugh Fork | Doddridge | Huntington | 39.228942 | -80.552437 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 93 | - | 0.0085 | - | 137 | - | 4-80 |
| S-K67 | UNT to Big Issac Creek | Doddridge | Huntington | 39.210269 | -80.553179 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 77 | - | 0.0177 | - | 285 | - | 4-84 |
| S-K65 | UNT to Big Issac Creek | Doddridge | Huntington | 39.209813 | -80.552450 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 90 | - | 0.0165 | - | 267 | - | 4-84 |
| S-K54 | UNT to Big Issac Creek | Doddridge | Huntington | 39.207673 | -80.552957 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-84 |
| S-K58 | UNT to Big Issac Creek | Doddridge | Huntington | 39.205595 | -80.553224 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0011 | - | 6 | - | 4-84 |
| S-K59 | UNT to Big Issac Creek | Doddridge | Huntington | 39.204704 | -80.553272 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0011 | - | 6 | - | 4-84 |
| S-K60 | UNT to Big Issac Creek | Doddridge | Huntington | 39.203779 | -80.553410 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-84 |
| S-A110/K62 | UNT to Laural Run | Doddridge | Huntington | 39.201316 | -80.553306 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Permanent Access Road | - | 25 | - | 0.0040 | - | 13 | 4-85 |
| S-A110/K62 | UNT to Laural Run | Doddridge | Huntington | 39.201286 | -80.553425 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 59 | - | 0.0095 | - | 154 | - | 4-85 |
| S-A111 | Laural Run | Doddridge | Huntington | 39.200749 | -80.553190 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030201 | Pipeline ROW | 77 | - | 0.0247 | - | 399 | - | 4-85 |
| S-J46 | Fink Creek | Lewis | Huntington | 39.094778 | -80.584826 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030203 | Timber Mat Crossing | 22 | - | 0.0076 | - | 37 | - | 4-106 |
| S-J47b | UNT to Fink Creek | Lewis | Huntington | 39.094003 | -80.585481 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-106 |
| S-I64 | Leading Creek | Lewis | Huntington | 39.052748 | -80.582213 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-114 |
| S-KK3a | UNT to Laurel Run | Lewis | Huntington | 39.019605 | -80.597895 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-119 |
| S-KK5 | UNT to Laurel Run | Lewis | Huntington | 39.017783 | -80.596853 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-119 |
| S-KK5 | UNT to Laurel Run | Lewis | Huntington | 39.017738 | -80.597017 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-119 |
| S-KK5 | UNT to Laurel Run | Lewis | Huntington | 39.017718 | -80.597027 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-119 |
| S-KK6 | UNT Laurel Run | Lewis | Huntington | 39.017621 | -80.596939 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-119 |
| S-KK7 | Laurel Run | Lewis | Huntington | 39.017519 | -80.597010 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0030 | - | 15 | - | 4-119 |
| S-K45 | UNT to Cove Lick | Lewis | Huntington | 39.002598 | -80.595591 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | ATWS | 50 | - | 0.0011 | - | 6 | - | 4-121 |
| S-K43 | Cove Lick | Lewis | Huntington | 39.002111 | -80.595843 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 27 | - | 0.0043 | - | 21 | 4-121 |
| S-K43 | Cove Lick | Lewis | Huntington | 39.002045 | -80.596098 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-121 |
| S-K38 | UNT to Rock Run | Lewis | Huntington | 38.992357 | -80.592929 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-123 |
| S-I63 | Sand Fork | Lewis | Huntington | 38.969369 | -80.593138 | Perennial | RPW | Non-listed mussels, Warmwater Fishery, Tier 1 | 05030203 | Pipeline ROW | 60 | - | 0.0275 | - | 444 | - | 4-128 |
| S-I63 | Sand Fork | Lewis | Huntington | 38.969290 | -80.593203 | Perennial | RPW | Non-listed mussels, Warmwater Fishery, Tier 1 | 05030203 | Permanent Access Road | - | 26 | - | 0.0119 | - | 58 | 4-128 |
| S-I63 | Sand Fork | Lewis | Huntington | 38.969239 | -80.593244 | Perennial | RPW | Non-listed mussels, Warmwater Fishery, Tier 1 | 05030203 | Temporary Access Road | 8 | - | 0.0037 | - | 18 | - | 4-128 |
| S-H160 | Indian Fork | Lewis | Huntington | 38.933179 | -80.584562 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030203 | Timber Mat Crossing | 23 | - | 0.0106 | - | 59 | - | 4-135 |
| S-L76 | Indian Fork | Lewis | Huntington | 38.929761 | -80.575251 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030203 | Permanent Access Road | 33 | - | 0.0115 | - | 56 | - | 4-137 |
| S-H153 | UNT to Sugar Camp Run | Lewis | Huntington | 38.922846 | -80.579227 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 76 | - | 0.0262 | - | 423 | - | 4-136 |
| S-H145 | UNT to Indian Fork | Lewis | Huntington | 38.918986 | -80.573838 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 91 | - | 0.0313 | - | 505 | - | 4-140 |
| S-H165 | UNT to Indian Fork | Lewis | Huntington | 38.918602 | -80.573256 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 144 | - | 0.0198 | - | 320 | - | 4-140 |
| S-CV3 | Threelick Run | Lewis | Huntington | 38.913415 | -80.571854 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030203 | Timber Mat Crossing | 22 | - | 0.0030 | - | 15 | - | 4-142 |
| S-CD16 | UNT to Second Big Run | Lewis | Huntington | 38.904135 | -80.563719 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 173 | - | 0.0318 | - | 154 | - | 4-144 |
| S-VV13 | Second Big Run | Lewis | Huntington | 38.903930 | -80.563537 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 80 | - | 0.0275 | - | 133 | - | 4-144 |
| S-VV11 | UNT to Second Big Run | Lewis | Huntington | 38.903610 | -80.563186 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 7 | - | 0.0007 | - | 3 | - | 4-144 |
| S-VV12 | UNT to Second Big Run | Lewis | Huntington | 38.903575 | -80.563308 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 77 | - | 0.0211 | - | 341 | - | 4-144 |
| S-VV13d | Second Big Run | Lewis | Huntington | 38.902549 | -80.564778 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 61 | - | 0.0210 | - | 102 | - | 4-144 |
| S-VV20 | UNT to Second Big Run | Lewis | Huntington | 38.900233 | -80.563491 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 40 | - | 0.0028 | - | 13 | - | 4-145 |
| S-VV19 | UNT to Second Big Run | Lewis | Huntington | 38.899505 | -80.563925 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 62 | - | 0.0043 | - | 21 | - | 4-146 |
| S-VV13b | Second Big Run | Lewis | Huntington | 38.898431 | -80.568250 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 42 | - | 0.0143 | - | 69 | - | 4-146 |
| S-VV18 | UNT to Second Big Run | Lewis | Huntington | 38.897028 | -80.567634 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 41 | - | 0.0075 | - | 36 | - | 4-146 |
| S-VV16 | UNT to Second Big Run | Lewis | Huntington | 38.896271 | -80.566551 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 293 | - | 0.0202 | - | 98 | - | 4-146 |
| S-VV16 | UNT to Second Big Run | Lewis | Huntington | 38.895455 | -80.566432 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 211 | - | 0.0145 | - | 70 | - | 4-146 |
| S-UV11 | Oil Creek | Lewis | Huntington | 38.893014 | -80.556192 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 51 | - | 0.0351 | - | 567 | - | 4-148 |
| S-UV11 | Oil Creek | Lewis | Huntington | 38.893014 | -80.556192 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 25 | - | - | 0 | - | 4-148 |
| S-VV22 | UNT to Oil Creek | Lewis | Huntington | 38.890411 | -80.550986 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 43 | - | 0.0029 | - | 12 | - | 4-148 |
| S-VV21 | UNT to Oil Creek | Lewis | Huntington | 38.890221 | -80.553817 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 18 | - | 0.0012 | - | 5 | - | 4-148 |
| S-L61 | Crooked Run | Lewis | Huntington | 38.880040 | -80.563579 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 30 | - | 0.0069 | - | 33 | 4-151 |
| S-L61 | Crooked Run | Lewis | Huntington | 38.879034 | -80.564307 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 28 | - | 0.0064 | - | 31 | 4-151 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-VV9 | UNT to Clover Fork | Lewis | Huntington | 38.863254 | -80.525763 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-158 |
| S-VV2 | Clover Fork | Braxton | Huntington | 38.862730 | -80.525128 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 90 | - | 0.0412 | - | 664 | - | 4-159 |
| S-L51 | Barbecue Run | Braxton | Huntington | 38.839355 | -80.519693 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0101 | - | 49 | - | 4-161 |
| S-J37 | UNT to Barbecue Run | Braxton | Huntington | 38.839133 | -80.519716 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-162 |
| S-L57 | UNT to Barbecue Run | Braxton | Huntington | 38.828310 | -80.525753 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | - | 26 | - | 0.0024 | - | 12 | 4-165 |
| S-L57 | UNT to Barbecue Run | Braxton | Huntington | 38.828300 | -80.525691 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road/ATWS | 25 | - | 0.0023 | - | 11 | - | 4-165 |
| S-L60 | Left Fork Knawl Creek | Braxton | Huntington | 38.824034 | -80.524988 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 75 | - | 0.0517 | - | 833 | - | 4-165 |
| S-LL1 | Knawl Creek | Braxton | Huntington | 38.823595 | -80.525342 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 88 | - | 0.0607 | - | 980 | - | 4-165 |
| S-IJ27 | Little Knawl Creek | Braxton | Huntington | 38.809593 | -80.541252 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 34 | - | 0.0156 | - | 76 | 4-168 |
| S-IJ32 | UNT to Little Knawl Creek | Braxton | Huntington | 38.809568 | -80.537319 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 26 | - | 0.0030 | - | 14 | 4-168 |
| S-IJ27 | Little Knawl Creek | Braxton | Huntington | 38.808878 | -80.543272 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 50 | - | 0.0230 | - | 111 | 4-168 |
| S-QR30 | UNT to Little Knawl Creek | Braxton | Huntington | 38.807940 | -80.535715 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 79 | - | 0.0274 | - | 442 | - | 4-168 |
| S-JJ1 | UNT to Keith Run | Braxton | Huntington | 38.786930 | -80.530028 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0071 | - | 34 | - | 4-172 |
| S-I60 | UNT to Falls Run | Braxton | Huntington | 38.781068 | -80.524577 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-174 |
| S-J70 | Falls Run | Braxton | Huntington | 38.778955 | -80.525862 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 77 | - | 0.0530 | - | 854 | - | 4-174 |
| S-K34 | Hemp Patch Run | Braxton | Huntington | 38.766123 | -80.520308 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-178 |
| S-K33 | UNT to Hemp Patch Run | Braxton | Huntington | 38.765714 | -80.520032 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-178 |
| S-H123 | UNT to Elliott Run | Braxton | Huntington | 38.761197 | -80.514887 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 82 | - | 0.0113 | - | 183 | - | 4-178 |
| S-H123 | UNT to Elliott Run | Braxton | Huntington | 38.760426 | -80.513624 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 82 | - | 0.0113 | - | 182 | - | 4-178 |
| S-H127 | UNT to Elliott Run | Braxton | Huntington | 38.755029 | -80.513692 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-180 |
| S-H132 | Little Kanawha River | Braxton | Huntington | 38.751499 | -80.514919 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 120 | - | 0.0606 | - | 293 | - | 4-180 |
| S-H129 | UNT to Little Kanawha River | Braxton | Huntington | 38.749321 | -80.514337 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-183 |
| S-H131 | UNT to Little Kanawha River | Braxton | Huntington | 38.749215 | -80.514370 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-183 |
| S-H117 | Stonecoal Run | Braxton | Huntington | 38.731020 | -80.506280 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 82 | - | 0.0283 | - | 456 | - | 4-188 |
| S-L46 | UNT to Laurel Run | Braxton | Huntington | 38.721880 | -80.499258 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 78 | - | 0.0267 | - | 431 | - | 4-190 |
| S-L44 | UNT to Laurel Run | Braxton | Huntington | 38.716945 | -80.494589 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 81 | - | 0.0185 | - | 298 | - | 4-193 |
| S-I57 | Mudlick Run | Braxton | Huntington | 38.697413 | -80.489560 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 77 | - | 0.0528 | - | 852 | - | 4-196 |
| S-A96/A103 | UNT to Left Fork Holly River | Webster | Huntington | 38.688706 | -80.478590 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 83 | - | 0.0114 | - | 185 | - | 4-198 |
| S-A97 | UNT to Left Fork Holly River | Webster | Huntington | 38.688329 | -80.478406 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 125 | - | 0.0229 | - | 370 | - | 4-198 |
| S-A99 | UNT to Left Fork Holly River | Webster | Huntington | 38.688120 | -80.478371 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 34 | - | 0.0039 | - | 19 | - | 4-198 |
| S-A98 | UNT to Left Fork Holly River | Webster | Huntington | 38.687906 | -80.478024 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW/Temporary Access Road | 392 | - | 0.0629 | - | 1015 | - | 4-198 |
| S-A100 | Left Fork Holly River | Webster | Huntington | 38.676643 | -80.477940 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0404 | - | 196 | - | 4-200 |
| S-E78/E82/R1 | UNT to Left Fork Holly River | Webster | Huntington | 38.676223 | -80.477663 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 102 | - | 0.0094 | - | 151 | - | 4-200 |
| S-E76 | UNT to Left Fork Holly River | Webster | Huntington | 38.674988 | -80.477360 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-200 |
| S-KK2 | UNT to Left Fork Holly River | Webster | Huntington | 38.672226 | -80.476315 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 75 | - | 0.0052 | - | 84 | - | 4-200 |
| S-KK3b | UNT to Left Fork Holly River | Webster | Huntington | 38.672110 | -80.476515 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 100 | - | 0.0069 | - | 111 | - | 4-201 |
| S-KK4b | UNT to Left Fork Holly River | Webster | Huntington | 38.671976 | -80.476825 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 88 | - | 0.0061 | - | 98 | - | 4-201 |
| S-E74 | UNT to Left Fork Holly River | Webster | Huntington | 38.671971 | -80.476990 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 68 | - | 0.0062 | - | 30 | - | 4-200 |
| S-F40 | Oldlick Creek | Webster | Huntington | 38.667943 | -80.479023 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0126 | - | 61 | - | 4-201 |
| S-S1 | UNT to Oldlick Creek | Webster | Huntington | 38.667020 | -80.478624 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 21 | - | 0.0010 | - | 5 | - | 4-201 |
| S-S4 | UNT to Oldlick Creek | Webster | Huntington | 38.664389 | -80.484709 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 45 | - | 0.0021 | - | 10 | - | 4-204 |
| S-F43 | UNT to Oldlick Creek | Webster | Huntington | 38.663706 | -80.478644 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 101 | - | 0.0232 | - | 375 | - | 4-202 |
| S-E67 | Right Fork Holly Creek | Webster | Huntington | 38.648021 | -80.489704 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 92 | - | 0.1803 | - | 2910 | - | 4-206 |
| S-B62 | Narrows Run | Webster | Huntington | 38.646185 | -80.486813 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | ATWS | 15 | - | 0.0103 | - | 50 | - | 4-215 |
| S-B62 | Narrows Run | Webster | Huntington | 38.643910 | -80.485213 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Permanent Access Road | - | 29 | - | 0.0200 | - | 97 | 4-215 |
| S-E71 | UNT to Elk River | Webster | Huntington | 38.614405 | -80.506004 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 44 | - | 0.0020 | - | 33 | - | 4-218 |
| S-H111 | UNT to Elk River | Webster | Huntington | 38.613367 | -80.504620 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-218 |
| S-H111 | UNT to Elk River | Webster | Huntington | 38.613341 | -80.504620 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-218 |
| S-H114 | UNT to Elk River | Webster | Huntington | 38.613259 | -80.504243 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-218 |
| S-H112 | UNT to Elk River | Webster | Huntington | 38.613163 | -80.504012 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-218 |
| S-H113 | UNT to Elk River | Webster | Huntington | 38.612982 | -80.503647 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 74 | - | 0.0203 | - | 327 | - | 4-218 |
| S-H113 | UNT to Elk River | Webster | Huntington | 38.612878 | -80.503687 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 9 | - | 0.0026 | - | 42 | - | 4-218 |
| S-H113 | UNT to Elk River | Webster | Huntington | 38.612874 | -80.503682 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 9 | - | 0.0026 | - | 41 | - | 4-218 |
| S-H110 | UNT to Houston Run | Webster | Huntington | 38.587200 | -80.509634 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-222 |
| S-T29 | Houston Run | Webster | Huntington | 38.579092 | -80.525620 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 76 | | 0.0525 | - | 847 | - | 4-230 |
| S-A83/A91 | UNT to Camp Creek | Webster | Huntington | 38.557064 | -80.535592 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 75 | - | 0.0518 | - | 835 | - | 4-235 |
| S-A93 | UNT to Camp Creek | Webster | Huntington | 38.556823 | -80.535751 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Temporary Access Road | 13 | - | 0.0025 | - | 12 | - | 4-235 |
| S-A93 | UNT to Camp Creek | Webster | Huntington | 38.556682 | -80.535572 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 105 | - | 0.0193 | - | 312 | - | 4-235 |
| S-A92 | UNT to Camp Creek | Webster | Huntington | 38.556658 | -80.535607 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 59 | - | 0.0175 | - | 282 | - | 4-235 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-H108 | Lower Laurel Fork | Webster | Huntington | 38.549358 | -80.539260 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 78 | - | 0.0251 | - | 405 | - | 4-236 |
| S-H105 | UNT to Camp Creek | Webster | Huntington | 38.548824 | -80.539644 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 121 | - | 0.0083 | - | 135 | - | 4-236 |
| S-H107 | UNT to Camp Creek | Webster | Huntington | 38.548467 | -80.540073 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 10 | - | 0.0003 | - | 5 | - | 4-236 |
| S-H107 | UNT to Camp Creek | Webster | Huntington | 38.548463 | -80.540050 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Permanent Access Road | - | 30 | - | 0.0010 | - | 3 | 4-236 |
| S-H107 | UNT to Camp Creek | Webster | Huntington | 38.548378 | -80.539980 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 90 | - | 0.0031 | - | 50 | - | 4-236 |
| S-H104 | Camp Creek | Webster | Huntington | 38.548121 | -80.540431 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 104 | - | 0.0360 | - | 580 | - | 4-236 |
| S-H103 | UNT to Camp Creek | Webster | Huntington | 38.545817 | -80.542972 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 37 | - | 0.0034 | - | 16 | - | 4-248 |
| S-B34 | Amos Run | Webster | Huntington | 38.493956 | -80.560990 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 81 | - | 0.0561 | - | 904 | - | 4-260 |
| S-B35 | UNT to Amos Run | Webster | Huntington | 38.493884 | -80.560969 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 80 | - | 0.0037 | - | 59 | - | 4-260 |
| S-B36 | UNT to Amos Run | Webster | Huntington | 38.493819 | -80.560919 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 72 | - | 0.0033 | - | 53 | - | 4-260 |
| S-B37 | UNT to Amos Run | Webster | Huntington | 38.493750 | -80.560898 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 82 | - | 0.0038 | - | 61 | - | 4-260 |
| S-B38 | UNT to Amos Run | Webster | Huntington | 38.493723 | -80.560843 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 43 | - | 0.0020 | - | 32 | - | 4-260 |
| S-B42 | UNT to Amos Run | Webster | Huntington | 38.493645 | -80.560892 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 101 | - | 0.0046 | - | 75 | - | 4-260 |
| S-B39b | UNT to Amos Run | Webster | Huntington | 38.493532 | -80.560792 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 142 | - | 0.0008 | - | 13 | - | 4-260 |
| S-B45 | UNT to Amos Run | Webster | Huntington | 38.493394 | -80.560786 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 177 | - | 0.0122 | - | 196 | - | 4-260 |
| S-B39a/B46 | UNT to Amos Run | Webster | Huntington | 38.493363 | -80.560657 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 110 | - | 0.0076 | - | 122 | - | 4-260 |
| S-B39b | UNT to Amos Run | Webster | Huntington | 38.493352 | -80.560574 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 3 | - | 0.0002 | - | 0 | - | 4-260 |
| S-B39a/B46 | UNT to Amos Run | Webster | Huntington | 38.493227 | -80.560529 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 11 | - | 0.0007 | - | 12 | - | 4-260 |
| S-O4 | Lost Run | Webster | Huntington | 38.483002 | -80.556464 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 92 | - | 0.0379 | - | 612 | - | 4-263 |
| S-O5 | UNT to Laurel Creek | Webster | Huntington | 38.482251 | -80.555499 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-263 |
| S-A81 | UNT to Laurel Creek | Webster | Huntington | 38.481219 | -80.554668 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Temporary Access Road | 81 | - | 0.0037 | - | 18 | - | 4-263 |
| S-A79 | Laurel Creek | Webster | Huntington | 38.480782 | -80.554682 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Timber Mat Crossing | 55 | - | 0.0278 | - | 134 | - | 4-263 |
| S-A80 | UNT to Laurel Creek | Webster | Huntington | 38.480687 | -80.554061 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Temporary Access Road | 104 | - | 0.0096 | - | 46 | - | 4-263 |
| S-E58 | Little Glade Run | Webster | Huntington | 38.443669 | -80.551989 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-269 |
| S-E55 | UNT to Laurel Creek | Webster | Huntington | 38.440270 | -80.559955 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-271 |
| S-F35 | UNT to Birch River | Webster | Huntington | 38.424082 | -80.570710 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-278 |
| S-F34 | UNT to Birch River | Webster | Huntington | 38.423988 | -80.570680 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-278 |
| S-F36a | UNT to Birch River | Webster | Huntington | 38.422056 | -80.569457 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 5 | - | 0.0006 | - | 11 | - | 4-278 |
| S-F36a | UNT to Birch River | Webster | Huntington | 38.421474 | -80.570012 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 23 | - | 0.0027 | - | 13 | - | 4-278 |
| S-F36a | UNT to Birch River | Webster | Huntington | 38.418662 | -80.573898 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 23 | - | 0.0027 | - | 13 | - | 4-278 |
| S-F36a | UNT to Birch River | Webster | Huntington | 38.418122 | -80.574566 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 20 | - | 0.0023 | - | 3 | - | 4-278 |
| S-F36b | UNT to Birch River | Webster | Huntington | 38.417934 | -80.576775 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 65 | - | 0.0300 | - | 145 | - | 4-279 |
| S-F36b | UNT to Birch River | Webster | Huntington | 38.417774 | -80.576635 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 78 | - | 0.0359 | - | 580 | - | 4-279 |
| S-F36b | UNT to Birch River | Webster | Huntington | 38.417693 | -80.576495 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 16 | - | 0.0074 | - | 36 | - | 4-279 |
| S-F37 | UNT to Birch River | Webster | Huntington | 38.417651 | -80.576431 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 20 | - | 0.0018 | - | 9 | - | 4-279 |
| S-C49 | UNT to Birch River | Webster | Huntington | 38.416587 | -80.577890 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-279 |
| S-B33 | UNT to Meadow Fork | Webster | Huntington | 38.408941 | -80.589063 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-281 |
| S-B32-Braid | UNT to Meadow Fork | Webster | Huntington | 38.405871 | -80.591069 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-281 |
| S-B32 | UNT to Meadow Fork | Webster | Huntington | 38.405683 | -80.591116 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-281 |
| S-EF40 | UNT to Meadow Fork | Webster | Huntington | 38.400883 | -80.597787 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Anode Bed | 52 | - | 0.0084 | - | 41 | - | 4-282 |
| S-B30 | UNT to Meadow Fork | Webster | Huntington | 38.399733 | -80.597536 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Anode Bed | 27 | - | 0.0024 | - | 12 | - | 4-282 |
| S-B29 | Meadow Fork | Webster | Huntington | 38.399618 | -80.597332 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050007 | Pipeline ROW | 85 | - | 0.0136 | - | 220 | - | 4-282 |
| S-E50 | UNT to Gauley River | Webster | Huntington | 38.370597 | -80.611921 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 93 | - | 0.0085 | - | 138 | - | 4-289 |
| S-E52 | UNT to Gauley River | Webster | Huntington | 38.369110 | -80.611761 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-290 |
| S-E50 | UNT to Gauley River | Webster | Huntington | 38.367280 | -80.612317 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0075 | - | 122 | - | 4-289 |
| S-E49 | UNT to Gauley River | Nicholas | Huntington | 38.365574 | -80.613141 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 88 | - | 0.0020 | - | 33 | - | 4-290 |
| S-E46 | Strouds Creek | Webster | Huntington | 38.363374 | -80.617277 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0152 | - | 73 | - | 4-291 |
| S-E46 | Strouds Creek | Webster | Huntington | 38.363326 | -80.616955 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Temporary Access Road | 43 | - | 0.0296 | - | 143 | - | 4-291 |
| S-F21 | Barn Run | Nicholas | Huntington | 38.355859 | -80.633328 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-293 |
| S-F20 | Barn Run | Nicholas | Huntington | 38.355800 | -80.633223 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-293 |
| S-IJ57 | UNT to Barn Run | Nicholas | Huntington | 38.352362 | -80.636401 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0094 | - | 152 | - | 4-293 |
| S-IJ59 | UNT to Barn Run | Nicholas | Huntington | 38.348372 | -80.641152 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-295 |
| S-IJ60 | UNT to Rockcamp Run | Nicholas | Huntington | 38.343699 | -80.644721 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0141 | - | 227 | - | 4-296 |
| S-IJ62 | UNT to Cherry Run | Nicholas | Huntington | 38.343547 | -80.647035 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 79 | - | 0.0054 | - | 88 | - | 4-296 |
| S-B28 | Cherry Run | Nicholas | Huntington | 38.340083 | -80.655413 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-298 |
| S-B26 | UNT to Cherry Run | Nicholas | Huntington | 38.339012 | -80.659609 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Temporary Access Road | 43 | - | 0.0039 | - | 19 | - | 4-299 |
| S-J32 | Big Beaver Creek | Nicholas | Huntington | 38.331763 | -80.670342 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050005 | Timber Mat Crossing | 22 | - | 0.0177 | - | 86 | - | 4-301 |
| S-A76 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.329126 | -80.671211 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0106 | - | 172 | - | 4-301 |
| S-A75 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.326001 | -80.670358 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 84 | - | 0.0193 | - | 311 | - | 4-302 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-A74 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.325540 | -80.670150 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 75 | - | 0.0069 | - | 112 | - | 4-302 |
| S-A73 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.323815 | -80.670069 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 83 | - | 0.0114 | - | 184 | - | 4-302 |
| S-A72 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.321687 | -80.670952 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-302 |
| S-A71 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.321572 | -80.670958 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-302 |
| S-A71-Braid | UNT to Big Beaver Creek | Nicholas | Huntington | 38.321548 | -80.670969 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-302 |
| S-A67 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.317575 | -80.671553 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 76 | - | 0.0121 | - | 196 | - | 4-303 |
| S-A69 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.317217 | -80.671495 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0113 | - | 183 | - | 4-303 |
| S-A69 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.317089 | -80.671565 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 16 | - | 0.0022 | - | 36 | - | 4-303 |
| S-H99 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.312952 | -80.673145 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 96 | | 0.0088 | - | 142 | - | 4-304 |
| S-H96 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.309759 | -80.675706 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Temporary Access Road | 39 | - | 0.0018 | - | 9 | - | 4-304 |
| S-H95 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.309738 | -80.675733 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Temporary Access Road | 259 | - | 0.0178 | - | 86 | - | 4-304 |
| S-A65 | Big Beaver Creek | Nicholas | Huntington | 38.308183 | -80.675347 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050005 | Pipeline ROW | 77 | - | 0.1240 | - | 2000 | - | 4-304 |
| S-A64 | UNT to Granny Run | Nicholas | Huntington | 38.304538 | -80.673827 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 54 | - | 0.0086 | - | 139 | - | 4-306 |
| S-N15 | UNT to Granny Run | Nicholas | Huntington | 38.301571 | -80.674776 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0061 | - | 29 | - | 4-306 |
| S-N14 | Granny Run | Nicholas | Huntington | 38.297014 | -80.676341 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-307 |
| S-N14 | Granny Run | Nicholas | Huntington | 38.296646 | -80.676258 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-307 |
| S-I43 | UNT to Big Run | Nicholas | Huntington | 38.293473 | -80.677158 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-308 |
| S-I44 | Big Run | Nicholas | Huntington | 38.291332 | -80.679265 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-308 |
| S-I45 | UNT to Big Run | Nicholas | Huntington | 38.290061 | -80.680304 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0030 | - | 15 | - | 4-308 |
| S-I47 | UNT to Gauley River | Nicholas | Huntington | 38.284291 | -80.685885 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 80 | - | 0.0037 | - | 59 | - | 4-310 |
| S-I48 | UNT to Gauley River | Nicholas | Huntington | 38.280116 | -80.687738 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0051 | - | 22 | - | 4-310 |
| S-J28 | UNT to Little Laurel Creek | Nicholas | Huntington | 38.263235 | -80.687908 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 79 | - | 0.0091 | - | 147 | - | 4-315 |
| S-J25 | UNT to Little Laurel Creek | Nicholas | Huntington | 38.256682 | -80.687348 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0089 | - | 143 | - | 4-317 |
| S-J24 | UNT to Little Laurel Creek | Nicholas | Huntington | 38.256302 | -80.687350 | Perennial | RPW | Category B-2 Trout Waters, Tier 1 | 05050005 | Pipeline ROW | 76 | - | 0.0261 | - | 422 | - | 4-317 |
| S-J24 | UNT to Little Laurel Creek | Nicholas | Huntington | 38.256248 | -80.687358 | Perennial | RPW | Category B-2 Trout Waters, Tier 1 | 05050005 | Pipeline ROW | 76 | - | 0.0261 | - | 421 | - | 4-317 |
| S-J23-EPH | UNT to Little Laurel Creek | Nicholas | Huntington | 38.234331 | -80.707513 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 109 | - | 0.0025 | - | 41 | - | 4-326 |
| S-J22 | UNT to Little Laurel Creek | Nicholas | Huntington | 38.233718 | -80.708268 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 85 | - | 0.0058 | - | 94 | - | 4-326 |
| S-N10 | Skelt Run | Nicholas | Huntington | 38.231025 | -80.710633 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 78 | - | 0.0071 | - | 115 | - | 4-327 |
| S-N10-Braid | Skelt Run | Nicholas | Huntington | 38.230934 | -80.710804 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 101 | - | 0.0069 | - | 112 | - | 4-327 |
| S-EE1 | UNT to Skelt Run | Nicholas | Huntington | 38.228924 | -80.713076 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-327 |
| S-N13-Braid | UNT to Skelt Run | Nicholas | Huntington | 38.226869 | -80.715487 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 37 | - | 0.0050 | - | 24 | - | 4-328 |
| S-N13 | UNT to Skelt Run | Nicholas | Huntington | 38.226851 | -80.715393 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 89 | - | 0.0041 | - | 66 | - | 4-328 |
| S-L41 | Jims Creek | Nicholas | Huntington | 38.220793 | -80.717100 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 76 | - | 0.0349 | - | 564 | - | 4-328 |
| S-L38 | UNT to Riley Branch | Nicholas | Huntington | 38.205534 | -80.718246 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 75 | - | 0.0052 | - | 83 | - | 4-340 |
| S-L35 | Riley Branch | Nicholas | Huntington | 38.204372 | -80.719778 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Temporary Access Road | 52 | - | 0.0048 | - | 31 | - | 4-341 |
| S-L35 | Riley Branch | Nicholas | Huntington | 38.203887 | -80.719122 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 86 | - | 0.0079 | - | 128 | - | 4-341 |
| S-L35 | Riley Branch | Nicholas | Huntington | 38.203097 | -80.719248 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 87 | - | 0.0080 | - | 129 | - | 4-341 |
| S-L35 | Riley Branch | Nicholas | Huntington | 38.200338 | -80.717177 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 79 | - | 0.0072 | - | 117 | - | 4-341 |
| S-I37 | UNT to Hominy Creek | Nicholas | Huntington | 38.196644 | -80.718856 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 40 | - | 0.0056 | - | 27 | - | 4-342 |
| S-I38 | UNT to Hominy Creek | Nicholas | Huntington | 38.194221 | -80.719357 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0089 | - | 143 | - | 4-342 |
| S-I39 | UNT to Hominy Creek | Nicholas | Huntington | 38.194025 | -80.719298 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 79 | - | 0.0126 | - | 204 | - | 4-342 |
| S-I40 | UNT to Hominy Creek | Nicholas | Huntington | 38.187582 | -80.723025 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0133 | - | 214 | - | 4-343 |
| S-I41 | UNT to Hominy Creek | Nicholas | Huntington | 38.179384 | -80.729497 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 78 | - | 0.0143 | - | 231 | - | 4-344 |
| S-I36 | Hominy Creek | Nicholas | Huntington | 38.178889 | -80.729790 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0976 | - | 1575 | - | 4-347 |
| S-I31 | UNT to Hominy Creek | Nicholas | Huntington | 38.163802 | -80.730743 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 73 | - | 0.0033 | - | 54 | - | 4-355 |
| S-N8a | UNT to Hominy Creek | Nicholas | Huntington | 38.162363 | -80.733602 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-355 |
| S-VV1 | UNT to Hominy Creek | Nicholas | Huntington | 38.161064 | -80.735022 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-355 |
| S-H88 | Sugar Branch | Nicholas | Huntington | 38.136744 | -80.730560 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 76 | - | 0.0697 | - | 1125 | - | 4-359 |
| S-H71 | UNT to Hominy Creek | Nicholas | Huntington | 38.124315 | -80.735783 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 93 | - | 0.0257 | - | 415 | - | 4-362 |
| S-H67 | UNT to Hominy Creek | Nicholas | Huntington | 38.120580 | -80.736772 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 85 | - | 0.0235 | - | 379 | - | 4-363 |
| S-H64 | UNT to Hominy Creek | Nicholas | Huntington | 38.116279 | -80.735319 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 87 | - | 0.0060 | - | 96 | - | 4-364 |
| S-V3 | UNT to Hominy Creek | Nicholas | Huntington | 38.115823 | -80.730960 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0061 | - | 29 | - | 4-365 |
| S-EF41 | UNT to Hominy Creek | Nicholas | Huntington | 38.107549 | -80.726284 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0038 | - | 61 | - | 4-366 |
| S-J19 | UNT to Meadow Creek | Greenbrier | Huntington | 38.028599 | -80.743623 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-382 |
| S-J20 | UNT to Meadow Creek | Greenbrier | Huntington | 38.023801 | -80.747266 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0152 | - | 73 | - | 4-385 |
| S-I25 | UNT to Meadow Creek | Greenbrier | Huntington | 38.020430 | -80.753194 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 75 | - | 0.0086 | - | 139 | - | 4-390 |
| S-I26 | UNT to Meadow Creek | Greenbrier | Huntington | 38.019129 | -80.755220 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 78 | - | 0.0090 | - | 145 | - | 4-390 |
| S-I27 | UNT to Meadow Creek | Greenbrier | Huntington | 38.018031 | -80.755999 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-390 |
| S-L26 | UNT to Meadow River | Greenbrier | Huntington | 37.981900 | -80.755213 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 205 | - | 0.0141 | - | 227 | - | 4-397 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-L26 | UNT to Meadow River | Greenbrier | Huntington | 37.980598 | -80.754872 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 166 | - | 0.0114 | - | 184 | - | 4-397 |
| S-EF38 | UNT to Little Sewell Creek | Greenbrier | Huntington | 37.963259 | -80.733162 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-400 |
| S-L24 | UNT to Little Sewell Creek | Greenbrier | Huntington | 37.963068 | -80.733141 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-400 |
| S-L27 | UNT to Little Sewell Creek | Greenbrier | Huntington | 37.960725 | -80.732852 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-401 |
| S-L30 | UNT to Little Sewell Creek | Greenbrier | Huntington | 37.954276 | -80.739708 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 136 | - | 0.0093 | - | 151 | - | 4-402 |
| S-L22 | Little Sewell Creek | Greenbrier | Huntington | 37.954035 | -80.739868 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050005 | Pipeline ROW | 75 | - | 0.0517 | - | 834 | - | 4-402 |
| S-L20 | UNT to Little Sewell Creek | Greenbrier | Huntington | 37.949579 | -80.742646 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 96 | - | 0.0111 | - | 179 | - | 4-403 |
| S-L10 | UNT to Boggs Creek | Greenbrier | Huntington | 37.938308 | -80.747009 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 103 | - | 0.0071 | - | 115 | - | 4-405 |
| S-L11 | UNT to Boggs Creek | Greenbrier | Huntington | 37.938229 | -80.746912 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 26 | - | 0.0018 | - | 9 | - | 4-405 |
| S-I21 | UNT to Boggs Creek | Greenbrier | Huntington | 37.918228 | -80.736774 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 30 | - | 0.0034 | - | 55 | - | 4-409 |
| S-I21 | UNT to Boggs Creek | Greenbrier | Huntington | 37.918164 | -80.736852 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0089 | - | 143 | - | 4-409 |
| S-I22 | UNT to Boggs Creek | Greenbrier | Huntington | 37.918041 | -80.736833 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 94 | - | 0.0043 | - | 70 | - | 4-409 |
| S-I23a | UNT to Boggs Creek | Greenbrier | Huntington | 37.917347 | -80.738534 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | - | 33 | - | 0.0030 | - | 10 | 4-409 |
| S-IJ54 | UNT to Boggs Creek | Greenbrier | Huntington | 37.917125 | -80.742425 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | - | 31 | - | 0.0036 | - | 17 | 4-410 |
| S-IJ53 | UNT to Boggs Creek | Greenbrier | Huntington | 37.916234 | -80.744156 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | - | 20 | - | 0.0055 | - | 27 | 4-410 |
| S-HH8 | UNT to Buffalo Creek | Greenbrier | Huntington | 37.865308 | -80.753802 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | ATWS | 15 | | 0.0007 | | 3 | | 4-421 |
| S-K25/K18 | UNT to Buffalo Creek | Greenbrier | Huntington | 37.863772 | -80.756993 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | ATWS | 70 | | 0.0096 | | 156 | | 4-421 |
| S-K17 | Buffalo Creek | Greenbrier | Huntington | 37.863065 | -80.757391 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 75 | - | 0.0432 | - | 698 | - | 4-420 |
| S-K19 | UNT to Buffalo Creek | Greenbrier | Huntington | 37.860940 | -80.757825 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 93 | - | 0.0107 | - | 172 | - | 4-421 |
| S-K21 | UNT to Buffalo Creek | Greenbrier | Huntington | 37.858566 | -80.755584 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0189 | - | 304 | - | 4-422 |
| S-K22 | UNT to Buffalo Creek | Greenbrier | Huntington | 37.858315 | -80.755546 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 78 | - | 0.0125 | - | 202 | - | 4-422 |
| S-UV6 | UNT to Morris Fork | Greenbrier | Huntington | 37.854386 | -80.754981 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 88 | - | 0.0161 | - | 260 | - | 4-422 |
| S-UV2 | Morris Fork | Greenbrier | Huntington | 37.851318 | -80.751436 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | - | 28 | - | 0.0103 | - | 50 | 4-423 |
| S-UV2 | Morris Fork | Greenbrier | Huntington | 37.851099 | -80.752978 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 88 | - | 0.0324 | - | 523 | - | 4-423 |
| S-U22 | UNT to Meadow River | Greenbrier | Huntington | 37.839558 | -80.748496 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 80 | - | 0.0221 | - | 356 | - | 4-425 |
| S-FF1 | UNT to Meadow River | Greenbrier | Huntington | 37.837560 | -80.751903 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | 11 | - | 0.0008 | - | 4 | - | 4-425 |
| S-FF1 | UNT to Meadow River | Greenbrier | Huntington | 37.837519 | -80.751898 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | - | 31 | - | 0.0021 | - | 10 | 4-425 |
| S-EE4 | UNT to Red Spring Branch | Summers | Huntington | 37.813881 | -80.748817 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Pipeline ROW | 137 | - | 0.0079 | - | 127 | - | 4-429 |
| S-M6 | UNT to Red Spring Branch | Summers | Huntington | 37.807650 | -80.746173 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Pipeline ROW | 110 | | 0.0101 | - | 163 | - | 4-430 |
| S-J13 | UNT to Patterson Creek | Summers | Huntington | 37.797484 | -80.733605 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 92 | - | 0.0085 | - | 137 | - | 4-432 |
| S-J13 | UNT to Patterson Creek | Summers | Huntington | 37.796572 | -80.732397 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 96 | - | 0.0088 | - | 142 | - | 4-432 |
| S-J13 | UNT to Patterson Creek | Summers | Huntington | 37.795915 | -80.731850 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 124 | - | 0.0114 | - | 183 | - | 4-432 |
| S-M5 | Red Spring Branch | Summers | Huntington | 37.792243 | -80.728802 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050004 | Timber Mat Crossing | 22 | - | 0.0030 | - | 15 | - | 4-433 |
| S-M4 | UNT to Red Spring Branch | Summers | Huntington | 37.786834 | -80.728719 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050004 | Temporary Access Road | 47 | - | 0.0032 | - | 16 | - | 4-434 |
| S-I13 | UNT to Lick Creek | Summers | Huntington | 37.782534 | -80.719085 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Timber Mat Crossing | 22 | - | 0.0076 | - | 37 | - | 4-437 |
| S-I14 | UNT to Lick Creek | Summers | Huntington | 37.781099 | -80.719318 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-437 |
| S-I15 | UNT to Lick Creek | Summers | Huntington | 37.779878 | -80.720470 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-437 |
| S-I16 | UNT to Lick Creek | Summers | Huntington | 37.779381 | -80.721388 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-440 |
| S-I12 | Lick Creek | Summers | Huntington | 37.775891 | -80.710797 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05050004 | Permanent Access Road | - | 38 | - | 0.0035 | - | 11 | 4-438 |
| S-I17 | UNT to Lick Creek | Summers | Huntington | 37.775160 | -80.728058 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050004 | Pipeline ROW | 78 | - | 0.0045 | - | 72 | - | 4-441 |
| S-I10 | UNT to Lick Creek | Summers | Huntington | 37.772437 | -80.713781 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Permanent Access Road | - | 26 | - | 0.0018 | - | 9 | 4-439 |
| S-I19 | Lick Creek | Summers | Huntington | 37.772089 | -80.732901 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050004 | Pipeline ROW | 77 | - | 0.0265 | - | 428 | - | 4-441 |
| S-I20 | UNT to Lick Creek | Summers | Huntington | 37.771406 | -80.733241 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050004 | Pipeline ROW | 92 | - | 0.0212 | - | 342 | - | 4-441 |
| S-N5 | UNT to Hungard Creek | Summers | Huntington | 37.704240 | -80.744827 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 87 | - | 0.0040 | - | 65 | - | 4-459 |
| S-K14 | UNT to Righthand Fork Hungard Creek | Summers | Huntington | 37.696788 | -80.739242 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 97 | - | 0.0089 | - | 143 | - | 4-460 |
| S-N3 | UNT to Hungard Creek | Summers | Huntington | 37.694776 | -80.736952 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-461 |
| S-N2 | Hungard Creek | Summers | Huntington | 37.694507 | -80.736682 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050003 | Timber Mat Crossing | 22 | - | 0.0101 | - | 49 | - | 4-461 |
| S-CD23 | UNT to Hungard Creek | Summers | Huntington | 37.694228 | -80.736099 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0045 | - | 22 | - | 4-461 |
| S-N4 | UNT to Hungard Creek | Summers | Huntington | 37.693961 | -80.735841 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-461 |
| S-KL29 | Right Fork Hungard Creek | Summers | Huntington | 37.692932 | -80.733839 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050003 | Pipeline ROW | 75 | - | 0.0863 | - | 1392 | - | 4-461 |
| S-M3 | Hungard Creek | Summers | Huntington | 37.692868 | -80.734247 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 80 | - | 0.0183 | - | 295 | - | 4-461 |
| S-CV17 | UNT to Greenbrier River | Summers | Huntington | 37.681865 | -80.730095 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 76 | - | 0.0070 | - | 34 | - | 4-464 |
| S-EF53 | UNT to Greenbrier River | Summers | Huntington | 37.681323 | -80.729672 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Temporary Access Road | 51 | - | 0.0095 | - | 46 | - | 4-464 |
| S-I9 | UNT to Greenbrier River | Summers | Huntington | 37.675977 | -80.732822 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-465 |
| S-K10 | UNT to Greenbrier River | Summers | Huntington | 37.675079 | -80.734384 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Temporary Access Road | 9 | - | 0.0013 | - | 6 | - | 4-465 |
| S-K10 | UNT to Greenbrier River | Summers | Huntington | 37.675070 | -80.734447 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Permanent Access Road | - | 31 | - | 0.0043 | - | 21 | 4-465 |
| S-K10 | UNT to Greenbrier River | Summers | Huntington | 37.675058 | -80.734522 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Temporary Access Road | 9 | - | 0.0013 | - | 6 | - | 4-465 |
| S-L4 | UNT to Greenbrier River | Summers | Huntington | 37.673213 | -80.729772 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 77 | - | 0.0176 | - | 284 | - | 4-465 |
| S-L2 | UNT to Greenbrier River | Summers | Huntington | 37.671392 | -80.728311 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 88 | - | 0.0081 | - | 130 | - | 4-467 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-L1 | UNT to Kelly Creek | Summers | Huntington | 37.668076 | -80.723470 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 76 | - | 0.0104 | - | 168 | - | 4-468 |
| S-J5 | Kelly Creek | Summers | Huntington | 37.666864 | -80.721794 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050003 | Pipeline ROW | 103 | - | 0.0471 | - | 759 | - | 4-468 |
| S-K4 | UNT to Keller Creek | Summers | Huntington | 37.665806 | -80.725709 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Temporary Access Road | - | 22 | - | 0.0010 | - | 4 | 4-468 |
| S-J4 | UNT to Keller Creek | Summers | Huntington | 37.663926 | -80.715460 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-469 |
| S-G47 | UNT to Wind Creek | Summers | Huntington | 37.654112 | -80.702579 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-471 |
| S-G52 | UNT to Wind Creek | Monroe | Huntington | 37.627537 | -80.695593 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-479 |
| S-G49 | UNT to Wind Creek | Monroe | Huntington | 37.627381 | -80.695679 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0101 | - | 49 | - | 4-479 |
| S-G48 | Wind Creek | Monroe | Huntington | 37.627308 | -80.695759 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0101 | - | 49 | - | 4-479 |
| S-H61 | UNT to Stoney Creek | Monroe | Huntington | 37.618426 | -80.699138 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0126 | - | 61 | - | 4-483 |
| S-OP1 | Stony Creek | Monroe | Huntington | 37.600003 | -80.700509 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 78 | - | 0.0090 | - | 145 | - | 4-487 |
| S-IJ64 | UNT to Little Stony Creek | Monroe | Huntington | 37.591822 | -80.705874 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0030 | - | 15 | - | 4-488 |
| S-A63 | Slate Run | Monroe | Huntington | 37.560706 | -80.709825 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Permanent Access Road | - | 25 | - | 0.0057 | - | 28 | 4-492 |
| S-A63 | Slate Run | Monroe | Huntington | 37.560460 | -80.710233 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 88 | - | 0.0203 | - | 327 | - | 4-492 |
| S-A61 | UNT to Slate Run | Monroe | Huntington | 37.559351 | -80.709683 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Temporary Access Road | 8 | - | 0.0012 | - | 6 | - | 4-493 |
| S-A61 | UNT to Slate Run | Monroe | Huntington | 37.559334 | -80.709736 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Permanent Access Road | - | 26 | - | 0.0041 | - | 14 | 4-493 |
| S-A61 | UNT to Slate Run | Monroe | Huntington | 37.559328 | -80.709792 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Temporary Access Road | 8 | - | 0.0013 | - | 6 | - | 4-493 |
| S-A61 | UNT to Slate Run | Monroe | Huntington | 37.559320 | -80.710037 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 81 | - | 0.0131 | - | 211 | - | 4-493 |
| S-A60 | Slate Run | Monroe | Huntington | 37.558698 | -80.709966 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 87 | - | 0.0358 | - | 578 | - | 4-492 |
| S-CV26 | UNT to Slate Run | Monroe | Huntington | 37.556445 | -80.708883 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Permanent Access Road | - | 32 | - | 0.0044 | | 21 | 4-493 |
| S-D31 | Indian Creek | Monroe | Huntington | 37.554163 | -80.710853 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050002 | Pipeline ROW | 75 | - | 0.1120 | - | 1807 | - | 4-493 |
| S-D29 | UNT to Hans Creek | Monroe | Huntington | 37.547394 | -80.712099 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-494 |
| S-D25 | UNT to Hans Creek | Monroe | Huntington | 37.538768 | -80.718855 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-496 |
| S-F18 | UNT to Hans Creek | Monroe | Huntington | 37.538273 | -80.719070 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Permanent Access Road | - | 26 | - | 0.0107 | - | 52 | 4-496 |
| S-F18 | UNT to Hans Creek | Monroe | Huntington | 37.536872 | -80.716923 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Timber Mat Crossing | 22 | - | 0.0091 | - | 44 | - | 4-496 |
| S-Z5 | UNT to Hans Creek | Monroe | Huntington | 37.524333 | -80.711450 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 75 | - | 0.0034 | - | 56 | - | 4-499 |
| S-Z4 | UNT to Hans Creek | Monroe | Huntington | 37.524302 | -80.711444 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 75 | - | 0.0043 | - | 69 | - | 4-499 |
| S-MN2 | UNT to Hans Creek | Monroe | Huntington | 37.520012 | -80.707606 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 81 | | 0.0130 | - | 210 | - | 4-500 |
| S-CV19 | Hans Creek | Monroe | Huntington | 37.500284 | -80.691498 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050002 | Pipeline ROW | 77 | - | 0.0619 | - | 998 | - | 4-505 |
| S-MN39 | UNT to Blue Lick Creek | Monroe | Huntington | 37.487733 | -80.681765 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 22 | - | 0.0010 | - | 16 | - | 4-510 |
| S-MN38 | UNT to Blue Lick Creek | Monroe | Huntington | 37.487721 | -80.681929 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 22 | | 0.0030 | - | 48 | - | 4-510 |
| S-MN37 | UNT to Blue Lick Creek | Monroe | Huntington | 37.487584 | -80.681992 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 95 | | 0.0040 | - | 65 | - | 4-510 |
| S-MN40 | UNT to Blue Lick Creek | Monroe | Huntington | 37.487519 | -80.681996 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 37 | | 0.0010 | - | 16 | - | 4-510 |
| S-G44 | UNT to Hans Creek | Monroe | Huntington | 37.474870 | -80.676267 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 86 | - | 0.0079 | - | 128 | - | 4-511 |
| S-G43 | UNT to Hans Creek | Monroe | Huntington | 37.473139 | -80.675738 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-511 |
| S-G42 | UNT to Hans Creek | Monroe | Huntington | 37.472602 | -80.675456 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 79 | - | 0.0055 | - | 88 | - | 4-512 |
| S-MN45 | UNT to Hans Creek | Monroe | Huntington | 37.462878 | -80.670284 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 87 | | 0.0040 | - | 65 | - | 4-513 |
| S-CV27 | UNT to Hans Creek | Monroe | Huntington | 37.462850 | -80.669582 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 37 | - | 0.0017 | - | 8 | - | 4-513 |
| S-E43 | UNT to Dry Creek | Monroe | Huntington | 37.453834 | -80.664417 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 92 | - | 0.0147 | - | 237 | - | 4-515 |
| S-E45 | UNT to Dry Creek | Monroe | Huntington | 37.453798 | -80.664266 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 108 | - | 0.0074 | - | 120 | - | 4-515 |
| S-E40 | Dry Creek | Monroe | Huntington | 37.451003 | -80.667795 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050002 | Temporary Access Road | 43 | - | 0.0117 | - | 57 | - | 4-515 |
| S-E40 | Dry Creek | Monroe | Huntington | 37.450757 | -80.667719 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050002 | Pipeline ROW | 82 | - | 0.0227 | - | 366 | - | 4-515 |
| S-E41 | UNT to Dry Creek | Monroe | Huntington | 37.450692 | -80.667650 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 23 | - | 0.0010 | - | 5 | - | 4-516 |
| S-C38 | UNT to Painter Run | Monroe | Huntington | 37.426915 | -80.694499 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 89 | - | 0.0143 | - | 231 | - | 4-521 |
| S-C39 | Painter Run | Monroe | Huntington | 37.426686 | -80.694499 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050002 | Pipeline ROW | 109 | - | 0.0125 | - | 202 | - | 4-521 |
| S-C41 | UNT to Painter Run | Monroe | Huntington | 37.426161 | -80.694592 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 143 | - | 0.0100 | - | 161 | - | 4-521 |
| S-C40 | UNT to Painter Run | Monroe | Huntington | 37.425372 | -80.693417 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Temporary Access Road | 77 | - | 0.0053 | - | 26 | - | 4-521 |
| S-Q12 | UNT to Kimballton Branch | Giles | Norfolk | 37.375311 | -80.680878 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 86 | - | 0.0079 | - | 127 | - | 4-531 |
| S-Q13 | Kimballton Branch | Giles | Norfolk | 37.374377 | -80.682038 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 90 | - | 0.0310 | - | 500 | - | 4-532 |
| S-P6 | UNT to Stony Creek | Giles | Norfolk | 37.362202 | -80.688092 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 78 | - | 0.0107 | - | 173 | - | 4-535 |
| S-S5-Braid-2 | Stony Creek | Giles | Norfolk | 37.360325 | -80.684214 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-536 |
| S-S5-Braid-1 | Stony Creek | Giles | Norfolk | 37.360276 | -80.684193 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-536 |
| S-S5 | Stony Creek | Giles | Norfolk | 37.360071 | -80.683960 | Perennial | RPW | Candy darter, Green floater, pistol grip, Natural Trout, Coldwater Fishery, Stockable Trout | 05050002 | Timber Mat Crossing | 40 | - | 0.0184 | - | 178 | - | 4-536 |
| S-G29 | UNT to Dry Branch | Giles | Norfolk | 37.350430 | -80.658259 | Ephemeral | NRPW | - | 05050002 | Pipeline ROW | 30 | - | 0.0028 | - | 13 | - | 4-541 |
| S-G30 | UNT to Dry Branch | Giles | Norfolk | 37.350373 | -80.658230 | Ephemeral | NRPW | - | 05050002 | Pipeline ROW | 85 | - | 0.0156 | - | 252 | - | 4-541 |
| S-G32 | Dry Branch | Giles | Norfolk | 37.349095 | -80.652040 | Intermittent | RPW | - | 05050002 | Pipeline ROW | 110 | - | 0.0152 | - | 244 | - | 4-542 |
| S-G33 | UNT to Dry Branch | Giles | Norfolk | 37.348641 | -80.647225 | Perennial | RPW | - | 05050002 | Pipeline ROW | 99 | - | 0.0182 | - | 293 | - | 4-542 |
| S-G35 | UNT to Little Stony Creek | Giles | Norfolk | 37.344876 | -80.633426 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 25 | - | 0.0115 | - | 69 | - | 4-544 |
| S-SS4 | UNT to Little Stony Creek | Giles | Norfolk | 37.344859 | -80.631295 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-544 |
| S-G35 | UNT to Little Stony Creek | Giles | Norfolk | 37.344779 | -80.633379 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 25 | - | 0.0115 | - | 69 | - | 4-544 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-Z7 | UNT to Little Stony Creek | Giles | Norfolk | 37.344278 | -80.626185 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-545 |
| S-Z7-Braid-1 | UNT to Little Stony Creek | Giles | Norfolk | 37.344277 | -80.626113 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-545 |
| S-Z9 | UNT to Little Stony Creek | Giles | Norfolk | 37.344163 | -80.628400 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-544 |
| S-Z10 | UNT to Little Stony Creek | Giles | Norfolk | 37.342351 | -80.620823 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0055 | - | 27 | - | 4-545 |
| S-Z11 | UNT to Little Stony Creek | Giles | Norfolk | 37.342236 | -80.620542 | Perennial | RPW | Natural Trout, Coldwater Fishery, Stockable Trout | 05050002 | Timber Mat Crossing | 20 | - | 0.0023 | - | 11 | - | 4-545 |
| S-Z12-EPH | UNT to Little Stony Creek | Giles | Norfolk | 37.342214 | -80.620312 | Ephemeral | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-545 |
| S-Z13 | Little Stony Creek | Giles | Norfolk | 37.342172 | -80.620090 | Perennial | RPW | Natural Trout, Coldwater Fishery, Stockable Trout | 05050002 | Timber Mat Crossing | 25 | - | 0.0115 | - | 69 | - | 4-545 |
| S-Z14 | UNT to Little Stony Creek | Giles | Norfolk | 37.340977 | -80.618031 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-545 |
| S-YZ1 | Doe Creek | Giles | Norfolk | 37.338952 | -80.614618 | Intermittent | RPW | - | 05050002 | Temporary Access Road | 102 | - | 0.0234 | - | 113 | - | 4-546 |
| S-A34 | UNT to Doe Creek | Giles | Norfolk | 37.337763 | -80.606008 | Ephemeral | NRPW | - | 05050002 | Pipeline ROW | 86 | - | 0.0138 | - | 223 | - | 4-548 |
| S-A33 | UNT to Doe Creek | Giles | Norfolk | 37.337639 | -80.605571 | Ephemeral | NRPW | - | 05050002 | Pipeline ROW | 111 | - | 0.0178 | - | 288 | - | 4-548 |
| S-YZ1 | Doe Creek | Giles | Norfolk | 37.337562 | -80.614711 | Intermittent | RPW | - | 05050002 | Temporary Access Road | 92 | - | 0.0211 | - | 102 | - | 4-546 |
| S-YZ1 | Doe Creek | Giles | Norfolk | 37.337048 | -80.614625 | Intermittent | RPW | - | 05050002 | Temporary Access Road | 121 | - | 0.0278 | - | 134 | - | 4-546 |
| S-A32 | UNT to Doe Creek | Giles | Norfolk | 37.335094 | -80.596868 | Perennial | RPW | - | 05050002 | Pipeline ROW | 78 | - | 0.0287 | - | 462 | - | 4-549 |
| S-QQ2 | Sinking Creek | Craig | Norfolk | 37.333152 | -80.429438 | Perennial | RPW | Natural Trout, Coldwater Fishery, Stockable Trout | 05050002 | Temporary Access Road | 40 | - | 0.0321 | - | 156 | - | 4-581 |
| S-MN11-Upstream | UNT to Sinking Creek | Giles | Norfolk | 37.332869 | -80.559168 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 15 | - | 0.0014 | - | 7 | - | 4-554 |
| S-MN11-Upstream | UNT to Sinking Creek | Giles | Norfolk | 37.332191 | -80.559979 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 30 | - | 0.0028 | - | 13 | - | 4-554 |
| S-MN11-Downstream | UNT to Sinking Creek | Giles | Norfolk | 37.332146 | -80.560079 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 37 | - | 0.0042 | - | 21 | - | 4-554 |
| S-Y3 | UNT to Doe Creek | Giles | Norfolk | 37.331748 | -80.583355 | Ephemeral | NRPW | - | 05050002 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-551 |
| S-Y2 | Doe Creek | Giles | Norfolk | 37.331332 | -80.583047 | Perennial | RPW | - | 05050002 | Timber Mat Crossing | 25 | - | 0.0115 | - | 69 | - | 4-551 |
| S-PP4 | UNT to Sinking Creek | Craig | Norfolk | 37.328329 | -80.422810 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 84 | - | 0.0039 | - | 62 | - | 4-579 |
| S-PP3 | UNT to Sinking Creek | Craig | Norfolk | 37.326705 | -80.425803 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 82 | - | 0.0056 | - | 91 | - | 4-579 |
| S-RR4 | UNT to Sinking Creek | Giles | Norfolk | 37.326015 | -80.556831 | Perennial | RPW | - | 05050002 | Temporary Access Road | 85 | - | 0.0059 | - | 28 | - | 4-556 |
| S-E24 | UNT to Sinking Creek | Giles | Norfolk | 37.325728 | -80.565082 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 81 | - | 0.0372 | - | 600 | - | 4-553 |
| S-E25-Downstream | UNT to Sinking Creek | Giles | Norfolk | 37.325638 | -80.564680 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-553 |
| S-E25-Upstream | UNT to Sinking Creek | Giles | Norfolk | 37.325607 | -80.564373 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 15 | - | 0.0034 | - | 17 | - | 4-553 |
| S-E25-Downstream | UNT to Sinking Creek | Giles | Norfolk | 37.325566 | -80.564634 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-553 |
| S-PP1 | UNT to Sinking Creek | Craig | Norfolk | 37.324781 | -80.431446 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 86 | - | 0.0059 | - | 96 | - | 4-578 |
| S-RR5 | UNT to Sinking Creek | Giles | Norfolk | 37.323702 | -80.555627 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 83 | - | 0.0191 | - | 307 | - | 4-555 |
| S-PA07 | UNT to Sinking Creek | Giles | Norfolk | 37.323533 | -80.555257 | Intermittent | RPW | - | 05050002 | Pipeline ROW | 115 | - | 0.0053 | - | 85 | - | 4-555 |
| S-IJ18-EPH | UNT to Sinking Creek | Giles | Norfolk | 37.322737 | -80.552396 | Ephemeral | NRPW | - | 05050002 | Pipeline ROW | 74 | - | 0.0102 | - | 164 | - | 4-555 |
| S-IJ19 | UNT to Sinking Creek | Giles | Norfolk | 37.322194 | -80.553058 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 43 | - | 0.0039 | - | 19 | - | 4-555 |
| S-IJ19 | UNT to Sinking Creek | Giles | Norfolk | 37.321823 | -80.55311 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 9 | - | 0.0008 | - | 4 | - | 4-555 |
| S-IJ18-INT | UNT to Sinking Creek | Giles | Norfolk | 37.321756 | -80.553011 | Intermittent | RPW | - | 05050002 | Temporary Access Road | 44 | - | 0.0040 | - | 20 | - | 4-555 |
| S-PP22 | UNT to Craig Creek | Montgomery | Norfolk | 37.321090 | -80.412831 | Intermittent | RPW | Atlantic Pigtoe, Coldwater Fishery | 02080201 | Timber Mat Crossing | 44 | - | 0.0040 | - | 20 | - | 4-584 |
| S-OO12 | UNT to Sinking Creek | Giles | Norfolk | 37.318956 | -80.440648 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 25 | - | 0.0011 | - | 6 | - | 4-577 |
| S-OO13 | UNT to Sinking Creek | Giles | Norfolk | 37.318930 | -80.440930 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 77 | - | 0.0354 | - | 570 | - | 4-577 |
| S-OO14 | UNT to Sinking Creek | Giles | Norfolk | 37.318647 | -80.441619 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 86 | - | 0.0079 | - | 127 | - | 4-577 |
| S-IJ17 | UNT to Sinking Creek | Giles | Norfolk | 37.318324 | -80.547720 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 31 | - | 0.0057 | - | 28 | - | 4-558 |
| S-IJ16-b | UNT to Sinking Creek | Giles | Norfolk | 37.318246 | -80.547711 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 78 | - | 0.0179 | - | 289 | - | 4-558 |
| S-PP21 | UNT to Craig Creek | Montgomery | Norfolk | 37.317187 | -80.409235 | Perennial | RPW | Atlantic Pigtoe, Coldwater Fishery | 02080201 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-584 |
| S-PP20 | UNT to Craig Creek | Montgomery | Norfolk | 37.316523 | -80.408646 | Perennial | RPW | Atlantic Pigtoe, Coldwater Fishery | 02080201 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-584 |
| S-RR13 | Craig Creek | Montgomery | Norfolk | 37.314504 | -80.402613 | Perennial | RPW | Atlantic Pigtoe, Stockable Trout, Coldwater Fishery | 02080201 | Temporary Access Road | 41 | - | 0.0329 | - | 159 | - | 4-585 |
| S-HH18 | UNT to Craig Creek | Montgomery | Norfolk | 37.313910 | -80.398683 | Perennial | RPW | Atlatnic pigtoe, orangefin madtom Coldwater Fishery | 02080201 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-586 |
| S-RR14 | UNT to Craig Creek | Montgomery | Norfolk | 37.313615 | -80.402521 | Ephemeral | NRPW | Atlantic Pigtoe, Coldwater Fishery | 02080201 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-585 |
| S-OO6 | Craig Creek | Montgomery | Norfolk | 37.313511 | -80.404606 | Perennial | RPW | Atlantic Pigtoe, Stockable Trout, Coldwater Fishery | 02080201 | Timber Mat Crossing | 35 | - | 0.0161 | - | 136 | - | 4-585 |
| S-QQ3 | UNT to Sinking Creek | Giles | Norfolk | 37.311869 | -80.532365 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 15 | - | 0.0007 | - | 3 | - | 4-560 |
| S-IJ16-a | UNT to Sinking Creek | Giles | Norfolk | 37.311730 | -80.544091 | Ephemeral | NRPW | - | 05050002 | Permanent Access Road | 6 | - | 0.0010 | - | 5 | - | 4-559 |
| S-IJ16-a | UNT to Sinking Creek | Giles | Norfolk | 37.311730 | -80.544091 | Ephemeral | NRPW | - | 05050002 | Permanent Access Road | - | 45 | - | 0.0072 | - | 35 | 4-559 |
| S-NN17 | Sinking Creek | Giles | Norfolk | 37.311616 | -80.515786 | Perennial | RPW | Green floater, Non-listed mussels, Natural Trout, Coldwater Fishery, Stockable Trout | 05050002 | Timber Mat Crossing | 55 | - | 0.0253 | - | 336 | - | 4-564 |
| S-KL43 | UNT to Sinking Creek | Giles | Norfolk | 37.307524 | -80.466665 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 75 | - | 0.0172 | - | 278 | - | 4-573 |
| S-NN11 | UNT to Sinking Creek | Giles | Norfolk | 37.305508 | -80.467231 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 84 | - | 0.0096 | - | 156 | - | 4-573 |
| S-NN12 | UNT to Sinking Creek | Giles | Norfolk | 37.300454 | -80.472911 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 88 | - | 0.0040 | - | 65 | - | 4-571 |
| S-MN21 | UNT to Mill Creek | Montgomery | Norfolk | 37.299397 | -80.391243 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 80 | - | 0.0129 | - | 207 | - | 4-588 |
| S-MM17 | UNT to Sinking Creek | Giles | Norfolk | 37.298226 | -80.480624 | Perennial | RPW | - | 05050002 | Temporary Access Road | 49 | - | 0.0022 | - | 11 | - | 4-569 |
| S-MN22 | UNT to Mill Creek | Montgomery | Norfolk | 37.297166 | -80.386612 | Ephemeral | NRPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 96 | - | 0.0044 | - | 71 | - | 4-589 |
| S-RR2 | Greenbriar Branch | Giles | Norfolk | 37.296666 | -80.494174 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-567 |
| S-YZ6 | UNT to Greenbriar Branch | Giles | Norfolk | 37.296612 | -80.494165 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-567 |
| S-EF62 | UNT to Mill Creek | Montgomery | Norfolk | 37.296356 | -80.375118 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 76 | - | 0.0192 | - | 310 | - | 4-590 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-MM18 | UNT to Sinking Creek | Giles | Norfolk | 37.296226 | -80.481455 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 88 | - | 0.0101 | - | 163 | - | 4-569 |
| S-IJ52 | UNT to Mill Creek | Montgomery | Norfolk | 37.296153 | -80.367510 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 84 | - | 0.0309 | - | 498 | - | 4-591 |
| S-EF65 | Mill Creek | Montgomery | Norfolk | 37.295743 | -80.375921 | Intermittent | RPW | Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery, Stockable Trout | 03010101 | Pipeline ROW | 152 | - | 0.0209 | - | 338 | - | 4-590 |
| S-G36 | North Fork Roanoke River | Montgomery | Norfolk | 37.268586 | -80.313161 | Perennial | RPW | Roanoke logperch, Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery | 03010101 | Temporary Access Road | 26 | - | 0.0119 | - | 58 | - | 4-602 |
| S-G38 | UNT to North Fork Roanoke River | Montgomery | Norfolk | 37.267002 | -80.312898 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-603 |
| S-G40 | UNT to North Fork Roanoke River | Montgomery | Norfolk | 37.264882 | -80.307302 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-603 |
| S-PP23 | UNT to North Fork Roanoke River | Montgomery | Norfolk | 37.264858 | -80.307151 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0011 | - | 6 | - | 4-604 |
| S-G39 | UNT to North Fork Roanoke River | Montgomery | Norfolk | 37.264817 | -80.308486 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 82 | - | 0.0113 | - | 182 | - | 4-604 |
| S-MM14 | UNT to Flatwoods Branch | Montgomery | Norfolk | 37.258717 | -80.293210 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 105 | - | 0.0169 | - | 272 | - | 4-608 |
| S-MM15 | UNT to Flatwoods Branch | Montgomery | Norfolk | 37.258673 | -80.296446 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 82 | - | 0.0113 | - | 182 | - | 4-608 |
| S-MM11 | UNT to Flatwoods Branch | Montgomery | Norfolk | 37.258403 | -80.288186 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 80 | - | 0.0147 | - | 237 | - | 4-609 |
| S-F15 | UNT to Flatwoods Branch | Montgomery | Norfolk | 37.258198 | -80.286029 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 129 | - | 0.0178 | - | 287 | - | 4-609 |
| S-MM13 | UNT to Flatwoods Branch | Montgomery | Norfolk | 37.258176 | -80.289222 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 85 | - | 0.0098 | - | 157 | - | 4-608 |
| S-F16a/F16b | UNT to Flatwoods Branch | Montgomery | Norfolk | 37.257998 | -80.284735 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 81 | - | 0.0056 | - | 90 | - | 4-609 |
| S-C36 | UNT to Flatwoods Branch | Montgomery | Norfolk | 37.257260 | -80.281611 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 96 | - | 0.0066 | - | 107 | - | 4-609 |
| S-C36 | UNT to Flatwoods Branch | Montgomery | Norfolk | 37.257133 | -80.281475 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 36 | - | 0.0025 | - | 40 | - | 4-609 |
| S-MM31 | UNT to Flatwoods Branch | Montgomery | Norfolk | 37.256959 | -80.280329 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-609 |
| S-C29 | Flatwoods Branch | Montgomery | Norfolk | 37.256387 | -80.278021 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 46 | - | 0.0013 | - | 20 | - | 4-610 |
| S-C25 | UNT to Bradshaw Creek | Montgomery | Norfolk | 37.254342 | -80.267895 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 115 | - | 0.0079 | - | 128 | - | 4-611 |
| S-C24 | UNT to Bradshaw Creek | Montgomery | Norfolk | 37.254135 | -80.266743 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 108 | - | 0.0074 | - | 120 | - | 4-611 |
| S-C21 | Bradshaw Creek | Montgomery | Norfolk | 37.251791 | -80.258990 | Perennial | RPW | Roanoke logperch, Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 25 | - | 0.0115 | - | 69 | - | 4-613 |
| S-NN19 | UNT to Roanoke River | Montgomery | Norfolk | 37.244319 | -80.206995 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 76 | - | 0.0061 | - | 99 | - | 4-627 |
| S-AB16 | UNT to Roanoke River | Montgomery | Norfolk | 37.231693 | -80.198778 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0023 | - | 11 | - | 4-631 |
| S-I1 | UNT to Roanoke River | Montgomery | Norfolk | 37.231179 | -80.198460 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0064 | - | 31 | - | 4-631 |
| S-CD12b | UNT to South Fork Roanoke River | Montgomery | Norfolk | 37.229764 | -80.201144 | Perennial | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-631 |
| S-EF19 | UNT to Indian Run | Montgomery | Norfolk | 37.216102 | -80.197390 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 03010101 | Pipeline ROW | 79 | - | 0.0091 | - | 146 | - | 4-634 |
| S-EF20a | UNT to Roanoke River | Montgomery | Norfolk | 37.210922 | -80.193318 | Perennial | RPW | Orangefin madtom, Non-listed mussels | 03010101 | Pipeline ROW | 80 | - | 0.0110 | - | 178 | - | 4-635 |
| S-MM22 | UNT to Roanoke River | Montgomery | Norfolk | 37.205284 | -80.187282 | Perennial | RPW | Orangefin madtom, Non-listed mussels | 03010101 | Pipeline ROW | 175 | - | 0.0603 | - | 972 | - | 4-637 |
| S-IJ50 | UNT to Roanoke River | Roanoke | Norfolk | 37.194064 | -80.167933 | Perennial | RPW | Orangefin madtom, Non-listed mussels | 03010101 | Pipeline ROW | 77 | - | 0.0442 | - | 713 | - | 4-641 |
| S-Y13 | UNT to Bottom Creek | Roanoke | Norfolk | 37.187687 | -80.151146 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 85 | - | 0.0156 | - | 252 | - | 4-644 |
| S-Y14 | UNT to Bottom Creek | Roanoke | Norfolk | 37.187568 | -80.151049 | Perennial | RPW | Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 77 | - | 0.0247 | - | 399 | - | 4-644 |
| S-EF57 | UNT to Bottom Creek | Roanoke | Norfolk | 37.181736 | -80.148948 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Temporary Access Road | 42 | - | 0.0077 | - | 37 | - | 4-645 |
| S-EF55 | UNT to Bottom Creek | Roanoke | Norfolk | 37.181506 | -80.149497 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 33 | - | 0.0061 | - | 98 | - | 4-645 |
| S-EF34b | UNT to Bottom Creek | Roanoke | Norfolk | 37.181385 | -80.149140 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 81 | - | 0.0186 | - | 300 | - | 4-645 |
| S-EF33 | UNT to Bottom Creek | Roanoke | Norfolk | 37.179186 | -80.141000 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 148 | - | 0.0306 | - | 493 | - | 4-647 |
| S-IJ82 | UNT to Bottom Creek | Roanoke | Norfolk | 37.170458 | -80.138216 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0069 | - | 33 | - | 4-648 |
| S-IJ85 | UNT to Bottom Creek | Roanoke | Norfolk | 37.169474 | -80.130356 | Perennial | RPW | Natural Trout, Coldwater Fishery | 03010101 | Permanent Access Road | - | 50 | - | 0.0092 | - | 44 | 4-650 |
| S-IJ83 | UNT to Bottom Creek | Roanoke | Norfolk | 37.169211 | -80.138258 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 148 | - | 0.0170 | - | 82 | - | 4-649 |
| S-IJ88 | Bottom Creek | Roanoke | Norfolk | 37.168395 | -80.138295 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 30 | - | 0.0450 | - | 726 | - | 4-649 |
| S-IJ84 | UNT to Bottom Creek | Roanoke | Norfolk | 37.168361 | -80.138381 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 35 | - | 0.0121 | - | 58 | - | 4-649 |
| S-IJ89 | UNT to Bottom Creek | Roanoke | Norfolk | 37.165862 | -80.139317 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-649 |
| S-IJ90 | UNT to Bottom Creek | Roanoke | Norfolk | 37.165685 | -80.139378 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0023 | - | 11 | - | 4-649 |
| S-KL25 | UNT to Mill Creek | Roanoke | Norfolk | 37.160173 | -80.134799 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 82 | - | 0.0094 | - | 152 | - | 4-651 |
| S-ST9b | UNT to Mill Creek | Roanoke | Norfolk | 37.154424 | -80.129179 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0069 | - | 33 | - | 4-652 |
| S-KL55 | UNT to Mill Creek | Roanoke | Norfolk | 37.150009 | -80.13246 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0069 | - | 33 | - | 4-653 |
| S-IJ12 | UNT to Mill Creek | Roanoke | Norfolk | 37.148333 | -80.133919 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0060 | - | 29 | - | 4-653 |
| S-EF44 | UNT to Bottom Creek | Roanoke | Norfolk | 37.143003 | -80.138399 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-654 |
| S-IJ43 | Mill Creek | Roanoke | Norfolk | 37.138636 | -80.139715 | Perennial | RPW | Orangefin madtom, Stockable Trout, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0083 | - | 40 | - | 4-655 |
| S-Y9 | UNT to Mill Creek | Roanoke | Norfolk | 37.134576 | -80.137649 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 44 | - | 0.0040 | - | 20 | - | 4-656 |
| S-Y7 | UNT to Mill Creek | Roanoke | Norfolk | 37.134481 | -80.137622 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 32 | - | 0.0029 | - | 14 | - | 4-656 |
| S-Y8 | UNT to Mill Creek | Roanoke | Norfolk | 37.134176 | -80.137484 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-656 |
| S-B22 | UNT to Mill Creek | Roanoke | Norfolk | 37.128922 | -80.133769 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-659 |
| S-B23 | UNT to Mill Creek | Roanoke | Norfolk | 37.128853 | -80.133910 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 14 | - | 0.0006 | - | 3 | - | 4-659 |
| S-B25 | UNT to Mill Creek | Roanoke | Norfolk | 37.128490 | -80.132601 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 76 | - | 0.0087 | - | 42 | - | 4-659 |
| S-B21 | UNT to Mill Creek | Roanoke | Norfolk | 37.128484 | -80.130943 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 92 | - | 0.0084 | - | 136 | - | 4-659 |
| S-H1 | Green Creek | Franklin | Norfolk | 37.127733 | -80.116787 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-661 |
| S-G26 | UNT to Green Creek | Franklin | Norfolk | 37.127077 | -80.111387 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-662 |
| S-G27 | UNT to Green Creek | Franklin | Norfolk | 37.126962 | -80.111052 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-662 |
| S-G24 | UNT to Green Creek | Franklin | Norfolk | 37.126412 | -80.121398 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 75 | - | 0.0103 | - | 167 | - | 4-661 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-G25 | UNT to Green Creek | Franklin | Norfolk | 37.125398 | -80.121401 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 42 | - | 0.0067 | - | 33 | - | 4-661 |
| S-RR18 | UNT to Green Creek | Franklin | Norfolk | 37.125055 | -80.113578 | Intermittent | RPW | - | 03010101 | Permanent Access Road | 8 | - | 0.0004 | - | 2 | - | 4-662 |
| S-D11 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.124137 | -80.086182 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-666 |
| S-D8 | North Fork Blackwater River | Franklin | Norfolk | 37.123098 | -80.074673 | Perennial | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 78 | - | 0.0216 | - | 349 | - | 4-667 |
| S-D12 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.121558 | -80.085642 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 54 | - | 0.0074 | - | 120 | - | 4-666 |
| S-D13 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.121513 | -80.085680 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 117 | - | 0.0107 | - | 173 | - | 4-666 |
| S-D14 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.121473 | -80.088457 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 234 | - | 0.0161 | - | 260 | - | 4-666 |
| S-II4 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.115679 | -80.060300 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0069 | - | 33 | - | 4-670 |
| S-GH7 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.106614 | -80.054219 | Perennial | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0041 | - | 20 | - | 4-672 |
| S-GH15 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.106177 | -80.050105 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 75 | - | 0.0069 | - | 111 | - | 4-674 |
| S-GH14 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.105883 | -80.048861 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 76 | - | 0.0070 | - | 113 | - | 4-674 |
| S-GH11 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.104707 | -80.046220 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 77 | - | 0.0053 | - | 86 | - | 4-674 |
| S-GH9 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.104329 | -80.045343 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 78 | - | 0.0072 | - | 116 | - | 4-674 |
| S-RR08 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.103290 | -80.041868 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-674 |
| S-RR09 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.102491 | -80.041046 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 77 | - | 0.0159 | - | 257 | - | 4-675 |
| S-RR11 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.101127 | -80.039653 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 77 | - | 0.0124 | - | 200 | - | 4-675 |
| S-IJ1 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.093062 | -80.027724 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 107 | - | 0.0295 | - | 476 | - | 4-677 |
| S-IJ2 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.092891 | -80.027593 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 40 | - | 0.0023 | - | 37 | - | 4-677 |
| S-II6 | UNT to Little Creek | Franklin | Norfolk | 37.092697 | -79.978402 | Intermittent | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-685 |
| S-IJ3 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.092600 | -80.027231 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 77 | - | 0.0088 | - | 143 | - | 4-677 |
| S-GH6 | UNT to Little Creek | Franklin | Norfolk | 37.092397 | -79.983227 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-684 |
| S-II12 | UNT to Little Creek | Franklin | Norfolk | 37.091608 | -79.987839 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0009 | - | 4 | - | 4-684 |
| S-II11 | UNT to Little Creek | Franklin | Norfolk | 37.091564 | -79.988051 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-684 |
| S-II8 | UNT to Little Creek | Franklin | Norfolk | 37.091413 | -79.993944 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0009 | - | 4 | - | 4-683 |
| S-II9 | UNT to Little Creek | Franklin | Norfolk | 37.091382 | -79.990620 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0092 | - | 44 | - | 4-683 |
| S-II7 | UNT to Little Creek | Franklin | Norfolk | 37.091354 | -79.992013 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-683 |
| S-IJ4 | UNT to North Fork Blackwater River | Franklin | Norfolk | 37.091189 | -80.024366 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-677 |
| S-KL2 | UNT to Little Creek | Franklin | Norfolk | 37.090361 | -79.996354 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0017 | - | 8 | - | 4-682 |
| S-GH2 | UNT to Teels Creek | Franklin | Norfolk | 37.090153 | -79.953936 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0009 | - | 4 | - | 4-689 |
| S-GH4 | UNT to Teels Creek | Franklin | Norfolk | 37.089812 | -79.956077 | Perennial | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0023 | - | 11 | - | 4-688 |
| S-GH3 | UNT to Teels Creek | Franklin | Norfolk | 37.089745 | -79.956042 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-688 |
| S-IJ10 | Little Creek | Franklin | Norfolk | 37.089179 | -80.005026 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-681 |
| S-E29 | UNT to Teels Creek | Franklin | Norfolk | 37.089178 | -79.950110 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 80 | - | 0.0147 | - | 237 | - | 4-689 |
| S-E28 | Teels Creek | Franklin | Norfolk | 37.089047 | -79.9613 | Perennial | RPW | - | 03010101 | Pipeline ROW | 82 | - | 0.0226 | - | 364 | - | 4-687 |
| S-E28 | Teels Creek | Franklin | Norfolk | 37.085247 | -79.948057 | Perennial | RPW | - | 03010101 | Pipeline ROW | 76 | - | 0.0209 | - | 338 | - | 4-687 |
| S-E28 | Teels Creek | Franklin | Norfolk | 37.082875 | -79.945556 | Perennial | RPW | - | 03010101 | Pipeline ROW | 101 | - | 0.0278 | - | 449 | - | 4-687 |
| S-EF4 | UNT to Teels Creek | Franklin | Norfolk | 37.078963 | -79.941911 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 80 | - | 0.0202 | - | 326 | - | 4-691 |
| S-EF7 | UNT to Teels Creek | Franklin | Norfolk | 37.074664 | -79.941123 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0009 | - | 4 | - | 4-692 |
| S-EF7 | UNT to Teels Creek | Franklin | Norfolk | 37.074636 | -79.941336 | Ephemeral | NRPW | - | 03010101 | ATWS | 22 | - | 0.0010 | - | 5 | - | 4-692 |
| S-EF12 | Teels Creek | Franklin | Norfolk | 37.073367 | -79.939865 | Perennial | RPW | - | 03010101 | Pipeline ROW | 79 | - | 0.0363 | - | 585 | - | 4-692 |
| S-MM42 | UNT to Teels Creek | Franklin | Norfolk | 37.070703 | -79.937069 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 81 | - | 0.0037 | - | 60 | - | 4-693 |
| S-D23 | Teels Creek | Franklin | Norfolk | 37.070322 | -79.931039 | Perennial | RPW | - | 03010101 | Pipeline ROW | 92 | - | 0.0479 | - | 772 | - | 4-694 |
| S-D22 | UNT to Teels Creek | Franklin | Norfolk | 37.070101 | -79.929732 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 83 | - | 0.0152 | - | 246 | - | 4-694 |
| S-D18 | UNT to Teels Creek | Franklin | Norfolk | 37.069560 | -79.926213 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 30 | - | 0.0014 | - | 7 | - | 4-694 |
| S-RR15 | UNT to Teels Creek | Franklin | Norfolk | 37.069542 | -79.933892 | Perennial | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0006 | - | 31 | - | 4-694 |
| S-D20 | UNT to Teels Creek | Franklin | Norfolk | 37.069485 | -79.926230 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 76 | - | 0.0140 | - | 225 | - | 4-694 |
| S-EF48 | UNT to Blackwater River | Franklin | Norfolk | 37.064748 | -79.874420 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 86 | - | 0.0039 | - | 64 | - | 4-705 |
| S-YZ4 | UNT to Blackwater River | Franklin | Norfolk | 37.064723 | -79.878190 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 84 | - | 0.0058 | - | 93 | - | 4-704 |
| S-C14 | Teels Creek | Franklin | Norfolk | 37.063956 | -79.921985 | Perennial | RPW | - | 03010101 | Pipeline ROW | 90 | - | 0.0839 | - | 1,353 | - | 4-696 |
| S-YZ5 | UNT to Blackwater River | Franklin | Norfolk | 37.063464 | -79.878281 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 86 | - | 0.0079 | - | 127 | - | 4-704 |
| S-KL41 | UNT to Blackwater River | Franklin | Norfolk | 37.062262 | -79.862639 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 75 | - | 0.0207 | - | 333 | - | 4-706 |
| S-KL39 | UNT to Blackwater River | Franklin | Norfolk | 37.061193 | -79.880018 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 121 | - | 0.0181 | - | 291 | - | 4-704 |
| S-C16 | UNT to Teels Creek | Franklin | Norfolk | 37.060610 | -79.921179 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0069 | - | 33 | - | 4-696 |
| S-KL54 | UNT to Maggodee Creek | Franklin | Norfolk | 37.059535 | -79.840624 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 76 | - | 0.0174 | - | 281 | - | 4-710 |
| S-C8 | UNT to Blackwater River | Franklin | Norfolk | 37.059098 | -79.853595 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 86 | - | 0.0099 | - | 159 | - | 4-708 |
| S-F4 | UNT to Blackwater River | Franklin | Norfolk | 37.059060 | -79.853379 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 82 | - | 0.0188 | - | 91 | - | 4-708 |
| S-C17 | Teels Creek | Franklin | Norfolk | 37.058390 | -79.918015 | Perennial | RPW | - | 03010101 | Timber Mat Crossing | 30 | - | 0.0138 | - | 100 | - | 4-696 |
| S-KL52 | UNT to Maggodee Creek | Franklin | Norfolk | 37.058165 | -79.844877 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 105 | - | 0.0024 | - | 39 | - | 4-709 |
| S-S11 | UNT to Maggodee Creek | Franklin | Norfolk | 37.057776 | -79.838583 | Perennial | RPW | - | 03010101 | Temporary Access Road | 41 | - | 0.0104 | - | 50 | - | 4-710 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-F8 | UNT to Maggodee Creek | Franklin | Norfolk | 37.057724 | -79.836406 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 83 | - | 0.0572 | - | 922 | - | 4-710 |
| S-CD6 | Little Creek | Franklin | Norfolk | 37.057584 | -79.913921 | Perennial | RPW | - | 03010101 | Pipeline ROW | 77 | - | 0.1016 | - | 1,639 | - | 4-698 |
| S-HH4 | UNT to Maggodee Creek | Franklin | Norfolk | 37.056594 | -79.835785 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 97 | - | 0.0200 | - | 323 | - | 4-711 |
| S-KL51 | UNT to Blackwater River | Franklin | Norfolk | 37.056084 | -79.850384 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 67 | - | 0.0085 | - | 136 | - | 4-708 |
| S-KL38 | UNT to Blackwater River | Franklin | Norfolk | 37.055912 | -79.883177 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 78 | - | 0.0125 | - | 202 | - | 4-702 |
| S-C20 | UNT to Maggodee Creek | Franklin | Norfolk | 37.055193 | -79.833881 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-711 |
| S-C19 | Maggodee Creek | Franklin | Norfolk | 37.055147 | -79.830098 | Perennial | RPW | - | 03010101 | Pipeline ROW | 75 | - | 0.0690 | - | 1,113 | - | 4-711 |
| S-KL36 | UNT to Blackwater River | Franklin | Norfolk | 37.053336 | -79.884604 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0034 | - | 17 | - | 4-702 |
| S-F11 | Blackwater River | Franklin | Norfolk | 37.052843 | -79.825711 | Perennial | TNW | Non-listed mussels | 03010101 | Pipeline ROW | 91 | - | 0.1553 | - | 2,506 | - | 4-712 |
| S-KL35 | UNT to Blackwater River | Franklin | Norfolk | 37.052125 | -79.886182 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 35 | - | 0.0020 | - | 10 | - | 4-702 |
| S-F9b | UNT to Blackwater River | Franklin | Norfolk | 37.049238 | -79.817223 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 76 | - | 0.0262 | - | 422 | - | 4-713 |
| S-II2 | Little Creek | Franklin | Norfolk | 37.049219 | -79.908513 | Perennial | RPW | - | 03010101 | Pipeline ROW | 76 | - | 0.0745 | - | 1,203 | - | 4-699 |
| S-F10 | UNT to Blackwater River | Franklin | Norfolk | 37.048037 | -79.813934 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0041 | - | 20 | - | 4-713 |
| S-CD1 | UNT to Blackwater River | Franklin | Norfolk | 37.047765 | -79.897636 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 104 | - | 0.0084 | - | 135 | - | 4-701 |
| S-F9a | UNT to Blackwater River | Franklin | Norfolk | 37.047172 | -79.813000 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0069 | - | 33 | - | 4-713 |
| S-MM29 | UNT to Maple Branch | Franklin | Norfolk | 37.043871 | -79.822898 | Perennial | RPW | - | 03010101 | Temporary Access Road | 42 | - | 0.0145 | - | 70 | - | 4-714 |
| S-MM23 | Maple Branch | Franklin | Norfolk | 37.043854 | -79.822974 | Perennial | RPW | - | 03010101 | Temporary Access Road | 78 | - | 0.0358 | - | 173 | - | 4-714 |
| S-GG4 | UNT to Blackwater River | Franklin | Norfolk | 37.042742 | -79.809015 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-716 |
| S-A36 | UNT to Foul Ground Creek | Franklin | Norfolk | 37.037916 | -79.804237 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 77 | - | 0.0071 | - | 114 | - | 4-717 |
| S-A38 | UNT to Foul Ground Creek | Franklin | Norfolk | 37.036271 | -79.799442 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 30 | - | 0.0062 | - | 30 | - | 4-718 |
| S-A40 | UNT to Foul Ground Creek | Franklin | Norfolk | 37.036173 | -79.799240 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 13 | - | 0.0017 | - | 8 | - | 4-718 |
| S-A41 | Foul Ground Creek | Franklin | Norfolk | 37.031714 | -79.788213 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 76 | - | 0.0209 | - | 338 | - | 4-720 |
| S-GH36 | UNT to Foul Ground Creek | Franklin | Norfolk | 37.031063 | -79.778588 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-721 |
| S-KL17 | UNT to Foul Ground Creek | Franklin | Norfolk | 37.031011 | -79.778435 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0023 | - | 11 | - | 4-721 |
| S-GH37 | UNT to Foul Ground Creek | Franklin | Norfolk | 37.030974 | -79.778190 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 46 | - | 0.0032 | - | 15 | - | 4-721 |
| S-GH38 | UNT to Foul Ground Creek | Franklin | Norfolk | 37.030972 | -79.778083 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 7 | - | 0.0005 | - | 2 | - | 4-721 |
| S-GH39 | UNT to Foul Ground Creek | Franklin | Norfolk | 37.030861 | -79.778069 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 103 | - | 0.0095 | - | 153 | - | 4-721 |
| S-GH40 | UNT to Foul Ground Creek | Franklin | Norfolk | 37.028893 | -79.774785 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 89 | - | 0.0061 | - | 99 | - | 4-721 |
| S-GH44 | UNT to Foul Ground Creek | Franklin | Norfolk | 37.028392 | -79.773359 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 103 | - | 0.0142 | - | 69 | - | 4-721 |
| S-G22 | UNT to Poplar Camp Creek | Franklin | Norfolk | 37.019612 | -79.761958 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 80 | - | 0.0220 | - | 356 | - | 4-723 |
| S-G23 | UNT to Poplar Camp Creek | Franklin | Norfolk | 37.019526 | -79.762002 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 42 | - | 0.0029 | - | 14 | - | 4-723 |
| S-G21 | UNT to Poplar Camp Creek | Franklin | Norfolk | 37.019359 | -79.761643 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 54 | - | 0.0037 | - | 18 | - | 4-723 |
| S-G20 | Poplar Camp Creek | Franklin | Norfolk | 37.017364 | -79.760000 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-724 |
| S-G18 | UNT to Blackwater River | Franklin | Norfolk | 37.009236 | -79.754238 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 81 | - | 0.0037 | - | 60 | - | 4-725 |
| S-G17 | UNT to Blackwater River | Franklin | Norfolk | 37.005496 | -79.752655 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0023 | - | 11 | - | 4-726 |
| S-E18 | UNT to Blackwater River | Franklin | Norfolk | 37.001271 | -79.747749 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 94 | - | 0.0151 | - | 244 | - | 4-727 |
| S-E17 | UNT to Blackwater River | Franklin | Norfolk | 37.000529 | -79.742760 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 95 | - | 0.0174 | - | 281 | - | 4-727 |
| S-E14 | UNT to Blackwater River | Franklin | Norfolk | 36.995814 | -79.735144 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 82 | - | 0.0376 | - | 607 | - | 4-728 |
| S-H38 | UNT to Jacks Creek | Franklin | Norfolk | 36.989430 | -79.722366 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0055 | - | 27 | - | 4-730 |
| S-H32 | UNT to Jacks Creek | Franklin | Norfolk | 36.988273 | -79.708199 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-732 |
| S-H37 | UNT to Jacks Creek | Franklin | Norfolk | 36.988031 | -79.717450 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 82 | - | 0.0113 | - | 182 | - | 4-731 |
| S-H34 | UNT to Jacks Creek | Franklin | Norfolk | 36.988009 | -79.711881 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-732 |
| S-H36 | UNT to Jacks Creek | Franklin | Norfolk | 36.988008 | -79.714922 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-731 |
| S-H30 | UNT to Jacks Creek | Franklin | Norfolk | 36.987961 | -79.702711 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 4 | - | 0.0001 | - | 1 | - | 4-734 |
| S-A18 | UNT to Jacks Creek | Franklin | Norfolk | 36.987818 | -79.700634 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 87 | - | 0.0052 | - | 84 | - | 4-734 |
| S-A19/H26 | UNT to Jacks Creek | Franklin | Norfolk | 36.987719 | -79.698901 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 212 | - | 0.0341 | - | 550 | - | 4-734 |
| S-A20 | UNT to Jacks Creek | Franklin | Norfolk | 36.987715 | -79.698555 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-734 |
| S-H28 | UNT to Jacks Creek | Franklin | Norfolk | 36.985174 | -79.692272 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 16 | - | 0.0022 | - | 11 | - | 4-735 |
| S-H27 | UNT to Jacks Creek | Franklin | Norfolk | 36.985124 | -79.692272 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 36 | - | 0.0083 | - | 40 | - | 4-735 |
| S-A22 | UNT to Jacks Creek | Franklin | Norfolk | 36.984846 | -79.691870 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-735 |
| S-MM44 | UNT to Little Jacks Creek | Franklin | Norfolk | 36.982507 | -79.687818 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-735 |
| S-MM46 | UNT to Little Jacks Creek | Franklin | Norfolk | 36.982240 | -79.687500 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 9 | - | 0.0006 | - | 3 | - | 4-735 |
| S-MM45 | UNT to Little Jacks Creek | Franklin | Norfolk | 36.981971 | -79.686901 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 33 | - | 0.0030 | - | 15 | - | 4-735 |
| S-MM48 | UNT to Little Jacks Creek | Franklin | Norfolk | 36.979223 | -79.684192 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 25 | - | 0.0040 | - | 19 | - | 4-736 |
| S-H25 | Little Jacks Creek | Franklin | Norfolk | 36.978529 | -79.682186 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-736 |
| S-H24 | UNT to Little Jacks Creek | Franklin | Norfolk | 36.978025 | -79.680682 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-736 |
| S-H23 | UNT to Turkey Creek | Franklin | Norfolk | 36.976421 | -79.677525 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 92 | - | 0.0106 | - | 170 | - | 4-738 |
| S-HH1 | UNT to Turkey Creek | Franklin | Norfolk | 36.974647 | -79.674453 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 18 | - | 0.0021 | - | 10 | - | 4-738 |
| S-A13 | Turkey Creek | Franklin | Norfolk | 36.973282 | -79.673075 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-738 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-A11 | UNT to Turkey Creek | Franklin | Norfolk | 36.973237 | -79.669898 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 55 | - | 0.0038 | - | 18 | - | 4-740 |
| S-H17 | Dinner Creek | Franklin | Norfolk | 36.972125 | -79.662987 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 101 | - | 0.0185 | - | 299 | - | 4-741 |
| S-A7 | UNT to Dinner Creek | Franklin | Norfolk | 36.972032 | -79.662504 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-741 |
| S-SS8 | Polecat Creek | Franklin | Norfolk | 36.970904 | -79.657370 | Perennial | RPW | Orangefin madtom, | 03010101 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-741 |
| S-CD8 | UNT to Owens Creek | Franklin | Norfolk | 36.970522 | -79.653726 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 78 | - | 0.0081 | - | 130 | - | 4-742 |
| S-AB8 | UNT to Owens Creek | Franklin | Norfolk | 36.970133 | -79.651328 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 84 | - | 0.0077 | - | 124 | - | 4-742 |
| S-DD3 | Owens Creek | Franklin | Norfolk | 36.969118 | -79.645042 | Intermittent | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0069 | - | 33 | - | 4-743 |
| S-G16 | Strawfield Creek | Franklin | Norfolk | 36.968640 | -79.642174 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 30 | - | 0.0138 | - | 100 | - | 4-743 |
| S-G15 | UNT to Parrot Branch | Franklin | Norfolk | 36.967711 | -79.636590 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 88 | - | 0.0182 | - | 293 | - | 4-744 |
| S-G13 | Parrot Branch | Franklin | Norfolk | 36.967025 | -79.630747 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-744 |
| S-D3 | UNT to Jonnikin Creek | Pittsylvania | Norfolk | 36.965631 | -79.605542 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-747 |
| S-D4 | UNT to Jonnikin Creek | Pittsylvania | Norfolk | 36.965600 | -79.604894 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 105 | - | 0.0145 | - | 233 | - | 4-747 |
| S-D2 | Jonnikin Creek | Pittsylvania | Norfolk | 36.965405 | -79.599130 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0083 | - | 40 | - | 4-748 |
| S-D7 | UNT to Jonnikin Creek | Franklin | Norfolk | 36.964763 | -79.617043 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 80 | - | 0.0147 | - | 237 | - | 4-746 |
| S-D1-EPH | UNT to Jonnikin Creek | Pittsylvania | Norfolk | 36.964430 | -79.595691 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 61 | - | 0.0140 | - | 226 | - | 4-748 |
| S-D1-INT | UNT to Jonnikin Creek | Pittsylvania | Norfolk | 36.964407 | -79.595841 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 29 | - | 0.0067 | - | 32 | - | 4-748 |
| S-G11 | UNT to Jonnikin Creek | Pittsylvania | Norfolk | 36.962420 | -79.590500 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 77 | - | 0.0106 | - | 171 | - | 4-749 |
| S-G9 | UNT to Jonnikin Creek | Pittsylvania | Norfolk | 36.959361 | -79.586437 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 79 | - | 0.0073 | - | 117 | - | 4-751 |
| S-G8 | UNT to Jonnikin Creek | Pittsylvania | Norfolk | 36.957805 | -79.583545 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 90 | - | 0.0083 | - | 133 | - | 4-751 |
| S-Q15 | UNT to Jonnikin Creek | Pittsylvania | Norfolk | 36.957580 | -79.583492 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 103 | - | 0.0118 | - | 191 | - | 4-751 |
| S-A6 | UNT to Rocky Creek | Pittsylvania | Norfolk | 36.952275 | -79.580460 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0023 | - | 11 | - | 4-750 |
| S-H11-Braid | UNT to Rocky Creek | Pittsylvania | Norfolk | 36.949615 | -79.579553 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 85 | - | 0.0039 | - | 19 | - | 4-750 |
| S-F2 | UNT to Rocky Creek | Pittsylvania | Norfolk | 36.944049 | -79.571442 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-753 |
| S-C7 | UNT to Rocky Creek | Pittsylvania | Norfolk | 36.944016 | -79.571517 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0092 | - | 44 | - | 4-753 |
| S-C3 | Harpen Creek | Pittsylvania | Norfolk | 36.929762 | -79.526109 | Perennial | RPW | Roanoke logperch, Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0083 | - | 40 | - | 4-758 |
| S-C4 | UNT to Harpen Creek | Pittsylvania | Norfolk | 36.929745 | -79.526290 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 58 | - | 0.0053 | - | 26 | - | 4-758 |
| S-H13 | Harpen Creek | Pittsylvania | Norfolk | 36.925105 | -79.517350 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 77 | - | 0.0354 | - | 570 | - | 4-759 |
| S-G6 | UNT to Harpen Creek | Pittsylvania | Norfolk | 36.920737 | -79.505898 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 80 | - | 0.0110 | - | 178 | - | 4-761 |
| S-G5 | UNT to Harpen Creek | Pittsylvania | Norfolk | 36.917694 | -79.496604 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 77 | - | 0.0106 | - | 171 | - | 4-762 |
| S-G4 | Harpen Creek | Pittsylvania | Norfolk | 36.916463 | -79.492669 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 30 | - | 0.0138 | - | 100 | - | 4-762 |
| S-G3 | UNT to Harpen Creek | Pittsylvania | Norfolk | 36.915658 | -79.490029 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0041 | - | 20 | - | 4-762 |
| S-CC16 | UNT to Harpen Creek | Pittsylvania | Norfolk | 36.913003 | -79.487838 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 0.0051 | - | 24 | - | 4-763 |
| S-CC14 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.905329 | -79.471492 | Intermittent | RPW | - | 03010105 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-765 |
| S-CC13 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.905307 | -79.471574 | Intermittent | RPW | - | 03010105 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-765 |
| S-MM8 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.902991 | -79.468220 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-766 |
| S-CC15 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.901941 | -79.466535 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-766 |
| S-CC8 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.899437 | -79.462685 | Intermittent | RPW | - | 03010105 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-766 |
| S-CC5 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.899411 | -79.462483 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 0.0055 | - | 27 | - | 4-766 |
| S-CC5 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.899248 | -79.462396 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 54 | - | 0.0149 | - | 240 | - | 4-766 |
| S-CC9 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.897740 | -79.458046 | Ephemeral | NRPW | - | 03010105 | Pipeline ROW | 81 | - | 0.0102 | - | 165 | - | 4-767 |
| S-CC10 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.897315 | -79.456119 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 78 | - | 0.0161 | - | 260 | - | 4-767 |
| S-MM10 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.895915 | -79.452960 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 9 | - | 0.0014 | - | 7 | - | 4-768 |
| S-CC11 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.895808 | -79.452920 | Perennial | RPW | Orangefin madtom | 03010105 | Pipeline ROW | 87 | - | 0.0160 | - | 258 | - | 4-768 |
| S-CC1 | Cherrystone Creek | Pittsylvania | Norfolk | 36.894043 | -79.445744 | Perennial | RPW | Orangefin madtom | 03010105 | Pipeline ROW | 82 | - | 0.0282 | - | 456 | - | 4-769 |
| S-CC3 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.893727 | -79.444763 | Ephemeral | NRPW | - | 03010105 | Pipeline ROW | 91 | - | 0.0167 | - | 270 | - | 4-769 |
| S-P5 | UNT to Cherrystone Creek | Pittsylvania | Norfolk | 36.892751 | -79.440053 | Ephemeral | NRPW | - | 03010105 | Timber Mat Crossing | 20 | - | 0.0023 | - | 11 | - | 4-769 |
| S-IJ35-EPH | UNT to Pole Bridge Branch | Pittsylvania | Norfolk | 36.891451 | -79.433781 | Ephemeral | NRPW | - | 03010105 | Pipeline ROW | 171 | - | 0.0157 | - | 253 | - | 4-770 |
| S-Q4 | UNT to Pole Bridge Branch | Pittsylvania | Norfolk | 36.886114 | -79.430914 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 0.0023 | - | 11 | - | 4-771 |
| S-Q3 | Pole Bridge Branch | Pittsylvania | Norfolk | 36.884444 | -79.428220 | Perennial | RPW | Orangefin madtom | 03010105 | Pipeline ROW | 75 | - | 0.0430 | - | 694 | - | 4-771 |
| S-Q2 | UNT to Pole Bridge Branch | Pittsylvania | Norfolk | 36.884284 | -79.427914 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-771 |
| S-B6 | UNT to Pole Bridge Branch | Pittsylvania | Norfolk | 36.879063 | -79.420189 | Ephemeral | NRPW | - | 03010105 | Pipeline ROW | 84 | - | 0.0193 | - | 311 | - | 4-772 |
| S-B8 | UNT to Pole Bridge Branch | Pittsylvania | Norfolk | 36.877937 | -79.417992 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 82 | - | 0.0075 | - | 121 | - | 4-773 |
| S-B9 | UNT to Pole Bridge Branch | Pittsylvania | Norfolk | 36.877416 | -79.416255 | Perennial | RPW | Orangefin madtom | 03010105 | Pipeline ROW | 78 | - | 0.0125 | - | 202 | - | 4-773 |
| S-DD4-Braid-1 | UNT to Mill Creek | Pittsylvania | Norfolk | 36.871651 | -79.404061 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010105 | Pipeline ROW | 67 | - | 0.0092 | - | 149 | - | 4-775 |
| S-DD4 | UNT to Mill Creek | Pittsylvania | Norfolk | 36.871478 | -79.403907 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010105 | Pipeline ROW | 147 | - | 0.0202 | - | 327 | - | 4-775 |
| S-KL27 | UNT to Mill Creek | Pittsylvania | Norfolk | 36.866534 | -79.400511 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 03010105 | Pipeline ROW | 84 | - | 0.0019 | - | 31 | - | 4-776 |
| S-C1 | Mill Creek | Pittsylvania | Norfolk | 36.863513 | -79.397914 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010105 | Pipeline ROW | 92 | - | 0.0127 | - | 204 | - | 4-777 |
| S-G2 | Little Cherrystone Creek | Pittsylvania | Norfolk | 36.851931 | -79.386051 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-779 |
| S-B2 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.849394 | -79.377780 | Ephemeral | NRPW | - | 03010105 | Timber Mat Crossing | 20 | - | 0.0023 | - | 11 | - | 4-780 |

**Table 2. Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-H55 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.843486 | -79.369222 | Ephemeral | NRPW | - | 03010105 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | - | 4-781 |
| S-H54 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.841112 | -79.366848 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 0.0055 | - | 27 | - | 4-781 |
| S-GG11 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.841093 | -79.366942 | Perennial | RPW | - | 03010105 | Timber Mat Crossing | 46 | - | 0.0084 | - | 41 | - | 4-781 |
| S-H3 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.834501 | -79.360244 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 18 | - | 0.0025 | - | 12 | - | 4-783 |
| S-H5 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.833412 | -79.359823 | Perennial | RPW | Orangefin madtom | 03010105 | Pipeline ROW | 83 | - | 0.0152 | - | 246 | - | 4-783 |
| S-OO1 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.830285 | -79.356618 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 84 | - | 0.0096 | - | 156 | - | 4-783 |
| S-H44 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.829823 | -79.346016 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 33 | - | 0.0061 | - | 29 | - | 4-785 |
| S-H42 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.828993 | -79.344442 | Perennial | RPW | Orangefin madtom | 03010105 | Permanent Access Road | - | 15 | - | 0.0017 | - | 11 | 4-785 |
| S-H42 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.828958 | -79.344315 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-785 |
| S-OO2 | UNT to Little Cherrystone Creek | Pittsylvania | Norfolk | 36.828831 | -79.353849 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 78 | - | 0.0090 | - | 144 | - | 4-784 |
| S-EF26 | Little Cherrystone Creek | Pittsylvania | Norfolk | 36.828207 | -79.349814 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 0.0092 | - | 44 | - | 4-784 |

Notes:

1 - For identified streams without a NHD (National Hydrography Dataset) name, the identified stream was given the name, "Unidentified Tributary (UNT)", of the first named receiving waterbody

2 - In decimal degrees

3 - RPW = Relatively Permanent Waters
- NRPW = Non-Relatively Permanent Waters
- TNW = Traditional Navigable Waters

4 - See Section 1.9.2 and Section 4.2 for more information

5 - Acres are rounded to four decimal places.

6 - Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.

7 - Permanent fill associated with the construction of Permanent access road and facilities. Cubic yards are rounded to the nearest whole number.

Mountain Valley PIPELINE LLC

# Table 3 (Wetland Impacts)

**Table 3. Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-B55 | Harrison | Pittsburgh | 39.436246 | -80.474973 | PEM | RPWWD | 05020002 | Timber Mat Crossing | 0.0054 | - | - | 26 | - | 4-36 |
| W-J32-PEM-1 | Harrison | Pittsburgh | 39.391614 | -80.477085 | PEM | RPWWN | 05020002 | Temporary Access Road | 0.0417 | - | - | 202 | - | 4-44 |
| W-A10a | Harrison | Pittsburgh | 39.369569 | -80.485054 | PEM | RPWWD | 05020002 | Timber Mat Crossing | 0.0153 | - | - | 74 | - | 4-49 |
| W-B1a | Harrison | Pittsburgh | 39.360192 | -80.492766 | PEM | NRPWW | 05020002 | Pipeline ROW | 0.0119 | - | - | 192 | - | 4-50 |
| W-A40 | Harrison | Pittsburgh | 39.358924 | -80.493367 | PEM | RPWWN | 05020002 | Pipeline ROW/ATWS | 0.3111 | - | - | 1,506 | - | 4-51 |
| W-A39 | Harrison | Pittsburgh | 39.358865 | -80.490797 | PEM | RPWWN | 05020002 | Permanent Access Road | 0.0280 | - | - | 136 | - | 4-51 |
| W-ST11 | Harrison | Pittsburgh | 39.338239 | -80.519656 | PEM | NRPWW | 05020002 | Temporary Access Road/ATWS | 0.0228 | - | - | 110 | - | 4-56 |
| W-ST12-PEM | Harrison | Pittsburgh | 39.337471 | -80.522128 | PEM | RPWWD | 05020002 | Temporary Access Road/ATWS | 0.0582 | - | - | 282 | - | 4-56 |
| W-ST12-PSS | Harrison | Pittsburgh | 39.337457 | -80.522185 | PSS | RPWWD | 05020002 | Temporary Access Road/ATWS | - | 0.1444 | - | 699 | - | 4-56 |
| W-B2a | Harrison | Pittsburgh | 39.316856 | -80.525315 | PEM | RPWWD | 05020002 | ATWS | 0.1953 | - | - | 945 | - | 4-59 |
| W-B4a | Harrison | Pittsburgh | 39.316784 | -80.526129 | PEM | RPWWD | 05020002 | Timber Mat Crossing | 0.0214 | - | - | 104 | - | 4-59 |
| W-UU1 | Harrison | Pittsburgh | 39.290258 | -80.518898 | PFO | RPWWD | 05020002 | Pipeline ROW | - | 0.0045 | - | 22 | - | 4-66 |
| W-UU3 | Harrison | Pittsburgh | 39.289750 | -80.518517 | PFO | RPWWN | 05020002 | Pipeline ROW | - | 0.0065 | - | 105 | - | 4-66 |
| W-UU4a | Harrison | Pittsburgh | 39.253101 | -80.540498 | PEM | RPWWD | 05020002 | Pipeline ROW/ATWS | 0.1268 | - | - | 2,046 | - | 4-74 |
| W-F52 | Harrison | Pittsburgh | 39.250487 | -80.551891 | PEM | NRPWW | 05020002 | Temporary Access Road | 0.0625 | - | - | 302 | - | 4-76 |
| W-F54 | Harrison | Pittsburgh | 39.249640 | -80.550121 | PEM | NRPWW | 05020002 | Timber Mat Crossing | 0.0042 | - | - | 20 | - | 4-76 |
| W-F53 | Harrison | Pittsburgh | 39.249629 | -80.549909 | PEM | NRPWW | 05020002 | Timber Mat Crossing | 0.0080 | - | - | 39 | - | 4-76 |
| W-F55 | Harrison | Pittsburgh | 39.249464 | -80.551040 | PEM | NRPWW | 05020002 | Timber Mat Crossing | 0.0173 | - | - | 84 | - | 4-76 |
| W-K43 | Harrison | Pittsburgh | 39.243915 | -80.553961 | PEM | RPWWD | 05020002 | Pipeline ROW | 0.2086 | - | - | 3,365 | - | 4-77 |
| W-K44 | Harrison | Pittsburgh | 39.243493 | -80.554033 | PEM | RPWWD | 05020002 | Pipeline ROW | 0.0671 | - | - | 1,083 | - | 4-77 |
| W-CV15 | Harrison | Pittsburgh | 39.223490 | -80.548109 | PEM | RPWWD | 05020002 | Timber Mat Crossing | 0.0512 | - |  | 248 | - | 4-81 |
| W-J40 | Lewis | Pittsburgh | 39.167631 | -80.578355 | PEM | RPWWD | 05020002 | Pipeline ROW | 0.2931 | - | - | 4,729 | - | 4-92 |
| W-J40 | Lewis | Pittsburgh | 39.167564 | -80.578800 | PEM | RPWWD | 05020002 | Temporary Access Road | 0.1812 | - | - | 877 | - | 4-92 |
| W-A24 | Harrison | Pittsburgh | 39.165608 | -80.569523 | PEM | NRPWW | 05020002 | Temporary Access Road | 0.0002 | - | - | 1 | - | 4-91 |
| W-VV5 | Lewis | Pittsburgh | 39.137820 | -80.576075 | PEM | RPWWD | 05020002 | ATWS | 0.0202 | - | - | 98 | - | 4-99 |
| W-IJ23 | Lewis | Pittsburgh | 39.131093 | -80.572126 | PEM | RPWWN | 05020002 | Temporary Access Road | 0.0065 | - | - | 31 | - | 4-100 |
| W-IJ24 | Lewis | Pittsburgh | 39.130718 | -80.571966 | PEM | RPWWN | 05020002 | Temporary Access Road | 0.0041 | - | - | 20 | - | 4-100 |
| W-J20 | Lewis | Pittsburgh | 39.116053 | -80.589196 | PEM | NRPWW | 05020002 | Permanent Access Road | 0.0081 | - | - | 39 | - | 4-103 |
| W-J23 | Lewis | Pittsburgh | 39.114118 | -80.586522 | PEM | RPWWN | 05020002 | Pipeline ROW | 0.0130 | - | - | 210 | - | 4-103 |
| W-K31 | Lewis | Pittsburgh | 39.080555 | -80.581362 | PEM | NRPWW | 05020002 | Pipeline ROW/Temporary Access Road | 0.1135 | - | - | 549 | - | 4-109 |
| W-ST14 | Lewis | Pittsburgh | 39.079947 | -80.583108 | PEM | RPWWD | 05020002 | Anode Bed | 0.0394 | - | - | 191 | - | 4-110 |
| W-ST15 | Lewis | Pittsburgh | 39.079855 | -80.582499 | PEM | RPWWN | 05020002 | Anode Bed | 0.0711 | - | - | 344 | - | 4-110 |
| W-B46 | Lewis | Pittsburgh | 39.079854 | -80.581439 | PEM | RPWWD | 05020002 | Pipeline ROW/Temporary Access Road | 0.1255 | - | - | 607 | - | 4-110 |
| W-B47 | Lewis | Pittsburgh | 39.079451 | -80.581349 | PEM | RPWWD | 05020002 | Timber Mat Crossing | 0.0682 | - | - | 330 | - | 4-110 |
| W-B51 | Lewis | Pittsburgh | 39.078107 | -80.581235 | PEM | NRPWW | 05020002 | Timber Mat Crossing | 0.0035 | - | - | 17 | - | 4-110 |
| W-B54 | Lewis | Pittsburgh | 39.073907 | -80.581491 | PEM | NRPWW | 05020002 | Timber Mat Crossing | 0.0101 | - | - | 49 | - | 4-110 |
| W-H112 | Lewis | Pittsburgh | 39.066480 | -80.581624 | PEM | NRPWW | 05020002 | Pipeline ROW | 0.0231 | - | - | 373 | - | 4-111 |
| W-ME1 | Wetzel | Huntington | 39.561837 | -80.544176 | PEM | RPWWD | 05030201 | ATWS | 0.0382 | - | - | 185 | - | 4-1 |
| W-ME2 | Wetzel | Huntington | 39.559744 | -80.546756 | PEM | RPWWN | 05030201 | ATWS | 0.1036 | - | - | 501 | - | 4-1 |
| W-ME3 | Wetzel | Huntington | 39.559075 | -80.547489 | PEM | RPWWN | 05030201 | ATWS | 0.0869 | - | - | 421 | - | 4-1 |
| W-A1a | Wetzel | Huntington | 39.553912 | -80.544941 | PEM | RPWWD | 05030201 | Pipeline ROW | 0.0038 | - | - | 18 | - | 4-3 |
| W-A2a | Wetzel | Huntington | 39.553508 | -80.545518 | PEM | RPWWN | 05030201 | Timber Mat Crossing | 0.0424 | - | - | 205 | - | 4-3 |
| W-A4a | Wetzel | Huntington | 39.544642 | -80.542833 | PEM | NRPWW | 05030201 | Timber Mat Crossing | 0.0070 | - | - | 34 | - | 4-5 |
| W-IJ31 | Wetzel | Huntington | 39.505764 | -80.541781 | PEM | RPWWN | 05030201 | ATWS | 0.0992 | - | - | 480 | - | 4-18 |
| W-IJ31 | Wetzel | Huntington | 39.505612 | -80.541681 | PEM | RPWWN | 05030201 | Permanent Access Road | - | - | 0.0082 | - | 40 | 4-18 |
| W-A27-PFO | Wetzel | Huntington | 39.502389 | -80.523497 | PFO | RPWWD | 05030201 | Pipeline ROW | - | 0.0547 | - | 882 | - | 4-20 |
| W-A27-PEM | Wetzel | Huntington | 39.502356 | -80.523420 | PEM | RPWWD | 05030201 | Pipeline ROW | 0.0497 | - | - | 802 | - | 4-20 |
| W-A35 | Wetzel | Huntington | 39.491159 | -80.520537 | PEM | NRPWW | 05030201 | Pipeline ROW | 0.0066 | - | - | 107 | - | 4-23 |
| W-A34 | Wetzel | Huntington | 39.489742 | -80.520750 | PEM | RPWWD | 05030201 | Timber Mat Crossing | 0.0296 | - | - | 143 | - | 4-23 |
| W-WX5 | Wetzel | Huntington | 39.463909 | -80.502672 | PEM | RPWWD | 05030201 | Temporary Access Road | 0.0011 | - | - | 5 | - | 4-28 |
| W-WX4 | Wetzel | Huntington | 39.463864 | -80.502581 | PEM | RPWWD | 05030201 | Temporary Access Road | 0.0095 | - | - | 46 | - | 4-28 |
| W-K52 | Doddridge | Huntington | 39.236762 | -80.558524 | PEM | RPWWN | 05030201 | Permanent Access Road | 0.0021 | - | - | 10 | - | 4-78 |
| W-K52 | Doddridge | Huntington | 39.236727 | -80.558550 | PEM | RPWWN | 5030201 | Permanent Access Road | - | - | 0.0115 | - | 56 | 4-78 |
| W-K45 | Doddridge | Huntington | 39.228900 | -80.552328 | PEM | RPWWD | 05030201 | Pipeline ROW | 0.0401 | - | - | 648 | - | 4-80 |
| W-K41 | Doddridge | Huntington | 39.208990 | -80.551957 | PEM | RPWWD | 05030201 | Timber Mat Crossing | 0.0109 | - | - | 53 | - | 4-84 |
| W-A23 | Doddridge | Huntington | 39.201188 | -80.552996 | PEM | RPWWD | 05030201 | Pipeline ROW | 0.2701 | - | - | 4,358 | - | 4-85 |
| W-A23 | Doddridge | Huntington | 39.201157 | -80.553264 | PEM | RPWWD | 05030201 | Permanent Access Road | - | - | 0.0579 | - | 280 | 4-85 |
| W-B57 | Lewis | Huntington | 39.111745 | -80.587352 | PEM | NRPWW | 05030203 | Pipeline ROW/Temporary Access Road | 0.0336 | - | - | 163 | - | 4-104 |
| W-K33-PSS | Lewis | Huntington | 39.095059 | -80.585064 | PSS | RPWWD | 05030203 | Pipeline ROW | - | 0.0024 | - | 12 | - | 4-106 |
| W-K33-PEM | Lewis | Huntington | 39.095056 | -80.584787 | PEM | RPWWD | 05030203 | Pipeline ROW | 0.1544 | - | - | 2,490 | - | 4-106 |
| W-K34-PEM | Lewis | Huntington | 39.093945 | -80.585460 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0253 | - | - | 122 | - | 4-106 |

**Table 3. Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-H109 | Lewis | Huntington | 39.053324 | -80.582020 | PEM | NRPWW | 05030203 | Pipeline ROW | - | - | 0.0027 | - | 13 | 4-114 |
| W-I22-PEM | Lewis | Huntington | 39.052952 | -80.582437 | PEM | RPWWD | 05030203 | ATWS | 0.0018 | - | - | 9 | - | 4-114 |
| W-I22-PEM | Lewis | Huntington | 39.052768 | -80.582196 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0162 | - | - | 78 | - | 4-114 |
| W-I22-PEM | Lewis | Huntington | 39.052760 | -80.582147 | PEM | RPWWD | 05030203 | Permanent Access Road | - | - | 0.0059 | - | 28 | 4-114 |
| W-KK6 | Lewis | Huntington | 39.017820 | -80.596977 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0212 | - | - | 103 | - | 4-119 |
| W-I15 | Lewis | Huntington | 38.968609 | -80.592042 | PEM | RPWWN | 05030203 | Pipeline ROW | 0.0631 | - | - | 1,018 | - | 4-128 |
| W-I16 | Lewis | Huntington | 38.964758 | -80.590881 | PEM | NRPWW | 05030203 | Timber Mat Crossing | 0.0177 | - | - | 86 | - | 4-129 |
| W-I17 | Lewis | Huntington | 38.964195 | -80.590961 | PEM | NRPWW | 05030203 | Timber Mat Crossing | 0.0017 | | - | 8 | - | 4-129 |
| W-I20 | Lewis | Huntington | 38.962362 | -80.590607 | PEM | NRPWW | 05030203 | Timber Mat Crossing | 0.0379 | - | - | 183 | - | 4-129 |
| W-I21 | Lewis | Huntington | 38.962126 | -80.590741 | PEM | NRPWW | 05030203 | Timber Mat Crossing | 0.0631 | - | - | 306 | - | 4-129 |
| W-UU7 | Lewis | Huntington | 38.933646 | -80.585074 | PEM | NRPWW | 05030203 | Pipeline ROW | 0.0038 | - | - | 19 | - | 4-135 |
| W-H103 | Lewis | Huntington | 38.933290 | -80.584765 | PEM | RPWWN | 05030203 | ATWS | 0.0037 | - | - | 18 | - | 4-135 |
| W-H103 | Lewis | Huntington | 38.933290 | -80.584765 | PEM | RPWWN | 05030203 | Timber Mat Crossing | 0.0050 | - | - | 24 | - | 4-135 |
| W-H102 | Lewis | Huntington | 38.933168 | -80.584990 | PEM | RPWWN | 05030203 | ATWS | 0.0129 | - | - | 62 | - | 4-135 |
| W-H107 | Lewis | Huntington | 38.932901 | -80.584200 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0328 | - | - | 159 | - | 4-135 |
| W-H98 | Lewis | Huntington | 38.925976 | -80.578373 | PEM | NRPWW | 05030203 | Permanent Access Road | - | - | 0.0331 | - | 160 | 4-136 |
| W-H98 | Lewis | Huntington | 38.925868 | -80.578367 | PEM | NRPWW | 05030203 | Temporary Access Road | 0.0032 | - | - | 15 | - | 4-136 |
| W-H108 | Lewis | Huntington | 38.918766 | -80.573564 | PEM | RPWWN | 05030203 | Timber Mat Crossing | 0.0278 | - | - | 134 | - | 4-140 |
| W-H96 | Lewis | Huntington | 38.913939 | -80.571910 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0039 | | - | 19 | - | 4-142 |
| W-H95 | Lewis | Huntington | 38.913311 | -80.571953 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0414 | - | - | 200 | - | 4-142 |
| W-VV9 | Lewis | Huntington | 38.904701 | -80.563951 | PEM | RPWWD | 05030203 | Pipeline ROW | 0.0534 | - | - | 259 | - | 4-144 |
| W-CD17 | Lewis | Huntington | 38.904074 | -80.563709 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0335 | | - | 162 | - | 4-144 |
| W-CD16 | Lewis | Huntington | 38.903722 | -80.563418 | PEM | RPWWN | 05030203 | Temporary Access Road/ ATWS | 0.0023 | - | - | 11 | - | 4-144 |
| W-CD16 | Lewis | Huntington | 38.903722 | -80.563418 | PEM | RPWWN | 05030203 | Pipeline ROW | 0.0226 | - | - | 365 | - | 4-144 |
| W-VV8 | Lewis | Huntington | 38.903514 | -80.563258 | PEM | RPWWD | 05030203 | Pipeline ROW | 0.0708 | - | - | 1,143 | - | 4-144 |
| W-CD18 | Lewis | Huntington | 38.902751 | -80.564644 | PEM | RPWWD | 05030203 | Temporary Access Road | 0.0322 | - | - | 156 | - | 4-144 |
| W-CD19 | Lewis | Huntington | 38.902618 | -80.564694 | PEM | RPWWD | 05030203 | Temporary Access Road | 0.0080 | - | - | 39 | - | 4-144 |
| W-CD21 | Lewis | Huntington | 38.901049 | -80.566582 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0161 | - | - | 78 | - | 4-146 |
| W-CD23 | Lewis | Huntington | 38.898699 | -80.568306 | PEM | RPWWD | 05030203 | Temporary Access Road | 0.0349 | - | - | 169 | - | 4-146 |
| W-CD24 | Lewis | Huntington | 38.898648 | -80.568238 | PEM | RPWWD | 05030203 | Temporary Access Road | 0.0094 | - | - | 45 | - | 4-146 |
| W-CD36 | Lewis | Huntington | 38.898177 | -80.568287 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0049 | - | - | 24 | - | 4-146 |
| W-CD25 | Lewis | Huntington | 38.898021 | -80.568159 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0100 | - | - | 48 | - | 4-146 |
| W-CD26 | Lewis | Huntington | 38.897805 | -80.568155 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0114 | - | - | 55 | - | 4-146 |
| W-VV10 | Lewis | Huntington | 38.897282 | -80.567014 | PEM | NRPWW | 05030203 | Temporary Access Road | 0.0091 | - | - | 44 | - | 4-146 |
| W-UV17 | Lewis | Huntington | 38.893199 | -80.556196 | PFO | RPWWN | 05030203 | Pipeline ROW | - | 0.0055 | - | 27 | - | 4-148 |
| W-ST16 | Lewis | Huntington | 38.892534 | -80.556680 | PEM | RPWWN | 05030203 | Temporary Anode Bed | 0.0711 | - | - | 344 | - | 4-148 |
| W-VV11 | Lewis | Huntington | 38.890576 | -80.554852 | PEM | NRPWW | 05030203 | Temporary Access Road | 0.0246 | - | - | 119 | - | 4-148 |
| W-VV12 | Lewis | Huntington | 38.890309 | -80.553784 | PEM | NRPWW | 05030203 | Temporary Access Road | 0.0277 | - | - | 134 | - | 4-148 |
| W-VV4-PEM | Lewis | Huntington | 38.863280 | -80.525705 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0131 | - | - | 64 | - | 4-158 |
| W-VV4-PFO | Lewis | Huntington | 38.863238 | -80.525813 | PFO | RPWWD | 05030203 | Timber Mat Crossing | - | 0.0263 | - | 127 | - | 4-158 |
| W-VV3-PEM | Lewis | Huntington | 38.862795 | -80.525190 | PEM | RPWWD | 05030203 | Pipeline ROW | 0.0447 | - | - | 721 | - | 4-158 |
| W-VV3-PFO | Braxton | Huntington | 38.862691 | -80.525163 | PFO | RPWWD | 05030203 | Pipeline ROW | - | 0.0160 | - | 259 | - | 4-158 |
| W-H90 | Braxton | Huntington | 38.760419 | -80.513602 | PEM | RPWWD | 05030203 | Pipeline ROW | 0.0388 | - | - | 627 | - | 4-179 |
| W-QR13 | Braxton | Huntington | 38.751445 | -80.516905 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0618 | - | - | 299 | - | 4-180 |
| W-QR12 | Braxton | Huntington | 38.749364 | -80.522081 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0881 | - | - | 426 | - | 4-181 |
| W-QR11 | Braxton | Huntington | 38.747846 | -80.521602 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0559 | - | - | 271 | - | 4-181 |
| W-I11b | Braxton | Huntington | 38.708869 | -80.489369 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0098 | - | - | 47 | - | 4-194 |
| W-R2 | Webster | Huntington | 38.667178 | -80.480225 | PEM | RPWWD | 05050007 | Temporary Access Road | 0.0620 | - | - | 300 | - | 4-201 |
| W-KK3 | Webster | Huntington | 38.667027 | -80.478547 | PEM | RPWWD | 05050007 | Pipeline ROW | 0.0222 | - | - | 357 | - | 4-201 |
| W-R3 | Webster | Huntington | 38.666869 | -80.480889 | PEM | NRPWW | 05050007 | Temporary Access Road | 0.0155 | - | - | 75 | - | 4-201 |
| W-F46 | Webster | Huntington | 38.664132 | -80.479008 | PEM | RPWWN | 05050007 | Timber Mat Crossing | 0.0039 | | - | 19 | - | 4-202 |
| W-R4 | Webster | Huntington | 38.664021 | -80.483434 | PEM | NRPWW | 05050007 | Temporary Access Road | 0.0432 | - | - | 209 | - | 4-204 |
| W-H75 | Webster | Huntington | 38.607280 | -80.504722 | PEM | RPWWN | 05050007 | Pipeline ROW | 0.0108 | - | - | 174 | - | 4-219 |
| W-H79 | Webster | Huntington | 38.602069 | -80.508493 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0077 | | - | 125 | - | 4-220 |
| W-H81 | Webster | Huntington | 38.599491 | -80.506376 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0237 | - | - | 115 | - | 4-220 |
| W-H82 | Webster | Huntington | 38.598415 | -80.505238 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0128 | | - | 62 | - | 4-221 |
| W-H86 | Webster | Huntington | 38.591803 | -80.508481 | PEM | NRPWW | 05050007 | Pipeline ROW | 0.0013 | - | - | 6 | - | 4-222 |
| W-H83 | Webster | Huntington | 38.591372 | -80.508904 | PEM | NRPWW | 05050007 | Pipeline ROW/Temporary Access Road | 0.0177 | - | - | 86 | - | 4-222 |
| W-T4 | Webster | Huntington | 38.586855 | -80.518697 | PEM | NRPWW | 05050007 | Temporary Access Road | 0.0403 | - | - | 195 | - | 4-224 |
| W-H85 | Webster | Huntington | 38.586644 | -80.510350 | PEM | NRPWW | 05050007 | Pipeline ROW | 0.0069 | - | - | 33 | - | 4-222 |
| W-A20-PFO | Webster | Huntington | 38.566923 | -80.529968 | PFO | NRPWW | 05050007 | Timber Mat Crossing | - | 0.0298 | - | 144 | - | 4-232 |
| W-A20-PEM | Webster | Huntington | 38.566910 | -80.530098 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0117 | | - | 57 | - | 4-232 |

**Table 3. Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-A19 | Webster | Huntington | 38.557156 | -80.538578 | PEM | RPWWD | 05050007 | Temporary Access Road | 0.0265 | - | - | 128 | - | 4-235 |
| W-H70 | Webster | Huntington | 38.557097 | -80.526293 | PEM | NRPWW | 05050007 | Permanent Access Road | - | - | 0.0057 | - | 28 | 4-238 |
| W-H71 | Webster | Huntington | 38.556454 | -80.526913 | PEM | NRPWW | 05050007 | Permanent Access Road | - | - | 0.0205 | - | 99 | 4-238 |
| W-H72 | Webster | Huntington | 38.553783 | -80.527760 | PEM | NRPWW | 05050007 | Permanent Access Road | - | - | 0.0064 | - | 31 | 4-237 |
| W-H73 | Webster | Huntington | 38.553085 | -80.528148 | PEM | NRPWW | 05050007 | Permanent Access Road | - | - | 0.0061 | - | 29 | 4-237 |
| W-H74 | Webster | Huntington | 38.552748 | -80.533585 | PEM | NRPWW | 05050007 | Permanent Access Road | - | - | 0.0115 | - | 56 | 4-237 |
| W-H67 | Webster | Huntington | 38.549313 | -80.539242 | PFO | RPWWD | 05050007 | Pipeline ROW/Temporary Access Road | - | 0.0908 | - | 1,465 | - | 4-236 |
| W-H66 | Webster | Huntington | 38.548873 | -80.539592 | PFO | RPWWD | 05050007 | Pipeline ROW | - | 0.2496 | - | 4,026 | - | 4-236 |
| W-H64-PEM | Webster | Huntington | 38.548175 | -80.540709 | PEM | RPWWD | 05050007 | Pipeline ROW | 0.0276 | - | - | 133 | - | 4-236 |
| W-H64-PSS | Webster | Huntington | 38.548099 | -80.540896 | PSS | RPWWD | 05050007 | Pipeline ROW | - | 0.0422 | - | 681 | - | 4-236 |
| W-H64-PEM-2 | Webster | Huntington | 38.548058 | -80.540847 | PEM | RPWWD | 05050007 | Pipeline ROW | 0.0289 | - | - | 466 | - | 4-236 |
| W-H56 | Webster | Huntington | 38.545807 | -80.542983 | PEM | RPWWD | 05050007 | Pipeline ROW | 0.0206 | - | - | 100 | - | 4-248 |
| W-O13 | Webster | Huntington | 38.533655 | -80.513682 | PEM | RPWWN | 05050007 | Permanent Access Road | - | - | 0.0405 | - | 196 | 4-244 |
| W-KL8 | Webster | Huntington | 38.519565 | -80.545076 | PEM | NRPWW | 05050007 | Pipeline ROW | 0.0976 | - | - | 472 | - | 4-252 |
| W-H60 | Webster | Huntington | 38.517850 | -80.544693 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0495 | - | - | 240 | - | 4-253 |
| W-H61 | Webster | Huntington | 38.517345 | -80.545025 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0094 | | - | 151 | - | 4-253 |
| W-H62 | Webster | Huntington | 38.517147 | -80.545591 | PEM | NRPWW | 05050007 | Pipeline ROW | 0.0335 | - | - | 162 | - | 4-253 |
| W-B39 | Webster | Huntington | 38.508151 | -80.559329 | PEM | NRPWW | 05050007 | Pipeline ROW | 0.0906 | - | - | 1,462 | - | 4-255 |
| W-B31 | Webster | Huntington | 38.494322 | -80.561155 | PEM | RPWWD | 05050007 | Pipeline ROW | 0.0515 | - | - | 831 | - | 4-260 |
| W-B35 | Webster | Huntington | 38.493757 | -80.560962 | PSS | RPWWD | 05050007 | Pipeline ROW | - | 0.0108 | - | 174 | - | 4-260 |
| W-A18 | Webster | Huntington | 38.481237 | -80.555783 | PEM | RPWWD | 05050007 | Temporary Access Road | 0.2038 | - | - | 986 | - | 4-263 |
| W-E28 | Webster | Huntington | 38.443010 | -80.551309 | PSS | RPWWD | 05050007 | Permanent Access Road | - | - | 0.0084 | - | 40 | 4-269 |
| W-E30 | Webster | Huntington | 38.441535 | -80.550864 | PEM | RPWWN | 05050007 | Temporary Access Road | - | - | 0.0316 | - | 153 | 4-269 |
| W-F26 | Webster | Huntington | 38.428623 | -80.567054 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0045 | | - | 22 | - | 4-277 |
| W-F29 | Webster | Huntington | 38.424050 | -80.570711 | PEM | RPWWD | 05050007 | Timber Mat Crossing | 0.0071 | - | - | 34 | - | 4-278 |
| W-F28 | Webster | Huntington | 38.423890 | -80.570659 | PEM | RPWWD | 05050007 | Timber Mat Crossing | 0.0071 | - | - | 34 | - | 4-278 |
| W-F40 | Webster | Huntington | 38.421461 | -80.570007 | PSS | RPWWD | 05050007 | Temporary Access Road | - | 0.0188 | - | 91 | - | 4-278 |
| W-F41 | Webster | Huntington | 38.417599 | -80.576458 | PEM | RPWWD | 05050007 | Temporary Access Road | 0.0002 | - | - | 1 | - | 4-279 |
| W-B30 | Webster | Huntington | 38.405713 | -80.591171 | PEM | RPWWD | 05050007 | Timber Mat Crossing | 0.0429 | - | - | 208 | - | 4-281 |
| W-B28 | Webster | Huntington | 38.399940 | -80.597527 | PEM | RPWWD | 05050007 | Pipeline ROW/Anode Bed | 0.2983 | - | - | 4,812 | - | 4-282 |
| W-E21 | Webster | Huntington | 38.370595 | -80.611923 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0389 | - | - | 627 | - | 4-289 |
| W-E18-PEM | Webster | Huntington | 38.367359 | -80.612334 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0208 | - | - | 101 | - | 4-290 |
| W-E18-PSS | Webster | Huntington | 38.367284 | -80.612248 | PSS | RPWWD | 05050005 | Pipeline ROW | - | 0.0538 | - | 868 | - | 4-290 |
| W-E16 | Nicholas | Huntington | 38.364427 | -80.614459 | PEM | NRPWW | 05050005 | Timber Mat Crossing | 0.0091 | - | - | 44 | - | 4-291 |
| W-E13 | Webster | Huntington | 38.364017 | -80.616570 | PFO | RPWWN | 05050005 | Timber Mat Crossing | - | 0.0107 | - | 52 | - | 4-291 |
| W-F13 | Nicholas | Huntington | 38.356737 | -80.631888 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0394 | - | - | 191 | - | 4-293 |
| W-F12 | Nicholas | Huntington | 38.356528 | -80.632264 | PEM | RPWWD | 05050005 | Timber Mat Crossing | 0.0576 | - | - | 279 | - | 4-293 |
| W-F11 | Nicholas | Huntington | 38.355680 | -80.633383 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0652 | - | - | 315 | - | 4-293 |
| W-K23 | Nicholas | Huntington | 38.355273 | -80.633811 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0489 | - | - | 789 | - | 4-293 |
| W-K20 | Nicholas | Huntington | 38.354644 | -80.634586 | PEM | RPWWD | 05050005 | Timber Mat Crossing | 0.0100 | | - | 48 | - | 4-293 |
| W-IJ51 | Nicholas | Huntington | 38.352366 | -80.636369 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0410 | - | - | 662 | - | 4-293 |
| W-IJ50 | Nicholas | Huntington | 38.350787 | -80.637226 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0528 | - | - | 852 | - | 4-294 |
| W-IJ55 | Nicholas | Huntington | 38.343568 | -80.646491 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0218 | - | - | 352 | - | 4-296 |
| W-B27 | Nicholas | Huntington | 38.339713 | -80.655364 | PEM | RPWWD | 05050005 | Timber Mat Crossing | 0.0874 | - | - | 423 | - | 4-299 |
| W-B26-PEM-1 | Nicholas | Huntington | 38.339034 | -80.659282 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0273 | - | - | 132 | - | 4-299 |
| W-B26-PEM-2 | Nicholas | Huntington | 38.338935 | -80.659254 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0060 | - | - | 29 | - | 4-299 |
| W-FF6-PSS | Nicholas | Huntington | 38.337803 | -80.658933 | PSS | RPWWN | 05050005 | Timber Mat Crossing | - | 0.0333 | - | 161 | - | 4-299 |
| W-FF6-PEM | Nicholas | Huntington | 38.337774 | -80.658995 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0793 | - | - | 384 | - | 4-299 |
| W-FF3 | Nicholas | Huntington | 38.332776 | -80.669068 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0444 | - | - | 716 | - | 4-301 |
| W-FF4 | Nicholas | Huntington | 38.329122 | -80.671098 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0037 | - | - | 18 | - | 4-301 |
| W-A17 | Nicholas | Huntington | 38.327813 | -80.670776 | PEM | NRPWW | 05050005 | Pipeline ROW | 0.1300 | - | - | 2,098 | - | 4-301 |
| W-A15 | Nicholas | Huntington | 38.323735 | -80.670118 | PSS | RPWWD | 05050005 | Pipeline ROW | - | 0.0891 | - | 1,437 | - | 4-302 |
| W-A14 | Nicholas | Huntington | 38.321643 | -80.670901 | PFO | RPWWD | 05050005 | Timber Mat Crossing | - | 0.0374 | - | 181 | - | 4-302 |
| W-H53 | Nicholas | Huntington | 38.313047 | -80.673265 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0039 | - | - | 63 | - | 4-304 |
| W-H50 | Nicholas | Huntington | 38.309707 | -80.676585 | PEM | NRPWW | 05050005 | Temporary Access Road | 0.0114 | - | - | 55 | - | 4-304 |
| W-N25 | Nicholas | Huntington | 38.302028 | -80.674533 | PEM | RPWWD | 05050005 | Timber Mat Crossing | 0.0104 | | - | 50 | - | 4-306 |
| W-N24 | Nicholas | Huntington | 38.299148 | -80.675928 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0031 | | - | 15 | - | 4-307 |
| W-N22 | Nicholas | Huntington | 38.296941 | -80.676479 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0030 | | - | 14 | - | 4-307 |
| W-I7 | Nicholas | Huntington | 38.293453 | -80.677084 | PFO | RPWWD | 05050005 | Timber Mat Crossing | - | 0.0333 | - | 161 | - | 4-308 |
| W-CV13 | Nicholas | Huntington | 38.273139 | -80.686452 | PEM | RPWWN | 05050005 | Permanent Access Road | 0.0159 | - | - | 77 | - | 4-312 |
| W-CV12 | Nicholas | Huntington | 38.271829 | -80.685245 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0098 | - | - | 47 | - | 4-312 |
| W-RS04 | Nicholas | Huntington | 38.264804 | -80.683146 | PEM | NRPWW | 05050005 | Temporary Access Road | 0.0254 | - | - | 123 | - | 4-316 |

**Table 3. Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-J8 | Nicholas | Huntington | 38.263168 | -80.687930 | PFO | RPWWD | 05050005 | Pipeline ROW | - | 0.0533 | - | 860 | - | 4-315 |
| W-MN4 | Nicholas | Huntington | 38.262968 | -80.683949 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0463 | - | - | 224 | - | 4-316 |
| W-J7 | Nicholas | Huntington | 38.233731 | -80.708250 | PFO | RPWWD | 05050005 | Pipeline ROW | - | 0.0693 | - | 1,119 | - | 4-326 |
| W-N18 | Nicholas | Huntington | 38.224246 | -80.716448 | PEM | NRPWW | 05050005 | Pipeline ROW | 0.0075 | - | - | 36 | - | 4-328 |
| W-L28 | Nicholas | Huntington | 38.203621 | -80.719372 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0064 | - | - | 31 | - | 4-341 |
| W-L27 | Nicholas | Huntington | 38.202610 | -80.718505 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0029 | | - | 14 | - | 4-341 |
| W-I11a | Nicholas | Huntington | 38.179434 | -80.729511 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0579 | - | - | 934 | - | 4-344 |
| W-U7 | Nicholas | Huntington | 38.178298 | -80.729744 | PEM | RPWWN | 05050005 | ATWS | 0.0666 | - | - | 322 | - | 4-347 |
| W-I5 | Nicholas | Huntington | 38.175595 | -80.730736 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0082 | - | - | 133 | - | 4-347 |
| W-VV2 | Nicholas | Huntington | 38.161072 | -80.735000 | PEM | RPWWD | 05050005 | Timber Mat Crossing | 0.0136 | - | - | 66 | - | 4-355 |
| W-N16 | Nicholas | Huntington | 38.157063 | -80.738304 | PEM | NRPWW | 05050005 | Timber Mat Crossing | 0.0232 | - | - | 112 | - | 4-356 |
| W-H41 | Nicholas | Huntington | 38.127873 | -80.733868 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0151 | | - | 73 | - | 4-362 |
| W-H33 | Nicholas | Huntington | 38.124326 | -80.735761 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0590 | - | - | 952 | - | 4-362 |
| W-H35 | Nicholas | Huntington | 38.124117 | -80.736018 | PEM | RPWWN | 05050005 | Pipeline ROW | - | - | 0.0177 | - | 285 | 4-362 |
| W-H31 | Nicholas | Huntington | 38.116376 | -80.735285 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0139 | - | - | 67 | - | 4-364 |
| W-EF31 | Nicholas | Huntington | 38.107483 | -80.726303 | PEM | RPWWD | 05050005 | Pipeline ROW/ATWS | 0.0208 | - | - | 336 | - | 4-366 |
| W-M18 | Greenbrier | Huntington | 38.061194 | -80.720732 | PEM | NRPWW | 05050005 | Timber Mat Crossing | 0.0364 | - | - | 176 | - | 4-374 |
| W-M20 | Greenbrier | Huntington | 38.060869 | -80.723064 | PEM | NRPWW | 05050005 | Pipeline ROW | 0.0031 | - | - | 15 | - | 4-374 |
| W-M23 | Greenbrier | Huntington | 38.060683 | -80.722348 | PEM | NRPWW | 05050005 | Pipeline ROW | 0.0616 | - | - | 994 | - | 4-374 |
| W-M22 | Greenbrier | Huntington | 38.060661 | -80.722616 | PSS | NRPWW | 05050005 | Pipeline ROW | - | 0.0039 | - | 19 | - | 4-374 |
| W-J6 | Greenbrier | Huntington | 38.053361 | -80.732198 | PFO | RPWWD | 05050005 | Pipeline ROW | - | 0.0744 | - | 1,201 | - | 4-376 |
| W-ST27 | Greenbrier | Huntington | 38.029124 | -80.742585 | PEM | NRPWW | 05050005 | Temporary Access Road | 0.0075 | - | - | 36 | - | 4-382 |
| W-KL40 | Greenbrier | Huntington | 38.029060 | -80.736807 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0312 | - | - | 151 | - | 4-388 |
| W-ST28 | Greenbrier | Huntington | 38.028800 | -80.743155 | PEM | NRPWW | 05050005 | Temporary Access Road | 0.0310 | - | - | 150 | - | 4-382 |
| W-IJ60 | Greenbrier | Huntington | 38.024335 | -80.739643 | PEM | RPWWN | 05050005 | Temporary Access Road | 0.0174 | - | - | 84 | - | 4-387 |
| W-IJ59 | Greenbrier | Huntington | 38.022031 | -80.743027 | PEM | RPWWN | 05050005 | Temporary Access Road | 0.0024 | - | - | 12 | - | 4-387 |
| W-IJ58-PEM-3 | Greenbrier | Huntington | 38.021808 | -80.743351 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0056 | - | - | 27 | - | 4-387 |
| W-V6 | Greenbrier | Huntington | 37.993269 | -80.756363 | PEM | RPWWN | 05050005 | Temporary Access Road | 0.0422 | - | - | 204 | - | 4-394 |
| W-HS1 | Greenbrier | Huntington | 37.986454 | -80.758418 | PEM | NRPWW | 05050005 | Pipeline ROW | - | - | 0.0360 | - | 581 | 4-395 |
| W-QR2 | Greenbrier | Huntington | 37.983978 | -80.756817 | PEM | RPWWD | 05050005 | Permanent Access Road | - | - | 0.0010 | - | 5 | 4-397 |
| W-QR2 | Greenbrier | Huntington | 37.983212 | -80.756099 | PEM | RPWWD | 05050005 | Pipeline ROW/Temporary Access Road | 0.2435 | - | - | 3,929 | - | 4-397 |
| W-L16 | Greenbrier | Huntington | 37.980653 | -80.754908 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0247 | - | - | 398 | - | 4-397 |
| W-L19 | Greenbrier | Huntington | 37.954250 | -80.739757 | PEM | RPWWD | 05050005 | Pipeline ROW/Temporary Access Road | 0.1060 | - | - | 1,711 | - | 4-402 |
| W-L13 | Greenbrier | Huntington | 37.953825 | -80.740037 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0316 | - | - | 509 | - | 4-402 |
| W-L12 | Greenbrier | Huntington | 37.953736 | -80.739892 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0075 | - | - | 36 | - | 4-402 |
| W-L11 | Greenbrier | Huntington | 37.949563 | -80.742715 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0194 | - | - | 94 | - | 4-403 |
| W-L4 | Greenbrier | Huntington | 37.938675 | -80.746774 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0404 | - | - | 196 | - | 4-405 |
| W-L2 | Greenbrier | Huntington | 37.938326 | -80.746878 | PEM | RPWWD | 05050005 | Pipeline ROW/Temporary Access Road | 0.0393 | - | - | 635 | - | 4-405 |
| W-IJ47-PEM | Greenbrier | Huntington | 37.916423 | -80.743551 | PEM | RPWWD | 05050005 | Permanent Access Road | - | - | 0.0113 | - | 55 | 4-410 |
| W-IJ47-PEM | Greenbrier | Huntington | 37.916255 | -80.743867 | PEM | RPWWD | 05050005 | Permanent Access Road | - | - | 0.0520 | - | 252 | 4-410 |
| W-W10 | Greenbrier | Huntington | 37.911495 | -80.727880 | PEM | NRPWW | 05050005 | Temporary Access Road | 0.0488 | - | - | 236 | - | 4-412 |
| W-K7 | Greenbrier | Huntington | 37.863700 | -80.757095 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0078 | - | - | 126 | - | 4-421 |
| W-K7 | Greenbrier | Huntington | 37.863527 | -80.757286 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.3206 | - | - | 5,173 | - | 4-421 |
| W-IJ30 | Greenbrier | Huntington | 37.862357 | -80.757476 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.3236 | - | - | 5,221 | - | 4-421 |
| W-UV9 | Greenbrier | Huntington | 37.862309 | -80.757756 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.1090 | - | - | 1,759 | - | 4-421 |
| W-UV11 | Greenbrier | Huntington | 37.861173 | -80.757726 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0285 | - | - | 138 | - | 4-421 |
| W-UV10 | Greenbrier | Huntington | 37.861066 | -80.757954 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0035 | - | - | 17 | - | 4-421 |
| W-K9-PEM-1 | Greenbrier | Huntington | 37.860916 | -80.757817 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0354 | - | - | 572 | - | 4-421 |
| W-K10 | Greenbrier | Huntington | 37.858743 | -80.755724 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0068 | - | - | 33 | - | 4-422 |
| W-UV4 | Greenbrier | Huntington | 37.854391 | -80.755038 | PSS | RPWWD | 05050005 | Pipeline ROW | - | 0.0885 | - | 1,427 | - | 4-422 |
| W-UV8 | Greenbrier | Huntington | 37.851590 | -80.752937 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.4913 | - | - | 7,926 | - | 4-423 |
| W-EE4 | Summers | Huntington | 37.813845 | -80.748769 | PEM | RPWWD | 05050004 | Pipeline ROW | 0.0453 | - | - | 730 | - | 4-429 |
| W-M2 | Summers | Huntington | 37.807721 | -80.746088 | PEM | RPWWD | 05050004 | Pipeline ROW | 0.1064 | - | - | 1,717 | - | 4-430 |
| W-I10 | Summers | Huntington | 37.783907 | -80.718899 | PEM | NRPWW | 05050005 | Permanent Access Road | - | - | 0.0550 | - | 266 | 4-437 |
| W-EF40 | Summers | Huntington | 37.693888 | -80.735663 | PEM | RPWWD | 05050003 | Timber Mat Crossing | 0.0889 | - | - | 430 | - | 4-461 |
| W-MM20-PFO | Summers | Huntington | 37.681648 | -80.730225 | PFO | RPWWD | 05050003 | Pipeline ROW, Temporary Access Road, ATWS | - | 0.2990 | - | 3,773 | - | 4-464 |
| W-EF36 | Summers | Huntington | 37.675423 | -80.732001 | PEM | RPWWN | 05050003 | Timber Mat Crossing | 0.0035 | - | - | 17 | - | 4-465 |
| W-K2-PEM | Summers | Huntington | 37.668130 | -80.723493 | PEM | RPWWD | 05050003 | Pipeline ROW | 0.0140 | - | - | 225 | - | 4-468 |
| W-G7 | Summers | Huntington | 37.654106 | -80.702592 | PEM | NRPWW | 05050003 | Timber Mat Crossing | 0.0121 | - | - | 59 | - | 4-471 |
| W-OP1 | Monroe | Huntington | 37.600067 | -80.700400 | PEM | RPWWD | 05050003 | Pipeline ROW | 0.1359 | - | - | 2,193 | - | 4-487 |

**Table 3. Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-A13 | Monroe | Huntington | 37.559410 | -80.710082 | PEM | RPWWD | 05050002 | Pipeline ROW/Temporary Access Road | 0.2991 | - | - | 4,826 | - | 4-493 |
| W-A13 | Monroe | Huntington | 37.559332 | -80.709734 | PEM | RPWWD | 05050002 | Permanent Access Road | - | - | 0.0228 | - | 110 | 4-493 |
| W-MN14 | Monroe | Huntington | 37.520227 | -80.707365 | PEM | RPWWD | 05050002 | Pipeline ROW/Access Road/ATWS | 0.0390 | - | - | 313 | - | 4-500 |
| W-MN15 | Monroe | Huntington | 37.520166 | -80.707532 | PEM | RPWWN | 05050002 | Pipeline ROW | 0.0070 | - | - | 113 | - | 4-500 |
| W-MN18-PEM | Monroe | Huntington | 37.487662 | -80.681791 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.0510 | - | - | 823 | - | 4-510 |
| W-MN18-PFO | Monroe | Huntington | 37.487474 | -80.681854 | PFO | RPWWD | 05050002 | Pipeline ROW | - | 0.1750 | - | 2,823 | - | 4-510 |
| W-MN1 | Monroe | Huntington | 37.473153 | -80.675740 | PEM | RPWWD | 05050002 | Timber Mat Crossing | 0.0187 | - | - | 90 | - | 4-512 |
| W-G6 | Monroe | Huntington | 37.472534 | -80.675718 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.0684 | - | - | 1,103 | - | 4-512 |
| W-CV25-PSS-1 | Monroe | Huntington | 37.462852 | -80.669557 | PSS | RPWWD | 05050002 | Pipeline ROW | - | 0.0270 | - | 436 | - | 4-513 |
| W-MN24 | Monroe | Huntington | 37.462833 | -80.670273 | PEM | NRPWW | 05050002 | Pipeline ROW | 0.0100 | - | - | 161 | - | 4-513 |
| W-CV25-PEM-2 | Monroe | Huntington | 37.462746 | -80.669518 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.0200 | - | - | 323 | - | 4-513 |
| W-E12 | Monroe | Huntington | 37.450761 | -80.667516 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.0041 | - | - | 20 | - | 4-516 |
| W-C14 | Monroe | Huntington | 37.427083 | -80.694569 | PEM | RPWWN | 05050002 | Pipeline ROW | 0.0113 | - | - | 55 | - | 4-521 |
| W-C13 | Monroe | Huntington | 37.426734 | -80.694534 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.2172 | - | - | 3,503 | - | 4-521 |
| W-C17 | Monroe | Huntington | 37.425547 | -80.693481 | PEM | RPWWD | 05050002 | Temporary Access Road | 0.0306 | - | - | 148 | - | 4-521 |
| W-Z11 | Giles | Norfolk | 37.346591 | -80.641713 | PEM | NRPWW | 05050002 | Pipeline ROW | 0.0262 | - | - | 423 | - | 4-543 |
| W-Z3 | Giles | Norfolk | 37.342244 | -80.620612 | PSS | RPWWD | 05050002 | Timber Mat Crossing | - | 0.0136 | - | 66 | - | 4-545 |
| W-CD12 | Giles | Norfolk | 37.318644 | -80.441717 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.0208 | - | - | 335 | - | 4-577 |
| W-MM10 | Giles | Norfolk | 37.298219 | -80.480617 | PEM | RPWWD | 05050002 | Temporary Access Road | 0.0254 | - | - | 123 | - | 4-569 |
| W-RR1b | Giles | Norfolk | 37.296670 | -80.494042 | PEM | RPWWD | 05050002 | Timber Mat Crossing | 0.0056 | - | - | 27 | - | 4-567 |
| W-IJ46-PEM | Montgomery | Norfolk | 37.296153 | -80.367508 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0294 | - | - | 474 | - | 4-591 |
| W-AD4 | Montgomery | Norfolk | 37.286984 | -80.330124 | PEM | RPWWD | 03010101 | Temporary Access Road | 0.0069 | - | - | 33 | - | 4-596 |
| W-NN6 | Montgomery | Norfolk | 37.268174 | -80.316468 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 0.0083 | - | - | 40 | - | 4-603 |
| W-F9-PFO | Montgomery | Norfolk | 37.258109 | -80.285892 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 0.0169 | - | 82 | - | 4-609 |
| W-C12-PEM | Montgomery | Norfolk | 37.257265 | -80.281667 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.2066 | - | - | 3,333 | - | 4-609 |
| W-C12 | Montgomery | Norfolk | 37.257192 | -80.281649 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 0.0523 | - | 253 | - | 4-609 |
| W-C11 | Montgomery | Norfolk | 37.257107 | -80.281351 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 0.0461 | - | 223 | - | 4-609 |
| W-C6 | Montgomery | Norfolk | 37.255860 | -80.275715 | PEM | NRPWW | 03010101 | Timber Mat Crossing | 0.0139 | - | - | 67 | - | 4-610 |
| W-C5 | Montgomery | Norfolk | 37.255606 | -80.274237 | PEM | NRPWW | 03010101 | Pipeline ROW | 0.0454 | - | - | 732 | - | 4-610 |
| W-AB7 | Montgomery | Norfolk | 37.231426 | -80.198615 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0040 | - | - | 19 | - | 4-631 |
| W-KL58 | Montgomery | Norfolk | 37.229183 | -80.203106 | PEM | RPWWD | 03010101 | Permanent Access Road | - | - | 0.0392 | - | 190 | 4-631 |
| W-EF5-PFO | Montgomery | Norfolk | 37.210948 | -80.193359 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 0.0852 | - | 1,374 | - | 4-635 |
| W-EF18 | Roanoke | Norfolk | 37.179449 | -80.140665 | PSS | RPWWD | 03010101 | Temporary Access Road | - | 0.0052 | - | 25 | - | 4-647 |
| W-EF17 | Roanoke | Norfolk | 37.179402 | -80.140600 | PFO | RPWWD | 03010101 | Temporary Access Road | - | 0.0224 | - | 108 | - | 4-647 |
| W-IJ94-PEM | Roanoke | Norfolk | 37.170092 | -80.138294 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0202 | - | - | 98 | - | 4-649 |
| W-IJ96-PEM | Roanoke | Norfolk | 37.169461 | -80.130376 | PEM | RPWWD | 03010101 | Permanent Access Road | - | - | 0.0133 | - | 63 | 4-650 |
| W-IJ96-PEM | Roanoke | Norfolk | 37.169461 | -80.130376 | PEM | RPWWD | 03010101 | Permanent Access Road | 0.0028 | - | - | 14 | - | 4-650 |
| W-IJ97 | Roanoke | Norfolk | 37.169197 | -80.129448 | PEM | RPWWD | 03010101 | Permanent Access Road | - | - | 0.0005 | - | 2 | 4-650 |
| W-IJ95-PSS | Roanoke | Norfolk | 37.169068 | -80.138278 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 0.0254 | - | 123 | - | 4-649 |
| W-IJ102 | Roanoke | Norfolk | 37.168289 | -80.138375 | PFO | RPWWD | 03010101 | Timber Mat Crossing | - | 0.0100 | - | 48 | - | 4-649 |
| W-KL17 | Roanoke | Norfolk | 37.160152 | -80.134774 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 0.0435 | - | 702 | - | 4-651 |
| W-EF42 | Roanoke | Norfolk | 37.157611 | -80.133722 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0083 | - | - | 40 | - | 4-652 |
| W-HS02 | Roanoke | Norfolk | 37.157427 | -80.133413 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.2893 | - | - | 4,668 | - | 4-652 |
| W-AB6-PEM-2 | Roanoke | Norfolk | 37.156825 | -80.131998 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.3271 | - | - | 5,277 | - | 4-652 |
| W-AB6-PFO-1 | Roanoke | Norfolk | 37.156713 | -80.131681 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 0.0618 | - | 997 | - | 4-652 |
| W-AB6-PEM-1 | Roanoke | Norfolk | 37.156170 | -80.130794 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0647 | - | - | 1,044 | - | 4-652 |
| W-AB6-PSS | Roanoke | Norfolk | 37.156034 | -80.130603 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 0.0061 | - | 30 | - | 4-652 |
| W-AB5 | Roanoke | Norfolk | 37.155840 | -80.130227 | PFO | RPWWN | 03010101 | Pipeline ROW | - | 0.0042 | - | 20 | - | 4-652 |
| W-AB3-PEM-2 | Roanoke | Norfolk | 37.155664 | -80.129569 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.1547 | - | - | 2,495 | - | 4-652 |
| W-EF46 | Roanoke | Norfolk | 37.154575 | -80.129122 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 0.0682 | - | 330 | - | 4-652 |
| W-KL48-PSS-1 | Roanoke | Norfolk | 37.152292 | -80.130022 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 0.0454 | - | 733 | - | 4-653 |
| W-KL48-PEM | Roanoke | Norfolk | 37.151965 | -80.130049 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0063 | - | - | 31 | - | 4-653 |
| W-KL48-PSS-2 | Roanoke | Norfolk | 37.150926 | -80.131271 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 0.0264 | - | 128 | - | 4-653 |
| W-KL50 | Roanoke | Norfolk | 37.150728 | -80.131537 | PEM | RPWWN | 03010101 | Pipeline ROW | 0.0408 | - | - | 658 | - | 4-653 |
| W-KL49 | Roanoke | Norfolk | 37.150297 | -80.132193 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 0.0152 | - | - | 74 | - | 4-653 |
| W-KL51-PEM | Roanoke | Norfolk | 37.150006 | -80.132403 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0063 | - | - | 30 | - | 4-653 |
| W-KL51-PSS | Roanoke | Norfolk | 37.149975 | -80.132476 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 0.0080 | - | 39 | - | 4-653 |
| W-MN7-PEM | Roanoke | Norfolk | 37.148328 | -80.133901 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0116 | - | - | 56 | - | 4-653 |
| W-EF44 | Roanoke | Norfolk | 37.142977 | -80.138322 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0085 | - | - | 41 | - | 4-654 |
| W-IJ36 | Roanoke | Norfolk | 37.138922 | -80.139845 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 0.1237 | - | 599 | - | 4-655 |
| W-Z7 | Roanoke | Norfolk | 37.136601 | -80.128216 | PSS | RPWWD | 03010101 | Temporary Access Road | - | 0.0003 | - | 1 | - | 4-657 |
| W-Z6 | Roanoke | Norfolk | 37.136466 | -80.128238 | PFO | RPWWD | 03010101 | Temporary Access Road | - | 0.0028 | - | 14 | - | 4-657 |

**Table 3. Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-IJ62 | Roanoke | Norfolk | 37.135529 | -80.134044 | PEM | RPWWD | 03010101 | Temporary Access Road | 0.0001 | - | - | 1 | - | 4-656 |
| W-Y2 | Roanoke | Norfolk | 37.134284 | -80.137448 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0189 | - | - | 91 | - | 4-656 |
| W-IJ10 | Roanoke | Norfolk | 37.132561 | -80.131744 | PEM | RPWWD | 03010101 | Permanent Access Road | 0.0020 | - | - | 10 | - | 4-656 |
| W-Q11 | Roanoke | Norfolk | 37.132470 | -80.131638 | PEM | RPWWD | 03010101 | Permanent Access Road | 0.0130 | - | - | 63 | - | 4-656 |
| W-KL1 | Roanoke | Norfolk | 37.132456 | -80.131463 | PEM | RPWWN | 03010101 | Permanent Access Road | 0.0018 | - | - | 9 | - | 4-656 |
| W-B25-PEM-4 | Roanoke | Norfolk | 37.128942 | -80.133774 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0093 | - | - | 45 | - | 4-659 |
| W-B25-PEM-1 | Roanoke | Norfolk | 37.128645 | -80.133283 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.1934 | - | - | 3,120 | - | 4-659 |
| W-B24-PSS | Roanoke | Norfolk | 37.128540 | -80.130794 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 0.1637 | - | 2,641 | - | 4-659 |
| W-B24-PEM | Roanoke | Norfolk | 37.128530 | -80.131060 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.1031 | - | - | 1,663 | - | 4-659 |
| W-B25-PSS-2 | Roanoke | Norfolk | 37.128527 | -80.132335 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 0.0830 | - | 402 | - | 4-659 |
| W-B25-PEM-1 | Roanoke | Norfolk | 37.128449 | -80.132802 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0140 | - | - | 68 | - | 4-659 |
| W-B25-PEM-2 | Roanoke | Norfolk | 37.128436 | -80.132646 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0048 | - | - | 78 | - | 4-659 |
| W-ST2-PEM | Franklin | Norfolk | 37.125329 | -80.121460 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.1142 | - | - | 1,842 | - | 4-661 |
| W-RR4 | Franklin | Norfolk | 37.125117 | -80.113530 | PEM | RPWWD | 03010101 | Permanent Access Road | 0.0216 | - | - | 105 | - | 4-662 |
| W-RR3 | Franklin | Norfolk | 37.124214 | -80.114746 | PEM | RPWWD | 03010101 | Permanent Access Road | 0.0019 | - | - | 9 | - | 4-662 |
| W-KL41 | Franklin | Norfolk | 37.123851 | -80.115802 | PEM | RPWWD | 03010101 | Permanent Access Road | 0.0229 | - | - | 111 | - | 4-661 |
| W-D4 | Franklin | Norfolk | 37.122629 | -80.076102 | PEM | RPWWN | 03010101 | Permanent Access Road | 0.0031 | - | - | 15 | - | 4-667 |
| W-D4 | Franklin | Norfolk | 37.122625 | -80.076071 | PEM | RPWWN | 03010101 | Permanent Access Road | - | - | 0.0009 | - | 4 | 4-667 |
| W-D7-PEM | Franklin | Norfolk | 37.121559 | -80.085750 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0159 | - | - | 77 | - | 4-666 |
| W-EF3 | Franklin | Norfolk | 37.117734 | -80.095992 | PEM | RPWWD | 03010101 | Permanent Access Road | 0.0265 | - | - | 128 | - | 4-665 |
| W-IJ1 | Franklin | Norfolk | 37.092927 | -80.027568 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0416 | - | - | 671 | - | 4-677 |
| W-IJ2-PSS | Franklin | Norfolk | 37.092645 | -80.027176 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 0.0080 | - | 129 | - | 4-677 |
| W-IJ2-PEM | Franklin | Norfolk | 37.092596 | -80.027214 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0168 | - | - | 271 | - | 4-677 |
| W-GH2 | Franklin | Norfolk | 37.092404 | -79.983182 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 0.0130 | - | 63 | - | 4-684 |
| W-II8 | Franklin | Norfolk | 37.091357 | -79.992006 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0088 | - | - | 43 | - | 4-683 |
| W-IJ6 | Franklin | Norfolk | 37.089156 | -80.005036 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0046 | - | - | 22 | - | 4-681 |
| W-E7 | Franklin | Norfolk | 37.084557 | -79.947595 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.2522 | - | - | 4,068 | - | 4-690 |
| W-E8 | Franklin | Norfolk | 37.082843 | -79.946100 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0691 | - | - | 1,114 | - | 4-690 |
| W-EF51 | Franklin | Norfolk | 37.064781 | -79.874460 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0133 | - | - | 64 | - | 4-705 |
| W-KL43b | Franklin | Norfolk | 37.059608 | -79.840707 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0004 | - | - | 2 | - | 4-710 |
| W-CD6 | Franklin | Norfolk | 37.057586 | -79.915232 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 0.0934 | - | - | 452 | - | 4-698 |
| W-CD5 | Franklin | Norfolk | 37.055438 | -79.910624 | PFO | RPWWN | 03010101 | Pipeline ROW | - | 0.1136 | - | 1,833 | - | 4-698 |
| W-EF48 | Franklin | Norfolk | 37.052142 | -79.886197 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0080 | - | - | 39 | - | 4-702 |
| W-CD1 | Franklin | Norfolk | 37.047767 | -79.897568 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 0.1106 | - | 1,785 | - | 4-701 |
| W-DD1 | Franklin | Norfolk | 37.031961 | -79.788589 | PEM | RPWWN | 03010101 | Pipeline ROW | 0.0813 | - | - | 1,312 | - | 4-720 |
| W-A12-PFO | Franklin | Norfolk | 37.031754 | -79.788099 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 0.0040 | - | 19 | - | 4-720 |
| W-A12-PEM | Franklin | Norfolk | 37.031643 | -79.788111 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0651 | - | - | 1,050 | - | 4-720 |
| W-GH16 | Franklin | Norfolk | 37.028394 | -79.773243 | PFO | RPWWD | 03010101 | Timber Mat Crossing | - | 0.0657 | - | 318 | - | 4-722 |
| W-H17 | Franklin | Norfolk | 36.989390 | -79.722090 | PFO | RPWWD | 03010101 | Timber Mat Crossing | - | 0.0369 | - | 179 | - | 4-730 |
| W-H11 | Franklin | Norfolk | 36.988077 | -79.702803 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0468 | - | - | 755 | - | 4-734 |
| W-H16 | Franklin | Norfolk | 36.988073 | -79.714967 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0232 | - | - | 112 | - | 4-731 |
| W-H14 | Franklin | Norfolk | 36.988069 | -79.711841 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 0.0061 | - | - | 30 | - | 4-732 |
| W-A8 | Franklin | Norfolk | 36.987947 | -79.700844 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0154 | - | - | 75 | - | 4-734 |
| W-H15 | Franklin | Norfolk | 36.987938 | -79.714829 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 0.0071 | - | 35 | - | 4-731 |
| W-H9 | Franklin | Norfolk | 36.978536 | -79.682057 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 0.0085 | - | - | 41 | - | 4-736 |
| W-H6 | Franklin | Norfolk | 36.972189 | -79.663042 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0057 | - | - | 28 | - | 4-741 |
| W-D3 | Pittsylvania | Norfolk | 36.965318 | -79.598760 | PFO | RPWWN | 03010101 | Timber Mat Crossing | - | 0.0285 | - | 138 | - | 4-748 |
| W-MM17 | Franklin | Norfolk | 36.964731 | -79.617067 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.0068 | - | - | 110 | - | 4-746 |
| W-B5 | Pittsylvania | Norfolk | 36.959293 | -79.586201 | PEM | RPWWN | 03010101 | Pipeline ROW | 0.0048 | - | - | 23 | - | 4-751 |
| W-B4-PSS | Pittsylvania | Norfolk | 36.957884 | -79.583666 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 0.0047 | - | 23 | - | 4-751 |
| W-C1 | Pittsylvania | Norfolk | 36.929954 | -79.526831 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 0.0182 | - | - | 88 | - | 4-758 |
| W-H5 | Pittsylvania | Norfolk | 36.924983 | -79.517159 | PEM | RPWWD | 03010101 | Pipeline ROW | 0.2067 | - | - | 3,335 | - | 4-759 |
| W-B3 | Pittsylvania | Norfolk | 36.916508 | -79.492360 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 0.0013 | - | - | 6 | - | 4-762 |
| W-CC2-PEM | Pittsylvania | Norfolk | 36.905418 | -79.471566 | PEM | RPWWD | 03010105 | Timber Mat Crossing | 0.0272 | - | - | 132 | - | 4-765 |
| W-MM5 | Pittsylvania | Norfolk | 36.903012 | -79.468192 | PSS | RPWWD | 03010105 | Timber Mat Crossing | - | 0.0390 | - | 189 | - | 4-766 |
| W-MM9 | Pittsylvania | Norfolk | 36.894087 | -79.446110 | PEM | RPWWN | 03010105 | Timber Mat Crossing | 0.0108 | - | - | 52 | - | 4-769 |
| W-MM8-PEM | Pittsylvania | Norfolk | 36.894034 | -79.445486 | PEM | RPWWN | 03010105 | Pipeline ROW | 0.0553 | - | - | 893 | - | 4-769 |
| W-MM8-PFO | Pittsylvania | Norfolk | 36.893930 | -79.445461 | PFO | RPWWN | 03010105 | Pipeline ROW | - | 0.0421 | - | 679 | - | 4-769 |
| W-Q2 | Pittsylvania | Norfolk | 36.884674 | -79.428607 | PFO | RPWWD | 03010105 | Pipeline ROW | - | 0.3770 | - | 6,082 | - | 4-771 |
| W-Q1 | Pittsylvania | Norfolk | 36.883985 | -79.427305 | PEM | RPWWD | 03010105 | Pipeline ROW | 0.0146 | - | - | 236 | - | 4-771 |
| W-G2 | Pittsylvania | Norfolk | 36.851816 | -79.385930 | PEM | RPWWD | 03010105 | Timber Mat Crossing | 0.0346 | - | - | 167 | - | 4-779 |
| W-H1 | Pittsylvania | Norfolk | 36.836097 | -79.360895 | PEM | RPWWN | 03010105 | Pipeline ROW | 0.0110 | - | - | 53 | - | 4-782 |
| W-EF6 | Pittsylvania | Norfolk | 36.835004 | -79.339128 | PFO | RPWWD | 03010105 | Pipeline ROW | - | 0.0667 | - | 323 | - | 4-786 |

## Table 3. Wetland Impacts *(revised 3/1/2021)*
## Individual Permit Application
## Mountain Valley Pipeline Project

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-H2 | Pittsylvania | Norfolk | 36.834817 | -79.360479 | PEM | RPWWD | 03010105 | Pipeline ROW | 0.7987 | - | - | 12,886 | - | 4-782 |
| W-IJ21 | Pittsylvania | Norfolk | 36.834623 | -79.338527 | PFO | RPWWN | 03010105 | Timber Mat Crossing | - | 0.0106 | - | 51 | - | 4-786 |
| W-H3 | Pittsylvania | Norfolk | 36.833741 | -79.360081 | PEM | RPWWN | 03010105 | Pipeline ROW | 0.0509 | - | - | 821 | - | 4-783 |
| W-MM3 | Pittsylvania | Norfolk | 36.830361 | -79.356631 | PSS | RPWWD | 03010105 | Pipeline ROW | - | 0.0340 | - | 548 | - | 4-783 |
| W-IJ22-PEM | Pittsylvania | Norfolk | 36.827780 | -79.350264 | PEM | RPWWD | 03010105 | Timber Mat Crossing | 0.0390 | - | - | 189 | - | 4-784 |
| W-IJ22-PFO | Pittsylvania | Norfolk | 36.827748 | -79.350295 | PFO | RPWWD | 03010105 | Timber Mat Crossing | - | 0.0785 | - | 380 | - | 4-784 |

Notes:

1 - In decimal degrees.

2 - PEM = Palustrine Emergent
- PSS = Palustrine Scrub-Shrub
- PFO = Palustrine Forested

3 - RPWWD = Wetlands directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waterways (TNWs)
- RPWWN = Wetlands adjacent but not directly abutting RPWs that flow directly or indirectly into TNWs
- NRPWW = Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

4 - Construction of access roads will not result in impacts to tidal wetlands or wetlands adjacent to tidal waters. Construction, maintenance, or expansion of substation facilities will not result in discharges to non-tidal wetlands adjacent to tidal waters of the United States.
- Acres are rounded to four decimal places.

5 - Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.

6 - Permanent fill associated with the construction of permanent access road and facilities. Cubic yards are rounded to the nearest whole number.

Mountain Valley PIPELINE LLC

# Table 4 (Stream Impacts Summary)

# Table 4. Stream Impacts Summary *(revised 3/1/2021)*
# Individual Permit Application
# Mountain Valley Pipeline Project

| USACE District | Cowardin Class | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Fill (cubic yards) | Permanent Fill (cubic yards) |
|---|---|---|---|---|---|
| Pittsburgh District | Ephemeral | 617 | 137 | 500 | 42 |
| | Intermittent | 332 | 0 | 622 | 0 |
| | Perennial | 1,007 | 55 | 4,458 | 178 |
| | **Pittsburgh District Total** | **1,956** | **192** | **5,580** | **220** |
| Huntington District | Ephemeral | 4,944 | 265 | 4,745 | 92 |
| | Intermittent | 5,624 | 296 | 8,511 | 152 |
| | Perennial | 8,518 | 335 | 42,208 | 536 |
| | **Huntington District Total** | **19,086** | **896** | **55,464** | **780** |
| Norfolk District | Ephemeral | 3,966 | 45 | 6,274 | 35 |
| | Intermittent | 6,383 | 0 | 10,478 | 0 |
| | Perennial | 6,921 | 65 | 30,294 | 55 |
| | **Norfolk District Total** | **17,270** | **110** | **47,046** | **90** |
| All District | Ephemeral | 9,527 | 447 | 11,519 | 169 |
| | Intermittent | 12,339 | 296 | 19,611 | 152 |
| | Perennial | 16,446 | 455 | 76,960 | 769 |
| | **All Districts Grand total** | **38,312** | **1,198** | **108,090** | **1,090** |

Mountain Valley PIPELINE LLC

# Table 5 (Wetland Impacts Summary)

## Table 5. Wetland Impacts Summary *(revised 3/1/2021)*
## Individual Permit Application
## Mountain Valley Pipeline Project

| USACE District | Cowardin Class | Temporary Impacts (acres) | Permanent Conversion Impacts (acres) | Permanent Fill Impacts (acres) | Temporary Fill (cubic yards) | Permanent Fill (cubic yards) |
|---|---|---|---|---|---|---|
| Pittsburgh District | PEM | 2.0423 | 0.0000 | 0.0000 | 18,284 | 0 |
| | PSS | 0.0000 | 0.1444 | 0.0000 | 699 | 0 |
| | PFO | 0.0000 | 0.0110 | 0.0000 | 127 | 0 |
| | **Pittsburgh District Total** | **2.0423** | **0.1554** | **0.0000** | **19,110** | **0** |
| Huntington District | PEM | 7.9213 | 0.0000 | 0.4374 | 90,147 | 2,723 |
| | PSS | 0.0000 | 0.3698 | 0.0084 | 5,306 | 40 |
| | PFO | 0.0000 | 1.2251 | 0.0000 | 17,100 | 0 |
| | **Huntington District Total** | **7.9213** | **1.5949** | **0.4458** | **112,553** | **2,763** |
| Norfolk District | PEM | 3.9550 | 0.0000 | 0.0539 | 56,707 | 259 |
| | PSS | 0.0000 | 0.7644 | 0.0000 | 7,029 | 0 |
| | PFO | 0.0000 | 1.1898 | 0.0000 | 14,683 | 0 |
| | **Norfolk District Total** | **3.9550** | **1.9542** | **0.0539** | **78,419** | **259** |
| All District | PEM | 13.9186 | 0.0000 | 0.4913 | 165,138 | 2,982 |
| | PSS | 0.0000 | 1.2786 | 0.0084 | 13,034 | 40 |
| | PFO | 0.0000 | 2.4259 | 0.0000 | 31,910 | 0 |
| | **All Districts Grand Total** | **13.9186** | **3.7045** | **0.4997** | **210,082** | **3,022** |

Mountain Valley PIPELINE LLC

# Table 15 (Crossing Method Determination Summary)

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | A-001 | W-A1a, S-A1a | Dry-Ditch Open-Cut | 69 | - | N | 106 | 51 | 648 | N | N | $178,577 | Dry-Ditch Open-Cut | This crossing is situated on a long and steep slope on one side that would create logistically difficult construction conditions and provide insufficient area for a bore pit spoils. Additionally, the presence of existing utilities and a completed road crossing do not allow sufficient workspace for excavation of a bore pit and operation of conventional boring or tunneling equipment. |
| | | | Conventional Bore | 69 | 28 | N | 106 | 51 | 648 | N | N | $451,592 | | |
| Huntington | A-003 | S-A3a | Dry-Ditch Open-Cut | 47 | - | N | 71 | 49 | 932 | N | N | $64,909 | Dry-Ditch Open-Cut | This crossing is situated on a long and steep slope on one side that would involve logistically difficult construction conditions and provide insufficient area for a bore pit spoils. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 47 | 34 | N | 71 | 49 | 932 | N | N | $754,544 | | |
| Huntington | A-005 | S-A124 | Dry-Ditch Open-Cut | 203 | - | N | 59 | 44 | 1432 | N | N | $188,752 | Dry-Ditch Open-Cut | This one foot wide stream is situated on a long and steep slope that would involve logistically difficult construction conditions and would require an excessively deep bore pit for a trenchless crossing. An already completed stream crossing is located near this resource which further reduces the available work space and creates an insufficient area for a bore pit soil stockpile. Furthermore, the time to complete a trenchless crossing is nearly four times as long and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 203 | 48 | N | 59 | 44 | 1432 | N | N | $3,194,292 | | |
| Huntington | A-006 | W-A27-PFO, W-A27-PEM, S-A118 | Dry-Ditch Open-Cut | 95 | - | N | 74 | 62 | 1268 | N | N | $90,372 | Dry-Ditch Open-Cut | This crossing is located in a valley that has long and steep slopes on both sides which would require a technically and logistically challenging winching system. In addition, the deep bore pits would require additional areas to stockpile soils which may require additional tree clearing in known use Indiana Bat habitat. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 95 | 36 | N | 74 | 62 | 1268 | N | N | $927,306 | | |
| Huntington | A-008 | S-A120, S-A119, W-A34 | Dry-Ditch Open-Cut | 85 | - | N | 36 | 20 | 629 | N | Y | $102,339 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 85 | 29 | N | 36 | 20 | 629 | N | Y | $506,135 | | |
| Pittsburgh | A-009 | W-B1a | Dry-Ditch Open-Cut | 40 | - | N | 57 | 47 | 350 | N | N | $28,000 | Dry-Ditch Open-Cut | This small wetland is located on a steep slope would create logistically difficult construction conditions on both sides of the crossing and provide insufficient room for the spoils from the excessively deep bore pits. The bore duration is estimated to be twice as long and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 40 | 49 | N | 57 | 47 | 350 | N | N | $2,786,247 | | |
| Pittsburgh | A-010/011 | S-B2a, W-A40, S-B3a | Dry-Ditch Open-Cut | 243 | - | N | 58 | 47 | 711 | N | N | $198,323 | Dry-Ditch Open-Cut | This crossing is located on a long and steep slope on one side that would create logistically difficult construction conditions and would require an excessively deep bore pit for a trenchless crossing. Furthermore, the estimated time to complete a trenchless crossing is nearly five times as long and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 243 | 49 | N | 58 | 47 | 711 | N | N | $3,362,357 | | |
| Pittsburgh | A-012 | S-A11a, S-A11a-Braid-1, S-A11a-Braid-2 | Dry-Ditch Open-Cut | 96 | - | N | 79 | 59 | 375 | N | N | $114,692 | Dry-Ditch Open-Cut | This crossing is located at the base of a steep slope that would involve logistically difficult construction conditions and would require an excessively deep bore pit for a trenchless crossing. Furthermore, the estimated time to complete a trenchless crossing is nearly four times as long and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 96 | 43 | N | 79 | 59 | 375 | N | N | $2,617,901 | | |
| Pittsburgh | A-013 | W-UU3 | Dry-Ditch Open-Cut | 30 | - | N | 38 | 7 | 0 | N | Y | $21,000 | Dry-Ditch Open-Cut | This narrow wetland (less than five feet wide at the pipeline crossing) would be excessively expensive to complete as a trenchless bore. In addition, the bore pits are of such depth (nearly 40-feet) that benching would be required, thereby increasing the amount of spoils created at the crossing and reducing the amount of available workspace. |
| | | | Conventional Bore | 30 | 17 | N | 38 | 7 | 0 | N | Y | $162,784 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Pittsburgh | A-014 | S-UU3 | Dry-Ditch Open-Cut | 73 | - | N | 55 | 45 | 808 | N | N | $264,165 | Dry-Ditch Open-Cut | This crossing is located adjacent to long and steep slope that would involve logistically difficult construction conditions, an extensive equipment winching system, and an excessively deep bore pit for a trenchless crossing. |
| | | | Conventional Bore | 73 | 36 | N | 55 | 45 | 808 | N | N | $864,870 | | |
| Pittsburgh | A-015 | S-UU5, W-UU4 | Dry-Ditch Open-Cut | 190 | - | N | 48 | 32 | 412 | N | Y | $148,124 | Dry-Ditch Open-Cut | This crossing is located on long and steep slope that would involve logistically difficult construction conditions, an extensive equipment winching system, and an excessively deep bore pit (37') that would require benching for a trenchless crossing. Furthermore, the estimated time to complete a trenchless crossing is nearly twice as long and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 190 | 37 | N | 48 | 32 | 412 | N | Y | $1,215,184 | | |
| Pittsburgh | A-016 | W-K43, S-K73, S-K74, S-K75, W-K44 | Dry-Ditch Open-Cut | 286 | - | N | 58 | 36 | 453 | N | N | $222,731 | Dry-Ditch Open-Cut | This crossing is located in a valley that has long and steep slopes on both sides which would require an extensive equipment winching system. In addition, the deep bore pits would require benching, which increases the total volume of material to be excavated. The lack of sufficient space to stockpile the material further complicates a trenchless crossing. The estimated time to complete a trenchless crossing is nearly double and the cost is excessively expensive. |
| | | | Conventional Bore | 286 | 36 | N | 58 | 36 | 453 | N | N | $1,469,361 | | |
| Huntington | A-017 | W-K45, S-K77 | Dry-Ditch Open-Cut | 38 | - | N | 70 | 35 | 645 | N | N | $41,532 | Dry-Ditch Open-Cut | This crossing is located adjacent to a long and steep slope that would involve logistically difficult construction conditions, a winching system that is beyond standard procedures and a deep bore pit for a trenchless crossing. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 38 | 28 | N | 70 | 35 | 645 | N | N | $363,615 | | |
| Huntington | A-018 | S-K67 | Dry-Ditch Open-Cut | 36 | - | N | 77 | 51 | 341 | N | N | $60,206 | Dry-Ditch Open-Cut | This crossing is located adjacent to a steep slope that would involve logistically difficult construction conditions, an extensive winching system and a deep bore pit for a trenchless crossing. In addition, the excessively deep bore pits (nearly 40 feet) would create a large volume of material to be excavated and stockpile. The lack of sufficient space to stockpile the material further complicates a trenchless crossing. The estimated time to complete a trenchless crossing is more than double and the cost is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 36 | 39 | N | 77 | 51 | 341 | N | N | $814,673 | | |
| Huntington | A-019A | S-K65 | Dry-Ditch Open-Cut | 37 | - | N | 64 | 49 | 148 | N | Y | $55,234 | Dry-Ditch Open-Cut | This crossing is located adjacent to a steep slope that would involve logistically difficult construction conditions and a deep bore pit for a trenchless crossing. In addition, the excessively deep bore pits (over 40 feet) would create a large volume of material to be excavated and stockpiled. The lack of sufficient space to stockpile the material further complicates a trenchless crossing. The estimated time to complete a trenchless crossing is more than four times longer than an open cut and the cost is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 37 | 41 | N | 64 | 49 | 148 | N | Y | $2,341,369 | | |
| Huntington | B-001 | S-A110/K62, W-A23, S-A109 | Dry-Ditch Open-Cut | 238 | - | N | 73 | 33 | 0 | N | Y | $194,600 | Dry-Ditch Open-Cut | The estimated time to complete a trenchless crossing is nearly three times and the cost is excessively expensive. In addition, the bore pits are nearly 40-feet deep which requires benching, trench shoring, and sufficient room to create the bench and store the stockpiled material. |
| | | | Conventional Bore | 238 | 39 | N | 73 | 33 | 0 | N | Y | $1,387,946 | | |
| Huntington | B-001A | S-A111 | Dry-Ditch Open-Cut | 38 | - | N | 75 | 58 | 667 | N | N | $77,982 | Dry-Ditch Open-Cut | This crossing is located adjacent to a long and steep slope on one side that would involve logistically difficult construction conditions, an extensive winching system and a deep bore pit for a trenchless crossing. The proximity of adjacent resources reduces the available amount of room to store the excavated material. Furthermore, the time to complete the trenchless crossing is more than double and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 38 | 37 | N | 75 | 58 | 667 | N | N | $783,810 | | |
| Pittsburgh | B-002 | W-J40, S-K82, S-K94 | Dry-Ditch Open-Cut | 223 | - | N | 43 | 29 | 291 | N | N | $228,434 | Dry-Ditch Open-Cut | The pipeline is already installed through a portion of the wetland at this crossing. The layout of a conventional bore would require excavation of a bore pit unacceptably close to the installed pipe. Boring also would not avoid or minimize impacts to the resources because it would require excavation of a bore pit within the wetland. |
| | | | Conventional Bore | 223 | 25 | N | 43 | 29 | 291 | N | N | $861,237 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Pittsburgh | B-003 | S-J44 | Dry-Ditch Open-Cut | 46 | - | N | 70 | 44 | 1017 | N | N | $50,537 | Dry-Ditch Open-Cut | This stream is approximately five feet wide where the pipeline crosses. It is located a steep valley, with extremely long slopes that would create logistically difficult construction conditions, require extensive winching systems, and bore pits would be approximately 40 feet deep. The lack of sufficient space to stockpile the material further complicates a trenchless crossing. The estimated time to complete a trenchless crossing is three times longer than an open cut and the cost is excessively expensive. |
| | | | Conventional Bore | 46 | 39 | N | 70 | 44 | 1017 | N | N | $843,053 | | |
| Huntington | B-005 | W-K33-PEM | Dry-Ditch Open-Cut | 117 | - | N | 75 | 57 | 496 | N | N | $81,900 | Dry-Ditch Open-Cut | This crossing is located adjacent to a long and steep slope that would involve logistically difficult construction conditions, an extensive winching system and a deep bore pit (48-feet) for a trenchless crossing. In addition, the excessively deep bore pits would create a large volume of material to be excavated and stockpiled. The lack of sufficient space to stockpile the material further complicates a trenchless crossing. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 117 | 48 | N | 75 | 57 | 496 | N | N | $2,950,226 | | |
| Pittsburgh | B-006 | W-K31 | Dry-Ditch Open-Cut | 96 | - | N | 62 | 55 | 220 | N | N | $67,200 | Dry-Ditch Open-Cut | This crossing is situated on a steep slope that would involve logistically difficult construction conditions, deep bore pits (nearly 40-feet), and provide insufficient area for a bore pit soil stockpile. Furthermore, the time to complete the trenchless crossing is nearly double of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 96 | 39 | N | 62 | 55 | 220 | N | N | $984,952 | | |
| Pittsburgh | B-007 | W-B46 | Dry-Ditch Open-Cut | 143 | - | N | 56 | 21 | 417 | N | N | $100,100 | Dry-Ditch Open-Cut | This crossing is situated on a long and steep slope that would involve logistically difficult construction conditions, extensive winching systems, deep bore pits, and provides insufficient area for a bore pit soil stockpile. Furthermore, the time to complete the trenchless crossing is double of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 143 | 30 | N | 56 | 21 | 417 | N | N | $953,913 | | |
| Pittsburgh | B-008 | S-H180 | Dry-Ditch Open-Cut | 45 | - | N | 32 | 20 | 0 | N | Y | $78,375 | Dry-Ditch Open-Cut | The trenchless crossing would require bore pits that are 39-feet deep, which minimizes the available area to complete an efficient crossing. Furthermore, the time to complete the trenchless crossing is more than double of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 45 | 39 | N | 32 | 20 | 0 | N | Y | $840,215 | | |
| Pittsburgh | B-009 | W-H112 | Dry-Ditch Open-Cut | 260 | - | N | 9 | 4 | 0 | N | Y | $182,000 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to 0.02 acre of PEM. Avoiding/minimizing this minor impact through a conventional bore would require a 20 feet deep bore pit - possibly requiring the operator to work from a shallow bench within the pit. Furthermore, the conventional bore crossing cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method and take nearly triple the amount of time to complete. |
| | | | Conventional Bore | 260 | 20 | N | 9 | 4 | 0 | N | Y | $920,569 | | |
| Huntington | B-010 | S-I63 | Dry-Ditch Open-Cut | 74 | - | N | 100 | 59 | 341 | N | N | $122,275 | Dry-Ditch Open-Cut | This crossing is located in a valley that has long and steep slopes on both sides which would require an extensive equipment winching system and excessively deep bore pits. The available area to store the excess material is extremely limited due to the narrowed ROW and county road. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 74 | 52 | N | 100 | 59 | 341 | N | N | $3,046,374 | | |
| Huntington | B-011 | W-I15 | Dry-Ditch Open-Cut | 56 | - | N | 66 | 43 | 661 | N | N | $39,200 | Dry-Ditch Open-Cut | This crossing is situated on a long and steep slope that would involve logistically difficult construction conditions, extensive winching systems, deep bore pits, and provides insufficient area for a bore pit soil stockpile. Furthermore the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 56 | 30 | N | 66 | 43 | 661 | N | N | $707,008 | | |
| Huntington | B-012 | W-H103, S-H160 | Dry-Ditch Open-Cut | 148 | - | N | 33 | 14 | 462 | N | Y | $187,175 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 148 | 24 | N | 33 | 14 | 462 | N | Y | $639,254 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | B-013 | S-H153 | Dry-Ditch Open-Cut | 42 | - | N | 58 | 41 | 567 | N | N | $82,922 | Dry-Ditch Open-Cut | This crossing is situated in a valley with steep slopes on both sides of the resource. The topographical constraints complicate the limits of the winching system, creating a logistically difficult construction condition and deep bore pits. In addition there is insufficient area to store the bore pit stockpile in the immediate area. Furthermore the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 42 | 36 | N | 58 | 41 | 567 | N | N | $776,893 | | |
| Huntington | B-014A | S-H145 | Dry-Ditch Open-Cut | 32 | - | N | 76 | 39 | 520 | N | N | $85,448 | Dry-Ditch Open-Cut | This crossing is adjacent to a long and steep slope that would involve logistically difficult construction conditions, deep bore pits (nearly 40-feet), and provide insufficient area for a bore pit soil stockpile. Furthermore, the time to complete the trenchless crossing is nearly five times the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method |
| | | | Conventional Bore | 32 | 39 | N | 76 | 39 | 520 | N | N | $803,321 | | |
| Huntington | B-014B | S-H165 | Dry-Ditch Open-Cut | 17 | - | N | 61 | 55 | 599 | N | N | $35,892 | Dry-Ditch Open-Cut | This small stream (less than 10-feet wide) is situated on a long and steep slope that would involve logistically difficult construction conditions, 31-feet deep bore pits, and provide insufficient area for a bore pit soil stockpile. Furthermore, the time to complete the trenchless crossing is nearly six times the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 17 | 31 | N | 61 | 55 | 599 | N | N | $614,596 | | |
| Huntington | B-015A | S-CD16, S-VV13 | Dry-Ditch Open-Cut | 193 | - | N | 17 | 6 | 0 | N | N | $206,271 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 193 | 25 | N | 17 | 6 | 0 | N | N | $776,098 | | |
| Huntington | B-015B | S-VV12, W-CD16, W-VV8 | Dry-Ditch Open-Cut | 132 | - | N | 63 | 40 | 873 | N | Y | $162,400 | Dry-Ditch Open-Cut | This multiple resource crossing present several factors that support an open-cut crossing. The resources are located on a steep slope that is extremely long, which would require a winching system of nearly 900-feet. In addition, the bore pits would be 35-feet deep, resulting in an excessive amount of soil, with limited area for storage. The cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 132 | 35 | N | 63 | 40 | 873 | N | Y | $1,014,042 | | |
| Huntington | B-016 | S-UV11 | Dry-Ditch Open-Cut | 54 | - | N | 71 | 45 | 782 | N | N | $90,653 | Dry-Ditch Open-Cut | Stream S-UV11 is a perennial stream located adjacent to a steep slope that is extremely long, nearly 800 feet in length with an average slope exceed 45%. The bore pits are estimated to be over 20 feet which would require benching and additional area for spoil storage. |
| | | | Conventional Bore | 54 | 23 | N | 71 | 45 | 782 | N | N | $363,349 | | |
| Huntington | B-017 | W-VV3-PEM, W-VV3-PFO, S-VV2 | Dry-Ditch Open-Cut | 145 | - | N | 40 | 32 | 439 | N | N | $179,415 | Dry-Ditch Open-Cut | This crossing is immediately adjacent to a mainline valve. Trenchless crossing methods are logistically difficult because they would require the pipe to be installed too deeply to facilitate connection to the valve site. An open cut crossing is necessary to facilitate connection to the mainline valve. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 145 | 30 | N | 40 | 32 | 439 | N | N | $959,589 | | |
| Huntington | C-001 | S-L60 | Dry-Ditch Open-Cut | 42 | - | N | 60 | 32 | 189 | N | N | $134,876 | Dry-Ditch Open-Cut | The pipeline has already been installed under Big Knawl Road and there is a fully restored steep hill adjacent to the pipe tie-in. Trenchless methods are technically and logistically difficult for this crossing because they would require the removal of the completed road bore and are not less environmentally damaging than this temporary stream impact because the steep hill adjacent to the crossing, which has been fully restored, would have to be re-disturbed to complete a bore. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 42 | 16 | N | 60 | 32 | 189 | N | N | $192,273 | | |
| Huntington | C-002 | S-LL1 | Dry-Ditch Open-Cut | 66 | - | N | 57 | 48 | 420 | N | N | $171,170 | Dry-Ditch Open-Cut | This crossing is located adjacent to a steep slope that is extremely long, approximately 420-feet in length with an average slope exceeding 45%. The bore pits are estimated to be nearly 30 feet. These factors create logistically difficult construction conditions, complicated winching systems, and excessive spoils. Furthermore, the time to complete the trenchless crossing is nearly double the duration a. |
| | | | Conventional Bore | 66 | 30 | N | 57 | 48 | 420 | N | N | $735,388 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | C-003 | S-QR30 | Dry-Ditch Open-Cut | 47 | - | N | 79 | 52 | 609 | N | N | $58,173 | Dry-Ditch Open-Cut | This small stream (less than 10-feet wide) is situated in a valley with long and steep slopes on both approaches. The bore pits are projected to be nearly 50-feet deep, which creates logistically difficult construction conditions and insufficient area for a bore pit soil stockpile. Furthermore, the time to complete the trenchless crossing is five times the duration and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 47 | 50 | N | 79 | 52 | 609 | N | N | $2,860,658 | | |
| Huntington | C-004 | S-J70 | Dry-Ditch Open-Cut | 62 | - | N | 70 | 57 | 886 | N | N | $149,548 | Dry-Ditch Open-Cut | This stream is located in a valley with long and steep slopes on both approaches. The bore pits are projected to be nearly 50-feet deep, which creates logistically difficult construction conditions and insufficient area for a bore pit soil stockpile. Furthermore, and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 62 | 49 | N | 70 | 57 | 886 | N | N | $2,848,682 | | |
| Huntington | C-005 | S-H123 | Dry-Ditch Open-Cut | 130 | - | N | 36 | 22 | 431 | N | N | $115,859 | Dry-Ditch Open-Cut | This small stream (less than 10-feet wide) is located adjacent to a steep slope, creating an extremely difficult construction procedure due to the winching requirements, bore pit depths (nearly 50-feet deep), and lack of sufficient work space. Furthermore, the time to complete the trenchless crossing is nearly four times the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 130 | 48 | N | 36 | 22 | 431 | N | N | $2,987,120 | | |
| Huntington | C-006 | W-H90, S-H123 | Dry-Ditch Open-Cut | 135 | - | N | 63 | 37 | 413 | N | N | $119,359 | Dry-Ditch Open-Cut | These resources are located adjacent to a long and steep slopes. The bore pits are projected to be over 50-feet deep and the winch hill length is greater than 400 feet, which creates logistically difficult construction conditions and insufficient area for a bore pit soil stockpile. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method and the construction time is greater than six times an open cut. |
| | | | Conventional Bore | 135 | 54 | N | 63 | 37 | 413 | N | N | $3,328,582 | | |
| Huntington | C-007 | S-H117 | Dry-Ditch Open-Cut | 146 | - | N | 87 | 66 | 571 | N | N | $159,225 | Dry-Ditch Open-Cut | This stream is located in a valley with steep slopes on both approaches. The steep slopes, extremely deep bore pits (67-feet), extreme winch hill conditions and lack of sufficient work space create a situation that is conducive to an open cut. Furthermore, the time to complete the trenchless crossing is nearly three times the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 146 | 67 | N | 87 | 66 | 571 | N | N | $4,068,891 | | |
| Huntington | C-008 | S-L46 | Dry-Ditch Open-Cut | 95 | - | N | 47 | 40 | 617 | N | N | $119,663 | Dry-Ditch Open-Cut | This stream is located in a valley with steep slopes on both approaches. The steep slopes, extremely deep bore pits (65-feet), extreme winch hill conditions and lack of sufficient work space create a situation that is conducive to an open cut. Furthermore, the time to complete the trenchless crossing is more than double the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 95 | 65 | N | 47 | 40 | 617 | N | N | $3,815,063 | | |
| Huntington | C-009 | S-L44 | Dry-Ditch Open-Cut | 57 | - | N | 38 | 27 | 52 | N | Y | $75,133 | Dry-Ditch Open-Cut | Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit - creating excessive spoil piles, with limited area for storage. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 57 | 36 | N | 38 | 27 | 52 | N | Y | $819,463 | | |
| Huntington | C-010 | S-I57 | Dry-Ditch Open-Cut | 78 | - | N | 51 | 34 | 690 | N | N | $160,343 | Dry-Ditch Open-Cut | This stream is located on a steep slope. The steep slope, extremely deep bore pits (49-feet), extreme winch hill conditions and lack of sufficient work space create a situation that is conducive to an open cut. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 78 | 49 | N | 51 | 34 | 690 | N | N | $2,894,090 | | |
| Huntington | C-011 | S-A96/A103 | Dry-Ditch Open-Cut | 80 | - | N | 43 | 38 | 201 | N | N | $75,460 | Dry-Ditch Open-Cut | This small stream (less than 10-feet wide) is located on a steep slope, creating an extremely difficult construction procedure due to bore pit depths (nearly 40-feet deep), steep slopes, and lack of sufficient work space. Furthermore, the time to complete the trenchless crossing is nearly three times the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 80 | 37 | N | 43 | 38 | 201 | N | N | $903,006 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | C-012 | S-A97, S-A98 | Dry-Ditch Open-Cut | 121 | - | N | 41 | 35 | 334 | N | N | $133,056 | Dry-Ditch Open-Cut | These small streams are less than 10-feet wide and are located on a steep slope, creating an extremely difficult construction procedure due to bore pit depths (64-feet deep), steep slopes, and lack of sufficient work space. Furthermore, the time to complete the trenchless crossing is nearly 5 times the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 121 | 64 | N | 41 | 35 | 334 | N | N | $3,834,305 | | |
| Huntington | C-013A | S-A100 | Dry-Ditch Open-Cut | 124 | - | Y | 42 | 22 | 460 | N | N | $366,800 | Conventional Bore | There are multiple complicating factors at this crossing location that necessitated the development of a unique solution. The Left Fork Holly River at this location is both wide and deep, and it is bounded on one side by a steep slope. Dealing with high water and unfavorable flow conditions, combined with the need to use winched equipment on one side of the river, make an open cut crossing at this location extraordinarily challenging. Mountain Valley's engineering and construction staff developed a plan to complete this crossing with a conventional bore. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 124 | 24 | Y | 42 | 22 | 460 | N | N | $571,142 | | |
| Huntington | C-013B | S-E78/E82/R1 | Dry-Ditch Open-Cut | 84 | - | N | 27 | 7 | 0 | N | Y | $340,499 | Dry-Ditch Open-Cut | The stream is located next to a steep slope and would require a bore pit exceeding 20 feet which creates excessive spoils in a limited area for storage. The duration of the trenchless crossing is nearly three times longer than the open-cut process, thereby increasing the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 84 | 21 | N | 27 | 7 | 0 | N | Y | $430,219 | | |
| Huntington | C-015 | S-KK2, S-KK3b, S-KK4b | Dry-Ditch Open-Cut | 220 | - | N | 50 | 30 | 396 | N | N | $168,097 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impacts to three small UNTs to Left Fork Holly River, each less than three feet wide. Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit of nearly 40 feet on the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. The construction time for the bore is estimated to be five times as long as the open cut and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 220 | 38 | N | 50 | 30 | 396 | N | N | $1,318,593 | | |
| Huntington | C-018 | S-F40 | Dry-Ditch Open-Cut | 92 | - | N | 42 | 24 | 11 | N | N | $165,892 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 92 | 29 | N | 42 | 24 | 11 | N | N | $526,000 | | |
| Huntington | C-019 | W-KK3 | Dry-Ditch Open-Cut | 51 | - | N | 60 | 26 | 296 | N | N | $35,700 | Dry-Ditch Open-Cut | Avoiding/minimizing this minor impact through a conventional bore would require an extensive winching system on a long steep slope in an already reduced area of work. In addition the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 51 | 16 | N | 60 | 26 | 296 | N | N | $217,815 | | |
| Huntington | C-020 | S-F43 | Dry-Ditch Open-Cut | 74 | - | N | 45 | 28 | 53 | N | N | $100,144 | Dry-Ditch Open-Cut | A trenchless crossing on this hillside would require bore pits that are greater than thirty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. The construction time for the bore is nearly twice as long as the open cut and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 74 | 32 | N | 45 | 28 | 53 | N | N | $794,631 | | |
| Huntington | C-021 | S-E67 | Dry-Ditch Open-Cut | 147 | - | N | 62 | 45 | 284 | N | N | $426,366 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact Right Fork Holly River. Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit of nearly 30 feet on the edge of a long steep slope and the excavation of an interim ramp/bench. The additional equipment and excess spoil materials will greatly limit the available space in a work area that has already been minimized. The construction time for the bore is nearly three times as long as the open cut. |
| | | | Conventional Bore | 147 | 34 | N | 62 | 45 | 284 | N | N | $1,038,342 | | |
| Huntington | C-022 | S-E68 | Dry-Ditch Open-Cut | 296 | - | Y | 47 | 12 | 63 | N | Y | $860,247 | Guided Conventional Bore | The Elk River will be crossed using Microtunnel trenchless methodology. While Mountain Valley will typically avoid crossings with bore pits of this depth, several logistical constraints complicate the open cut methodology. There are numerous large boulders within the proposed crossing - removing and restoring these to preconstruction contours would be extremely difficult to accomplish. In addition, the stream depth complicates the constructability since a larger instream diversion would be required thereby reducing the available space in a work area that has already been minimized. The Elk River is also classified by the WVDNR as Group 1 mussel stream. While mussel survey and relocation efforts were completed in 2019, completing a trenchless crossing will further minimize any potential impacts to mussel species. |
| | | | Guided Conventional Bore | 296 | 49 | Y | 47 | 12 | 63 | N | Y | $3,112,112 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | C-023 | S-E71 | Dry-Ditch Open-Cut | 84 | - | N | 26 | 18 | 0 | N | Y | $66,476 | Dry-Ditch Open-Cut | This small UNT to the Elk River (less than five feet wide) would require a bore pit that is a minimum of 20 feet deep. Due to this depth, it is likely that the use of a bench and interim access ramp would be required which would create a large volume of material to be excavated and stockpile. The lack of sufficient space to stockpile the material further complicates a trenchless crossing. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 84 | 20 | N | 26 | 18 | 0 | N | Y | $421,084 | | |
| Huntington | C-024 | S-H111, S-H114, S-H112 | Dry-Ditch Open-Cut | 272 | - | N | 36 | 12 | 10 | N | N | $221,802 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 272 | 18 | N | 36 | 12 | 10 | N | N | $854,144 | | |
| Huntington | C-025 | S-H113 | Dry-Ditch Open-Cut | 53 | - | N | 14 | 9 | 0 | N | Y | $82,656 | Dry-Ditch Open-Cut | This UNT to the Elk River is located in an area that would require a bore pit depth of nearly 30 feet. The excavation to this depth would require the use of a bench and interim access ramp would be required which would create a large volume of material to be excavated and stockpile. The lack of sufficient space to stockpile the material in a work area that has already been minimized further complicates a trenchless crossing. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 53 | 29 | N | 14 | 9 | 0 | N | Y | $415,319 | | |
| Huntington | C-026 | W-H75 | Dry-Ditch Open-Cut | 45 | - | N | 59 | 47 | 369 | N | N | $31,500 | Dry-Ditch Open-Cut | Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit, with an excavator operating from a bench within the pit, at the edge of a steep slope. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 45 | 29 | N | 59 | 47 | 369 | N | N | $392,615 | | |
| Huntington | C-027 | W-H86 | Dry-Ditch Open-Cut | 78 | - | N | 13 | 9 | 0 | N | Y | $54,600 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact of approximately 0.001 acre of a PEM wetland. Avoiding/minimizing this minor impact through a conventional bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 78 | 16 | N | 13 | 9 | 0 | N | Y | $294,440 | | |
| Huntington | C-028 | S-H110 | Dry-Ditch Open-Cut | 267 | - | N | 12 | 9 | 0 | N | Y | $251,373 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 267 | 22 | N | 12 | 9 | 0 | N | Y | $958,705 | | |
| Huntington | C-029 | S-T29 | Dry-Ditch Open-Cut | 78 | - | N | 32 | 13 | 1903 | N | N | $162,380 | Dry-Ditch Open-Cut | The stream (Houston Run) is located in a valley with extremely steep and long approaches. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit of nearly 20 feet at the edge of long steep slopes. The additional equipment and excess spoil materials will greatly limit the available space in a work area that has already been minimized, which increases the construction difficulty. |
| | | | Conventional Bore | 78 | 17 | N | 32 | 13 | 1903 | N | N | $299,008 | | |
| Huntington | C-030 | S-A83/A91 | Dry-Ditch Open-Cut | 72 | - | N | 56 | 39 | 866 | N | N | $138,108 | Dry-Ditch Open-Cut | This UNT to Camp Creek is adjacent to a steep long slope . A trenchless crossing on this hillside would require bore pits that are nearly 50-feet deep which would necessitate the use of a bench and interim ramp to access the bore pit and a winching system that is technically and logistically difficult. The construction time for the bore is nearly three times as long as the open cut and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 72 | 47 | N | 56 | 39 | 866 | N | N | $2,767,971 | | |
| Huntington | C-031 | S-A93, S-A92 | Dry-Ditch Open-Cut | 120 | - | N | 78 | 39 | 1190 | N | N | $121,741 | Dry-Ditch Open-Cut | These two very small UNTs to Camp Creek are located on a long steep slope. Both streams are less than 10 feet wide. A trenchless crossing on this hillside would require bore pits that are over 60-feet deep which would generate a significant amount of spoils and require a significant winching system to be located on the reduced LOD. The construction time for the bore is nearly twice as long as the open cut and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 120 | 63 | N | 78 | 39 | 1190 | N | N | $3,776,922 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | C-032 | S-H108, W-H67, W-H66, S-H105 | Dry-Ditch Open-Cut | 367 | - | N | 57 | 34 | 1371 | N | N | $307,728 | Dry-Ditch Open-Cut | Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit of nearly 40 feet on the edge of a very long and steep slope, thereby requiring and extensive winching system and the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. The excess spoils and winching system would need to be located on the already reduced LOD. The cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 367 | 36 | N | 57 | 34 | 1371 | N | N | $1,699,237 | | |
| Huntington | C-033 | S-H107 | Dry-Ditch Open-Cut | 45 | - | N | 7 | 3 | 0 | N | Y | $39,885 | Dry-Ditch Open-Cut | This crossing is immediately adjacent to a mainline valve. Trenchless crossing methods are logistically difficult due to the connection to the valve site. An open cut crossing is necessary to facilitate the connection to the mainline valve. |
| | | | Conventional Bore | 45 | 13 | N | 7 | 3 | 0 | N | Y | $187,085 | | |
| Huntington | C-034 | W-H64-PEM, W-H64-PEM-2, W-H64-PSS, S-H104 | Dry-Ditch Open-Cut | 172 | - | N | 48 | 20 | 0 | N | Y | $173,907 | Dry-Ditch Open-Cut | This crossing is adjacent to a mainline valve. Trenchless crossing methods are logistically difficult because they would require the pipe to be installed too deeply to facilitate connection to the valve site. An open cut crossing is necessary to facilitate connection to the mainline valve. |
| | | | Conventional Bore | 172 | 20 | N | 48 | 20 | 0 | N | Y | $670,827 | | |
| Huntington | C-035 | W-H60, W-H61 | Dry-Ditch Open-Cut | 312 | - | N | 20 | 8 | 0 | N | Y | $218,400 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 312 | 16 | N | 20 | 8 | 0 | N | Y | $958,528 | | |
| Huntington | C-036 | W-B39 | Dry-Ditch Open-Cut | 101 | - | N | 36 | 23 | 288 | N | N | $70,700 | Dry-Ditch Open-Cut | Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit - creating excessive spoil piles, with limited area for storage. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 101 | 24 | N | 36 | 23 | 288 | N | N | $505,869 | | |
| Huntington | C-037 | W-B31 | Dry-Ditch Open-Cut | 99 | - | N | 36 | 31 | 1103 | N | Y | $69,300 | Dry-Ditch Open-Cut | Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit on an extremely long and steep slope which would create excessive spoil piles in a topographical setting that requires an extensive winching system, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 99 | 25 | N | 36 | 31 | 1103 | N | Y | $509,328 | | |
| Huntington | C-038 | S-B34, S-B35, S-B36, S-B37, S-B38, W-B35, S-B42, S-B39b, S-B39a/B46, S-B45 | Dry-Ditch Open-Cut | 339 | - | N | 54 | 32 | 54 | N | N | $345,189 | Dry-Ditch Open-Cut | These crossings are located along steep slopes and would require the installation of bore pits nearly 40 feet deep requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. The bore pits would need to be located on a steep slope that would require a logistically difficult winching process. The duration of the trenchless crossing is nearly five times longer than the open-cut process, thereby increasing the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 339 | 38 | N | 54 | 32 | 54 | N | N | $1,656,313 | | |
| Huntington | C-039 | S-O4 | Dry-Ditch Open-Cut | 79 | - | N | 54 | 35 | 1723 | N | N | $137,791 | Dry-Ditch Open-Cut | This crossing is situated on a long steep slope leading into the resource. The topographical constraints would create an extreme winching system, creating a logistically difficult construction condition and deep bore pits. In addition there is insufficient area to store the bore pit stockpile in the immediate area. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 79 | 33 | N | 54 | 35 | 1723 | N | N | $827,090 | | |
| Huntington | D-002 | S-F36b | Dry-Ditch Open-Cut | 38 | - | N | 27 | 11 | 0 | N | Y | $97,221 | Dry-Ditch Open-Cut | A trenchless crossing method at this location could not be completed without excavating a bore pit within a landowner's driveway and blocking access to their home. This situation would continue for several weeks. Accordingly, a trenchless crossing of this resource has been deemed logistically impracticable. Additionally, boring is not "appropriate and practicable" for this crossing of a perennial UNT to Birch River because the temporary impacts to be avoided are minor, especially when considered in light of the significant adverse impacts on the homeowner. |
| | | | Conventional Bore | 38 | 26 | N | 27 | 11 | 0 | N | Y | $345,345 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | D-004 | S-B32, W-B30 | Dry-Ditch Open-Cut | 59 | - | N | 39 | 26 | 188 | N | N | $74,406 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 59 | 20 | N | 39 | 26 | 188 | N | N | $350,135 | | |
| Huntington | D-005 | W-B28, S-B29 | Dry-Ditch Open-Cut | 112 | - | N | 52 | 40 | 262 | N | N | $103,401 | Dry-Ditch Open-Cut | This crossing is located on a slope that would require bore pits greater than 30 feet deep which would create excessive spoil piles, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 112 | 34 | N | 52 | 40 | 262 | N | N | $939,013 | | |
| Huntington | D-006 | S-E50, W-E21 | Dry-Ditch Open-Cut | 50 | - | N | 35 | 32 | 197 | N | N | $57,357 | Dry-Ditch Open-Cut | This crossing is located on a slope that would require bore pits that are 30 feet deep which would create excessive spoil piles, all while being located within an already reduced LOD. Furthermore, the time to bore the resources is nearly three times the duration of the open cut and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 50 | 30 | N | 35 | 32 | 197 | N | N | $689,980 | | |
| Huntington | D-007 | S-E50, W-E18-PSS, W-E18-PEM | Dry-Ditch Open-Cut | 54 | - | N | 49 | 39 | 136 | N | N | $60,157 | Dry-Ditch Open-Cut | This crossing is located on a slope that would require bore pits that are nearly 30 feet deep which would create excessive spoil piles, all while being located within an already reduced LOD. Because the pipeline ROW must remain free of woody vegetation to protect the pipe coating, a conversion impact is unavoidable. Furthermore, the time to bore the resources is nearly double and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 54 | 26 | N | 49 | 39 | 136 | N | N | $390,753 | | |
| Huntington | D-008 | S-E49 | Dry-Ditch Open-Cut | 29 | - | N | 44 | 31 | 74 | N | N | $23,805 | Dry-Ditch Open-Cut | The UNT to Gauley River is approximately one foot in width, creating less than 0.01 acre of temporary impact. This crossing is located on a slope that would require bore pits that are nearly 30 feet deep which would create excessive spoil piles, all while being located within an already reduced LOD. Furthermore, the time to bore the resources is nearly double and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 29 | 26 | N | 44 | 31 | 74 | N | N | $319,803 | | |
| Huntington | D-010 | S-E46 | Dry-Ditch Open-Cut | 59 | - | N | 35 | 27 | 371 | N | N | $151,288 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 59 | 27 | N | 35 | 27 | 371 | N | N | $414,078 | | |
| Huntington | D-011 | W-F12, W-F13, W-F15 | Dry-Ditch Open-Cut | 174 | - | N | 7 | 4 | 0 | N | Y | $121,800 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 174 | 15 | N | 7 | 4 | 0 | N | Y | $562,319 | | |
| Huntington | D-012 | S-F20, W-F11 | Dry-Ditch Open-Cut | 104 | - | N | 8 | 4 | 0 | N | Y | $109,699 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 104 | 19 | N | 8 | 4 | 0 | N | Y | $381,930 | | |
| Huntington | D-013 | W-K23 | Dry-Ditch Open-Cut | 77 | - | N | 42 | 26 | 32 | N | Y | $53,900 | Dry-Ditch Open-Cut | This crossing is located adjacent to a slope that would require bore pits that are nearly 20 feet deep which would create excessive spoil piles, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 77 | 17 | N | 42 | 26 | 32 | N | Y | $296,170 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | D-014 | S-IJ57, W-IJ51 | Dry-Ditch Open-Cut | 37 | - | N | 54 | 32 | 92 | N | N | $38,154 | Dry-Ditch Open-Cut | The open cut would result in approximately 0.05 acre of temporary impacts to the wetland and stream system. This crossing is located adjacent to a slope that would require bore pits that are over 30 feet deep requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method and is estimated to take twice as long. |
| | | | Conventional Bore | 37 | 33 | N | 54 | 32 | 92 | N | N | $707,895 | | |
| Huntington | D-015 | W-IJ50 | Dry-Ditch Open-Cut | 48 | - | N | 24 | 17 | 0 | N | Y | $33,600 | Dry-Ditch Open-Cut | This crossing is located on a slope that would require bore pits that are nearly 20 feet deep which would create excessive spoil piles, all while being located within an already reduced LOD. Furthermore, the time to complete the bore is nearly double and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 48 | 19 | N | 24 | 17 | 0 | N | Y | $223,003 | | |
| Huntington | D-016 | S-IJ60 | Dry-Ditch Open-Cut | 40 | - | N | 62 | 45 | 119 | N | N | $48,516 | Dry-Ditch Open-Cut | The crossing of this small UNT to Rockcamp Run (less than 10 feet in width) open cut would result in less than 0.02 acre of temporary impact. This crossing is located adjacent to a steep slope that would require bore pits that are over 40 feet deep which would create excessive spoil piles, all while being located within an already reduced LOD. Furthermore, the time to complete the bore is nearly six times the open cut method and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 40 | 42 | N | 62 | 45 | 119 | N | N | $2,404,428 | | |
| Huntington | D-017 | W-IJ55 | Dry-Ditch Open-Cut | 49 | - | N | 40 | 23 | 0 | N | Y | $34,300 | Dry-Ditch Open-Cut | The crossing of the small PEM system would result in approximately 0.02 acre of temporary impacts. This crossing is located on a slope that would require bore pits that are over 30 feet deep which would create excessive spoil piles, all while being located within an already reduced LOD. Furthermore, the time to complete the bore is nearly double the time of the open cut method and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 49 | 32 | N | 40 | 23 | 0 | N | Y | $723,681 | | |
| Huntington | D-018 | S-IJ62 | Dry-Ditch Open-Cut | 18 | - | N | 54 | 28 | 74 | N | N | $20,473 | Dry-Ditch Open-Cut | The crossing of this small UNT to Cherry Run (less than 5 feet in width) open cut would result in less than 0.01 acre of temporary impact. This crossing is located adjacent to a steep slope that would require bore pits that are nearly 30 feet deep which would create excessive spoil piles, all while being located within an already reduced LOD. Furthermore, the time to complete the bore is nearly double the time of the open cut method and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 18 | 32 | N | 54 | 28 | 74 | N | N | $635,704 | | |
| Huntington | D-019 | S-B28, W-B27 | Dry-Ditch Open-Cut | 47 | - | N | 6 | 3 | 0 | N | Y | $70,318 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 47 | 18 | N | 6 | 3 | 0 | N | Y | $215,597 | | |
| Huntington | D-020 | W-FF6-PEM, W-FF6-PSS | Dry-Ditch Open-Cut | 158 | - | N | 22 | 11 | 0 | N | Y | $110,600 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 158 | 19 | N | 22 | 11 | 0 | N | Y | $535,181 | | |
| Huntington | D-021 | W-FF3 | Dry-Ditch Open-Cut | 37 | - | N | 23 | 11 | 0 | N | Y | $25,900 | Dry-Ditch Open-Cut | The crossing of the small PEM system would result in approximately 0.04 acre of temporary impacts. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 37 | 14 | N | 23 | 11 | 0 | N | Y | $168,948 | | |
| Huntington | D-022 | S-J32 | Dry-Ditch Open-Cut | 117 | - | N | 28 | 19 | 10 | N | N | $207,247 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 117 | 23 | N | 28 | 19 | 10 | N | N | $542,142 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | D-023 | S-A76, W-FF4 | Dry-Ditch Open-Cut | 43 | - | N | 35 | 16 | 21 | N | N | $51,257 | Dry-Ditch Open-Cut | The crossing of the small PEM system and UNT to Big Beaver Creek would result in less than 0.02 acre of temporary impacts. The stream is less than ten feet in width. The bore pits associated with this crossing are 20 feet deep, which may require the use of a ramp and benching thereby creating excessive spoil piles, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 43 | 20 | N | 35 | 16 | 21 | N | N | $304,727 | | |
| Huntington | D-024 | W-A17 | Dry-Ditch Open-Cut | 79 | - | N | 16 | 9 | 0 | N | Y | $55,300 | Dry-Ditch Open-Cut | The duration of the trenchless crossing would take longer to complete than the open-cut process, thereby increasing the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. In addition, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 79 | 15 | N | 16 | 9 | 0 | N | Y | $292,711 | | |
| Huntington | D-025 | S-A75 | Dry-Ditch Open-Cut | 25 | - | N | 31 | 13 | 0 | N | Y | $47,961 | Dry-Ditch Open-Cut | Stream S-A75 is an UNT to Big Beaver Creek and would have approximately 0.02 acre of temporary impact. The resource is located adjacent to a slope that would require a bore pit exceeding 20 feet. Bore pits of this depth require an interim ramp and benching to successfully reach the required depth. The deep excavation will create an excessive amount of spoil material that will be difficult to store within the already reduced LOD. In addition, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 25 | 22 | N | 31 | 13 | 0 | N | Y | $271,913 | | |
| Huntington | D-026 | S-A74 | Dry-Ditch Open-Cut | 29 | - | N | 31 | 14 | 0 | N | Y | $32,194 | Dry-Ditch Open-Cut | An open cut crossing would create approximately 0.007 acre of temporary impact. However the resource is located on a slope that would require a bore pit nearing 20 feet. Bore pits of this depth may require an interim ramp and benching to successfully reach the required depth. The deep excavation will create an excessive amount of spoil material that will be difficult to store within the already reduced LOD. In addition, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 29 | 19 | N | 31 | 14 | 0 | N | Y | $169,081 | | |
| Huntington | D-027 | S-A73, W-A15 | Dry-Ditch Open-Cut | 59 | - | N | 18 | 13 | 0 | N | Y | $64,472 | Dry-Ditch Open-Cut | The open cut would result in approximately 0.10 acre of temporary impacts to the wetland and stream. This crossing is located on a slope requiring bore pits that are over 20 feet deep which necessitate the use of a ramp and benching, resulting in excessive spoil piles, all while being located within an already reduced LOD. Because the pipeline ROW must remain free of woody vegetation to protect the pipe coating, a conversion impact to the wetland is unavoidable. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 59 | 23 | N | 18 | 13 | 0 | N | Y | $377,539 | | |
| Huntington | D-028 | W-A14, S-A72, S-A71, S-A71-Braid | Dry-Ditch Open-Cut | 92 | - | N | 35 | 25 | 20 | N | N | $94,208 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 92 | 22 | N | 35 | 25 | 20 | N | N | $462,058 | | |
| Huntington | D-029 | S-A67 | Dry-Ditch Open-Cut | 24 | - | N | 40 | 27 | 50 | N | N | $37,518 | Dry-Ditch Open-Cut | Crossings D-029 and D-30 are immediately adjacent to each other and have been evaluated in concert. A trenchless crossing method at this location could not be completed without excavating a bore pit within a landowner's driveway and blocking access to their home. This situation would continue for several weeks. Accordingly, a trenchless crossing of these resources has been deemed logistically impracticable. Additionally, boring is not "appropriate and practicable" for these crossings (a small perennial and intermittent UNT to Big Beaver Creek) because the temporary impacts to be avoided are minor, especially when considered in light of the significant adverse impacts on the homeowner. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 24 | 23 | N | 40 | 27 | 50 | N | N | $278,209 | | |
| Huntington | D-030 | S-A69 | Dry-Ditch Open-Cut | 53 | - | N | 30 | 24 | 0 | N | Y | $62,886 | Dry-Ditch Open-Cut | Crossings D-029 and D-30 are immediately adjacent to each other and have been evaluated in concert. A trenchless crossing method at this location could not be completed without excavating a bore pit within a landowner's driveway and blocking access to their home. This situation would continue for several weeks. Accordingly, a trenchless crossing of these resources has been deemed logistically impracticable. Additionally, boring is not "appropriate and practicable" for these crossings (a small perennial and intermittent UNT to Big Beaver Creek) because the temporary impacts to be avoided are minor, especially when considered in light of the significant adverse impacts on the homeowner. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 53 | 23 | N | 30 | 24 | 0 | N | Y | $360,511 | | |
| Huntington | D-031 | W-H53, S-H99 | Dry-Ditch Open-Cut | 37 | - | N | 24 | 14 | 11 | N | N | $40,220 | Dry-Ditch Open-Cut | The open cut would result in approximately 0.01 acre of temporary impacts to the wetland and stream. The stream is extremely small, less than five feet in width and the wetland barely enters the LOD. However, the trenchless crossing would require bore pits that are approximately 20 feet deep. Bore pits of this depth may necessitate the use of a ramp and benching, resulting in excessive spoil piles that would need to be located within an already reduced LOD. The minimized LOD is insufficient to stockpile the material. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 37 | 20 | N | 24 | 14 | 11 | N | N | $287,699 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | D-032 | S-A65 | Dry-Ditch Open-Cut | 99 | - | N | 58 | 45 | 441 | N | N | $321,268 | Dry-Ditch Open-Cut | The crossing of Big Beaver Creek using a trenchless method would require bore pits up to 40-feet deep. The crossing is also located adjacent to a long steep slope. The combination of deep bore pits and steep slopes would require excessive excavation, the need for significant stock pile storage, and a using an extensive winching system. Furthermore, the time to complete the bore is nearly six times the open cut method and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 99 | 40 | N | 58 | 45 | 441 | N | N | $2,462,779 | | |
| Huntington | D-034 | S-N15 | Dry-Ditch Open-Cut | 40 | - | N | 39 | 33 | 132 | N | N | $70,014 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 40 | 23 | N | 39 | 33 | 132 | N | N | $323,617 | | |
| Huntington | D-035 | S-N14 | Dry-Ditch Open-Cut | 44 | - | N | 12 | 6 | 0 | N | Y | $65,040 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 44 | 17 | N | 12 | 6 | 0 | N | Y | $202,516 | | |
| Huntington | D-036 | S-I43, W-I7 | Dry-Ditch Open-Cut | 73 | - | N | 26 | 16 | 0 | N | Y | $87,745 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 73 | 20 | N | 26 | 16 | 0 | N | Y | $389,867 | | |
| Huntington | D-037 | S-I44 | Dry-Ditch Open-Cut | 32 | - | N | 28 | 19 | 0 | N | Y | $52,288 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 32 | 19 | N | 28 | 19 | 0 | N | Y | $177,595 | | |
| Huntington | D-038 | S-I45 | Dry-Ditch Open-Cut | 20 | - | N | 51 | 21 | 10 | N | N | $33,704 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 20 | 19 | N | 51 | 21 | 10 | N | N | $143,539 | | |
| Huntington | D-039 | S-I47 | Dry-Ditch Open-Cut | 27 | - | N | 15 | 12 | 0 | N | Y | $24,803 | Dry-Ditch Open-Cut | Stream S-I47 is an UNT to Gauley River and is very small - less than five feet in width. The temporary impact associated with an open cut is less than 0.01 acre. The cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 27 | 14 | N | 15 | 12 | 0 | N | Y | $140,568 | | |
| Huntington | D-040 | S-I48 | Dry-Ditch Open-Cut | 35 | - | N | 33 | 16 | 41 | N | N | $59,850 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 35 | 14 | N | 33 | 16 | 41 | N | N | $163,272 | | |
| Huntington | D-041 | S-J29 | Dry-Ditch Open-Cut | 420 | - | N | 54 | 0 | 1732 | N | Y | $1,389,500 | Dry-Ditch Open-Cut | Mountain Valley has committed to the USFWS that the Gauley River would be bored to prevent possible impacts to potential Candy Darter habitat. |
| | | | Microtunnel | 420 | 57 | N | 54 | 0 | 1732 | N | Y | $7,309,091 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | D-042 | W-J8, S-J28 | Dry-Ditch Open-Cut | 87 | - | N | 43 | 27 | 306 | N | N | $78,505 | Dry-Ditch Open-Cut | The open cut would result in approximately 0.06 acre of temporary impacts to the wetland and stream. This crossing is located on a slope that would require bore pits that are nearly 30 feet deep which would create excessive spoil piles and require multiple winching equipment, all while being located within an already reduced LOD. Because the pipeline ROW must remain free of woody vegetation to protect the pipe coating, a conversion impact to the wetland is unavoidable. Furthermore, the time to bore the resources is double and the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 87 | 26 | N | 43 | 27 | 306 | N | N | $484,406 | | |
| Huntington | D-043 | S-J25 | Dry-Ditch Open-Cut | 73 | - | N | 29 | 18 | 0 | N | Y | $69,641 | Dry-Ditch Open-Cut | The temporary impact associated with an open cut is less than 0.01 acre. However, the trenchless crossing would require bore pits that are approximately 20 feet deep. Bore pits of this depth may necessitate the use of a ramp and benching, resulting in excessive spoil piles that would need to be located within an already reduced LOD. The minimized LOD is insufficient to stockpile the material. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 73 | 21 | N | 29 | 18 | 0 | N | Y | $399,001 | | |
| Huntington | D-044 | S-J24 | Dry-Ditch Open-Cut | 73 | - | N | 31 | 9 | 0 | N | Y | $103,246 | Dry-Ditch Open-Cut | This area has been subject to frequent flooding from adjacent streams, which previously caused Mountain Valley to relocate a mainline valve to a different location. These conditions present an unacceptable risk for crews and equipment completing a bore at this location over an extended duration. Completing this crossing of a small UNT to Little Laurel Creek with an open cut minimizes the time construction crews and equipment must be onsite, thereby greatly reducing risks to the safety of the crew, the environment, and the success of the crossing installation. |
| | | | Conventional Bore | 73 | 17 | N | 31 | 9 | 0 | N | Y | $284,818 | | |
| Huntington | D-045 | S-J23-EPH | Dry-Ditch Open-Cut | 25 | - | N | 23 | 14 | 0 | N | Y | $20,978 | Dry-Ditch Open-Cut | Stream S-J23 is an UNT to Little Laurel Creek and is very small - less than two feet in width. The temporary impact associated with an open cut is less than 0.01 acre. However, the trenchless crossing would require bore pits that are approximately 20 feet deep. Bore pits of this depth may necessitate the use of a ramp and benching, resulting in excessive spoil piles that would need to be located within an already reduced LOD. The minimized LOD is insufficient to stockpile the material. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 25 | 17 | N | 23 | 14 | 0 | N | Y | $148,594 | | |
| Huntington | D-046 | S-J22, W-J7 | Dry-Ditch Open-Cut | 58 | - | N | 23 | 18 | 0 | N | Y | $52,396 | Dry-Ditch Open-Cut | The trenchless crossing would require bore pits that are approximately 20 feet deep. Bore pits of this depth may necessitate the use of a ramp and benching, resulting in excessive spoil piles that would need to be located within an already reduced LOD. The minimized LOD is insufficient to stockpile the material. Because the pipeline ROW must remain free of woody vegetation to protect the pipe coating, a conversion impact is unavoidable. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 58 | 21 | N | 23 | 18 | 0 | N | Y | $356,431 | | |
| Huntington | D-047 | S-N10, S-N10-Braid | Dry-Ditch Open-Cut | 84 | - | N | 25 | 18 | 0 | N | Y | $78,469 | Dry-Ditch Open-Cut | The resources are very small (less than five feet in width) UNT to Skelt Run. The trenchless crossing would require bore pits that are approximately 20 feet deep. Bore pits of this depth may necessitate the use of a ramp and benching, resulting in excessive spoil piles that would need to be located within an already reduced LOD. The minimized LOD is insufficient to stockpile the material. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 84 | 20 | N | 25 | 18 | 0 | N | Y | $421,084 | | |
| Huntington | D-048 | S-EE1 | Dry-Ditch Open-Cut | 30 | - | N | 17 | 11 | 0 | N | Y | $33,872 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 30 | 15 | N | 17 | 11 | 0 | N | Y | $153,650 | | |
| Huntington | D-049 | S-N13 | Dry-Ditch Open-Cut | 27 | - | N | 38 | 18 | 0 | N | Y | $26,485 | Dry-Ditch Open-Cut | The stream is a very small (less than five feet in width) UNT to Skelt Run. The trenchless crossing would require bore pits that are approximately 20 feet deep. Bore pits of this depth may necessitate the use of a ramp and benching, resulting in excessive spoil piles that would need to be located within an already reduced LOD. The minimized LOD is insufficient to stockpile the material. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 27 | 18 | N | 38 | 18 | 0 | N | Y | $158,838 | | |
| Huntington | D-050 | S-L41 | Dry-Ditch Open-Cut | 88 | - | N | 77 | 63 | 644 | N | N | $132,036 | Dry-Ditch Open-Cut | The crossing of the Jims Creek (S-L41) using a trenchless method would require bore pits that are nearly 60 feet deep. In addition, the crossing is at the base of an extremely long and steep approach. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method and would take more than twice as long to complete. |
| | | | Conventional Bore | 88 | 58 | N | 77 | 63 | 644 | N | N | $3,413,379 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | D-051 | S-L38 | Dry-Ditch Open-Cut | 66 | - | N | 34 | 29 | 21 | N | N | $56,701 | Dry-Ditch Open-Cut | Stream S-L38 is an UNT to Riley Branch and is very small - less than five feet in width. The crossing is located adjacent to a steep slope. The temporary impact associated with an open cut is less than 0.01 acre. The trenchless crossing would require bore pits that are approximately 30 feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 66 | 32 | N | 34 | 29 | 21 | N | N | $771,927 | | |
| Huntington | D-052 | S-L35 | Dry-Ditch Open-Cut | 28 | - | N | 29 | 21 | 10 | N | N | $34,350 | Dry-Ditch Open-Cut | S-L35 is Riley Branch is less than four feet wide through the project area. Crossing #D-052, 053, and 054 are discussed together since the requirements associated with a trenchless crossing are applicable to all three crossings. Each of these crossings would require a bore pit exceeding 20 feet, with D-054 exceeding 30 feet. Bore pits of this depth result in a significant amount of excavated material that must be stockpiled. The excess material is not only associated with the depth of the bore, but also the access ramps and associated benching that would be required to reach depths greater than 20 feet. Each of these crossings is also located near a steep slope which reduces the available area to stockpile soils without compromising worker safety. In addition to the deep bore pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 28 | 21 | N | 29 | 21 | 10 | N | N | $271,292 | | |
| Huntington | D-053 | S-L35 | Dry-Ditch Open-Cut | 42 | - | N | 30 | 16 | 0 | N | Y | $46,900 | Dry-Ditch Open-Cut | S-L35 is Riley Branch is less than four feet wide through the project area. Crossing #D-052, 053, and 054 are discussed together since the requirements associated with a trenchless crossing are applicable to all three crossings. Each of these crossings would require a bore pit exceeding 20 feet, with D-054 exceeding 30 feet. Bore pits of this depth result in a significant amount of excavated material that must be stockpiled. The excess material is not only associated with the depth of the bore, but also the access ramps and associated benching that would be required to reach depths greater than 20 feet. Each of these crossings is also located near a steep slope which reduces the available area to stockpile soils without compromising worker safety. In addition to the deep bore pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 42 | 21 | N | 30 | 16 | 0 | N | Y | $311,024 | | |
| Huntington | D-054 | S-L35 | Dry-Ditch Open-Cut | 51 | - | N | 32 | 25 | 20 | N | N | $53,200 | Dry-Ditch Open-Cut | S-L35 is Riley Branch is less than four feet wide through the project area. Crossing #D-052, 053, and 054 are discussed together since the requirements associated with a trenchless crossing are applicable to all three crossings. Each of these crossings would require a bore pit exceeding 20 feet, with D-054 exceeding 30 feet. Bore pits of this depth result in a significant amount of excavated material that must be stockpiled. The excess material is not only associated with the depth of the bore, but also the access ramps and associated benching that would be required to reach depths greater than 20 feet. Each of these crossings is also located near a steep slope which reduces the available area to stockpile soils without compromising worker safety. In addition to the deep bore pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 51 | 33 | N | 32 | 25 | 20 | N | N | $747,627 | | |
| Huntington | D-055 | S-I37 | Dry-Ditch Open-Cut | 36 | - | N | 38 | 25 | 32 | N | Y | $46,550 | Dry-Ditch Open-Cut | This resource is an extremely small UNT to Hominy Creek. The width of the stream is less than 10 feet. Due to the location on steep slopes, the bore pits for this stream are nearly 20 feet in depth. Avoiding/minimizing this minor impact through a conventional bore would create excessively deep bore pits and spoil piles. Furthermore the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 36 | 20 | N | 38 | 25 | 32 | N | Y | $284,861 | | |
| Huntington | D-056 | S-I38, S-I39 | Dry-Ditch Open-Cut | 142 | - | N | 63 | 45 | 436 | N | N | $126,985 | Dry-Ditch Open-Cut | Both of these resources are UNT to Hominy Creek and each is less than 10 feet in width. Due to the location on steep slopes, the bore pits for this crossing are nearly 50 feet in depth. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 142 | 47 | N | 63 | 45 | 436 | N | N | $2,966,630 | | |
| Huntington | D-057 | S-I40 | Dry-Ditch Open-Cut | 24 | - | N | 59 | 27 | 104 | N | N | $39,183 | Dry-Ditch Open-Cut | Stream S-I40 is an UNT to Hominy Creek and is very small - less than ten feet in width. The trenchless crossing would require bore pits that are more than 20 feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit near a steep slope which would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 24 | 26 | N | 59 | 27 | 104 | N | N | $305,614 | | |
| Huntington | D-058 | W-I11a, S-I41 | Dry-Ditch Open-Cut | 47 | - | N | 42 | 10 | 489 | N | Y | $62,159 | Dry-Ditch Open-Cut | D-058 and D-059 are adjacent crossings are discussed together due to their proximity. These crossings present multiple confounding constructability challenges that limit the available options and necessitated the development of a unique solution. The access to the location of these crossings is severely limited by long steep slopes, and there is insufficient suitable workspace available for construction equipment and spoil piles necessary to complete a trenchless crossing. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 47 | 13 | N | 42 | 10 | 489 | N | Y | $192,761 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | D-059 | S-I36 | Dry-Ditch Open-Cut | 116 | - | Y | 16 | 7 | 840 | N | N | $279,787 | Dry-Ditch Open-Cut | D-058 and D-059 are adjacent crossings are discussed together due to their proximity. These crossings present multiple confounding constructability challenges that limit the available options and necessitated the development of a unique solution. The access to the location of these crossings is severely limited by long steep slopes, and there is insufficient suitable workspace available for construction equipment and spoil piles necessary to complete a trenchless crossing. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 116 | 26 | Y | 16 | 7 | 840 | N | N | $566,708 | | |
| Huntington | D-061 | S-I31 | Dry-Ditch Open-Cut | 25 | - | N | 38 | 32 | 424 | N | N | $26,015 | Dry-Ditch Open-Cut | The bore pits for this crossing are greater than 20 feet in depth and the crossing is located on a long steep slope. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 25 | 22 | N | 38 | 32 | 424 | N | N | $271,913 | | |
| Huntington | E-001 | S-H88 | Dry-Ditch Open-Cut | 37 | - | N | 45 | 35 | 122 | N | N | $167,104 | Dry-Ditch Open-Cut | A trenchless crossing method at this location could not be completed without excavating a bore pit within proximity to a landowner private drive. Completing an open cut in this location greatly reduces the construction duration and access can be maintained using road plates. A trenchless crossing of this resource has been deemed logistically impracticable due to the need to maintain the landowner's access over an extended duration and the safety risk of operating heavy equipment for an extended time with a private landowner in close proximity and traversing the site. |
| | | | Conventional Bore | 37 | 32 | N | 45 | 35 | 122 | N | N | $689,625 | | |
| Huntington | E-002 | S-H71, W-H33, W-H35 | Dry-Ditch Open-Cut | 150 | - | N | 75 | 46 | 282 | N | N | $157,500 | Dry-Ditch Open-Cut | This group of resources are located adjacent to a steep slope with bore pits to be 80 feet deep. Avoiding/minimizing this minor impact through a conventional bore would create extremely excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 150 | 80 | N | 75 | 46 | 282 | N | N | $4,789,334 | | |
| Huntington | E-003 | S-H67 | Dry-Ditch Open-Cut | 30 | - | N | 39 | 24 | 31 | N | N | $60,392 | Dry-Ditch Open-Cut | The trenchless crossing would require bore pits that are more than 20 feet deep. Avoiding/minimizing this minor impact (approximately 0.02 acre) through a conventional bore would require a deep bore pit creating excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 30 | 24 | N | 39 | 24 | 31 | N | N | $304,372 | | |
| Huntington | E-004 | S-H64, W-H31 | Dry-Ditch Open-Cut | 54 | - | N | 26 | 10 | 0 | N | Y | $52,782 | Dry-Ditch Open-Cut | The trenchless crossing would require bore pits that are more than 20 feet deep. Avoiding/minimizing this minor impact (approximately 0.03 acre) through a conventional bore would require a deep bore pit creating excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 54 | 24 | N | 26 | 10 | 0 | N | Y | $372,484 | | |
| Huntington | E-005 | S-V3 | Dry-Ditch Open-Cut | 56 | - | N | 47 | 26 | 342 | N | N | $240,231 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 56 | 23 | N | 47 | 26 | 342 | N | N | $369,025 | | |
| Huntington | E-006 | W-EF31, S-EF41 | Dry-Ditch Open-Cut | 55 | - | N | 20 | 9 | 0 | N | Y | $44,212 | Dry-Ditch Open-Cut | The trenchless crossing would require bore pits that are more than 20 feet deep, which would necessitate benching and stockpiling significant amounts of spoil material. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 55 | 21 | N | 20 | 9 | 0 | N | Y | $347,918 | | |
| Huntington | E-009 | W-M18 | Dry-Ditch Open-Cut | 223 | - | N | 35 | 10 | 0 | N | Y | $156,100 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 223 | 17 | N | 35 | 10 | 0 | N | Y | $710,515 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | E-010 | W-M22, W-M23 | Dry-Ditch Open-Cut | 86 | - | N | 26 | 16 | 0 | N | Y | $60,200 | Dry-Ditch Open-Cut | The trenchless crossing would require bore pits that are nearly 20 feet deep, which may necessitate benching and stockpiling significant amounts of spoil material. Because the pipeline ROW must remain free of woody vegetation to protect the pipe coating, a conversion impact is unavoidable. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method and would take twice as long to complete. |
| | | | Conventional Bore | 86 | 17 | N | 26 | 16 | 0 | N | Y | $321,711 | | |
| Huntington | E-011 | W-J6 | Dry-Ditch Open-Cut | 101 | - | N | 26 | 10 | 0 | N | Y | $70,700 | Dry-Ditch Open-Cut | The trenchless crossing would require bore pits that are nearly 20 feet deep, which may necessitate benching and stockpiling significant amounts of spoil material. Because the pipeline ROW must remain free of woody vegetation to protect the pipe coating, a conversion impact is unavoidable. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method . |
| | | | Conventional Bore | 101 | 15 | N | 26 | 10 | 0 | N | Y | $355,146 | | |
| Huntington | E-012 | S-J20 | Dry-Ditch Open-Cut | 255 | - | N | 43 | 16 | 327 | N | N | $298,496 | Conventional Bore | FERC has approved the variance for this crossing which will be completed during the boring of the adjacent rail line. |
| | | | Conventional Bore | 255 | 37 | N | 43 | 16 | 327 | N | N | $1,399,653 | | |
| Huntington | E-013 | S-I25 | Dry-Ditch Open-Cut | 89 | - | N | 34 | 24 | 10 | N | N | $79,837 | Dry-Ditch Open-Cut | Stream S-I25 is an UNT to Meadow Creek and is very small - less than ten feet in width. The trenchless crossing would require bore pits that are more than 20 feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 89 | 26 | N | 34 | 24 | 10 | N | N | $490,082 | | |
| Huntington | E-014 | S-I26 | Dry-Ditch Open-Cut | 26 | - | N | 31 | 20 | 10 | N | N | $33,826 | Dry-Ditch Open-Cut | Stream S-I26 is an UNT to Meadow Creek and is very small - less than ten feet in width. The trenchless crossing would require bore pits that are more than 20 feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 26 | 20 | N | 31 | 20 | 10 | N | N | $256,481 | | |
| Huntington | E-015 | S-I27 | Dry-Ditch Open-Cut | 41 | - | N | 17 | 13 | 0 | N | Y | $46,828 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 41 | 18 | N | 17 | 13 | 0 | N | Y | $198,570 | | |
| Huntington | E-016 | W-HS1 | Dry-Ditch Open-Cut | 41 | - | N | 54 | 33 | 724 | N | N | $28,700 | Dry-Ditch Open-Cut | The bore pits for this crossing are greater than 30 feet in depth . Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit on an extremely long and steep slope which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 41 | 32 | N | 54 | 33 | 724 | N | N | $700,977 | | |
| Huntington | E-017 | W-QR2 | Dry-Ditch Open-Cut | 322 | - | N | 10 | 8 | 0 | N | Y | $225,400 | Dry-Ditch Open-Cut | A trenchless crossing in this location would require bore pits that are nearly thirty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 322 | 27 | N | 10 | 8 | 0 | N | Y | $1,160,467 | | |
| Huntington | E-018 | S-L26, W-L16 | Dry-Ditch Open-Cut | 42 | - | N | 27 | 9 | 0 | N | Y | $42,210 | Dry-Ditch Open-Cut | This crossing is immediately adjacent to a mainline valve. Trenchless crossing methods are logistically difficult because they would require the pipe to be installed too deeply to facilitate connection to the valve site. An open cut crossing is necessary to facilitate connection to the mainline valve. Furthermore, using a conventional bore method to avoid a temporary impact to this small intermittent stream and wetland would be unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 42 | 23 | N | 27 | 9 | 0 | N | Y | $329,293 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | E-019 | S-L27 | Dry-Ditch Open-Cut | 90 | - | N | 18 | 11 | 0 | N | Y | $70,012 | Dry-Ditch Open-Cut | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 90 | 19 | N | 18 | 11 | 0 | N | Y | $342,198 | | |
| Huntington | E-020 | S-L30, W-L19, W-L12, W-L13, S-L22 | Dry-Ditch Open-Cut | 315 | - | N | 77 | 46 | 1723 | N | N | $325,500 | Dry-Ditch Open-Cut | Due to the location on steep slopes, the bore pits for this crossing are greater than sixty feet in depth which would create extremely excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method and would take nearly 60 days as long to complete. |
| | | | Conventional Bore | 315 | 62 | N | 77 | 46 | 1723 | N | N | $4,275,783 | | |
| Huntington | E-021 | W-L11, S-L20 | Dry-Ditch Open-Cut | 53 | - | N | 76 | 43 | 765 | N | N | $54,697 | Dry-Ditch Open-Cut | Due to the location, the bore pits for this crossing are greater than thirty feet in depth. Avoiding/minimizing this minor impact (approximately 0.03 acre) through a conventional bore would require a deep bore pit which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 53 | 31 | N | 76 | 43 | 765 | N | N | $716,764 | | |
| Huntington | E-022 | W-L4, S-L10, S-L11, W-L2 | Dry-Ditch Open-Cut | 92 | - | N | 32 | 20 | 0 | N | Y | $85,538 | Dry-Ditch Open-Cut | A trenchless crossing in this location would require bore pits that are greater than twenty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 92 | 25 | N | 32 | 20 | 0 | N | Y | $489,462 | | |
| Huntington | E-023 | S-I21, S-I22 | Dry-Ditch Open-Cut | 70 | - | N | 37 | 28 | 249 | N | N | $66,994 | Dry-Ditch Open-Cut | A trenchless crossing in this location would require bore pits that are greater than twenty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 70 | 28 | N | 37 | 28 | 249 | N | N | $454,430 | | |
| Huntington | F-001 | W-K7, S-K17, W-IJ30, W-UV9, W-UV11, W-UV10, W-K9-PEM-1, S-K19 | Dry-Ditch Open-Cut | 1168 | - | N | 28 | 20 | 92 | N | Y | $887,600 | Dry-Ditch Open-Cut | A trenchless crossing in this location would require bore pits that are nearly twenty feet deep. Numerous cultural resources have been avoided by the current alignment. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. The trenchless crossing method would take nearly 160 days to complete, while the proposed method would take approximately 24 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Direct Pipe | 1168 | 15 | N | 28 | 20 | 92 | N | Y | $9,412,510 | | |
| Huntington | F-002 | S-K21, S-K22 | Dry-Ditch Open-Cut | 123 | - | N | 78 | 32 | 185 | N | N | $125,156 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to two small UNTs to Buffalo Creek. Avoiding/minimizing this minor impact through a conventional bore would require an excessively deep bore pit greater than 40 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take twice as long to complete. |
| | | | Conventional Bore | 123 | 48 | N | 78 | 32 | 185 | N | N | $2,967,254 | | |
| Huntington | F-003 | S-UV6, W-UV4 | Dry-Ditch Open-Cut | 70 | - | N | 49 | 27 | 52 | N | N | $75,861 | Dry-Ditch Open-Cut | A trenchless crossing of this small UNT to Morris Fork and wetlands system would require bore pits that are nearly thirty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Because the pipeline ROW must remain free of woody vegetation to protect the pipe coating, a conversion impact is unavoidable. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 70 | 27 | N | 49 | 27 | 52 | N | N | $445,295 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | F-004 | W-UV8, S-UV2 | Dry-Ditch Open-Cut | 345 | - | N | 65 | 52 | 371 | N | N | $290,616 | Dry-Ditch Open-Cut | This crossing of a small UNT to Morris Fork presents multiple challenges that limit the available options and necessitate the development of a unique solution. A bore pit depth just short of 40 feet would required the excavation of an interim ramp and bench and dramatically increases the space occupied by the bore pit and spoil pile. Steep slopes (greater than 30%) adjacent to this waterbody also increase the complexity of a bored crossing, increase safety risk to personnel, and add risk of impact to the waterbody from upland work during a bore. In addition, this crossing is in close proximity to residences, and a trenchless crossing of this location would take longer than six weeks to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration thereby minimizing the disruption the affected residences and businesses. Accordingly, a trenchless crossing of this resource has been deemed logistically difficult due to the compounding constructability constraints. |
| | | | Guided Conventional Bore | 345 | 36 | N | 65 | 52 | 371 | N | N | $1,169,818 | | |
| Huntington | F-004A | S-U22 | Dry-Ditch Open-Cut | 593 | - | N | 52 | 35 | 293 | N | Y | $461,800 | Dry-Ditch Open-Cut | This crossing presents multiple challenges that limit the available options and necessitated the development of a site-specific solution. The proximity of this stream to the adjacent bore of Interstate-64 makes it difficult to tie-in a bore of this resource. A bore pit depth nearing 40 feet at this location requires the excavation of an interim ramp and bench and dramatically increases the space occupied by the bore pit and spoil pile. Steep slopes (greater than 30%) adjacent to the waterbody increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. A trenchless crossing would take more than six weeks to be completed. Use of the open-cut method would reduce the construction duration and minimize noise and other disruptions to nearby persons due to construction activities. Accordingly, a trenchless crossing of this resource has been deemed logistically difficult due to the compounding constructability constraints. |
| | | | Guided Conventional Bore | 593 | 37 | N | 52 | 35 | 293 | N | Y | $1,556,221 | | |
| Huntington | F-005 | W-EE4, S-EE4 | Dry-Ditch Open-Cut | 154 | - | N | 19 | 12 | 0 | N | Y | $120,716 | Dry-Ditch Open-Cut | A trenchless crossing of this small UNT to Red Spring Branch and wetland system would require bore pits greater than thirty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 154 | 32 | N | 19 | 12 | 0 | N | Y | $1,021,669 | | |
| Huntington | F-006 | S-M6, W-M2 | Dry-Ditch Open-Cut | 163 | - | N | 47 | 32 | 51 | N | N | $130,313 | Dry-Ditch Open-Cut | A trenchless crossing of this small UNT to Red Spring Branch and wetland system would require bore pits that are nearly forty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method and would also take three times as long to complete. |
| | | | Conventional Bore | 163 | 38 | N | 47 | 32 | 51 | N | N | $1,156,828 | | |
| Huntington | F-007 | S-J13 | Dry-Ditch Open-Cut | 37 | - | N | 25 | 15 | 0 | N | Y | $43,400 | Dry-Ditch Open-Cut | S-J13 is an UNT to Patterson Creek, a very small stream, and is crossed three times by the project. Crossing # F-007, 008, and 009 are discussed together since the requirements associated with a trenchless crossing are applicable to all three crossings. Each of these crossings would require a bore pit exceeding 20 feet, with F-009 being nearly thirty feet deep. Bore pits of this depth result in a significant amount of excavated material that must be stockpiled. The excess material is not only associated with the depth of the bore, but also the access ramps and associated benching that would be required to reach depths greater than 20 feet. Crossing F-009 is in a topographical setting that would require a technically and logistically difficult winching system. In addition to the deep bore pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 37 | 22 | N | 25 | 15 | 0 | N | Y | $305,969 | | |
| Huntington | F-008 | S-J13 | Dry-Ditch Open-Cut | 45 | - | N | 32 | 21 | 21 | N | Y | $49,000 | Dry-Ditch Open-Cut | S-J13 is an UNT to Patterson Creek, a very small stream, and is crossed three times by the project. Crossing # F-007, 008, and 009 are discussed together since the requirements associated with a trenchless crossing are applicable to all three crossings. Each of these crossings would require a bore pit exceeding 20 feet, with F-009 being nearly thirty feet deep. Bore pits of this depth result in a significant amount of excavated material that must be stockpiled. The excess material is not only associated with the depth of the bore, but also the access ramps and associated benching that would be required to reach depths greater than 20 feet. Crossing F-009 is in a topographical setting that would require a technically and logistically difficult winching system. In addition to the deep bore pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 45 | 21 | N | 32 | 21 | 21 | N | Y | $319,538 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | F-009 | S-J13 | Dry-Ditch Open-Cut | 75 | - | N | 42 | 34 | 419 | N | Y | $70,000 | Dry-Ditch Open-Cut | S-J13 is an UNT to Patterson Creek, a very small stream, and is crossed three times by the project. Crossing # F-007, 008, and 009 are discussed together since the requirements associated with a trenchless crossing are applicable to all three crossings. Each of these crossings would require a bore pit exceeding 20 feet, with F-009 being nearly thirty feet deep. Bore pits of this depth result in a significant amount of excavated material that must be stockpiled. The excess material is not only associated with the depth of the bore, but also the access ramps and associated benching that would be required to reach depths greater than 20 feet. Crossing F-009 is in a topographical setting that would require a technically and logistically difficult winching system. In addition to the deep bore pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 75 | 27 | N | 42 | 34 | 419 | N | Y | $459,485 | | |
| Huntington | F-010 | S-I17 | Dry-Ditch Open-Cut | 43 | - | N | 56 | 44 | 1538 | N | N | $38,855 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small UNT to Lick Creek. The crossing is located at the base of an extremely long and steep slope and require bore pits exceeding forty feet. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take twice as long to complete. |
| | | | Conventional Bore | 43 | 31 | N | 56 | 44 | 1538 | N | N | $688,384 | | |
| Huntington | F-011 | S-I19 | Dry-Ditch Open-Cut | 66 | - | N | 50 | 36 | 1200 | N | N | $101,669 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to Lick Creek. The crossing is located at the base of an extremely long and steep slope and require bore pits exceeding forty feet. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take twice as long to complete. |
| | | | Conventional Bore | 66 | 44 | N | 50 | 36 | 1200 | N | N | $2,587,307 | | |
| Huntington | F-011A | S-I20 | Dry-Ditch Open-Cut | 39 | - | N | 78 | 57 | 735 | N | N | $76,000 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small UNT to Lick Creek. The crossing is located on an extremely long and steep slope and require bore pits that are nearly forty feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit on which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take twice as long to complete. |
| | | | Conventional Bore | 39 | 35 | N | 78 | 57 | 735 | N | N | $750,110 | | |
| Huntington | F-012 | S-N5 | Dry-Ditch Open-Cut | 63 | - | N | 33 | 24 | 10 | N | N | $52,226 | Dry-Ditch Open-Cut | A trenchless crossing of this small UNT to Hungard Creek would require bore pits greater than 20 feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 63 | 24 | N | 33 | 24 | 10 | N | N | $398,025 | | |
| Huntington | F-013 | S-K14 | Dry-Ditch Open-Cut | 35 | - | N | 40 | 34 | 252 | N | N | $44,164 | Dry-Ditch Open-Cut | A trenchless crossing of this small UNT to Hungard Creek would require bore pits greater than twenty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 35 | 22 | N | 40 | 34 | 252 | N | N | $300,293 | | |
| Huntington | F-014 | S-N3 | Dry-Ditch Open-Cut | 106 | - | N | 6 | 3 | 0 | N | Y | $97,922 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 106 | 15 | N | 6 | 3 | 0 | N | Y | $369,336 | | |
| Huntington | F-015 | S-N2 | Dry-Ditch Open-Cut | 48 | - | N | 36 | 10 | 0 | N | Y | $107,232 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 48 | 15 | N | 36 | 10 | 0 | N | Y | $204,733 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | F-016 | S-CD23 | Dry-Ditch Open-Cut | 128 | - | N | 8 | 3 | 0 | N | Y | $98,350 | Conventional Bore | This crossing is adjacent to planned bored, which will allow the existing bore pits to be utilized to avoid/minimize the aquatic impact at this location by boring. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 128 | 15 | N | 8 | 3 | 0 | N | Y | $431,772 | | |
| Huntington | F-017 | S-N4, W-EF40 | Dry-Ditch Open-Cut | 99 | - | N | 9 | 4 | 0 | N | Y | $83,735 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 99 | 16 | N | 9 | 4 | 0 | N | Y | $354,038 | | |
| Huntington | F-019 | S-KL29 | Dry-Ditch Open-Cut | 208 | - | N | 46 | 0 | 0 | N | Y | $299,600 | Dry-Ditch Open-Cut | The pipeline has already been installed under an adjacent road (East Clayton Rd). There is no feasible way to tie the two sections of pipe together if a trenchless method is used to install this crossing. Lastly, substantial increase in cost and lost time (four weeks to complete bore) to avoid a temporary impact to this small, one-foot-wide stream is not appropriate and practicable. |
| | | | Conventional Bore | 208 | 35 | N | 46 | 0 | 0 | N | Y | $1,229,729 | | |
| Huntington | F-020 | W-MM20-PFO, S-CV17 | Dry-Ditch Open-Cut | 0 | - | N | 0 | 0 | 0 | N | Y | -$700 | Dry-Ditch Open-Cut | Crossing these resources requires the pipeline to negotiate a bend that cannot be completed with any available trenchless crossing technology. |
| | | | Conventional Bore | 0 | 0 | N | 0 | 0 | 0 | N | Y | $0 | | |
| Huntington | F-021 | S-I8 | Dry-Ditch Open-Cut | 1250 | - | Y | 9 | 3 | 0 | N | Y | $2,287,563 | Direct Pipe | The Greenbrier River will be crossed using the Direct Pipe trenchless methodology. The stream depth would require an instream diversion system that would severely limit the amount of usable workspace in an already reduced LOD. The Greenbrier River is also classified by the WVDNR as Group 1 mussel stream. While mussel survey and relocation efforts were completed in 2020, completing a trenchless crossing will further minimize any potential impacts to mussel species. |
| | | | Direct Pipe | 1250 | 13 | Y | 9 | 3 | 0 | N | Y | $10,059,375 | | |
| Huntington | F-022 | S-I9 | Dry-Ditch Open-Cut | 91 | - | N | 14 | 6 | 0 | N | Y | $124,405 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 91 | 18 | N | 14 | 6 | 0 | N | Y | $340,469 | | |
| Huntington | F-023 | S-L4 | Dry-Ditch Open-Cut | 30 | - | N | 42 | 33 | 293 | N | N | $51,375 | Dry-Ditch Open-Cut | A trenchless crossing of this small UNT to Greenbrier River would require bore pits greater than thirty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 30 | 33 | N | 42 | 33 | 293 | N | N | $688,029 | | |
| Huntington | F-024 | S-L2 | Dry-Ditch Open-Cut | 41 | - | N | 37 | 35 | 105 | N | N | $42,713 | Dry-Ditch Open-Cut | A trenchless crossing of this small UNT to Greenbrier River would require bore pits greater that are nearly 30 feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 41 | 29 | N | 37 | 35 | 105 | N | N | $381,263 | | |
| Huntington | F-025 | W-K2-PEM, S-L1 | Dry-Ditch Open-Cut | 40 | - | N | 60 | 41 | 146 | N | N | $49,003 | Dry-Ditch Open-Cut | A trenchless crossing of this small wetland and small UNT to Kelly Creek would require bore pits greater than thirty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. |
| | | | Conventional Bore | 40 | 32 | N | 60 | 41 | 146 | N | N | $698,139 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | F-026 | S-J5 | Dry-Ditch Open-Cut | 42 | - | N | 82 | 57 | 240 | N | N | $100,783 | Dry-Ditch Open-Cut | This crossing presents multiple challenges that limit the available options and necessitated the development of a unique solution. A bore pit depth greater than 20 feet requires the excavation of an interim ramp and bench and increases the space occupied by the bore pit and spoil pile. Steep slopes (greater than 30%) adjacent to these waterbodies increase the complexity of a bored crossing, increase safety risk to personnel, and add risk of impact to the waterbody from upland work during a bore. In addition, this crossing is on a property with a well or spring. The open cut method reduces the construction duration near the well/spring. |
| | | | Conventional Bore | 42 | 24 | N | 82 | 57 | 240 | N | N | $338,428 | | |
| Huntington | F-027 | S-J4 | Dry-Ditch Open-Cut | 30 | - | N | 47 | 34 | 173 | N | N | $37,647 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 30 | 19 | N | 47 | 34 | 173 | N | N | $171,919 | | |
| Huntington | F-028 | W-OP1-PEM, S-OP1 | Dry-Ditch Open-Cut | 104 | - | N | 72 | 25 | 228 | N | N | $83,831 | Dry-Ditch Open-Cut | The pipeline is already installed through a portion of the wetland at this crossing. The layout of a conventional bore would require excavation of a bore pit unacceptably close to the installed pipe. Additionally, a trenchless method would require excavation of a bore pit within the wetland, meaning that that a longer-duration bore pit in the wetland is not less environmentally damaging than a much shorter duration impact associated with an open cut through the wetland and adjacent stream. Lastly, the cost to avoid a temporary impact to these resources is unreasonably high relative to the proposed construction method, especially in light of the fact that boring does not materially avoid or minimize the impact at this location. |
| | | | Conventional Bore | 104 | 19 | N | 72 | 25 | 228 | N | N | $381,930 | | |
| Huntington | F-029-030 | S-A63, W-A13, S-A61, S-A60 | Dry-Ditch Open-Cut | 742 | - | N | 20 | 9 | 0 | N | Y | $554,400 | Dry-Ditch Open-Cut | A trenchless crossing in this area would require bore pits that are nearly 20 feet deep. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. A trenchless crossing of this area would take approximately three times longer to complete than the proposed construction method -- compounding the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Direct Pipe | 742 | 15 | N | 20 | 9 | 0 | N | Y | $6,004,510 | | |
| Huntington | F-031 | S-D31 | Dry-Ditch Open-Cut | 81 | - | N | 55 | 42 | 99 | N | N | $284,433 | Dry-Ditch Open-Cut | This crossing presents multiple challenges that limit the available options and necessitated the development of a unique solution. A bore pit depth of nearly 40 feet will require the excavation of an interim ramp and bench and dramatically increase the space occupied by the bore pit and spoil pile. Steep slopes (greater than 30%) adjacent to stream increases the complexity of a bored crossing, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. In addition, this crossing is in close proximity to residences and/or businesses, which would cause increased noise and other impacts to persons nearby for the approximately seven weeks that would be required to complete a trenchless crossing. The open-cut method would reduce construction duration and minimize disruptions to persons due to construction activities. |
| | | | Conventional Bore | 81 | 38 | N | 55 | 42 | 99 | N | N | $924,113 | | |
| Huntington | F-032 | S-D25 | Dry-Ditch Open-Cut | 32 | - | N | 23 | 11 | 74 | N | Y | $36,432 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 32 | 19 | N | 23 | 11 | 74 | N | Y | $177,595 | | |
| Huntington | F-034 | S-Z5, S-Z4 | Dry-Ditch Open-Cut | 31 | - | N | 32 | 25 | 10 | Y | N | $30,454 | Dry-Ditch Open-Cut | Site conditions do not allow sufficient space to stockpile spoils from bore pits. Karst terrain increases the risk of bore failure and environmental impact. Furthermore, avoiding this temporary impact to this small stream with a conventional bore crossing would be unreasonably expensive. |
| | | | Conventional Bore | 31 | 26 | N | 32 | 25 | 10 | Y | N | $325,479 | | |
| Huntington | F-035 | W-MN15, W-MN14, S-MN2 | Dry-Ditch Open-Cut | 88 | - | N | 51 | 33 | 191 | N | N | $86,108 | Dry-Ditch Open-Cut | A trenchless crossing of these small wetlands and small UNT to Hans Creek would require bore pits that are 20 feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. The proposed crossing method is also shorter in duration, which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 88 | 20 | N | 51 | 33 | 191 | N | N | $432,436 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | F-036 | S-CV19 | Dry-Ditch Open-Cut | 84 | - | N | 53 | 28 | 536 | N | N | $148,571 | Dry-Ditch Open-Cut | This crossing presents multiple challenges that limit the available options and necessitated the development of a unique solution. A bore pit depth of nearly 30 feet will require the excavation of an interim ramp and bench and dramatically increase the space occupied by the bore pit and spoil pile. Steep slopes (greater than 30%) adjacent to stream increases the complexity of a bored crossing, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. In addition, the topographical constraints create a technical and logistical limit on a winching system further increasing the worker safety risk. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. The proposed crossing method is also shorter in duration, which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. Accordingly, a trenchless crossing of this resource has been deemed logistically difficult due to the multiple compounding constraints. |
| | | | Conventional Bore | 84 | 33 | N | 53 | 28 | 536 | N | N | $841,280 | | |
| Huntington | F-037 | S-MN39, S-MN40, W-CV24, S-MN38, S-MN37, W-MN18-PFO, W-MN18-PEM, W-MN1 | Dry-Ditch Open-Cut | 180 | - | N | 64 | 54 | 254 | N | N | $140,000 | Dry-Ditch Open-Cut | This crossing presents multiple challenges that limit the available options and necessitated the development of a unique solution. Installing a trenchless crossing at this location would require a deep bore pit (38 feet) at the bottom of a steep hill that would require winched equipment. There is insufficient space available at this location to stockpile spoils from the bore pit. Avoiding/minimize impacts to this cluster of small aquatic resources would require an extended construction period greater than six weeks and triple the total greenhouse gas emissions associated with completed the crossing. Lastly, the cost to avoid a temporary impact to these resources is unreasonably high relative to the proposed construction method |
| | | | Conventional Bore | 180 | 38 | N | 64 | 54 | 254 | N | N | $1,205,073 | | |
| Huntington | F-038 | S-G44 | Dry-Ditch Open-Cut | 34 | - | N | 30 | 23 | 0 | N | Y | $38,869 | Dry-Ditch Open-Cut | A trenchless crossing of this small UNT to Hans Creek would require bore pits that are greater than 20 feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. The proposed crossing method is shorter in duration, which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 34 | 24 | N | 30 | 23 | 0 | N | Y | $315,724 | | |
| Huntington | F-039 | S-G43, W-MN1 | Dry-Ditch Open-Cut | 52 | - | N | 40 | 27 | 73 | N | N | $56,420 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 52 | 19 | N | 40 | 27 | 73 | N | N | $234,355 | | |
| Huntington | F-040 | W-G6, S-G42 | Dry-Ditch Open-Cut | 83 | - | N | 61 | 51 | 312 | N | N | $69,021 | Dry-Ditch Open-Cut | A trenchless crossing of this small wetland and UNT to Hans Creek would require bore pits that are greater than thirty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. The proposed crossing method is also shorter in duration, which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 83 | 34 | N | 61 | 51 | 312 | N | N | $856,711 | | |
| Huntington | F-041 | S-MN45, W-MN24 | Dry-Ditch Open-Cut | 42 | - | N | 45 | 33 | 342 | N | N | $36,464 | Dry-Ditch Open-Cut | A trenchless crossing of this small wetland and UNT to Hans Creek would require bore pits that are thirty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. In addition the crossing is located at the bottom of a long, steep slope, further complicating construction and worker safety. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. The proposed crossing method is also shorter in duration, which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 42 | 30 | N | 45 | 33 | 342 | N | N | $667,277 | | |
| Huntington | F-042 | W-CV25-PEM-2, W-CV25-PSS-1, S-CV27 | Dry-Ditch Open-Cut | 50 | - | N | 27 | 13 | 0 | N | Y | $40,250 | Dry-Ditch Open-Cut | A trenchless crossing of these small wetlands and UNT to Hans Creek would require bore pits that are approximately twenty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. The proposed crossing method is shorter in duration, which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 50 | 20 | N | 27 | 13 | 0 | N | Y | $324,593 | | |
| Huntington | F-043 | S-E43, S-E45 | Dry-Ditch Open-Cut | 42 | - | N | 34 | 30 | 210 | Y | N | $58,269 | Dry-Ditch Open-Cut | Site conditions do not allow sufficient space to stockpile spoils from bore pits. Karst terrain presents greater logistical and technical challenges. Furthermore, avoiding this temporary impact to this small stream with a conventional bore crossing would be unreasonably expensive. |
| | | | Conventional Bore | 42 | 28 | N | 34 | 30 | 210 | Y | N | $374,967 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Huntington | F-044 | W-E12, S-E40, S-E41 | Dry-Ditch Open-Cut | 48 | - | N | 41 | 25 | 295 | Y | N | $78,651 | Dry-Ditch Open-Cut | Site conditions reduce the available space to stockpile spoils from bore pits. Karst terrain presents greater logistical and technical challenges. |
| | | | Conventional Bore | 48 | 14 | N | 41 | 25 | 295 | Y | N | $200,166 | | |
| Huntington | F-045 | W-C14, W-C13, S-C38, S-C39 | Dry-Ditch Open-Cut | 181 | - | N | 31 | 19 | 10 | N | Y | $151,803 | Dry-Ditch Open-Cut | A trenchless crossing of these small wetlands and Painters Run would require bore pits that are approximately thirty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. In addition, the presence of steep slopes logistical and technical challenges. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. The time to complete the proposed crossing method is also shorter in duration (nearly half), which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 181 | 29 | N | 31 | 19 | 10 | N | Y | $778,581 | | |
| Huntington | F-046 | S-C41 | Dry-Ditch Open-Cut | 72 | - | N | 56 | 46 | 295 | N | N | $61,161 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to this small UNT to Painters Run. The crossing is located on a steep slope and require bore pits nearly 30 feet. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles, all while being located within an already reduced LOD. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take over forty days to complete. |
| | | | Conventional Bore | 72 | 29 | N | 56 | 46 | 295 | N | N | $469,241 | | |
| Norfolk | G-001 | S-Q12 | Dry-Ditch Open-Cut | 42 | - | N | 64 | 44 | 75 | Y | N | $43,449 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to this small UNT to Kimballton Branch. The crossing is located on a steep slope and require bore pits exceeding fifty feet. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles. Karst terrain presents greater logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take six times longer to complete. |
| | | | Conventional Bore | 42 | 55 | N | 64 | 44 | 75 | Y | N | $3,119,195 | | |
| Norfolk | G-002 | S-Q13 | Dry-Ditch Open-Cut | 69 | - | N | 45 | 29 | 331 | Y | N | $118,248 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to Kimballton Branch. The crossing is located on a steep slope and require bore pits exceeding thirty feet. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles. Karst terrain increases the risk of bore failure and environmental impact. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take three times longer to complete. |
| | | | Conventional Bore | 69 | 33 | N | 45 | 29 | 331 | Y | N | $798,710 | | |
| Norfolk | G-003 | S-P6 | Dry-Ditch Open-Cut | 44 | - | N | 42 | 32 | 84 | Y | N | $51,841 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to UNT to Stony Creek. The crossing is located adjacent to a steep slope and require bore pits nearly thirty feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take nearly twice as long to complete. |
| | | | Conventional Bore | 44 | 29 | N | 42 | 32 | 84 | Y | N | $389,777 | | |
| Norfolk | G-004 | S-S5-Braid-1, S-S5-Braid-2, S-S5 | Dry-Ditch Open-Cut | 300 | - | N | 21 | 5 | 66 | N | N | $356,008 | Dry-Ditch Open-Cut | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Guided Conventional Bore | 300 | 0 | N | 21 | 5 | 66 | N | N | $445,322 | | |
| Norfolk | G-005 | S-G30, S-G29 | Dry-Ditch Open-Cut | 58 | - | N | 49 | 38 | 110 | Y | N | $70,917 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to two UNT to Dry Branch. Both streams are very small - less than ten feet in width. The crossing is located adjacent to a steep slope and require bore pits nearly forty feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take three times longer to complete. |
| | | | Conventional Bore | 58 | 38 | N | 49 | 38 | 110 | Y | N | $858,839 | | |
| Norfolk | G-006 | S-G32 | Dry-Ditch Open-Cut | 100 | - | N | 46 | 28 | 607 | Y | N | $100,749 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to Dry Branch. The crossing is located adjacent to a steep slope and require bore pits greater than twenty feet. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit adjacent to an extremely long and steep slope which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would take twice as long to complete. |
| | | | Conventional Bore | 100 | 24 | N | 46 | 28 | 607 | Y | N | $503,031 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | G-007 | S-G33 | Dry-Ditch Open-Cut | 90 | - | N | 38 | 34 | 289 | N | N | $93,649 | Dry-Ditch Open-Cut | A trenchless crossing of this small UNT to Dry Branch (less than 10 feet) would require bore pits that are approximately thirty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. The proposed crossing method is also shorter in duration, which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 90 | 30 | N | 38 | 34 | 289 | N | N | $803,500 | | |
| Norfolk | G-008 | W-Z11 | Dry-Ditch Open-Cut | 60 | - | N | 39 | 26 | 220 | N | N | $42,000 | Dry-Ditch Open-Cut | A trenchless crossing of this small wetland would require bore pits that are greater than twenty feet deep, which necessitates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. The proposed crossing method is shorter in duration, which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 60 | 21 | N | 39 | 26 | 220 | N | N | $362,107 | | |
| Norfolk | G-009 | S-G35 | Dry-Ditch Open-Cut | 139 | - | N | 38 | 34 | 608 | N | N | $225,223 | Conventional Bore | Mountain Valley must use a conventional bore to cross an adjacent road (Big Branch Hollow Road). The bore can be extended to avoid this resource. |
| | | | Conventional Bore | 139 | 30 | N | 38 | 34 | 608 | N | N | $942,561 | | |
| Norfolk | G-010 | S-SS4 | Dry-Ditch Open-Cut | 30 | - | N | 22 | 16 | 0 | N | Y | $30,059 | Conventional Bore | This stream is listed as trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 30 | 27 | N | 22 | 16 | 0 | N | Y | $331,776 | | |
| Norfolk | G-011 | S-Z9 | Dry-Ditch Open-Cut | 48 | - | N | 45 | 29 | 21 | N | N | $49,564 | Conventional Bore | This stream is listed as trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 48 | 27 | N | 45 | 29 | 21 | N | N | $382,860 | | |
| Norfolk | G-012 | S-Z7, S-Z7-Braid-1 | Dry-Ditch Open-Cut | 47 | - | N | 24 | 14 | 0 | N | Y | $44,128 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 47 | 19 | N | 24 | 14 | 0 | N | Y | $220,165 | | |
| Norfolk | G-013 | S-Z10, S-Z11, S-Z12-EPH, W-Z3, S-Z13 | Dry-Ditch Open-Cut | 331 | - | N | 9 | 4 | 0 | N | Y | $322,599 | Guided Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Guided Conventional Bore | 331 | 23 | N | 9 | 4 | 0 | N | Y | $701,437 | | |
| Norfolk | G-014 | S-Z14 | Dry-Ditch Open-Cut | 53 | - | N | 37 | 32 | 292 | N | N | $53,882 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 53 | 15 | N | 37 | 32 | 292 | N | N | $218,923 | | |
| Norfolk | G-015A | S-A34 | Dry-Ditch Open-Cut | 77 | - | N | 36 | 32 | 330 | Y | N | $74,900 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small UNT to Doe Creek. The stream is very small - less than ten feet in width and would require bore pits nearly thirty feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take twice as along to complete. |
| | | | Conventional Bore | 77 | 29 | N | 36 | 32 | 330 | Y | N | $483,431 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | G-015B | S-A33 | Dry-Ditch Open-Cut | 58 | - | N | 36 | 30 | 388 | Y | Y | $68,849 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small UNT to Doe Creek. The stream is very small - less than ten feet in width and would require bore pits greater than twenty feet deep on a steep slope. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles, with limited room for stockpiling. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take twice as along to complete. |
| | | | Conventional Bore | 58 | 24 | N | 36 | 30 | 388 | Y | Y | $383,836 | | |
| Norfolk | G-016 | S-A32 | Dry-Ditch Open-Cut | 103 | - | N | 36 | 32 | 975 | Y | N | $130,827 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to an UNT to Doe Creek. The crossing is located adjacent to a steep slope and require bore pits up to forty feet in depth. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit adjacent to an extremely long and steep slope which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take eight times longer to complete. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 103 | 40 | N | 36 | 32 | 975 | Y | N | $2,474,130 | | |
| Norfolk | G-017 | S-Y3, S-Y2 | Dry-Ditch Open-Cut | 246 | - | N | 52 | 25 | 328 | Y | N | $263,200 | Conventional Bore | Mountain Valley must use a conventional bore to cross an adjacent road (Doe Creek Road). The bore can be extended to avoid this resource. |
| | | | Conventional Bore | 246 | 37 | N | 52 | 25 | 328 | Y | N | $1,374,111 | | |
| Norfolk | G-019A | S-E24 | Dry-Ditch Open-Cut | 69 | - | N | 28 | 13 | 0 | N | Y | $120,466 | Dry-Ditch Open-Cut | This crossing is immediately adjacent to another crossing (G-019B) that will be bored. A significant change in elevation between the two crossing locations does not allow the pipeline to be tied-in together unless this crossing is completed with an open cut. Furthermore, avoiding this temporary impact to a UNT to Sinking Creek with a conventional bore crossing would be unreasonably expensive. |
| | | | Conventional Bore | 69 | 32 | N | 28 | 13 | 0 | N | Y | $780,441 | | |
| Norfolk | G-019B | S-E25-Downstream | Dry-Ditch Open-Cut | 92 | - | N | 48 | 20 | 450 | N | Y | $99,400 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 92 | 19 | N | 48 | 20 | 450 | N | Y | $347,874 | | |
| Norfolk | G-020 | S-RR5 | Dry-Ditch Open-Cut | 154 | - | N | 56 | 45 | 400 | N | N | $146,371 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to an UNT to Sinking Creek. The crossing is located adjacent to a steep slope and require bore pits nearly forty feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit adjacent to an extremely long and steep slope which would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take longer to complete. |
| | | | Conventional Bore | 154 | 35 | N | 56 | 45 | 400 | N | N | $1,076,478 | | |
| Norfolk | G-020A | S-IJ18 | Dry-Ditch Open-Cut | 22 | - | N | 41 | 13 | 11 | N | N | $21,300 | Dry-Ditch Open-Cut | A trenchless crossing of this small stream (UNT to Sinking Creek) would require bore pits that are nearly twenty feet deep. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method. The proposed crossing method is shorter in duration, which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 22 | 19 | N | 41 | 13 | 11 | N | N | $149,215 | | |
| Norfolk | G-022 | S-IJ16-b | Dry-Ditch Open-Cut | 50 | - | N | 70 | 42 | 537 | Y | N | $52,912 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to an UNT to Sinking Creek. The crossing is located adjacent to a steep slope and require bore pits up to thirty feet in depth. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles in a topographical setting that would require a technically and logistically difficult winching system, all while being located within an already reduced LOD. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take nearly twice as long to complete. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. |
| | | | Conventional Bore | 50 | 33 | N | 70 | 42 | 537 | Y | N | $744,789 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | G-023 | S-NN17 | Dry-Ditch Open-Cut | 140 | - | N | 62 | 40 | 372 | Y | N | $296,363 | Conventional Bore | Mountain Valley must use a conventional bore to cross an adjacent road (Rt. 604). The bore can be extended to avoid this resource. |
| | | | Conventional Bore | 140 | 23 | N | 62 | 40 | 372 | Y | N | $607,416 | | |
| Norfolk | G-024 | S-RR2, S-YZ6, W-RR1b | Dry-Ditch Open-Cut | 133 | - | N | 63 | 42 | 702 | Y | N | $129,388 | Conventional Bore | Mountain Valley must use a conventional bore to cross an adjacent road (Rt. 42). The bore can be extended to avoid this resource. |
| | | | Conventional Bore | 133 | 28 | N | 63 | 42 | 702 | Y | N | $633,223 | | |
| Norfolk | G-025 | S-MM18 | Dry-Ditch Open-Cut | 35 | - | N | 45 | 41 | 349 | Y | N | $43,253 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small UNT to Sinking Creek. The stream is very small - less than ten feet in width and would require bore pits approximately twenty feet deep. Avoiding/minimizing this minor impact through a conventional bore would require creating excessive spoil piles, with limited room for stockpiling. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take three times as along to complete. |
| | | | Conventional Bore | 35 | 20 | N | 45 | 41 | 349 | Y | N | $282,023 | | |
| Norfolk | G-026 | S-NN12 | Dry-Ditch Open-Cut | 41 | - | N | 41 | 28 | 276 | Y | N | $37,317 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small UNT to Sinking Creek. The stream is very small - less than five feet in width and would require bore pits that are twenty feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles, with limited room for stockpiling. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take longer to complete. |
| | | | Conventional Bore | 41 | 20 | N | 41 | 28 | 276 | Y | N | $299,051 | | |
| Norfolk | G-027 | S-NN11 | Dry-Ditch Open-Cut | 147 | - | N | 38 | 26 | 43 | Y | N | $121,499 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small UNT to Sinking Creek. The stream is very small - less than five feet in width and would require bore pits greater than twenty feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit which would create excessive spoil piles, with limited room for stockpiling. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take longer to complete. |
| | | | Conventional Bore | 147 | 24 | N | 38 | 26 | 43 | Y | N | $636,416 | | |
| Norfolk | G-028 | S-KL43 | Dry-Ditch Open-Cut | 48 | - | N | 43 | 28 | 102 | Y | N | $61,648 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small UNT to Sinking Creek. The stream is very small - less than ten feet in width and would require bore pits greater than twenty feet deep. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles, with limited room for stockpiling. Karst terrain increases the logistical and technical challenges. |
| | | | Conventional Bore | 48 | 19 | N | 43 | 28 | 102 | Y | N | $223,003 | | |
| Norfolk | G-029 | W-CD12, S-OO14 | Dry-Ditch Open-Cut | 70 | - | N | 23 | 11 | 0 | Y | Y | $63,367 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small wetland and small UNT to Sinking Creek. The stream is very small - less than ten feet in width and would require bore pits greater than twenty feet deep. Avoiding/minimizing this minor impact through a conventional bore would create excessive spoil piles, with limited room for stockpiling. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take longer to complete. |
| | | | Conventional Bore | 70 | 22 | N | 23 | 11 | 0 | Y | Y | $399,622 | | |
| Norfolk | G-030 | S-OO12, S-OO13 | Dry-Ditch Open-Cut | 45 | - | N | 41 | 21 | 73 | Y | N | $101,903 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to two small UNTs to Sinking Creek. This crossing is in proximity to a residence, and a trenchless crossing of this location would take nearly three times as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Karst terrain increases the logistical and technical challenges. |
| | | | Conventional Bore | 45 | 18 | N | 41 | 21 | 73 | Y | N | $209,921 | | |
| Norfolk | G-031 | S-PP1 | Dry-Ditch Open-Cut | 46 | - | N | 16 | 8 | 0 | Y | Y | $43,348 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (three-feet wide) intermittent UNT to Sinking Creek. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take four times as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Karst terrain increases the logistical and technical challenges. |
| | | | Conventional Bore | 46 | 15 | N | 16 | 8 | 0 | Y | Y | $199,057 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | G-032 | S-PP3 | Dry-Ditch Open-Cut | 25 | - | N | 17 | 12 | 0 | Y | Y | $26,364 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (three-feet wide) UNT to Sinking Creek. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 25 | 17 | N | 17 | 12 | 0 | Y | Y | $148,594 | | |
| Norfolk | G-033 | S-PP4 | Dry-Ditch Open-Cut | 38 | - | N | 22 | 11 | 0 | Y | Y | $34,742 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (two-feet wide) intermittent UNT to Sinking Creek. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 38 | 11 | N | 22 | 11 | 0 | Y | Y | $158,084 | | |
| Norfolk | G-034 | S-PP22 | Dry-Ditch Open-Cut | 48 | - | N | 57 | 48 | 203 | N | N | $44,100 | Conventional Bore | Mountain Valley has only been authorized to boring the streams in this section of the project. |
| | | | Conventional Bore | 48 | 19 | N | 57 | 48 | 203 | N | N | $223,003 | | |
| Norfolk | G-035 | S-PP21 | Dry-Ditch Open-Cut | 35 | - | N | 33 | 26 | 0 | N | N | $38,975 | Conventional Bore | Mountain Valley has only been authorized to boring the streams in this section of the project. |
| | | | Conventional Bore | 35 | 22 | N | 33 | 26 | 0 | N | N | $300,293 | | |
| Norfolk | G-036 | S-PP20 | Dry-Ditch Open-Cut | 48 | - | N | 26 | 9 | 0 | N | Y | $58,844 | Conventional Bore | Mountain Valley has only been authorized to boring the streams in this section of the project. |
| | | | Conventional Bore | 48 | 18 | N | 26 | 9 | 0 | N | Y | $218,435 | | |
| Norfolk | G-037 | S-OO6 | Dry-Ditch Open-Cut | 61 | - | N | 20 | 8 | 0 | N | Y | $166,001 | Conventional Bore | Mountain Valley has only been authorized to boring the streams in this section of the project. |
| | | | Conventional Bore | 61 | 11 | N | 20 | 8 | 0 | N | Y | $223,358 | | |
| Norfolk | G-038 | S-RR14 | Dry-Ditch Open-Cut | 38 | - | N | 33 | 19 | 21 | N | N | $52,813 | Conventional Bore | Mountain Valley has only been authorized to boring the streams in this section of the project. |
| | | | Conventional Bore | 38 | 13 | N | 33 | 19 | 21 | N | N | $167,219 | | |
| Norfolk | G-039 | S-HH18 | Dry-Ditch Open-Cut | 55 | - | N | 42 | 24 | 216 | N | N | $59,609 | Conventional Bore | Mountain Valley has only been authorized to boring the streams in this section of the project. |
| | | | Conventional Bore | 55 | 29 | N | 42 | 24 | 216 | N | N | $420,995 | | |
| Norfolk | G-040 | S-MN21 | Dry-Ditch Open-Cut | 32 | - | N | 53 | 42 | 287 | N | N | $40,296 | Dry-Ditch Open-Cut | Access to this crossing location is extremely limited and requires removal and replacement of approximately 200 waterbars per day during period of active construction. Operating a boring operation at this location is logistically and technically challenging. Furthermore, avoiding this temporary impact to this small stream with a conventional bore crossing would be unreasonably expensive. |
| | | | Conventional Bore | 32 | 28 | N | 53 | 42 | 287 | N | N | $346,587 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | G-041 | S-MN22 | Dry-Ditch Open-Cut | 40 | - | N | 30 | 24 | 0 | N | Y | $43,706 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (four-feet wide) stream. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of 20 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 40 | 20 | N | 30 | 24 | 0 | N | Y | $296,213 | | |
| Norfolk | G-042 | S-EF65 | Dry-Ditch Open-Cut | 88 | - | N | 43 | 27 | 560 | Y | N | $166,301 | Dry-Ditch Open-Cut | Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. The stream is also located on a steep slope that would require logistically and technically challenging winching system in an already reduced work area. Karst terrain increases the logistical and technical challenges. |
| | | | Conventional Bore | 88 | 22 | N | 43 | 27 | 560 | Y | N | $450,706 | | |
| Norfolk | G-043 | S-EF62 | Dry-Ditch Open-Cut | 38 | - | N | 28 | 17 | 293 | Y | N | $58,103 | Dry-Ditch Open-Cut | The stream is located on a steep slope that would require logistically and technically challenging winching system in an already reduced work area. Karst terrain increases the logistical and technical challenges. |
| | | | Conventional Bore | 38 | 16 | N | 28 | 17 | 293 | Y | N | $180,921 | | |
| Norfolk | G-044 | S-IJ52, W-IJ46-PEM | Dry-Ditch Open-Cut | 46 | - | N | 63 | 35 | 178 | Y | N | $57,673 | Dry-Ditch Open-Cut | Site conditions do not allow sufficient space to stockpile spoils from bore pits. Karst terrain increases the logistical and technical challenges. Furthermore, avoiding this temporary impact to this small stream with a conventional bore crossing would be unreasonably expensive and would take longer to complete. |
| | | | Conventional Bore | 46 | 24 | N | 63 | 35 | 178 | Y | N | $349,780 | | |
| Norfolk | H-001 | S-G39 | Dry-Ditch Open-Cut | 301 | - | N | 74 | 46 | 1576 | N | N | $232,364 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (six-feet wide) intermittent UNT to Roanoke River. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit of nearly 40 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and around the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles from a bore pit. A conventional bore crossing would extend the duration of this crossing from 6 to 79 days, thereby increasing the greenhouse gas emissions associated with the crossing by nearly 1,400%. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 301 | 36 | N | 74 | 46 | 1576 | N | N | $1,511,931 | | |
| Norfolk | H-002 | S-MM15 | Dry-Ditch Open-Cut | 37 | - | N | 39 | 29 | 74 | N | N | $47,979 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (six-feet wide) intermittent UNT to Flatwoods Branch. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit of nearly 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 37 | 33 | N | 39 | 29 | 74 | N | N | $707,895 | | |
| Norfolk | H-003 | S-MM14 | Dry-Ditch Open-Cut | 100 | - | N | 42 | 33 | 243 | N | N | $104,394 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a UNT to Flatwoods Branch. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit of nearly 40 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 100 | 37 | N | 42 | 33 | 243 | N | N | $959,765 | | |
| Norfolk | H-004 | S-MM13 | Dry-Ditch Open-Cut | 33 | - | N | 59 | 34 | 33 | N | N | $41,924 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (five-feet wide) UNT to Flatwoods Branch. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take more than twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 33 | 32 | N | 59 | 34 | 33 | N | N | $678,274 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | H-005 | S-MM11 | Dry-Ditch Open-Cut | 34 | - | N | 46 | 24 | 33 | N | N | $54,178 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (nine-feet wide) UNT to Flatwoods Branch. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to residences, and a trenchless crossing of this location would take more than twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 34 | 25 | N | 46 | 24 | 33 | N | N | $324,859 | | |
| Norfolk | H-006 | W-F9-PFO, S-F15 | Dry-Ditch Open-Cut | 55 | - | N | 56 | 17 | 0 | N | Y | $85,276 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to an intermittent UNT to Flatwoods Branch and an adjacent PFO wetland (0.02 ac). Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in proximity to residences, and a trenchless crossing of this location would take twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive. |
| | | | Conventional Bore | 55 | 35 | N | 56 | 17 | 0 | N | Y | $795,517 | | |
| Norfolk | H-007 | S-F16a/F16b | Dry-Ditch Open-Cut | 32 | - | N | 30 | 15 | 0 | N | Y | $32,899 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (three-feet wide) UNT to Flatwoods Branch. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to residences, and a trenchless crossing of this location would take nearly twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 32 | 27 | N | 30 | 15 | 0 | N | Y | $337,452 | | |
| Norfolk | H-008 | ~~S-C33,~~ S-C36, W-C11 | Dry-Ditch Open-Cut | 313 | - | N | 21 | 15 | 0 | N | Y | $240,100 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a UNT to Flatwoods Branch. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit more than 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. A conventional bore crossing would extend the duration of this crossing from 2 to 30 days, thereby increasing the greenhouse gas emissions associated with the crossing by over 1500%. |
| | | | Conventional Bore | 313 | 23 | N | 21 | 15 | 0 | N | Y | $1,098,387 | | |
| Norfolk | H-009 | S-MM31 | Dry-Ditch Open-Cut | 40 | - | N | 5 | 3 | 0 | N | Y | $43,566 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 40 | 11 | N | 5 | 3 | 0 | N | Y | $163,760 | | |
| Norfolk | H-010 | S-C29 | Dry-Ditch Open-Cut | 44 | - | N | 21 | 16 | 0 | N | Y | $35,326 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (one-foot wide) Flatwoods Branch. A conventional bore crossing would extend the duration of this crossing from 2 to 9 days, thereby increasing the greenhouse gas emissions associated with the crossing by over 450%. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 44 | 17 | N | 21 | 16 | 0 | N | Y | $202,516 | | |
| Norfolk | H-012 | W-C5 | Dry-Ditch Open-Cut | 68 | - | N | 31 | 19 | 0 | N | Y | $47,600 | Dry-Ditch Open-Cut | The open cut method would result in a small temporary impact to a PEM wetland (0.05 ac). Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit of nearly 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. A conventional bore crossing would extend the duration of this crossing from 2 to 8 days, thereby increasing the greenhouse gas emissions associated with the crossing by over 400%. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 68 | 23 | N | 31 | 19 | 0 | N | Y | $403,081 | | |
| Norfolk | H-013 | S-C25 | Dry-Ditch Open-Cut | 65 | - | N | 39 | 29 | 52 | N | N | $62,093 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (five-feet wide) UNT to Bradshaw Creek. Avoiding/minimizing this minor impact through a conventional bore would require a deep bore pit of nearly 40 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. A conventional bore crossing would extend the duration of this crossing from 2 to 18 days, thereby increasing the greenhouse gas emissions associated with the crossing by over 900%. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 65 | 38 | N | 39 | 29 | 52 | N | N | $878,705 | | |
| Norfolk | H-014 | S-C24 | Dry-Ditch Open-Cut | 67 | - | N | 38 | 20 | 21 | N | N | $64,412 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a UNT to Bradshaw Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. A conventional bore crossing would extend the duration of this crossing from 2 to 18 days, thereby increasing the greenhouse gas emissions associated with the crossing by over 900%. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 67 | 34 | N | 38 | 20 | 21 | N | N | $811,304 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | H-015 | S-C21 | Dry-Ditch Open-Cut | 90 | - | N | 18 | 6 | 21 | N | N | $168,191 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 90 | 26 | N | 18 | 6 | 21 | N | N | $492,920 | | |
| Norfolk | H-017 | S-OO16 | Dry-Ditch Open-Cut | 360 | - | N | 45 | 36 | 282 | Y | N | $266,002 | Conventional Bore | Mountain Valley must use a conventional bore to cross an adjacent road (I-81). The bore can be extended to avoid this resource. |
| | | | Conventional Bore | 360 | 39 | N | 45 | 36 | 282 | Y | N | $1,734,180 | | |
| Norfolk | H-018 | S-NN19 | Dry-Ditch Open-Cut | 34 | - | N | 53 | 27 | 11 | Y | N | $36,153 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (four-feet wide) UNT to Roanoke River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take three weeks to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Karst terrain increases the logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 34 | 33 | N | 53 | 27 | 11 | Y | N | $699,381 | | |
| Norfolk | H-019 | S-NN16, W-NN8 | Dry-Ditch Open-Cut | 316 | - | N | 23 | 14 | 0 | Y | Y | $504,735 | Dry-Ditch Open-Cut | Mountain Valley must use microtunneling to cross an adjacent road (Rt. 11). The bore can be extended to avoid this resource. |
| | | | Microtunnel | 316 | 31 | N | 23 | 14 | 0 | Y | Y | $3,726,351 | | |
| Norfolk | H-020 | S-I1, S-AB16, W-AB7 | Dry-Ditch Open-Cut | 280 | - | N | 4 | 3 | 74 | Y | Y | $244,999 | Conventional Bore | Mountain Valley must use microtunneling to cross an adjacent road (Rt. 11). The bore can be extended to avoid this resource. |
| | | | Conventional Bore | 280 | 16 | N | 4 | 3 | 74 | Y | Y | $867,713 | | |
| Norfolk | H-021 | S-CD12b | Dry-Ditch Open-Cut | 38 | - | N | 3 | 2 | 0 | N | Y | $37,100 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 38 | 11 | N | 3 | 2 | 0 | N | Y | $158,084 | | |
| Norfolk | H-022 | W-KL58 | Dry-Ditch Open-Cut | 114 | - | N | 1 | 0 | 0 | N | Y | $79,800 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 114 | 12 | N | 1 | 0 | 0 | N | Y | $378,338 | | |
| Norfolk | H-023 | S-EF19 | Dry-Ditch Open-Cut | 30 | - | N | 76 | 60 | 647 | N | N | $24,179 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (one-foot wide) UNT to Indian Run. Avoiding/minimizing this minor impact through a trenchless crossing would require an excessively deep bore pit exceeding 50 feet, thereby requiring the excavation of an interim ramp and up to three benches and dramatically increasing the space occupied by the bore pit and spoil pile. The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and around the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles from a bore pit. Using a trenchless method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Microtunnel | 30 | 51 | N | 76 | 60 | 647 | N | N | $3,081,818 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | H-024 | W-EF5-PFO, S-EF20a | Dry-Ditch Open-Cut | 83 | - | N | 63 | 52 | 768 | N | N | $80,005 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (five-feet wide) UNT to Roanoke River and an adjacent PFO wetland (0.11 ac). Avoiding/minimizing these minor impacts through a conventional bore would require an excessively deep bore pit greater than 40 feet, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and around the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles from a bore pit. In forested wetlands, a 30-foot corridor generally must be maintained free of trees. Accordingly, conversion impacts to the PFO wetland are unavoidable, even if a bore is used. This crossing also is in close proximity to a residence, and a trenchless crossing of this location would take 27 days -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive. |
| | | | Conventional Bore | 83 | 44 | N | 63 | 52 | 768 | N | N | $2,635,553 | | |
| Norfolk | H-025 | S-MM22 | Dry-Ditch Open-Cut | 200 | - | N | 33 | 25 | 2582 | N | N | $192,500 | Dry-Ditch Open-Cut | The stream is located on a slope that will increase the logistical and technical difficulty of crossing this small stream. The bore pits are nearly 20 feet deep which makes stockpiling the spoils on such steep slope and logistical challenge. |
| | | | Conventional Bore | 200 | 17 | N | 33 | 25 | 2582 | N | N | $645,242 | | |
| Norfolk | H-026 | S-IJ50 | Dry-Ditch Open-Cut | 88 | - | N | 74 | 66 | 2681 | N | N | $96,784 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small UNT to Roanoke River. Avoiding/minimizing this minor impact through a trenchless crossing would require an excessively deep bore pit of nearly 60 feet, thereby requiring the excavation of an interim ramp and up to three benches and dramatically increasing the space occupied by the bore pit and spoil pile. The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and around the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles from a bore pit. Using a trenchless method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Microtunnel | 88 | 59 | N | 74 | 66 | 2681 | N | N | $4,098,182 | | |
| Norfolk | H-027 | S-Y13, S-Y14 | Dry-Ditch Open-Cut | 104 | - | N | 66 | 45 | 670 | N | N | $124,613 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to two small UNTs to Bottom Creek. The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and around the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles from a bore pit. Using a conventional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive. |
| | | | Conventional Bore | 104 | 38 | N | 66 | 45 | 670 | N | N | $989,387 | | |
| Norfolk | H-028 | S-EF34b, S-EF55 | Dry-Ditch Open-Cut | 100 | - | N | 63 | 51 | 508 | N | N | $105,000 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to two small UNTs to Bottom Creek. Avoiding/minimizing these minor impacts through a conventional bore would require an excessively deep bore pit greater than 40 feet, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and around the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles from a bore pit. Using a conventional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive. |
| | | | Conventional Bore | 100 | 45 | N | 63 | 51 | 508 | N | N | $2,738,344 | | |
| Norfolk | H-029 | S-EF33 | Dry-Ditch Open-Cut | 43 | - | N | 42 | 19 | 560 | N | N | $48,809 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (five-feet wide) intermittent UNT to Bottom Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 43 | 31 | N | 42 | 19 | 560 | N | N | $688,384 | | |
| Norfolk | H-030 | S-IJ82 | Dry-Ditch Open-Cut | 73 | - | N | 25 | 14 | 0 | N | Y | $70,275 | Conventional Bore | The stream is a trout water and the direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 73 | 27 | N | 25 | 14 | 0 | N | Y | $453,809 | | |
| Norfolk | H-031 | W-IJ94-PEM, W-IJ95-PSS, S-IJ83, S-IJ88, S-IJ84, W-IJ102 | Dry-Ditch Open-Cut | 362 | - | N | 25 | 12 | 0 | N | Y | $292,224 | Conventional Bore | Orangefin madtom habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 362 | 28 | N | 25 | 12 | 0 | N | Y | $1,283,121 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | H-032 | S-IJ89, S-IJ90 | Dry-Ditch Open-Cut | 108 | - | N | 34 | 22 | 212 | N | N | $94,134 | Conventional Bore | Orangefin madtom habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 108 | 22 | N | 34 | 22 | 212 | N | N | $507,465 | | |
| Norfolk | H-033 | W-KL17, S-KL25 | Dry-Ditch Open-Cut | 59 | - | N | 14 | 9 | 521 | N | N | $53,001 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (three-feet wide) intermittent UNT to Mill Creek and a PSS wetland (0.04 ac). The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and around the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles from a bore pit. This crossing also is in close proximity to a residence, and a trenchless crossing of this location increases the duration of the crossing work -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. |
| | | | Conventional Bore | 59 | 16 | N | 14 | 9 | 521 | N | N | $240,519 | | |
| Norfolk | H-035 | W-KL15 | Dry-Ditch Open-Cut | 59 | - | N | 15 | 12 | 0 | N | Y | $41,300 | Dry-Ditch Open-Cut | The open cut method would result in a small temporary impact to a PEM wetland (0.03 ac). This crossing is in close proximity to residences, and a trenchless crossing of this location nearly triples the duration of the crossing work -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize the impact to this PEM would be unreasonably expensive. |
| | | | Conventional Bore | 59 | 16 | N | 15 | 12 | 0 | N | Y | $240,519 | | |
| Norfolk | H-036 | W-EF42, W-HS02, W-AB6-PEM-2, W-AB6-PFO-1, W-AB6-PEM-1, W-AB6-PSS, W-AB5, W-AB3-PEM-2 | Dry-Ditch Open-Cut | 1600 | - | N | 4 | 2 | 0 | N | Y | $1,120,000 | Dry-Ditch Open-Cut | The open cut method would result in a small temporary impacts several closely grouped wetland features. To avoid excavating bore pits in wetland areas, Direct Pipe would be necessary to span the excessively long crossing distance. The trenchless crossing would take more than one month to complete (as opposed to three days for an open cut crossing). The greenhouse gas footprint of the crossing would therefore increase by over 1,400%. Furthermore, using a Direct Pipe crossing method to avoid/minimize the temporary impacts to these features would be unreasonably expensive. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Direct Pipe | 1600 | 10 | N | 4 | 2 | 0 | N | Y | $12,845,673 | | |
| Norfolk | H-040 | W-EF46, S-ST9b | Dry-Ditch Open-Cut | 179 | - | N | 31 | 17 | 10 | N | N | $152,132 | Conventional Bore | Orangefin madtom habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 179 | 21 | N | 31 | 17 | 10 | N | N | $699,827 | | |
| Norfolk | H-041 | W-KL48-PSS-1 | Dry-Ditch Open-Cut | 70 | - | N | 10 | 5 | 0 | N | Y | $49,000 | Dry-Ditch Open-Cut | The open cut method would result in a small temporary impact to PSS wetland. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 70 | 17 | N | 10 | 5 | 0 | N | Y | $276,304 | | |
| Norfolk | H-042 | W-KL49-PEM, W-KL51-PEM, S-KL55, W-KL51-PSS | Dry-Ditch Open-Cut | 202 | - | N | 17 | 13 | 0 | N | Y | $181,156 | Conventional Bore | Orangefin madtom habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 202 | 22 | N | 17 | 13 | 0 | N | Y | $774,236 | | |
| Norfolk | H-043 | W-MN7-PEM, S-IJ12 | Dry-Ditch Open-Cut | 87 | - | N | 31 | 22 | 340 | N | N | $74,999 | Conventional Bore | Orangefin madtom habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 87 | 25 | N | 31 | 22 | 340 | N | N | $475,272 | | |
| Norfolk | H-044 | S-EF44, W-EF44 | Dry-Ditch Open-Cut | 45 | - | N | 45 | 33 | 84 | N | N | $49,054 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 45 | 21 | N | 45 | 33 | 84 | N | N | $319,538 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | H-045 | W-IJ36, S-IJ43 | Dry-Ditch Open-Cut | 282 | - | N | 43 | 26 | 230 | N | N | $251,003 | Conventional Bore | Orangefin madtom habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 282 | 30 | N | 43 | 26 | 230 | N | N | $1,348,393 | | |
| Norfolk | H-046 | S-Y7, W-Y2, S-Y8 | Dry-Ditch Open-Cut | 140 | - | N | 44 | 24 | 43 | N | N | $117,275 | Conventional Bore | Orangefin madtom habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 140 | 25 | N | 44 | 24 | 43 | N | N | $625,685 | | |
| Norfolk | H-047A | S-B22 | Dry-Ditch Open-Cut | 64 | - | N | 9 | 5 | 0 | N | Y | $59,056 | Conventional Bore | Orangefin madtom habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 64 | 14 | N | 9 | 5 | 0 | N | Y | $245,574 | | |
| Norfolk | H-047B | W-B25-PEM-1 | Dry-Ditch Open-Cut | 154 | - | N | 9 | 4 | 0 | N | Y | $107,800 | Dry-Ditch Open-Cut | The open cut method would result in a small (0.19 ac) temporary impact to PEM wetland. This crossing is in close proximity to several residences, and a trenchless crossing of this location would take 30 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. |
| | | | Conventional Bore | 154 | 13 | N | 9 | 4 | 0 | N | Y | $496,425 | | |
| Norfolk | H-048A | W-B25-PSS-2, S-B25 | Dry-Ditch Open-Cut | 253 | - | N | 3 | 1 | 0 | N | Y | $202,035 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 253 | 11 | N | 3 | 1 | 0 | N | Y | $768,251 | | |
| Norfolk | H-048B | W-B24-PEM, W-B24-PSS, S-B21 | Dry-Ditch Open-Cut | 228 | - | N | 9 | 6 | 0 | N | Y | $176,494 | Dry-Ditch Open-Cut | The pipeline is already installed through a portion of the wetland at this crossing. The layout of a conventional bore would require excavation of a bore pit unacceptably close to the installed pipe. Additionally, a trenchless method would require excavation of a bore pit within the wetland, meaning that that a longer-duration bore pit in the wetland (3 to 4 weeks) is not less environmentally damaging than a much shorter duration impact associated with an open cut through the wetlands and adjacent four-foot-wide UNT to Mill Creek. |
| | | | Conventional Bore | 228 | 20 | N | 9 | 6 | 0 | N | Y | $829,754 | | |
| Norfolk | H-051 | W-ST2-PEM, S-G24, S-G25 | Dry-Ditch Open-Cut | 96 | - | N | 57 | 48 | 130 | N | N | $95,320 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to two small UNTs to Green Creek and a PEM wetland. Avoiding/minimizing these minor impacts through a conventional bore would require a deep bore pit of nearly 40 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location increases the duration of the crossing from 2 to 19 days -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive. |
| | | | Conventional Bore | 96 | 36 | N | 57 | 48 | 130 | N | N | $930,144 | | |
| Norfolk | H-052 | S-D14 | Dry-Ditch Open-Cut | 79 | - | N | 34 | 24 | 729 | N | N | $65,800 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (three-feet wide) UNT. The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and around the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles from a bore pit. |
| | | | Conventional Bore | 79 | 19 | N | 34 | 24 | 729 | N | N | $310,980 | | |
| Norfolk | H-053 | W-D7-PEM, S-D13, S-D12 | Dry-Ditch Open-Cut | 89 | - | N | 27 | 20 | 83 | N | N | $84,077 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to two small intermittent UNTs to North Fork Blackwater River and a PEM wetland. Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit exceeding 20 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive. |
| | | | Conventional Bore | 89 | 24 | N | 27 | 20 | 83 | N | N | $471,813 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | H-054 | S-D11 | Dry-Ditch Open-Cut | 81 | - | N | 33 | 10 | 51 | N | N | $119,688 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 81 | 22 | N | 33 | 10 | 51 | N | N | $430,840 | | |
| Norfolk | H-055 | S-D8 | Dry-Ditch Open-Cut | 60 | - | N | 43 | 37 | 585 | N | N | $107,791 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (four-feet wide) UNT to North Fork Blackwater River. Avoiding/minimizing these minor impacts through a conventional bore would require a deep bore pit exceeding 30 feet, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and around the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles from a bore pit. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 60 | 35 | N | 43 | 37 | 585 | N | N | $809,707 | | |
| Norfolk | H-056 | S-GH15 | Dry-Ditch Open-Cut | 35 | - | N | 62 | 54 | 148 | N | N | $38,526 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (four-feet wide) intermittent UNT to North Fork Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 35 | 24 | N | 62 | 54 | 148 | N | N | $318,562 | | |
| Norfolk | H-057 | S-GH14 | Dry-Ditch Open-Cut | 54 | - | N | 48 | 34 | 109 | N | N | $52,050 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (four-feet wide) UNT to North Fork Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 54 | 36 | N | 48 | 34 | 109 | N | N | $810,949 | | |
| Norfolk | H-058 | S-GH11 | Dry-Ditch Open-Cut | 31 | - | N | 54 | 42 | 231 | N | N | $32,688 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (three-feet wide) intermittent UNT to Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take longer to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 31 | 32 | N | 54 | 42 | 231 | N | N | $672,598 | | |
| Norfolk | H-059 | S-GH9 | Dry-Ditch Open-Cut | 48 | - | N | 47 | 24 | 62 | N | N | $48,203 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (four-feet wide) UNT to North Fork Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take nearly twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 48 | 34 | N | 47 | 24 | 62 | N | N | $757,382 | | |
| Norfolk | H-060 | S-RR08 | Dry-Ditch Open-Cut | 43 | - | N | 20 | 12 | 0 | N | Y | $54,799 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 43 | 15 | N | 20 | 12 | 0 | N | Y | $190,543 | | |
| Norfolk | H-061 | S-RR09 | Dry-Ditch Open-Cut | 30 | - | N | 56 | 34 | 64 | N | N | $48,428 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (nine-feet wide) UNT to North Fork Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take nearly twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 30 | 31 | N | 56 | 34 | 64 | N | N | $651,490 | | |
| Norfolk | H-062 | S-RR11 | Dry-Ditch Open-Cut | 38 | - | N | 39 | 26 | 136 | N | N | $51,125 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (seven-feet wide) UNT to North Fork Blackwater River Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require an excessively deep bore pit greater than 20 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 38 | 27 | N | 39 | 26 | 136 | N | N | $354,480 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | H-063 | S-IJ1, W-IJ1, S-IJ2 | Dry-Ditch Open-Cut | 133 | - | N | 44 | 37 | 928 | N | N | $135,744 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to two small UNTs to North Fork Blackwater River and a PEM wetland (0.002 ac). Avoiding/minimizing these minor impacts through a conventional bore would require an excessively deep bore pit greater than 40 feet, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and around the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles from a bore pit. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take nearly three times as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive. |
| | | | Conventional Bore | 133 | 41 | N | 44 | 37 | 928 | N | N | $2,613,815 | | |
| Norfolk | I-001 | S-E28 | Dry-Ditch Open-Cut | 56 | - | N | 46 | 18 | 0 | N | Y | $95,200 | Dry-Ditch Open-Cut | This crossing is immediately adjacent to a mainline valve. Trenchless crossing methods are logistically difficult because they would require the pipe to be installed too deeply to facilitate connection to the valve site. An open cut crossing is necessary to facilitate connection to the mainline valve. |
| | | | Conventional Bore | 56 | 16 | N | 46 | 18 | 0 | N | Y | $232,005 | | |
| Norfolk | I-001A | S-GH3 | Dry-Ditch Open-Cut | 22 | - | N | 41 | 19 | 31 | N | N | $33,100 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 22 | 14 | N | 41 | 19 | 31 | N | N | $126,378 | | |
| Norfolk | I-002 | S-E29 | Dry-Ditch Open-Cut | 52 | - | N | 4 | 2 | 0 | N | Y | $65,383 | Dry-Ditch Open-Cut | This UNT to Teels Creek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. |
| | | | Conventional Bore | 52 | 14 | N | 4 | 2 | 0 | N | Y | $211,518 | | |
| Norfolk | I-003 | S-E28 | Dry-Ditch Open-Cut | 45 | - | N | 15 | 3 | 0 | N | Y | $87,500 | Dry-Ditch Open-Cut | Teels Creek in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. |
| | | | Conventional Bore | 45 | 15 | N | 15 | 3 | 0 | N | Y | $196,219 | | |
| Norfolk | I-004 | W-E7 | Dry-Ditch Open-Cut | 298 | - | N | 18 | 6 | 0 | N | Y | $208,600 | Dry-Ditch Open-Cut | Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit of nearly 30 feet, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to residences, and a trenchless crossing of this location would take 14 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize the impact to this PEM would be unreasonably expensive. |
| | | | Conventional Bore | 298 | 21 | N | 18 | 6 | 0 | N | Y | $1,037,547 | | |
| Norfolk | I-005A | W-E8 | Dry-Ditch Open-Cut | 150 | - | N | 37 | 29 | 0 | N | Y | $105,000 | Dry-Ditch Open-Cut | The open cut method would result in a small temporary impact (0.07 ac) to a PEM wetland. Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit of nearly 30 feet on the edge of a steep slope, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to residences, and a trenchless crossing of this location would take 19 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize the impact to this PEM would be unreasonably expensive. |
| | | | Conventional Bore | 150 | 27 | N | 37 | 29 | 0 | N | Y | $672,334 | | |
| Norfolk | I-005B | S-E28 | Dry-Ditch Open-Cut | 67 | - | N | 24 | 18 | 0 | N | Y | $102,900 | Dry-Ditch Open-Cut | This Section of Teels Creek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. |
| | | | Conventional Bore | 67 | 23 | N | 24 | 18 | 0 | N | Y | $400,243 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-006 | S-EF4 | Dry-Ditch Open-Cut | 59 | - | N | 48 | 29 | 62 | N | N | $81,979 | Dry-Ditch Open-Cut | This intermittent UNT to Teels Creek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. Furthermore, it would be unreasonably expensive to use a trenchless crossing to avoid only a fraction of the aquatic impact to this small (three-foot wide) stream. |
| | | | Conventional Bore | 59 | 34 | N | 48 | 29 | 62 | N | N | $788,600 | | |
| Norfolk | I-007 | S-EF12 | Dry-Ditch Open-Cut | 68 | - | N | 8 | 2 | 124 | N | N | $123,232 | Dry-Ditch Open-Cut | This UNT to Teels Creek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. |
| | | | Conventional Bore | 68 | 16 | N | 8 | 2 | 124 | N | N | $266,060 | | |
| Norfolk | I-008 | S-MM42 | Dry-Ditch Open-Cut | 43 | - | N | 25 | 18 | 0 | N | Y | $37,690 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (two-feet wide) UNT to Teels Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to residences, and a trenchless crossing of this location would take nearly twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 43 | 23 | N | 25 | 18 | 0 | N | Y | $332,131 | | |
| Norfolk | I-009 | S-RR15 | Dry-Ditch Open-Cut | 60 | - | N | 25 | 12 | 30 | N | N | $102,185 | Conventional Bore | Although the bore pits associated with this crossing are 20 feet deep, the relatively flat approaches are reasonable for winching equipment and the excessive spoils associated with deeper bore pits can be managed appropriately. |
| | | | Conventional Bore | 60 | 20 | N | 25 | 12 | 30 | N | N | $352,973 | | |
| Norfolk | I-010 | S-D23 | Dry-Ditch Open-Cut | 71 | - | N | 39 | 19 | 87 | N | N | $136,216 | Dry-Ditch Open-Cut | The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. This location has construction constraints, including winch-hill construction and limited space for soil stockpiles. The open cut method also reduces the construction duration near a private drinking water well on the property. |
| | | | Conventional Bore | 71 | 28 | N | 39 | 19 | 87 | N | N | $457,268 | | |
| Norfolk | I-011 | S-D22 | Dry-Ditch Open-Cut | 42 | - | N | 31 | 21 | 0 | N | Y | $61,662 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (eight-feet wide) intermittent UNT to Teels Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit nearly 20 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 42 | 21 | N | 31 | 21 | 0 | N | Y | $311,024 | | |
| Norfolk | I-012 | S-D20 | Dry-Ditch Open-Cut | 29 | - | N | 35 | 27 | 113 | N | N | $43,964 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (eight-feet wide) intermittent UNT to Teels Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit nearly 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take more than twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 29 | 28 | N | 35 | 27 | 113 | N | N | $338,073 | | |
| Norfolk | I-013 | S-C14 | Dry-Ditch Open-Cut | 90 | - | N | 40 | 28 | 53 | N | N | $271,204 | Dry-Ditch Open-Cut | Teels Creek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. Construction constraints at this location include a bore pit depth of nearly 40 feet and steep slopes on both sides of the creek, one of which would require winched equipment. The open cut method also reduces the construction duration near a private drinking water well on the property. |
| | | | Conventional Bore | 90 | 38 | N | 40 | 28 | 53 | N | N | $949,655 | | |
| Norfolk | I-014 | S-C17 | Dry-Ditch Open-Cut | 62 | - | N | 21 | 16 | 0 | N | Y | $187,051 | Conventional Bore | Roanoke logperch habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 62 | 20 | N | 21 | 16 | 0 | N | Y | $358,649 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-015 | S-CD6 | Dry-Ditch Open-Cut | 109 | - | N | 4 | 1 | 0 | N | Y | $276,201 | Dry-Ditch Open-Cut | Teels Creek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. |
| | | | Conventional Bore | 109 | 20 | N | 4 | 1 | 0 | N | Y | $492,034 | | |
| Norfolk | I-016 | W-CD6 | Dry-Ditch Open-Cut | 94 | - | N | 4 | 1 | 0 | N | Y | $65,800 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 94 | 11 | N | 4 | 1 | 0 | N | Y | $317,011 | | |
| Norfolk | I-017 | W-CD5 | Dry-Ditch Open-Cut | 88 | - | N | 67 | 54 | 122 | N | N | $61,600 | Dry-Ditch Open-Cut | The open cut method would result in a small temporary impact (0.11 ac) to a PFO wetland. Avoiding/minimizing these minor impacts through a conventional bore would require an excessively deep bore pit exceeding 50 feet on the edge of a very steep slope, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in proximity to a residence, and a trenchless crossing of this location would increase the duration of the crossing from 4 to 35 days -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Because the pipeline ROW must remain free of woody vegetation to protect the pipe coating, a conversion impact is unavoidable with any crossing method. Using a conventional bore crossing method to avoid/minimize a portion of the impact to this PFO would be unreasonably expensive. |
| | | | Conventional Bore | 88 | 52 | N | 67 | 54 | 122 | N | N | $3,086,106 | | |
| Norfolk | I-018 | S-II2 | Dry-Ditch Open-Cut | 98 | - | N | 13 | 3 | 0 | N | Y | $278,804 | Dry-Ditch Open-Cut | Little Creek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. The open cut method also reduces the construction duration near a private drinking water wells on the property. |
| | | | Conventional Bore | 98 | 20 | N | 13 | 3 | 0 | N | Y | $460,816 | | |
| Norfolk | I-019 | S-CD1, W-CD1 | Dry-Ditch Open-Cut | 110 | - | N | 22 | 12 | 0 | N | Y | $89,800 | Dry-Ditch Open-Cut | This crossing is in close proximity to a residence, and a trenchless crossing of this location would take nearly four times longer to long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. |
| | | | Conventional Bore | 110 | 18 | N | 22 | 12 | 0 | N | Y | $394,390 | | |
| Norfolk | I-020 | S-KL35, W-EF48 | Dry-Ditch Open-Cut | 72 | - | N | 32 | 14 | 106 | N | N | $62,773 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 72 | 16 | N | 32 | 14 | 106 | N | N | $277,412 | | |
| Norfolk | I-021 | S-KL36 | Dry-Ditch Open-Cut | 39 | - | N | 34 | 18 | 32 | N | Y | $55,130 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 39 | 17 | N | 34 | 18 | 32 | N | Y | $188,326 | | |
| Norfolk | I-022 | S-KL38 | Dry-Ditch Open-Cut | 200 | - | N | 54 | 24 | 0 | N | Y | $165,254 | Dry-Ditch Open-Cut | The pipeline has already been installed under an adjacent road (Hwy. 220). There is no feasible way to tie the two sections of pipe together if a trenchless method is used to install this crossing. Furthermore, avoiding this temporary impact to this small UNT to the Blackwater River with a conventional bore crossing would be unreasonably expensive. |
| | | | Conventional Bore | 200 | 35 | N | 54 | 24 | 0 | N | Y | $1,207,025 | | |
| Norfolk | I-023 | S-KL39 | Dry-Ditch Open-Cut | 98 | - | N | 40 | 31 | 85 | N | N | $92,713 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (seven-feet wide) UNT to Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take nearly twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open cut method would reduce the construction duration near private drinking water wells on the property. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 98 | 32 | N | 40 | 31 | 85 | N | N | $862,742 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-024 | S-YZ5 | Dry-Ditch Open-Cut | 40 | - | N | 31 | 19 | 0 | N | Y | $43,080 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (four-feet wide) UNT to Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit nearly 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to several residences, and a trenchless crossing of this location would take more than twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 40 | 28 | N | 31 | 19 | 0 | N | Y | $369,291 | | |
| Norfolk | I-025 | S-YZ4 | Dry-Ditch Open-Cut | 32 | - | N | 37 | 28 | 52 | N | N | $33,182 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (three-feet wide) UNT to Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit nearly 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to several residences, and a trenchless crossing of this location would take longer to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 32 | 22 | N | 37 | 28 | 52 | N | N | $291,779 | | |
| Norfolk | I-026 | S-EF48, W-EF51 | Dry-Ditch Open-Cut | 42 | - | N | 32 | 29 | 0 | N | Y | $36,404 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (two-feet wide) intermittent UNT to Blackwater River and an adjacent PEM wetland (0.01 ac). Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit nearly 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to several residences, and a trenchless crossing of this location would take twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 42 | 28 | N | 32 | 29 | 0 | N | Y | $374,967 | | |
| Norfolk | I-027 | S-KL41 | Dry-Ditch Open-Cut | 48 | - | N | 41 | 32 | 83 | N | N | $75,690 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a UNT to Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 8 to 33 days. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 48 | 33 | N | 41 | 32 | 83 | N | N | $739,113 | | |
| Norfolk | I-028 | S-C8 | Dry-Ditch Open-Cut | 44 | - | N | 32 | 23 | 31 | N | N | $48,854 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (five-feet wide) intermittent UNT to Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 5 to 11 days. The open cut method would reduce the construction duration near several private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 44 | 28 | N | 32 | 23 | 31 | N | N | $380,643 | | |
| Norfolk | I-029 | S-KL51 | Dry-Ditch Open-Cut | 45 | - | N | 36 | 27 | 105 | N | N | $50,762 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (six-feet wide) stream. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take more than twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 45 | 24 | N | 36 | 27 | 105 | N | N | $346,942 | | |
| Norfolk | I-030 | S-KL52 | Dry-Ditch Open-Cut | 59 | - | N | 23 | 18 | 0 | N | Y | $45,967 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (one-foot wide) stream. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the excavation of an interim ramp and a bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open-cut method would reduce the construction duration near private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 59 | 23 | N | 23 | 18 | 0 | N | Y | $377,539 | | |
| Norfolk | I-031 | S-KL54 | Dry-Ditch Open-Cut | 32 | - | N | 29 | 21 | 0 | N | Y | $57,639 | Dry-Ditch Open-Cut | The open-cut method would result in a temporary impact to a small (one-foot wide) stream. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit that is nearly 20 feet deep, potentially requiring the excavation of an interim ramp and a bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in proximity to a residence, and a trenchless crossing of this location would take twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open-cut method would reduce the construction duration near private drinking water wells on the property. |
| | | | Conventional Bore | 32 | 20 | N | 29 | 21 | 0 | N | Y | $273,509 | | |
| Norfolk | I-032 | S-F8 | Dry-Ditch Open-Cut | 206 | - | N | 32 | 26 | 0 | N | Y | $257,327 | Dry-Ditch Open-Cut | The pipeline has already been installed under an adjacent road (Rt. 122). There is no feasible way to tie the two sections of pipe together if a trenchless method is used to install this crossing. If a trenchless crossing were attempted, it would require a bore pit depth exceeding 40 feet, which would require the excavation of an interim ramp and bench and dramatically increase the space occupied by the bore pit and spoil pile. Lastly, avoiding this temporary impact to this small UNT to the Maggodee Creek with a conventional bore crossing would be unreasonably expensive. |
| | | | Conventional Bore | 206 | 41 | N | 32 | 26 | 0 | N | Y | $2,820,988 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-033 | S-HH4 | Dry-Ditch Open-Cut | 63 | - | N | 29 | 18 | 20 | N | N | $77,464 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to an intermittent UNT to Maggodee Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to residences, and a trenchless crossing of this location would take 17 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 63 | 32 | N | 29 | 18 | 20 | N | N | $763,413 | | |
| Norfolk | I-034 | S-C20 | Dry-Ditch Open-Cut | 52 | - | N | 20 | 13 | 0 | N | Y | $50,437 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 52 | 17 | N | 20 | 13 | 0 | N | Y | $225,220 | | |
| Norfolk | I-035 | S-C19 | Dry-Ditch Open-Cut | 100 | - | N | 49 | 41 | 234 | N | N | $227,598 | Dry-Ditch Open-Cut | The open-cut method would result in a temporary impact to Maggodee Creek. Avoiding/minimizing this minor impact through a conventional bore would require an excessively deep bore pit of greater than 40 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to residences, and a trenchless crossing of this location would take 34 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a microtunnel crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Microtunnel | 100 | 46 | N | 49 | 41 | 234 | N | N | $3,509,091 | | |
| Norfolk | I-036 | S-F11 | Dry-Ditch Open-Cut | 139 | - | N | 56 | 40 | 100 | N | N | $415,926 | Dry-Ditch Open-Cut | The Blackwater River's banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. A trenchless crossing at this location also faces significant constructability constraints. The bore pits for this crossing would be just short of 40-feet deep. Site conditions do not allow sufficient space to stockpile spoils from bore pits of that size. |
| | | | Conventional Bore | 139 | 39 | N | 56 | 40 | 100 | N | N | $1,106,985 | | |
| Norfolk | I-037 | S-F9b | Dry-Ditch Open-Cut | 56 | - | N | 37 | 30 | 62 | N | N | $92,048 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a UNT to Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to residences, and a trenchless crossing of this location would take 16 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near several private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 56 | 31 | N | 37 | 30 | 62 | N | N | $725,278 | | |
| Norfolk | I-038 | S-F10 | Dry-Ditch Open-Cut | 47 | - | N | 16 | 9 | 0 | N | Y | $72,699 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 47 | 16 | N | 16 | 9 | 0 | N | Y | $206,463 | | |
| Norfolk | I-039 | S-F9a | Dry-Ditch Open-Cut | 66 | - | N | 20 | 12 | 0 | N | Y | $98,700 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 66 | 20 | N | 20 | 12 | 0 | N | Y | $370,001 | | |
| Norfolk | I-040 | S-GG4 | Dry-Ditch Open-Cut | 53 | - | N | 18 | 13 | 0 | N | Y | $56,010 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 53 | 17 | N | 18 | 13 | 0 | N | Y | $228,058 | | |
| Norfolk | I-041 | S-A36 | Dry-Ditch Open-Cut | 51 | - | N | 21 | 10 | 0 | N | Y | $49,896 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (four-feet wide) UNT to Foul Ground Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to several residences, and a trenchless crossing of this location would take nearly twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 51 | 22 | N | 21 | 10 | 0 | N | Y | $345,700 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-042 | S-A38 | Dry-Ditch Open-Cut | 78 | - | N | 20 | 16 | 0 | N | Y | $92,243 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 78 | 20 | N | 20 | 16 | 0 | N | Y | $404,056 | | |
| Norfolk | I-043A | S-A41 | Dry-Ditch Open-Cut | 114 | - | N | 14 | 10 | 0 | N | Y | $121,800 | Dry-Ditch Open-Cut | Foul Ground Creek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. Lastly, it would be unreasonably expensive to use a trenchless crossing to avoid only a fraction of the aquatic impact to this resource. |
| | | | Conventional Bore | 114 | 17 | N | 14 | 10 | 0 | N | Y | $401,175 | | |
| Norfolk | I-043B | W-DD1 | Dry-Ditch Open-Cut | 110 | - | N | 14 | 7 | 0 | N | Y | $77,000 | Dry-Ditch Open-Cut | The open cut method would result in a small (0.05 ac) temporary impact to PEM wetland. The open cut method would reduce construction time for this crossing by 11 days. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 110 | 18 | N | 14 | 7 | 0 | N | Y | $394,390 | | |
| Norfolk | I-044A | S-GH36, S-KL17 | Dry-Ditch Open-Cut | 103 | - | N | 21 | 9 | 0 | N | Y | $89,600 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 103 | 19 | N | 21 | 9 | 0 | N | Y | $379,092 | | |
| Norfolk | I-044B | S-GH39 | Dry-Ditch Open-Cut | 61 | - | N | 27 | 23 | 0 | N | Y | $56,700 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (four-feet wide) intermittent UNT to Foul Ground Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 8 to 25 days. The open cut method would reduce the construction duration near several private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 61 | 26 | N | 27 | 23 | 0 | N | Y | $410,619 | | |
| Norfolk | I-045 | S-GH40 | Dry-Ditch Open-Cut | 57 | - | N | 17 | 13 | 0 | N | Y | $50,751 | Dry-Ditch Open-Cut | The open-cut method would result in a temporary impact to a small (three-feet wide) UNT to Foul Ground Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of exceeding 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would double the duration of the crossing. The open-cut method would reduce the construction duration near several private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 57 | 22 | N | 17 | 13 | 0 | N | Y | $362,728 | | |
| Norfolk | I-046 | S-GH44, S-GH38, S-IJ47, W-GH16 | Dry-Ditch Open-Cut | 217 | - | N | 11 | 7 | 0 | N | Y | $181,597 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 217 | 20 | N | 11 | 7 | 0 | N | Y | $798,536 | | |
| Norfolk | I-047 | S-G22 | Dry-Ditch Open-Cut | 48 | - | N | 50 | 38 | 87 | N | N | $76,133 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a UNT to Poplar Camp Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 40 feet on the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 4 to 44 days. The open cut method would reduce the construction duration near two private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 48 | 37 | N | 50 | 38 | 87 | N | N | $812,190 | | |
| Norfolk | I-048 | S-G20 | Dry-Ditch Open-Cut | 62 | - | N | 39 | 18 | 93 | N | N | $81,267 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 62 | 15 | N | 39 | 18 | 93 | N | N | $244,465 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-049 | S-G18 | Dry-Ditch Open-Cut | 37 | - | N | 35 | 18 | 10 | N | N | $33,422 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (two-feet wide) intermittent UNT to the Blackwater River. The open cut method would reduce by half the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 37 | 19 | N | 35 | 18 | 10 | N | N | $191,785 | | |
| Norfolk | I-050 | S-E18 | Dry-Ditch Open-Cut | 38 | - | N | 27 | 18 | 0 | N | Y | $54,216 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (eight-feet wide) UNT to Blackwater River. Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit of exceeding 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 38 | 21 | N | 27 | 18 | 0 | N | Y | $299,672 | | |
| Norfolk | I-051 | S-E17 | Dry-Ditch Open-Cut | 77 | - | N | 35 | 16 | 32 | N | Y | $88,594 | Dry-Ditch Open-Cut | The open-cut method would result in a temporary impact to a UNT to the Blackwater River. This crossing is in proximity to a residence, and a trenchless crossing of this location would take twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open-cut method would reduce the construction duration near a private drinking water well on the property. |
| | | | Conventional Bore | 77 | 16 | N | 35 | 16 | 32 | N | Y | $291,602 | | |
| Norfolk | I-052 | S-E14 | Dry-Ditch Open-Cut | 60 | - | N | 25 | 18 | 0 | N | Y | $117,336 | Dry-Ditch Open-Cut | The open-cut method would result in a temporary impact to a UNT to the Blackwater River. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in proximity to a residence, and a trenchless crossing of this location would take twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near a private drinking water well on the property. |
| | | | Conventional Bore | 60 | 25 | N | 25 | 18 | 0 | N | Y | $398,646 | | |
| Norfolk | I-053 | S-H38, W-H17 | Dry-Ditch Open-Cut | 169 | - | N | 18 | 6 | 0 | N | Y | $164,668 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 169 | 22 | N | 18 | 6 | 0 | N | Y | $680,582 | | |
| Norfolk | I-054 | S-H37 | Dry-Ditch Open-Cut | 35 | - | N | 47 | 23 | 31 | N | N | $45,685 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (six-feet wide) UNT to Jacks Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet on the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take 15 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 35 | 33 | N | 47 | 23 | 31 | N | N | $702,219 | | |
| Norfolk | I-055 | S-H36, W-H16 | Dry-Ditch Open-Cut | 84 | - | N | 31 | 25 | 10 | N | N | $168,404 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 84 | 30 | N | 31 | 25 | 10 | N | N | $786,472 | | |
| Norfolk | I-056 | S-H34 | Dry-Ditch Open-Cut | 32 | - | N | 40 | 24 | 32 | N | N | $33,003 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 32 | 24 | N | 40 | 24 | 32 | N | N | $310,048 | | |
| Norfolk | I-057 | S-H32 | Dry-Ditch Open-Cut | 46 | - | N | 38 | 29 | 74 | N | N | $68,296 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 46 | 26 | N | 38 | 29 | 74 | N | N | $368,049 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-058 | W-H11 | Dry-Ditch Open-Cut | 83 | - | N | 32 | 18 | 0 | N | Y | $58,100 | Dry-Ditch Open-Cut | The open cut method would result in a small temporary impact to a PEM wetland. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to several residences, and a trenchless crossing of this location would take 17 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 83 | 30 | N | 32 | 18 | 0 | N | Y | $783,634 | | |
| Norfolk | I-059 | S-A18 | Dry-Ditch Open-Cut | 92 | - | N | 26 | 17 | 0 | N | Y | $80,003 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (four-feet wide) intermittent UNT to Jacks Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in proximity to a residence, and a trenchless crossing of this location would take 13 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 92 | 24 | N | 26 | 17 | 0 | N | Y | $480,327 | | |
| Norfolk | I-060A | S-A19/H26 | Dry-Ditch Open-Cut | 93 | - | N | 39 | 28 | 52 | N | Y | $149,100 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to an intermittent UNT to Jacks Creek. Avoiding/minimizing this minor impact through a conventional bore would require an excessively deep bore pit of greater than 40 feet, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 93 | 41 | N | 39 | 28 | 52 | N | Y | $2,500,296 | | |
| Norfolk | I-060B | S-A20 | Dry-Ditch Open-Cut | 82 | - | N | 39 | 23 | 0 | N | Y | $81,900 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. |
| | | | Conventional Bore | 82 | 39 | N | 39 | 23 | 0 | N | Y | $945,220 | | |
| Norfolk | I-061A | S-A22 | Dry-Ditch Open-Cut | 52 | - | N | 27 | 18 | 0 | N | Y | $67,900 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 52 | 16 | N | 27 | 18 | 0 | N | Y | $220,653 | | |
| Norfolk | I-061B | S-H27 | Dry-Ditch Open-Cut | 60 | - | N | 28 | 14 | 0 | N | Y | $77,000 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small UNT to Jacks Creek. Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit of nearly 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 60 | 29 | N | 28 | 14 | 0 | N | Y | $435,185 | | |
| Norfolk | I-062 | S-MM44 | Dry-Ditch Open-Cut | 54 | - | N | 36 | 24 | 0 | N | Y | $54,544 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 54 | 36 | N | 36 | 24 | 0 | N | Y | $810,949 | | |
| Norfolk | I-063 | S-MM48 | Dry-Ditch Open-Cut | 83 | - | N | 29 | 18 | 0 | N | Y | $91,845 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 83 | 29 | N | 29 | 18 | 0 | N | Y | $500,459 | | |
| Norfolk | I-064 | S-H25, W-H9 | Dry-Ditch Open-Cut | 31 | - | N | 40 | 21 | 31 | N | N | $53,320 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 31 | 26 | N | 40 | 21 | 31 | N | N | $325,479 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-065 | S-H24 | Dry-Ditch Open-Cut | 79 | - | N | 31 | 21 | 0 | N | Y | $216,378 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 79 | 28 | N | 31 | 21 | 0 | N | Y | $479,972 | | |
| Norfolk | I-066 | S-H23 | Dry-Ditch Open-Cut | 45 | - | N | 30 | 23 | 0 | N | Y | $49,679 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (five-feet wide) intermittent UNT to Turkey Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take more than twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 45 | 27 | N | 30 | 23 | 0 | N | Y | $374,346 | | |
| Norfolk | I-067 | S-A13 | Dry-Ditch Open-Cut | 54 | - | N | 21 | 16 | 0 | N | Y | $81,560 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 54 | 20 | N | 21 | 16 | 0 | N | Y | $335,945 | | |
| Norfolk | I-069A | S-A7 | Dry-Ditch Open-Cut | 61 | - | N | 23 | 10 | 0 | N | Y | $74,200 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 61 | 19 | N | 23 | 10 | 0 | N | Y | $259,897 | | |
| Norfolk | I-069B | S-H17 | Dry-Ditch Open-Cut | 90 | - | N | 27 | 20 | 0 | N | Y | $86,898 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (seven-feet wide) intermittent Dinner Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit nearing 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in proximity to a residence, and a trenchless crossing of this location would take 22 days to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method would reduce the construction duration near several private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 90 | 28 | N | 27 | 20 | 0 | N | Y | $511,190 | | |
| Norfolk | I-070 | S-SS8 | Dry-Ditch Open-Cut | 51 | - | N | 31 | 24 | 0 | N | Y | $77,803 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 51 | 26 | N | 31 | 24 | 0 | N | Y | $382,239 | | |
| Norfolk | I-071 | S-CD8 | Dry-Ditch Open-Cut | 38 | - | N | 27 | 24 | 0 | N | Y | $43,598 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (five-feet wide) intermittent UNT to Owens Creek. Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit of nearly 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 38 | 27 | N | 27 | 24 | 0 | N | Y | $354,480 | | |
| Norfolk | I-072 | S-AB8 | Dry-Ditch Open-Cut | 44 | - | N | 35 | 24 | 11 | N | N | $49,580 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (five-feet wide) intermittent UNT to Owens Creek. Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit exceeding 30 feet on the edge of a short but steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 44 | 34 | N | 35 | 24 | 11 | N | N | $746,030 | | |
| Norfolk | I-073 | S-DD3 | Dry-Ditch Open-Cut | 81 | - | N | 10 | 8 | 91 | N | Y | $121,514 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 81 | 16 | N | 10 | 8 | 91 | N | Y | $302,954 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-074 | S-G16 | Dry-Ditch Open-Cut | 53 | - | N | 34 | 23 | 0 | N | Y | $142,157 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 53 | 31 | N | 34 | 23 | 0 | N | Y | $716,764 | | |
| Norfolk | I-075 | S-G15 | Dry-Ditch Open-Cut | 54 | - | N | 31 | 20 | 10 | N | Y | $72,205 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small intermittent UNT to Parrott Branch. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet on the edge of a short but steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would more than double the duration of the crossing. The open cut method would reduce the construction duration near several private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 54 | 33 | N | 31 | 20 | 10 | N | Y | $756,141 | | |
| Norfolk | I-076 | S-G13 | Dry-Ditch Open-Cut | 42 | - | N | 57 | 36 | 107 | N | N | $57,417 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 42 | 26 | N | 57 | 36 | 107 | N | N | $356,697 | | |
| Norfolk | I-077 | S-D7, W-MM17 | Dry-Ditch Open-Cut | 39 | - | N | 36 | 20 | 21 | N | N | $57,474 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (nine-feet wide) intermittent UNT to Jonnikin Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet on the edge of a short but steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take more than twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near several private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 39 | 25 | N | 36 | 20 | 21 | N | N | $339,049 | | |
| Norfolk | I-078 | S-D3 | Dry-Ditch Open-Cut | 43 | - | N | 28 | 16 | 0 | N | Y | $65,776 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 43 | 16 | N | 28 | 16 | 0 | N | Y | $195,111 | | |
| Norfolk | I-079 | S-D4 | Dry-Ditch Open-Cut | 62 | - | N | 35 | 20 | 10 | N | N | $73,648 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small (six-feet wide) intermittent UNT to Jonnikin Creek. Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit of nearly 40 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 62 | 38 | N | 35 | 20 | 10 | N | N | $870,191 | | |
| Norfolk | I-080 | S-D2, W-D3 | Dry-Ditch Open-Cut | 54 | - | N | 41 | 21 | 96 | N | N | $102,144 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 54 | 19 | N | 41 | 21 | 96 | N | N | $240,031 | | |
| Norfolk | I-081 | S-D1-EPH | Dry-Ditch Open-Cut | 82 | - | N | 28 | 19 | 0 | N | Y | $95,632 | Dry-Ditch Open-Cut | Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. It would be unreasonably expensive to use a trenchless crossing to avoid only a fraction of the aquatic impact to this UNT to Jonnikin Creek. |
| | | | Conventional Bore | 82 | 29 | N | 28 | 19 | 0 | N | Y | $497,621 | | |
| Norfolk | I-082 | S-G11 | Dry-Ditch Open-Cut | 55 | - | N | 35 | 16 | 0 | N | Y | $59,983 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (six-feet wide) intermittent UNT to Jonnikin Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take more than twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents. The open cut method would reduce the construction duration near several private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 55 | 33 | N | 35 | 16 | 0 | N | Y | $758,979 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-083 | S-G9, W-B5 | Dry-Ditch Open-Cut | 44 | - | N | 24 | 14 | 10 | N | N | $45,226 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (four-feet wide) intermittent UNT to Jonnikin Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet on the edge of a short slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing by one week. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 44 | 20 | N | 24 | 14 | 10 | N | N | $307,565 | | |
| Norfolk | I-084A | S-G8 | Dry-Ditch Open-Cut | 41 | - | N | 24 | 16 | 0 | N | Y | $42,700 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (four-feet wide) intermittent UNT to Jonnikin Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 5 to 17 days. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 41 | 21 | N | 24 | 16 | 0 | N | Y | $308,186 | | |
| Norfolk | I-084B | S-Q15 | Dry-Ditch Open-Cut | 48 | - | N | 26 | 22 | 0 | N | Y | $54,600 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (six-feet wide) UNT to Jonnikin Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 5 to 17 days. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 48 | 25 | N | 26 | 22 | 0 | N | Y | $364,590 | | |
| Norfolk | I-085 | S-A6 | Dry-Ditch Open-Cut | 44 | - | N | 28 | 21 | 0 | N | Y | $51,308 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 44 | 22 | N | 28 | 21 | 0 | N | Y | $325,834 | | |
| Norfolk | I-086 | S-C7 | Dry-Ditch Open-Cut | 65 | - | N | 42 | 19 | 96 | N | N | $115,499 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 65 | 19 | N | 42 | 19 | 96 | N | N | $271,248 | | |
| Norfolk | I-087 | S-C4, S-C3 | Dry-Ditch Open-Cut | 126 | - | N | 34 | 27 | 115 | N | N | $153,189 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 126 | 27 | N | 34 | 27 | 115 | N | N | $604,222 | | |
| Norfolk | I-088 | S-H13, W-H5 | Dry-Ditch Open-Cut | 173 | - | N | 33 | 25 | 21 | N | N | $191,262 | Dry-Ditch Open-Cut | The stream banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, which will provide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location. Lastly, it would be unreasonably expensive to use a trenchless crossing to avoid only a fraction of the aquatic impact to this UNT to Little Cherrystone Creek and adjacent wetland. |
| | | | Conventional Bore | 173 | 35 | N | 33 | 25 | 21 | N | N | $1,130,399 | | |
| Norfolk | I-089 | S-G6 | Dry-Ditch Open-Cut | 60 | - | N | 30 | 23 | 0 | N | Y | $63,951 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (six-feet wide) UNT to Harpen Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would more than double the duration of the crossing. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 60 | 34 | N | 30 | 23 | 0 | N | Y | $791,438 | | |
| Norfolk | I-090 | S-G5 | Dry-Ditch Open-Cut | 50 | - | N | 26 | 17 | 0 | N | Y | $56,003 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (six-feet wide) UNT to Harpen Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 4 to 10 days. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 50 | 26 | N | 26 | 17 | 0 | N | Y | $379,401 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-091 | S-G4 | Dry-Ditch Open-Cut | 74 | - | N | 30 | 18 | 0 | N | Y | $167,471 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 74 | 32 | N | 30 | 18 | 0 | N | Y | $794,631 | | |
| Norfolk | I-092 | S-G3 | Dry-Ditch Open-Cut | 39 | - | N | 31 | 17 | 0 | N | Y | $61,935 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 39 | 20 | N | 31 | 17 | 0 | N | Y | $293,375 | | |
| Norfolk | I-093 | S-CC16 | Dry-Ditch Open-Cut | 52 | - | N | 18 | 11 | 0 | N | Y | $75,678 | Conventional Bore | Orangefin madtom habitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 52 | 16 | N | 18 | 11 | 0 | N | Y | $220,653 | | |
| Norfolk | I-094 | S-CC13, S-CC14 | Dry-Ditch Open-Cut | 110 | - | N | 25 | 18 | 0 | N | Y | $105,108 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 110 | 23 | N | 25 | 18 | 0 | N | Y | $522,276 | | |
| Norfolk | I-095 | S-MM8, W-MM5 | Dry-Ditch Open-Cut | 39 | - | N | 20 | 14 | 0 | N | Y | $48,302 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 39 | 19 | N | 20 | 14 | 0 | N | Y | $197,461 | | |
| Norfolk | I-096 | S-CC15 | Dry-Ditch Open-Cut | 33 | - | N | 18 | 14 | 0 | N | Y | $45,144 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 33 | 18 | N | 18 | 14 | 0 | N | Y | $175,866 | | |
| Norfolk | I-097 | S-CC8, S-CC5 | Dry-Ditch Open-Cut | 78 | - | N | 32 | 11 | 10 | N | N | $128,994 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 78 | 14 | N | 32 | 11 | 10 | N | N | $285,306 | | |
| Norfolk | I-098 | S-CC9 | Dry-Ditch Open-Cut | 42 | - | N | 45 | 26 | 21 | N | N | $48,685 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (six-feet wide) UNT to Cherrystone Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 4 to 10 days. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 42 | 35 | N | 45 | 26 | 21 | N | N | $758,623 | | |
| Norfolk | I-099 | S-CC10 | Dry-Ditch Open-Cut | 38 | - | N | 38 | 20 | 21 | N | N | $58,726 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (nine-feet wide) intermittent UNT to Cherrystone Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 4 to 10 days. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 38 | 32 | N | 38 | 20 | 21 | N | N | $692,463 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-100 | S-CC11 | Dry-Ditch Open-Cut | 42 | - | N | 44 | 19 | 0 | N | Y | $60,039 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (nine-feet wide) UNT to Cherrystone Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet on the edge of a short but steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 4 to 10 days. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 42 | 27 | N | 44 | 19 | 0 | N | Y | $365,832 | | |
| Norfolk | I-101A | W-MM9 | Dry-Ditch Open-Cut | 35 | - | N | 44 | 26 | 52 | N | N | $83,561 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 35 | 18 | N | 44 | 26 | 52 | N | N | $181,542 | | |
| Norfolk | I-101B | W-MM8-PFO, W-MM8-PEM, S-CC1 | Dry-Ditch Open-Cut | 161 | - | N | 20 | 8 | 32 | N | Y | $172,200 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small intermittent UNT to Cherrystone Creek and two adjacent wetland features (PEM and PFO). Avoiding/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit of nearly 40 feet , thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 4 to 60 days. The open cut method would reduce the construction duration near a private drinking water well on the property. Because the pipeline ROW must remain free of woody vegetation to protect the pipe coating, a conversion impact is unavoidable with any crossing method. Using a conventional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive. |
| | | | Conventional Bore | 161 | 38 | N | 20 | 8 | 32 | N | Y | $1,151,152 | | |
| Norfolk | I-102 | S-CC3 | Dry-Ditch Open-Cut | 38 | - | N | 40 | 21 | 0 | N | Y | $56,288 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (eight-feet wide) UNT to Cherrystone Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet on the edge, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 4 to 10 days. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 38 | 30 | N | 40 | 21 | 0 | N | Y | $655,925 | | |
| Norfolk | I-103 | S-P5 | Dry-Ditch Open-Cut | 47 | - | N | 12 | 10 | 0 | N | Y | $56,790 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 47 | 11 | N | 12 | 10 | 0 | N | Y | $183,626 | | |
| Norfolk | I-104 | S-IJ35-EPH | Dry-Ditch Open-Cut | 32 | - | N | 23 | 16 | 0 | N | Y | $36,895 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (five-feet wide) UNT to Pole Bridge Branch. Avoiding/minimizing this minor impact through a conventional bore would increase the duration of the crossing from 4 to 11 days. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 32 | 23 | N | 23 | 16 | 0 | N | Y | $300,913 | | |
| Norfolk | I-105 | S-Q4 | Dry-Ditch Open-Cut | 48 | - | N | 22 | 7 | 0 | N | Y | $56,601 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 48 | 19 | N | 22 | 7 | 0 | N | Y | $223,003 | | |
| Norfolk | I-106A | S-Q2 | Dry-Ditch Open-Cut | 51 | - | N | 17 | 15 | 0 | N | Y | $123,204 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 51 | 16 | N | 17 | 15 | 0 | N | Y | $217,815 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-106B | W-Q2, S-Q3 | Dry-Ditch Open-Cut | 319 | - | N | 17 | 6 | 0 | N | Y | $253,621 | Dry-Ditch Open-Cut | This crossing presents multiple challenges that limit the available options and necessitated the development of a site-specific solution. A bore pit depth exceeding 20 feet at this location requires the excavation of an interim ramp and bench and dramatically increases the space occupied by the bore pit and spoil pile. Steep slopes (greater than 30%) adjacent to the waterbody increases the complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. The open cut method also reduces the construction duration near private drinking water wells on the property. Attempting a conventional bore would extend the duration of this crossing from 5 days for an open cut to 60 days for a guided conventional bore -- which also would increase the total greenhouse gas emissions associated with this crossing by 15 times. Furthermore, the other significant environmental impacts associated with a trenchless crossing method at this location outweigh the minimized temporary impact to Pole Bridge Branch. |
| | | | Guided Conventional Bore | 319 | 26 | N | 17 | 6 | 0 | N | Y | $711,028 | | |
| Norfolk | I-107 | W-Q1 | Dry-Ditch Open-Cut | 55 | - | N | 10 | 8 | 0 | N | Y | $38,500 | Dry-Ditch Open-Cut | The open cut method would result in a small temporary impact to a PEM wetland. Avoiding/minimizing this minor impact through a conventional bore would increase the duration of the crossing from 4 to 43 days. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 55 | 16 | N | 10 | 8 | 0 | N | Y | $229,167 | | |
| Norfolk | I-108 | S-B6 | Dry-Ditch Open-Cut | 55 | - | N | 42 | 19 | 0 | N | Y | $80,024 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (five-feet wide) intermittent UNT to Pole Bridge Branch. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 40 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 4 to 11 days. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 55 | 36 | N | 42 | 19 | 0 | N | Y | $813,787 | | |
| Norfolk | I-109 | S-B8 | Dry-Ditch Open-Cut | 43 | - | N | 31 | 16 | 0 | N | Y | $46,214 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (five-feet wide) intermittent UNT to Pole Bridge Branch. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also would increase the duration of the crossing from 4 to 44 days. The open cut method would reduce the construction duration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 43 | 29 | N | 31 | 16 | 0 | N | Y | $386,939 | | |
| Norfolk | I-110 | S-B9 | Dry-Ditch Open-Cut | 41 | - | N | 19 | 13 | 0 | N | Y | $53,226 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (seven-feet wide) UNT to Pole Bridge Branch. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 41 | 22 | N | 19 | 13 | 0 | N | Y | $317,320 | | |
| Norfolk | I-111 | S-DD4 | Dry-Ditch Open-Cut | 230 | - | N | 9 | 5 | 0 | N | Y | $213,500 | Dry-Ditch Open-Cut | The pipeline has already been installed under an adjacent railroad. There is no feasible way to tie the two sections of pipe together if a trenchless method is used to install this crossing. Furthermore, the railroad bore encountered difficult conditions, which indicates that completing another crossing at this location has a higher degree of potential failure. |
| | | | Conventional Bore | 230 | 17 | N | 9 | 5 | 0 | N | Y | $730,381 | | |
| Norfolk | I-111A | S-DD4 | Dry-Ditch Open-Cut | 33 | - | N | 23 | 13 | 0 | N | Y | $75,600 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 33 | 15 | N | 23 | 13 | 0 | N | Y | $162,164 | | |
| Norfolk | I-112 | S-KL27 | Dry-Ditch Open-Cut | 33 | - | N | 12 | 7 | 0 | N | Y | $27,032 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small (one-foot wide) UNT to Mill Creek. It also would double the duration of the crossing. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 33 | 15 | N | 12 | 7 | 0 | N | Y | $162,164 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-113 | S-C1 | Dry-Ditch Open-Cut | 61 | - | N | 38 | 11 | 0 | N | Y | $64,849 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to the small intermittent Mill Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet with an excavator operating from a bench within the pit, at the edge of short but steep slope, and nearly triple the duration of the crossing. It also would require the excavation of an interim ramp and bench, thereby dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 61 | 31 | N | 38 | 11 | 0 | N | Y | $739,468 | | |
| Norfolk | I-114 | S-G2, W-G2 | Dry-Ditch Open-Cut | 122 | - | N | 35 | 16 | 11 | N | Y | $111,010 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 122 | 21 | N | 35 | 16 | 11 | N | Y | $538,062 | | |
| Norfolk | I-115 | S-B2 | Dry-Ditch Open-Cut | 40 | - | N | 21 | 12 | 0 | N | Y | $46,015 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 40 | 18 | N | 21 | 12 | 0 | N | Y | $195,732 | | |
| Norfolk | I-116 | S-H55 | Dry-Ditch Open-Cut | 40 | - | N | 13 | 8 | 0 | N | Y | $38,950 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 40 | 16 | N | 13 | 8 | 0 | N | Y | $186,597 | | |
| Norfolk | I-117 | S-H54 | Dry-Ditch Open-Cut | 56 | - | N | 15 | 9 | 0 | N | Y | $88,685 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 56 | 16 | N | 15 | 9 | 0 | N | Y | $232,005 | | |
| Norfolk | I-118 | S-H5, W-H1, W-H2, S-H3, W-H3 | Dry-Ditch Open-Cut | 835 | - | N | 22 | 7 | 0 | N | Y | $616,507 | Dry-Ditch Open-Cut | Due a close cluster of wetlands that would be crossed in one undertaking, this crossing is unusually long at over 800 feet. The direct pipe method would be necessary to cross these features. That crossing would method would extend the duration of this crossing from seven days for an open cut to 99 days for the trenchless method (increasing greenhouse gas emissions associated with the crossing by nearly 1,900%). The open cut method would reduce the construction duration near multiple private drinking water wells on the property. Using a Direct Pipe crossing method to avoid/minimize these minor temporary impacts two a small (6-foot wide) intermittent stream, small (8-foot wide) perennial stream, and two small PEM wetlands would be unreasonably expensive. |
| | | | Direct Pipe | 835 | 0 | N | 22 | 7 | 0 | N | Y | $6,680,000 | | |
| Norfolk | I-119 | S-OO1, W-MM3 | Dry-Ditch Open-Cut | 59 | - | N | 35 | 20 | 10 | N | N | $58,931 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small intermittent UNT to Little Cherrystone Creek and an adjacent PSS wetland. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet, with equipment operating within a bore pit at the edge of short but steep slope, as well as more than quadrupling the duration of the crossing and the relevant greenhouse gas emissions. The open cut method would reduce the construction duration near multiple private drinking water wells on the property. Lastly, using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 59 | 27 | N | 35 | 20 | 10 | N | N | $414,078 | | |
| Norfolk | I-120 | S-OO2 | Dry-Ditch Open-Cut | 37 | - | N | 40 | 22 | 0 | N | Y | $44,417 | Dry-Ditch Open-Cut | The open cut method would result in a temporary impact to a small intermittent UNT to Little Cherrystone Creek. Avoiding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet with an excavator operating from a bench within the pit, at the edge of short but steep slope, and more than double the duration of the crossing. Furthermore, using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. |
| | | | Conventional Bore | 37 | 31 | N | 40 | 22 | 0 | N | Y | $671,356 | | |
| Norfolk | I-121 | S-EF26, W-IJ22-PFO, W-IJ22-PEM | Dry-Ditch Open-Cut | 405 | - | N | 18 | 9 | 0 | N | Y | $357,812 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 405 | 19 | N | 18 | 9 | 0 | N | Y | $1,236,163 | | |

**Table 15. Crossing Method Determination Summary *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| USACE District | Crossing # | Waterbody | Crossing Methods Evaluated | Evaluation Factors | | | | | | | | | Proposed Crossing Method | Crossing Method Decision Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Crossing Length | Pit Depth | Deep Stream | Maximum Steep Slope (%) | Maximum Average Slope (%) | Maximum Winch Hill Length (feet) | Karst Terrain Present | Sufficient Stockpile Storage Available | Total Cost ($) | | |
| Norfolk | I-122 | S-H44 | Dry-Ditch Open-Cut | 68 | - | N | 10 | 8 | 0 | N | Y | $87,003 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 68 | 17 | N | 10 | 8 | 0 | N | Y | $270,628 | | |
| Norfolk | I-123 | S-H42 | Dry-Ditch Open-Cut | 43 | - | N | 20 | 8 | 0 | N | Y | $68,600 | Conventional Bore | There are no significant constraints on available crossing methods or significant environmental impacts relevant to the available methods. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. |
| | | | Conventional Bore | 43 | 23 | N | 20 | 8 | 0 | N | Y | $332,131 | | |
| Norfolk | I-124 | W-EF6 | Dry-Ditch Open-Cut | 155 | - | N | 5 | 3 | 30 | N | N | $108,500 | Dry-Ditch Open-Cut | To protect the integrity of the pipeline coating, woody vegetation cannot be allowed to grow close to the pipe. In forested wetlands, a 30-foot corridor generally must be maintained free of trees. Accordingly, conversion impacts to this wetland are unavoidable. The conventional bore method also entails significant environmental consequences at this location. This crossing is in close proximity to a residence, and a trenchless crossing of this location would take nearly four weeks to complete -- compounding the noise, aesthetic, and other impacts on nearby residents. The longer-duration bore also nearly quadruples the greenhouse gas emissions associated with the crossing. |
| | | | Conventional Bore | 155 | 13 | N | 5 | 3 | 30 | N | N | $499,263 | | |

Mountain Valley PIPELINE LLC

# Table 17 (Compensatory Wetland Mitigation)

**Table 17.** ***(revised 3/2/2021)***
**Compensatory Wetland Mitigation**
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Feature | USACE District | HUC 8 Name | HUC 8 # | Cowardin Class[1] | Impact (acres) | Impact Type | Mitigation Evaluation Method[2] | Projected Mitigation Requirement | Proposed Mitigation Type[3] |
|---|---|---|---|---|---|---|---|---|---|
| W-IJ31 | Huntington | Middle Ohio | 05030201 | PEM | 0.0082 | Permanent Fill | SWVM | 0.0082 | Kincheloe |
| W-A27-PFO | Huntington | Middle Ohio | 05030201 | PFO | 0.0547 | Permanent Conversion | SWVM | 0.0547 | Kincheloe |
| W-A23 | Huntington | Middle Ohio | 05030201 | PEM | 0.0579 | Permanent Fill | SWVM | 0.0579 | Kincheloe |
| W-H109 | Huntington | Little Kanawha | 05030203 | PEM | 0.0027 | Permanent Fill | SWVM | 0.0027 | Kincheloe |
| W-K33-PSS | Huntington | Little Kanawha | 05030203 | PSS | 0.0024 | Permanent Conversion | SWVM | 0.0024 | Kincheloe |
| W-I22-PEM | Huntington | Little Kanawha | 05030203 | PEM | 0.0059 | Permanent Fill | SWVM | 0.0059 | Kincheloe |
| W-H98 | Huntington | Little Kanawha | 05030203 | PEM | 0.0331 | Permanent Fill | SWVM | 0.0331 | Kincheloe |
| W-UV17 | Huntington | Little Kanawha | 05030203 | PFO | 0.0055 | Permanent Conversion | SWVM | 0.0055 | Kincheloe |
| W-VV4-PFO | Huntington | Little Kanawha | 05030203 | PFO | 0.0263 | Permanent Conversion | SWVM | 0.0263 | Kincheloe |
| W-VV3-PFO | Huntington | Little Kanawha | 05030203 | PFO | 0.0160 | Permanent Conversion | SWVM | 0.0160 | Kincheloe |
| W-A20-PFO | Huntington | Elk | 05050007 | PFO | 0.0298 | Permanent Conversion | SWVM | 0.0298 | Beverly |
| W-H70 | Huntington | Elk | 05050007 | PEM | 0.0057 | Permanent Fill | SWVM | 0.0057 | Beverly |
| W-H71 | Huntington | Elk | 05050007 | PEM | 0.0205 | Permanent Fill | SWVM | 0.0205 | Beverly |
| W-H72 | Huntington | Elk | 05050007 | PEM | 0.0064 | Permanent Fill | SWVM | 0.0064 | Beverly |
| W-H73 | Huntington | Elk | 05050007 | PEM | 0.0061 | Permanent Fill | SWVM | 0.0061 | Beverly |
| W-H74 | Huntington | Elk | 05050007 | PEM | 0.0115 | Permanent Fill | SWVM | 0.0115 | Beverly |
| W-H67 | Huntington | Elk | 05050007 | PFO | 0.0908 | Permanent Conversion | SWVM | 0.0908 | Beverly |
| W-H66 | Huntington | Elk | 05050007 | PFO | 0.2496 | Permanent Conversion | SWVM | 0.2496 | Beverly |
| W-H64-PSS | Huntington | Elk | 05050007 | PSS | 0.0422 | Permanent Conversion | SWVM | 0.0422 | Beverly |
| W-O13 | Huntington | Elk | 05050007 | PEM | 0.0405 | Permanent Fill | SWVM | 0.0405 | Beverly |
| W-B35 | Huntington | Elk | 05050007 | PSS | 0.0108 | Permanent Conversion | SWVM | 0.0108 | Beverly |
| W-E28 | Huntington | Elk | 05050007 | PSS | 0.0084 | Permanent Fill | SWVM | 0.0084 | Beverly |
| W-E30 | Huntington | Elk | 05050007 | PEM | 0.0316 | Permanent Fill | SWVM | 0.0316 | Beverly |
| W-F40 | Huntington | Elk | 05050007 | PSS | 0.0188 | Permanent Conversion | SWVM | 0.0188 | Beverly |
| W-E18-PSS | Huntington | Gauley | 05050005 | PSS | 0.0538 | Permanent Conversion | SWVM | 0.0538 | Spanishburg |
| W-E13 | Huntington | Gauley | 05050005 | PFO | 0.0107 | Permanent Conversion | SWVM | 0.0107 | Spanishburg |
| W-FF6-PSS | Huntington | Gauley | 05050005 | PSS | 0.0333 | Permanent Conversion | SWVM | 0.0333 | Spanishburg |
| W-A15 | Huntington | Gauley | 05050005 | PSS | 0.0891 | Permanent Conversion | SWVM | 0.0891 | Spanishburg |
| W-A14 | Huntington | Gauley | 05050005 | PFO | 0.0374 | Permanent Conversion | SWVM | 0.0374 | Spanishburg |
| W-I7 | Huntington | Gauley | 05050005 | PFO | 0.0333 | Permanent Conversion | SWVM | 0.0333 | Spanishburg |
| W-J8 | Huntington | Gauley | 05050005 | PFO | 0.0533 | Permanent Conversion | SWVM | 0.0533 | Spanishburg |
| W-J7 | Huntington | Gauley | 05050005 | PFO | 0.0693 | Permanent Conversion | SWVM | 0.0693 | Spanishburg |
| W-H35 | Huntington | Gauley | 05050005 | PEM | 0.0177 | Permanent Fill | SWVM | 0.0177 | Spanishburg |
| W-M22 | Huntington | Gauley | 05050005 | PSS | 0.0039 | Permanent Conversion | SWVM | 0.0039 | Spanishburg |
| W-J6 | Huntington | Gauley | 05050005 | PFO | 0.0744 | Permanent Conversion | SWVM | 0.0744 | Spanishburg |
| W-HS1 | Huntington | Gauley | 05050005 | PEM | 0.0360 | Permanent Fill | SWVM | 0.0360 | Spanishburg |
| W-QR2 | Huntington | Gauley | 05050005 | PEM | 0.0010 | Permanent Fill | SWVM | 0.0010 | Spanishburg |
| W-IJ47-PEM | Huntington | Gauley | 05050005 | PEM | 0.0633 | Permanent Fill | SWVM | 0.0633 | Spanishburg |
| W-UV4 | Huntington | Gauley | 05050005 | PSS | 0.0885 | Permanent Conversion | SWVM | 0.0885 | Spanishburg |
| W-I10 | Huntington | Gauley | 05050005 | PEM | 0.0550 | Permanent Fill | SWVM | 0.0550 | Spanishburg |
| W-MM20-PFO | Huntington | Greenbrier | 05050003 | PFO | 0.2990 | Permanent Conversion | SWVM | 0.2990 | Spanishburg |
| W-A13 | Huntington | Upper New | 05050002 | PEM | 0.0228 | Permanent Fill | SWVM | 0.0228 | Spanishburg |
| W-MN18-PFO | Huntington | Upper New | 05050002 | PFO | 0.1750 | Permanent Conversion | SWVM | 0.1750 | Spanishburg |
| W-CV25-PSS-1 | Huntington | Upper New | 05050002 | PSS | 0.0270 | Permanent Conversion | SWVM | 0.0270 | Spanishburg |
| W-UU1 | Pittsburgh | West Fork | 05020002 | PFO | 0.0045 | Permanent Conversion | SWVM | 0.0045 | Kincheloe |
| W-UU3 | Pittsburgh | West Fork | 05020002 | PFO | 0.0065 | Permanent Conversion | SWVM | 0.0065 | Kincheloe |
| W-ST12-PSS | Pittsburgh | West Fork | 05020002 | PSS | 0.1444 | Permanent Conversion | SWVM | 0.1444 | Kincheloe |
| W-K52 | Pittsburgh | West Fork | 05020002 | PEM | 0.0115 | Permanent Fill | SWVM | 0.0115 | Kincheloe |
| W-Z3 | Norfolk | Middle New | 05050002 | PSS | 0.0136 | Permanent Conversion | 1 : 1 | 0.01360 | No Mitigation Proposed[4] |
| W-F9-PFO | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0169 | Permanent Conversion | 1 : 1 | 0.01690 | Banister Bend |
| W-C12 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0523 | Permanent Conversion | 1 : 1 | 0.0523 | Banister Bend |
| W-C11 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0461 | Permanent Conversion | 1 : 1 | 0.04610 | Banister Bend |
| W-KL58 | Norfolk | Upper Roanoke | 03010101 | PEM | 0.0392 | Permanent Fill | 1 : 1 | 0.0392 | Banister Bend |

Mountain Valley PIPELINE LLC

# Table 18 (Compensatory Stream Mitigation)

**Table 17.** ***(revised 3/2/2021)***
**Compensatory Wetland Mitigation**
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Feature | USACE District | HUC 8 Name | HUC 8 # | Cowardin Class[1] | Impact (acres) | Impact Type | Mitigation Evaluation Method[2] | Projected Mitigation Requirement | Proposed Mitigation Type[3] |
|---|---|---|---|---|---|---|---|---|---|
| W-EF5-PFO | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0852 | Permanent Conversion | 1 : 1 | 0.0852 | Banister Bend |
| W-EF18 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0052 | Permanent Conversion | 1 : 1 | 0.0052 | Banister Bend |
| W-EF17 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0224 | Permanent Conversion | 1 : 1 | 0.0224 | Banister Bend |
| W-IJ96-PEM | Norfolk | Upper Roanoke | 03010101 | PEM | 0.0133 | Permanent Fill | 1 : 1 | 0.0133 | Banister Bend |
| W-IJ97 | Norfolk | Upper Roanoke | 03010101 | PEM | 0.0005 | Permanent Fill | 1 : 1 | 0.0005 | Banister Bend |
| W-IJ95-PSS | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0254 | Permanent Conversion | 1 : 1 | 0.0254 | Banister Bend |
| W-IJ102 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0100 | Permanent Conversion | 1 : 1 | 0.0100 | Banister Bend |
| W-KL17 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0435 | Permanent Conversion | 1 : 1 | 0.0435 | Banister Bend |
| W-AB6-PFO-1 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0618 | Permanent Conversion | 1 : 1 | 0.0618 | Banister Bend |
| W-AB6-PSS | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0061 | Permanent Conversion | 1 : 1 | 0.0061 | Banister Bend |
| W-AB5 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0042 | Permanent Conversion | 1 : 1 | 0.0042 | Banister Bend |
| W-EF46 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0682 | Permanent Conversion | 1 : 1 | 0.0682 | Banister Bend |
| W-KL48-PSS-1 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0454 | Permanent Conversion | 1 : 1 | 0.04540 | Banister Bend |
| W-KL48-PSS-2 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0264 | Permanent Conversion | 1 : 1 | 0.0264 | Banister Bend |
| W-KL51-PSS | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0080 | Permanent Conversion | 1 : 1 | 0.00800 | Banister Bend |
| W-IJ36 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.1237 | Permanent Conversion | 1 : 1 | 0.1237 | Banister Bend |
| W-Z7 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0003 | Permanent Conversion | 1 : 1 | 0.0003 | Banister Bend |
| W-Z6 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0028 | Permanent Conversion | 1 : 1 | 0.0028 | Banister Bend |
| W-B24-PSS | Norfolk | Upper Roanoke | 03010101 | PSS | 0.1637 | Permanent Conversion | 1 : 1 | 0.1637 | Banister Bend |
| W-B25-PSS-2 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0830 | Permanent Conversion | 1 : 1 | 0.08300 | Banister Bend |
| W-D4 | Norfolk | Upper Roanoke | 03010101 | PEM | 0.0009 | Permanent Fill | 1 : 1 | 0.0009 | Banister Bend |
| W-IJ2-PSS | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0080 | Permanent Conversion | 1 : 1 | 0.0080 | Banister Bend |
| W-GH2 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0130 | Permanent Conversion | 1 : 1 | 0.0130 | Banister Bend |
| W-CD5 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.1136 | Permanent Conversion | 1 : 1 | 0.1136 | Banister Bend |
| W-CD1 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.1106 | Permanent Conversion | 1 : 1 | 0.1106 | Banister Bend |
| W-A12-PFO | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0040 | Permanent Conversion | 1 : 1 | 0.00400 | Banister Bend |
| W-GH16 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0657 | Permanent Conversion | 1 : 1 | 0.06570 | Banister Bend |
| W-H17 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0369 | Permanent Conversion | 1 : 1 | 0.03690 | Banister Bend |
| W-H15 | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0071 | Permanent Conversion | 1 : 1 | 0.0071 | Banister Bend |
| W-D3 | Norfolk | Upper Roanoke | 03010101 | PFO | 0.0285 | Permanent Conversion | 1 : 1 | 0.02850 | Banister Bend |
| W-B4-PSS | Norfolk | Upper Roanoke | 03010101 | PSS | 0.0047 | Permanent Conversion | 1 : 1 | 0.0047 | Banister Bend |
| W-MM5 | Norfolk | Banister | 03010105 | PSS | 0.0390 | Permanent Conversion | 1 : 1 | 0.03900 | Banister Bend |
| W-MM8-PFO | Norfolk | Banister | 03010105 | PFO | 0.0421 | Permanent Conversion | 1 : 1 | 0.04210 | Banister Bend |
| W-Q2 | Norfolk | Banister | 03010105 | PFO | 0.3770 | Permanent Conversion | 1 : 1 | 0.3770 | Banister Bend |
| W-EF6 | Norfolk | Banister | 03010105 | PFO | 0.0667 | Permanent Conversion | 1 : 1 | 0.06670 | Banister Bend |
| W-IJ21 | Norfolk | Banister | 03010105 | PFO | 0.0106 | Permanent Conversion | 1 : 1 | 0.0106 | Banister Bend |
| W-MM3 | Norfolk | Banister | 03010105 | PSS | 0.0340 | Permanent Conversion | 1 : 1 | 0.03400 | Banister Bend |
| W-IJ22-PFO | Norfolk | Banister | 03010105 | PFO | 0.0785 | Permanent Conversion | 1 : 1 | 0.07850 | Banister Bend |
| | | | | **TOTAL** | **4.2042** | **-** | **-** | **4.2042** | **-** |

Notes:

1 - Field classification

2 - In WV, the SWVM (Stream and Wetland Valuation Metric) was used to determine mitigation credit requirements
- In VA, per VDEQ and USACE guidance, mitigation ratios are 1:1 for PEM fill, PSS conversion, and PFO conversion impacts.

3 - Proposed mitigation bank based on the location of the impact and availability of mitigation credits in the impact area.
- Kincheloe - Kincheloe Mitigation Bank
- Beverly - Beverly Mitigation Bank
- Spanishburg - Spanishburg Mitigation Bank
- Banister Bend - Banister Bend Mitigation Bank

4 - Mountain Valley does not propose to purchase credits for impacts associated with wetland W-Z3. The proposed impact is 0.0136 acre conversion from PSS to PEM in the Middle New watershed. No wetland credits are available as no mitigation banks provide coverage within the river basin in which the impacts occur. As a result, Mountain Valley requested use of credits from VARTF that was denied without comment by The Nature Conservancy (TNC) on November 1, 2017. Permittee-responsible mitigation for this minimal impact is not practicable. Because compensatory mitigation is not required for this de minimis wetland impact, and there are no practicable options to provide such mitigation, MVP does not propose to provide any additional individual compensatory mitigation for the impact to W-Z3.

**Table 18.** ***(revised 3/2/2021)***
**Compensatory Stream Mitigation**
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Feature | USACE District | HUC 8 Name | HUC 8 # | Flow Regime | Impact (LF) | Mitigation Evaluation Method[1] | Projected Mitigation Requirement | Proposed Mitigation Type[2] |
|---|---|---|---|---|---|---|---|---|
| S-A128 | Pittsburgh | West Fork | 05020002 | Perennial | 29 | SWVM | 24 | Kincheloe |
| S-OP9 | Pittsburgh | West Fork | 05020002 | Ephemeral | 36 | SWVM | 30 | Kincheloe |
| S-OP8 | Pittsburgh | West Fork | 05020002 | Ephemeral | 41 | SWVM | 29 | Kincheloe |
| S-B79 | Pittsburgh | West Fork | 05020002 | Ephemeral | 60 | SWVM | 23 | Kincheloe |
| S-J54 | Pittsburgh | West Fork | 05020002 | Perennial | 26 | SWVM | 17 | Kincheloe |
| S-A120 | Huntington | Middle Ohio | 05030201 | Intermittent | 26 | SWVM | 13 | Foster Run |
| S-QR34 | Huntington | Middle Ohio | 05030201 | Ephemeral | 125 | SWVM | 65 | Foster Run |
| S-J56 | Huntington | Middle Ohio | 05030201 | Perennial | 41 | SWVM | 32 | Foster Run |
| S-J59 | Huntington | Middle Ohio | 05030201 | Intermittent | 7 | SWVM | 4 | Foster Run |
| S-A110/K62 | Huntington | Middle Ohio | 05030201 | Intermittent | 25 | SWVM | 10 | Foster Run |
| S-K43 | Huntington | Little Kanawha | 05030203 | Perennial | 27 | SWVM | 18 | Hayes Run |
| S-I63 | Huntington | Little Kanawha | 05030203 | Perennial | 26 | SWVM | 18 | Hayes Run |
| S-UV11 | Huntington | Little Kanawha | 05030203 | Perennial | 25 | SWVM | 18 | Hayes Run |
| S-L61 | Huntington | Little Kanawha | 05030203 | Intermittent | 58 | SWVM | 40 | Hayes Run |
| S-L57 | Huntington | Little Kanawha | 05030203 | Ephemeral | 26 | SWVM | 13 | Hayes Run |
| S-IJ27 | Huntington | Little Kanawha | 05030203 | Perennial | 84 | SWVM | 63 | Hayes Run |
| S-IJ32 | Huntington | Little Kanawha | 05030203 | Ephemeral | 26 | SWVM | 17 | Hayes Run |
| S-B62 | Huntington | Elk | 05050007 | Perennial | 29 | SWVM | 24 | Spanishburg |
| S-H107 | Huntington | Elk | 05050007 | Intermittent | 30 | SWVM | 12 | Spanishburg |
| S-I23a | Huntington | Gauley | 05050005 | Intermittent | 33 | SWVM | 18 | Spanishburg |
| S-IJ54 | Huntington | Gauley | 05050005 | Ephemeral | 31 | SWVM | 17 | Spanishburg |
| S-IJ53 | Huntington | Gauley | 05050005 | Perennial | 20 | SWVM | 12 | Spanishburg |
| S-FF1 | Huntington | Gauley | 05050005 | Ephemeral | 31 | SWVM | 31 | Spanishburg |
| S-UV2 | Huntington | Gauley | 05050005 | Perennial | 28 | SWVM | 17 | Spanishburg |
| S-I12 | Huntington | Lower New | 05050004 | Intermittent | 38 | SWVM | 22 | Spanishburg |
| S-I10 | Huntington | Lower New | 05050004 | Intermittent | 26 | SWVM | 18 | Spanishburg |
| S-K10 | Huntington | Greenbrier | 05050003 | Intermittent | 31 | SWVM | 11 | Spanishburg |
| S-K4 | Huntington | Greenbrier | 05050003 | Intermittent | 22 | SWVM | 8 | Spanishburg |
| S-A63 | Huntington | Upper New | 05050002 | Perennial | 25 | SWVM | 16 | Spanishburg |
| S-A61 | Huntington | Upper New | 05050002 | Ephemeral | 26 | SWVM | 14 | Spanishburg |
| S-CV26 | Huntington | Upper New | 05050002 | Perennial | 32 | SWVM | 20 | Spanishburg |
| S-F18 | Huntington | Upper New | 5050002 | Perennial | 26 | SWVM | 17 | Spanishburg |
| S-IJ16-a | Norfolk | Middle New | 05050002 | Ephemeral | 45 | USM | 23 | Graham and David |
| S-IJ85 | Norfolk | Upper Roanoke | 03010101 | Perennial | 50 | 1:1* | 50 | Graham and David |
| S-H42 | Norfolk | Banister | 03010105 | Perennial | 15 | USM | 21 | Graham and David |
| | | | | **TOTAL** | **1,226** | **-** | **785** | |

Notes:

1 - In WV, the SWVM (Stream and Wetland Valuation Metric) was used to determine mitigation credit requirements
- In VA, mitigation ratio values for stream impacts were calculated using Unified Stream Methodology (USM), except where noted.

2 - Proposed mitigation bank based on the location of the impact and availability of mitigation credits in the impact area.
- Kincheloe - Kincheloe Wetland and Stream Mitigation Bank
- Foster Run - Foster Run Mitigation Bank
- Hayes Run - Hayes Run Stream and Wetland Mitigation Bank
- Spanishburg - Spanishburg Mitigation Bank
-Graham and David - Graham and David Mitigation Bank

* - Unified Stream Methodology field evaluation has not been performed for S-IJ85. Compensatory mitigation requirement ratio of impacts : credits is assumed to be 1:1.

Mountain Valley PIPELINE LLC

# Table A-1 (West Virginia Stream Impacts)

**Table A-1. West Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-J62 | Right Fork Big Elk Creek | Harrison | Pittsburgh | 39.445033 | -80.482635 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0037 | - | 18 | - | 4-35 |
| S-B75/F49 | UNT to Goose Run | Harrison | Pittsburgh | 39.436571 | -80.475198 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | | 4-36 |
| S-B74 | Goose Run | Harrison | Pittsburgh | 39.436245 | -80.474976 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-36 |
| S-B79 | UNT to Big Elk Creek | Harrison | Pittsburgh | 39.423571 | -80.476278 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Temporary Access Road | 11 | - | 0.0004 | - | 2 | - | 4-39 |
| S-B79 | UNT to Big Elk Creek | Harrison | Pittsburgh | 39.423499 | -80.476392 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Permanent Access Road | - | 60 | - | 0.0021 | - | 7 | 4-39 |
| S-B79 | UNT to Big Elk Creek | Harrison | Pittsburgh | 39.423434 | -80.476486 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Temporary Access Road | 24 | - | 0.0008 | - | 4 | - | 4-39 |
| S-J54 | UNT to Little Tenmile Creek | Harrison | Pittsburgh | 39.400324 | -80.479967 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Permanent Access Road | - | 26 | - | 0.0048 | - | 23 | 4-43 |
| S-J51 | Little Tenmile Creek | Harrison | Pittsburgh | 39.398116 | -80.477174 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 20 | - | 0.0138 | - | 67 | - | 4-43 |
| S-A10a | Little Rockcamp Run | Harrison | Pittsburgh | 39.370005 | -80.484974 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 20 | - | 0.0055 | - | 27 | | 4-49 |
| S-B2a | UNT to Rockcamp Run | Harrison | Pittsburgh | 39.359262 | -80.493290 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 115 | - | 0.0211 | - | 341 | - | 4-51 |
| S-B3a | Rockcamp Run | Harrison | Pittsburgh | 39.358871 | -80.493707 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 97 | - | 0.0445 | - | 719 | - | 4-51 |
| S-A128 | Rockcamp Run | Harrison | Pittsburgh | 39.355569 | -80.4901 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Permanent Access Road | - | 29 | - | 0.032 | - | 155 | 4-51 |
| S-RR22 | UNT to Grass Run | Harrison | Pittsburgh | 39.342166 | -80.512422 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 20 | - | 0.0055 | - | 27 | | 4-55 |
| S-A11a | Grass Run | Harrison | Pittsburgh | 39.335511 | -80.522421 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 113 | - | 0.0311 | - | 502 | - | 4-56 |
| S-A11a-Braid-1 | Grass Run | Harrison | Pittsburgh | 39.335500 | -80.522502 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 11 | - | 0.0015 | - | 7 | - | 4-56 |
| S-A11a-Braid-2 | Grass Run | Harrison | Pittsburgh | 39.335410 | -80.522360 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 77 | - | 0.0088 | - | 143 | - | 4-56 |
| S-OP8 | UNT to Indian Run | Harrison | Pittsburgh | 39.320959 | -80.526445 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Temporary Access Road | - | 41 | - | 0.0047 | - | 23 | 4-59 |
| S-OP9 | UNT to Indian Run | Harrison | Pittsburgh | 39.320682 | -80.526449 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Temporary Access Road | - | 36 | - | 0.0025 | - | 12 | 4-59 |
| S-B6a | Indian Run | Harrison | Pittsburgh | 39.317309 | -80.527175 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Temporary Access Road | 30 | - | 0.0207 | - | 100 | - | 4-59 |
| S-B6a | Indian Run | Harrison | Pittsburgh | 39.317023 | -80.526157 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 20 | - | 0.0138 | - | 67 | - | 4-59 |
| S-B7a | UNT to Indian Run | Harrison | Pittsburgh | 39.316755 | -80.526222 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-59 |
| S-UU3 | Salem Fork | Harrison | Pittsburgh | 39.289870 | -80.517903 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 76 | - | 0.1047 | - | 1,689 | - | 4-66 |
| S-UU5 | Halls Run | Harrison | Pittsburgh | 39.253041 | -80.540508 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 79 | - | 0.0073 | - | 117 | - | 4-74 |
| S-K73 | Coburn Fork | Harrison | Pittsburgh | 39.243691 | -80.553966 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 110 | - | 0.0126 | - | 204 | - | 4-77 |
| S-K74 | UNT to Coburn Fork | Harrison | Pittsburgh | 39.243647 | -80.553903 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 36 | - | 0.0021 | - | 10 | - | 4-77 |
| S-K75 | UNT to Coburn Fork | Harrison | Pittsburgh | 39.243509 | -80.554028 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 96 | - | 0.0066 | - | 107 | - | 4-77 |
| S-K80 | UNT to Turtletree Fork | Harrison | Pittsburgh | 39.225747 | -80.550164 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | | 4-80 |
| S-CV9 | UNT to Turtletree Fork | Harrison | Pittsburgh | 39.22369 | -80.548273 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0009 | - | 4 | | 4-81 |
| S-K81 | Turtletree Fork | Harrison | Pittsburgh | 39.223263 | -80.547928 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 30 | - | 0.0028 | - | 13 | | 4-81 |
| S-CV10 | UNT to Turtletree Fork | Harrison | Pittsburgh | 39.221719 | -80.546951 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0014 | - | 7 | | 4-81 |
| S-A106 | UNT to Kincheloe Creek | Harrison | Pittsburgh | 39.168435 | -80.577625 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 168 | - | 0.001 | - | 47 | - | 4-92 |
| S-A105 | UNT to Kincheloe Creek | Harrison | Pittsburgh | 39.168266 | -80.577815 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-92 |
| S-K94 | Kincheloe Creek | Lewis | Pittsburgh | 39.167831 | -80.578867 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Temporary Access Road | 18 | - | 0.0083 | - | 40 | - | 4-92 |
| S-K82 | UNT to Kincheloe Creek | Harrison | Pittsburgh | 39.167753 | -80.578181 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 110 | - | 0.0101 | - | 49 | - | 4-92 |
| S-K94 | Kincheloe Creek | Lewis | Pittsburgh | 39.167575 | -80.578144 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Pipeline ROW | 79 | - | 0.0363 | - | 585 | - | 4-92 |
| S-I67 | Smoke Camp Run | Lewis | Pittsburgh | 39.137145 | -80.577026 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-99 |
| S-J43 | Right Fork Freemans Creek | Lewis | Pittsburgh | 39.120579 | -80.581328 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 22 | - | 0.0126 | - | 61 | - | 4-102 |
| S-J44 | UNT to Right Fork Freemans Creek | Lewis | Pittsburgh | 39.114730 | -80.586203 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 79 | - | 0.0073 | - | 117 | - | 4-103 |
| S-K46 | UNT to Left Fork Freemans Creek | Lewis | Pittsburgh | 39.080252 | -80.581430 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 93 | - | 0.0043 | - | 21 | - | 4-109 |
| S-B67 | Left Fork Freemans Creek | Lewis | Pittsburgh | 39.079556 | -80.581346 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05020002 | Timber Mat Crossing | 22 | - | 0.0061 | - | 29 | - | 4-110 |
| S-B69 | UNT to Left Fork Freemans Creek | Lewis | Pittsburgh | 39.077790 | -80.582932 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Temporary Access Road | 86 | - | 0.0030 | - | 14 | - | 4-110 |
| S-H184 | UNT to Left Fork Freemans Creek | Lewis | Pittsburgh | 39.069684 | -80.580583 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-111 |
| S-H184a | UNT to Left Fork Freemans Creek | Lewis | Pittsburgh | 39.069645 | -80.580591 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05020002 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-111 |
| S-H180 | UNT to Left Fork Freemans Creek | Lewis | Pittsburgh | 39.068217 | -80.581025 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05020002 | Pipeline ROW | 68 | - | 0.0203 | - | 327 | - | 4-111 |
| S-ST18 | UNT to Mobley Run | Wetzel | Huntington | 39.561766 | -80.540136 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | Permanent Access Road | 21 | - | 0.0049 | - | 23 | - | 4-2 |
| S-WX3 | UNT to Mobley Run | Wetzel | Huntington | 39.560611 | -80.545823 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | ATWS | 21 | - | 0.0024 | - | 12 | - | 4-1 |
| S-A1a | North Fork Fishing Creek | Wetzel | Huntington | 39.553946 | -80.545046 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030201 | Pipeline ROW | 80 | - | 0.0641 | - | 1,034 | - | 4-3 |
| S-A3a | UNT to North Fork Fishing Creek | Wetzel | Huntington | 39.551814 | -80.545633 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 80 | - | 0.0166 | - | 267 | - | 4-4 |
| S-J66 | UNT to North Fork Fishing Creek | Wetzel | Huntington | 39.546030 | -80.544314 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0014 | | 7 | | 4-5 |
| S-A5a | UNT to Fallen Timber Run | Wetzel | Huntington | 39.534241 | -80.540995 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 30 | - | 0.0028 | - | 13 | - | 4-8 |
| S-A6a | Fallen Timber Run | Wetzel | Huntington | 39.534023 | -80.540889 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030201 | Timber Mat Crossing | 20 | - | 0.0092 | - | 44 | - | 4-9 |
| S-A125 | Price Run | Wetzel | Huntington | 39.503477 | -80.532902 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030201 | Timber Mat Crossing | 20 | - | 0.0161 | - | 78 | - | 4-19 |
| S-A124 | UNT to Price Run | Wetzel | Huntington | 39.503288 | -80.532680 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 100 | - | 0.0276 | - | 445 | - | 4-19 |
| S-A118 | UNT to Price Run | Wetzel | Huntington | 39.502399 | -80.523520 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 79 | - | 0.0109 | - | 176 | - | 4-20 |
| S-A120 | Stout Run | Wetzel | Huntington | 39.489914 | -80.522135 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | Temporary Access Road | 8 | - | 0.0011 | - | 5 | - | 4-23 |
| S-A120 | Stout Run | Wetzel | Huntington | 39.489890 | -80.522083 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | Permanent Access Road | - | 26 | - | 0.0036 | - | 15 | 4-23 |
| S-A120 | Stout Run | Wetzel | Huntington | 39.489866 | -80.522029 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | Temporary Access Road | 9 | - | 0.0012 | - | 6 | - | 4-23 |
| S-A120 | Stout Run | Wetzel | Huntington | 39.489712 | -80.520728 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05030201 | Timber Mat Crossing | 20 | - | 0.0028 | - | 13 | - | 4-23 |
| S-A119 | UNT to Stout Run | Wetzel | Huntington | 39.489589 | -80.520532 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 134 | - | 0.0154 | - | 74 | - | 4-23 |

**Table A-1. West Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-QR34 | UNT to Stout Run | Wetzel | Huntington | 39.489140 | -80.520658 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030201 | Permanent Access Road | - | 125 | - | 0.0072 | - | 24 | 4-23 |
| S-QR34 | UNT to Stout Run | Wetzel | Huntington | 39.489062 | -80.520519 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030201 | Temporary Access Road | 8 | - | 0.0004 | - | 2 | - | 4-23 |
| S-J60 | Sams Run | Wetzel | Huntington | 39.474354 | -80.511825 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0064 | - | 31 | - | 4-26 |
| S-J56 | Manion Run | Wetzel | Huntington | 39.464315 | -80.502077 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0046 | - | 22 | - | 4-28 |
| S-J56 | Manion Run | Wetzel | Huntington | 39.464105 | -80.502318 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030201 | Temporary Access Road | 23 | - | 0.0054 | - | 26 | - | 4-28 |
| S-J56 | Manion Run | Wetzel | Huntington | 39.463899 | -80.502594 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030201 | Permanent Access Road | - | 41 | - | 0.0095 | - | 46 | 4-28 |
| S-J59 | UNT to Manion Run | Wetzel | Huntington | 39.462705 | -80.504726 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Permanent Access Road | - | 7 | - | 0.0005 | - | 2 | 4-28 |
| S-J59 | UNT to Manion Run | Wetzel | Huntington | 39.462684 | -80.504736 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Temporary Access Road | 10 | - | 0.0007 | - | 3 | - | 4-28 |
| S-J58 | UNT to Manion Run | Wetzel | Huntington | 39.462546 | -80.505386 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030201 | Permanent Access Road | 26 | - | 0.0030 | - | 14 | - | 4-28 |
| S-K77 | Traugh Fork | Doddridge | Huntington | 39.229029 | -80.552534 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 37 | - | 0.0034 | - | 54 | - | 4-80 |
| S-K77 | Traugh Fork | Doddridge | Huntington | 39.228942 | -80.552437 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 93 | - | 0.0085 | - | 137 | - | 4-80 |
| S-K67 | UNT to Big Issac Creek | Doddridge | Huntington | 39.210269 | -80.553179 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 77 | - | 0.0177 | - | 285 | - | 4-84 |
| S-K65 | UNT to Big Issac Creek | Doddridge | Huntington | 39.209813 | -80.552450 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 90 | - | 0.0165 | - | 267 | - | 4-84 |
| S-K54 | UNT to Big Issac Creek | Doddridge | Huntington | 39.207673 | -80.552957 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0032 | - | 16 | - | 4-84 |
| S-K58 | UNT to Big Issac Creek | Doddridge | Huntington | 39.205595 | -80.553224 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0011 | - | 6 | - | 4-84 |
| S-K59 | UNT to Big Issac Creek | Doddridge | Huntington | 39.204704 | -80.553272 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0011 | - | 6 | - | 4-84 |
| S-K60 | UNT to Big Issac Creek | Doddridge | Huntington | 39.203779 | -80.553410 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030201 | Timber Mat Crossing | 20 | - | 0.0018 | - | 9 | - | 4-84 |
| S-A110/K62 | UNT to Laural Run | Doddridge | Huntington | 39.201316 | -80.553306 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Permanent Access Road | - | 25 | - | 0.0040 | - | 13 | 4-85 |
| S-A110/K62 | UNT to Laural Run | Doddridge | Huntington | 39.201286 | -80.553425 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030201 | Pipeline ROW | 59 | - | 0.0095 | - | 154 | - | 4-85 |
| S-A111 | Laural Run | Doddridge | Huntington | 39.200749 | -80.553190 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030201 | Pipeline ROW | 77 | - | 0.0247 | - | 399 | - | 4-85 |
| S-J46 | Fink Creek | Lewis | Huntington | 39.094778 | -80.584826 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030203 | Timber Mat Crossing | 22 | - | 0.0076 | - | 37 | - | 4-106 |
| S-J47b | UNT to Fink Creek | Lewis | Huntington | 39.094003 | -80.585481 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-106 |
| S-I64 | Leading Creek | Lewis | Huntington | 39.052748 | -80.582213 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-114 |
| S-KK3a | UNT to Laurel Run | Lewis | Huntington | 39.019605 | -80.597895 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-119 |
| S-KK5 | UNT to Laurel Run | Lewis | Huntington | 39.017783 | -80.596853 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-119 |
| S-KK5 | UNT to Laurel Run | Lewis | Huntington | 39.017738 | -80.597017 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-119 |
| S-KK5 | UNT to Laurel Run | Lewis | Huntington | 39.017718 | -80.597027 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-119 |
| S-KK6 | UNT Laurel Run | Lewis | Huntington | 39.017621 | -80.596939 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-119 |
| S-KK7 | Laurel Run | Lewis | Huntington | 39.017519 | -80.597010 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0030 | - | 15 | - | 4-119 |
| S-K45 | UNT to Cove Lick | Lewis | Huntington | 39.002598 | -80.595591 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | ATWS | 50 | - | 0.0011 | - | 6 | - | 4-121 |
| S-K43 | Cove Lick | Lewis | Huntington | 39.002111 | -80.595843 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 27 | - | 0.0043 | - | 21 | 4-121 |
| S-K43 | Cove Lick | Lewis | Huntington | 39.002045 | -80.596098 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-121 |
| S-K38 | UNT to Rock Run | Lewis | Huntington | 38.992357 | -80.592929 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-123 |
| S-I63 | Sand Fork | Lewis | Huntington | 38.969369 | -80.593138 | Perennial | RPW | Non-listed mussels, Warmwater Fishery, Tier 1 | 05030203 | Pipeline ROW | 60 | - | 0.0275 | - | 444 | - | 4-128 |
| S-I63 | Sand Fork | Lewis | Huntington | 38.969290 | -80.593203 | Perennial | RPW | Non-listed mussels, Warmwater Fishery, Tier 1 | 05030203 | Permanent Access Road | - | 26 | - | 0.0119 | - | 58 | 4-128 |
| S-I63 | Sand Fork | Lewis | Huntington | 38.969239 | -80.593244 | Perennial | RPW | Non-listed mussels, Warmwater Fishery, Tier 1 | 05030203 | Temporary Access Road | 8 | - | 0.0037 | - | 18 | - | 4-128 |
| S-H160 | Indian Fork | Lewis | Huntington | 38.933179 | -80.584562 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030203 | Timber Mat Crossing | 23 | - | 0.0106 | - | 59 | - | 4-135 |
| S-L76 | Indian Fork | Lewis | Huntington | 38.929761 | -80.575251 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030203 | Permanent Access Road | 33 | - | 0.0115 | - | 56 | - | 4-137 |
| S-H153 | UNT to Sugar Camp Run | Lewis | Huntington | 38.922846 | -80.579227 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 76 | - | 0.0262 | - | 423 | - | 4-136 |
| S-H145 | UNT to Indian Fork | Lewis | Huntington | 38.918986 | -80.573838 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 91 | - | 0.0313 | - | 505 | - | 4-140 |
| S-H165 | UNT to Indian Fork | Lewis | Huntington | 38.918602 | -80.573256 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 144 | - | 0.0198 | - | 320 | - | 4-140 |
| S-CV3 | Threelick Run | Lewis | Huntington | 38.913415 | -80.571854 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05030203 | Timber Mat Crossing | 22 | - | 0.0030 | - | 15 | - | 4-142 |
| S-CD16 | UNT to Second Big Run | Lewis | Huntington | 38.904135 | -80.563719 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 173 | - | 0.0318 | - | 154 | - | 4-144 |
| S-VV13 | Second Big Run | Lewis | Huntington | 38.903930 | -80.563537 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 80 | - | 0.0275 | - | 133 | - | 4-144 |
| S-VV11 | UNT to Second Big Run | Lewis | Huntington | 38.903610 | -80.563186 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 7 | - | 0.0007 | - | 3 | - | 4-144 |
| S-VV12 | UNT to Second Big Run | Lewis | Huntington | 38.903575 | -80.563308 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 77 | - | 0.0211 | - | 341 | - | 4-144 |
| S-VV13d | Second Big Run | Lewis | Huntington | 38.902549 | -80.564778 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 61 | - | 0.0210 | - | 102 | - | 4-144 |
| S-VV20 | UNT to Second Big Run | Lewis | Huntington | 38.900233 | -80.563491 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 40 | - | 0.0028 | - | 13 | - | 4-145 |
| S-VV19 | UNT to Second Big Run | Lewis | Huntington | 38.899505 | -80.563925 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 62 | - | 0.0043 | - | 21 | - | 4-146 |
| S-VV13b | Second Big Run | Lewis | Huntington | 38.898431 | -80.568250 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 42 | - | 0.0143 | - | 69 | - | 4-146 |
| S-VV18 | UNT to Second Big Run | Lewis | Huntington | 38.897028 | -80.567634 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 41 | - | 0.0075 | - | 36 | - | 4-146 |
| S-VV16 | UNT to Second Big Run | Lewis | Huntington | 38.896271 | -80.566551 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 293 | - | 0.0202 | - | 98 | - | 4-146 |
| S-VV16 | UNT to Second Big Run | Lewis | Huntington | 38.895455 | -80.566432 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 211 | - | 0.0145 | - | 70 | - | 4-146 |
| S-UV11 | Oil Creek | Lewis | Huntington | 38.893014 | -80.556192 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 51 | - | 0.0351 | - | 567 | - | 4-148 |
| S-UV11 | Oil Creek | Lewis | Huntington | 38.893014 | -80.556192 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 25 | - | - | 0 | - | 4-148 |
| S-VV22 | UNT to Oil Creek | Lewis | Huntington | 38.890411 | -80.550986 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 43 | - | 0.0029 | - | 12 | - | 4-148 |
| S-VV21 | UNT to Oil Creek | Lewis | Huntington | 38.890221 | -80.553817 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | 18 | - | 0.0012 | - | 5 | - | 4-148 |
| S-L61 | Crooked Run | Lewis | Huntington | 38.880040 | -80.563579 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 30 | - | 0.0069 | - | 33 | 4-151 |
| S-L61 | Crooked Run | Lewis | Huntington | 38.879034 | -80.564307 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 28 | - | 0.0064 | - | 31 | 4-151 |

**Table A-1. West Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-VV2 | Clover Fork | Braxton | Huntington | 38.862730 | -80.525128 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 90 | - | 0.0412 | - | 664 | - | 4-159 |
| S-VV9 | UNT to Clover Fork | Lewis | Huntington | 38.863254 | -80.525763 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-158 |
| S-L51 | Barbecue Run | Braxton | Huntington | 38.839355 | -80.519693 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0101 | - | 49 | - | 4-161 |
| S-J37 | UNT to Barbecue Run | Braxton | Huntington | 38.839133 | -80.519716 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-162 |
| S-L57 | UNT to Barbecue Run | Braxton | Huntington | 38.828310 | -80.525753 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road | - | 26 | - | 0.0024 | - | 12 | 4-165 |
| S-L57 | UNT to Barbecue Run | Braxton | Huntington | 38.828300 | -80.525691 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Temporary Access Road/ATWS | 25 | - | 0.0023 | - | 11 | - | 4-165 |
| S-L60 | Left Fork Knawl Creek | Braxton | Huntington | 38.824034 | -80.524988 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 75 | - | 0.0517 | - | 833 | - | 4-165 |
| S-LL1 | Knawl Creek | Braxton | Huntington | 38.823595 | -80.525342 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 88 | - | 0.0607 | - | 980 | - | 4-165 |
| S-IJ27 | Little Knawl Creek | Braxton | Huntington | 38.809593 | -80.541252 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 34 | - | 0.0156 | - | 76 | 4-168 |
| S-IJ32 | UNT to Little Knawl Creek | Braxton | Huntington | 38.809568 | -80.537319 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 26 | - | 0.0030 | - | 14 | 4-168 |
| S-IJ27 | Little Knawl Creek | Braxton | Huntington | 38.808878 | -80.543272 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Permanent Access Road | - | 50 | - | 0.0230 | - | 111 | 4-168 |
| S-QR30 | UNT to Little Knawl Creek | Braxton | Huntington | 38.807940 | -80.535715 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 79 | - | 0.0274 | - | 442 | - | 4-168 |
| S-JJ1 | UNT to Keith Run | Braxton | Huntington | 38.786930 | -80.530028 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0071 | - | 34 | - | 4-172 |
| S-I60 | UNT to Falls Run | Braxton | Huntington | 38.781068 | -80.524577 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-174 |
| S-J70 | Falls Run | Braxton | Huntington | 38.778955 | -80.525862 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 77 | - | 0.0530 | - | 854 | - | 4-174 |
| S-K34 | Hemp Patch Run | Braxton | Huntington | 38.766123 | -80.520308 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-178 |
| S-K33 | UNT to Hemp Patch Run | Braxton | Huntington | 38.765714 | -80.520032 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-178 |
| S-H123 | UNT to Elliott Run | Braxton | Huntington | 38.761197 | -80.514887 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 82 | - | 0.0113 | - | 183 | - | 4-178 |
| S-H123 | UNT to Elliott Run | Braxton | Huntington | 38.760426 | -80.513624 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 82 | - | 0.0113 | - | 182 | - | 4-178 |
| S-H127 | UNT to Elliott Run | Braxton | Huntington | 38.755029 | -80.513692 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-180 |
| S-H132 | Little Kanawha River | Braxton | Huntington | 38.751499 | -80.514919 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 120 | - | 0.0606 | - | 293 | - | 4-180 |
| S-H129 | UNT to Little Kanawha River | Braxton | Huntington | 38.749321 | -80.514337 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-183 |
| S-H131 | UNT to Little Kanawha River | Braxton | Huntington | 38.749215 | -80.514370 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05030203 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-183 |
| S-H117 | Stonecoal Run | Braxton | Huntington | 38.731020 | -80.506280 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 82 | - | 0.0283 | - | 456 | - | 4-188 |
| S-L46 | UNT to Laurel Run | Braxton | Huntington | 38.721880 | -80.499258 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 78 | - | 0.0267 | - | 431 | - | 4-190 |
| S-L44 | UNT to Laurel Run | Braxton | Huntington | 38.716945 | -80.494589 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05030203 | Pipeline ROW | 81 | - | 0.0185 | - | 298 | - | 4-193 |
| S-I57 | Mudlick Run | Braxton | Huntington | 38.697413 | -80.489560 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 77 | - | 0.0528 | - | 852 | - | 4-196 |
| S-A96/A103 | UNT to Left Fork Holly River | Webster | Huntington | 38.688706 | -80.478590 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 83 | - | 0.0114 | - | 185 | - | 4-198 |
| S-A97 | UNT to Left Fork Holly River | Webster | Huntington | 38.688329 | -80.478406 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 125 | - | 0.0229 | - | 370 | - | 4-198 |
| S-A99 | UNT to Left Fork Holly River | Webster | Huntington | 38.688120 | -80.478371 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 34 | - | 0.0039 | - | 19 | - | 4-198 |
| S-A98 | UNT to Left Fork Holly River | Webster | Huntington | 38.687906 | -80.478024 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW/Temporary Access Road | 392 | - | 0.0629 | - | 1015 | - | 4-198 |
| S-A100 | Left Fork Holly River | Webster | Huntington | 38.676643 | -80.477940 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0404 | - | 196 | - | 4-200 |
| S-E78/E82/R1 | UNT to Left Fork Holly River | Webster | Huntington | 38.676223 | -80.477663 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 102 | - | 0.0094 | - | 151 | - | 4-200 |
| S-E76 | UNT to Left Fork Holly River | Webster | Huntington | 38.674988 | -80.477360 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-200 |
| S-KK2 | UNT to Left Fork Holly River | Webster | Huntington | 38.672226 | -80.476315 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 75 | - | 0.0052 | - | 84 | - | 4-200 |
| S-KK3b | UNT to Left Fork Holly River | Webster | Huntington | 38.672110 | -80.476515 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 100 | - | 0.0069 | - | 111 | - | 4-201 |
| S-KK4b | UNT to Left Fork Holly River | Webster | Huntington | 38.671976 | -80.476825 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 88 | - | 0.0061 | - | 98 | - | 4-201 |
| S-E74 | UNT to Left Fork Holly River | Webster | Huntington | 38.671971 | -80.476990 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 68 | - | 0.0062 | - | 30 | - | 4-200 |
| S-F40 | Oldlick Creek | Webster | Huntington | 38.667943 | -80.479023 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0126 | - | 61 | - | 4-201 |
| S-S1 | UNT to Oldlick Creek | Webster | Huntington | 38.667020 | -80.478624 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 21 | - | 0.0010 | - | 5 | - | 4-201 |
| S-S4 | UNT to Oldlick Creek | Webster | Huntington | 38.664389 | -80.484709 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 45 | - | 0.0021 | - | 10 | - | 4-204 |
| S-F43 | UNT to Oldlick Creek | Webster | Huntington | 38.663706 | -80.478644 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 101 | - | 0.0232 | - | 375 | - | 4-202 |
| S-E67 | Right Fork Holly Creek | Webster | Huntington | 38.648021 | -80.489704 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 92 | - | 0.1803 | - | 2910 | - | 4-206 |
| S-B62 | Narrows Run | Webster | Huntington | 38.646185 | -80.486813 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | ATWS | 15 | - | 0.0103 | - | 50 | - | 4-215 |
| S-B62 | Narrows Run | Webster | Huntington | 38.643910 | -80.485213 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Permanent Access Road | - | 29 | - | 0.0200 | - | 97 | 4-215 |
| S-E71 | UNT to Elk River | Webster | Huntington | 38.614405 | -80.506004 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 44 | - | 0.0020 | - | 33 | - | 4-218 |
| S-H111 | UNT to Elk River | Webster | Huntington | 38.613367 | -80.504620 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-218 |
| S-H111 | UNT to Elk River | Webster | Huntington | 38.613341 | -80.504620 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-218 |
| S-H114 | UNT to Elk River | Webster | Huntington | 38.613259 | -80.504243 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-218 |
| S-H112 | UNT to Elk River | Webster | Huntington | 38.613163 | -80.504012 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-218 |
| S-H113 | UNT to Elk River | Webster | Huntington | 38.612982 | -80.503647 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 74 | - | 0.0203 | - | 327 | - | 4-218 |
| S-H113 | UNT to Elk River | Webster | Huntington | 38.612878 | -80.503687 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 9 | - | 0.0026 | - | 42 | - | 4-218 |
| S-H113 | UNT to Elk River | Webster | Huntington | 38.612874 | -80.503682 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 9 | - | 0.0026 | - | 41 | - | 4-218 |
| S-H110 | UNT to Houston Run | Webster | Huntington | 38.587200 | -80.509634 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-222 |
| S-T29 | Houston Run | Webster | Huntington | 38.579092 | -80.525620 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 76 | | 0.0525 | - | 847 | - | 4-230 |
| S-A83/A91 | UNT to Camp Creek | Webster | Huntington | 38.557064 | -80.535592 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 75 | - | 0.0518 | - | 835 | - | 4-235 |
| S-A93 | UNT to Camp Creek | Webster | Huntington | 38.556823 | -80.535751 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Temporary Access Road | 13 | - | 0.0025 | - | 12 | - | 4-235 |
| S-A93 | UNT to Camp Creek | Webster | Huntington | 38.556682 | -80.535572 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 105 | - | 0.0193 | - | 312 | - | 4-235 |
| S-A92 | UNT to Camp Creek | Webster | Huntington | 38.556658 | -80.535607 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 59 | - | 0.0175 | - | 282 | - | 4-235 |

**Table A-1. West Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-H108 | Lower Laurel Fork | Webster | Huntington | 38.549358 | -80.539260 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 78 | - | 0.0251 | - | 405 | - | 4-236 |
| S-H105 | UNT to Camp Creek | Webster | Huntington | 38.548824 | -80.539644 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 121 | - | 0.0083 | - | 135 | - | 4-236 |
| S-H107 | UNT to Camp Creek | Webster | Huntington | 38.548467 | -80.540073 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 10 | - | 0.0003 | - | 5 | - | 4-236 |
| S-H107 | UNT to Camp Creek | Webster | Huntington | 38.548463 | -80.540050 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Permanent Access Road | - | 30 | - | 0.0010 | - | 3 | 4-236 |
| S-H107 | UNT to Camp Creek | Webster | Huntington | 38.548378 | -80.539980 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 90 | - | 0.0031 | - | 50 | - | 4-236 |
| S-H104 | Camp Creek | Webster | Huntington | 38.548121 | -80.540431 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 104 | - | 0.0360 | - | 580 | - | 4-236 |
| S-H103 | UNT to Camp Creek | Webster | Huntington | 38.545817 | -80.542972 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Pipeline ROW | 37 | - | 0.0034 | - | 16 | - | 4-248 |
| S-B34 | Amos Run | Webster | Huntington | 38.493956 | -80.560990 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 81 | - | 0.0561 | - | 904 | - | 4-260 |
| S-B35 | UNT to Amos Run | Webster | Huntington | 38.493884 | -80.560969 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 80 | - | 0.0037 | - | 59 | - | 4-260 |
| S-B36 | UNT to Amos Run | Webster | Huntington | 38.493819 | -80.560919 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 72 | - | 0.0033 | - | 53 | - | 4-260 |
| S-B37 | UNT to Amos Run | Webster | Huntington | 38.493750 | -80.560898 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 82 | - | 0.0038 | - | 61 | - | 4-260 |
| S-B38 | UNT to Amos Run | Webster | Huntington | 38.493723 | -80.560843 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 43 | - | 0.0020 | - | 32 | - | 4-260 |
| S-B42 | UNT to Amos Run | Webster | Huntington | 38.493645 | -80.560892 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 101 | - | 0.0046 | - | 75 | - | 4-260 |
| S-B39b | UNT to Amos Run | Webster | Huntington | 38.493532 | -80.560792 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 142 | - | 0.0008 | - | 13 | - | 4-260 |
| S-B45 | UNT to Amos Run | Webster | Huntington | 38.493394 | -80.560786 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 177 | - | 0.0122 | - | 196 | - | 4-260 |
| S-B39a/B46 | UNT to Amos Run | Webster | Huntington | 38.493363 | -80.560657 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 110 | - | 0.0076 | - | 122 | - | 4-260 |
| S-B39b | UNT to Amos Run | Webster | Huntington | 38.493352 | -80.560574 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 3 | - | 0.0002 | - | 0 | - | 4-260 |
| S-B39a/B46 | UNT to Amos Run | Webster | Huntington | 38.493227 | -80.560529 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 11 | - | 0.0007 | - | 12 | - | 4-260 |
| S-O4 | Lost Run | Webster | Huntington | 38.483002 | -80.556464 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 92 | - | 0.0379 | - | 612 | - | 4-263 |
| S-O5 | UNT to Laurel Creek | Webster | Huntington | 38.482251 | -80.555499 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-263 |
| S-A81 | UNT to Laurel Creek | Webster | Huntington | 38.481219 | -80.554668 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Temporary Access Road | 81 | - | 0.0037 | - | 18 | - | 4-263 |
| S-A79 | Laurel Creek | Webster | Huntington | 38.480782 | -80.554682 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Timber Mat Crossing | 55 | - | 0.0278 | - | 134 | - | 4-263 |
| S-A80 | UNT to Laurel Creek | Webster | Huntington | 38.480687 | -80.554061 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Temporary Access Road | 104 | - | 0.0096 | - | 46 | - | 4-263 |
| S-E58 | Little Glade Run | Webster | Huntington | 38.443669 | -80.551989 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-269 |
| S-E55 | UNT to Laurel Creek | Webster | Huntington | 38.440270 | -80.559955 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-271 |
| S-F35 | UNT to Birch River | Webster | Huntington | 38.424082 | -80.570710 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-278 |
| S-F34 | UNT to Birch River | Webster | Huntington | 38.423988 | -80.570680 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-278 |
| S-F36a | UNT to Birch River | Webster | Huntington | 38.422056 | -80.569457 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 5 | - | 0.0006 | - | 11 | - | 4-278 |
| S-F36a | UNT to Birch River | Webster | Huntington | 38.421474 | -80.570012 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 23 | - | 0.0027 | - | 13 | - | 4-278 |
| S-F36a | UNT to Birch River | Webster | Huntington | 38.418662 | -80.573898 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 23 | - | 0.0027 | - | 13 | - | 4-278 |
| S-F36a | UNT to Birch River | Webster | Huntington | 38.418122 | -80.574566 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 20 | - | 0.0023 | - | 3 | - | 4-278 |
| S-F36b | UNT to Birch River | Webster | Huntington | 38.417934 | -80.576775 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 65 | - | 0.0300 | - | 145 | - | 4-279 |
| S-F36b | UNT to Birch River | Webster | Huntington | 38.417774 | -80.576635 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Pipeline ROW | 78 | - | 0.0359 | - | 580 | - | 4-279 |
| S-F36b | UNT to Birch River | Webster | Huntington | 38.417693 | -80.576495 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 16 | - | 0.0074 | - | 36 | - | 4-279 |
| S-F37 | UNT to Birch River | Webster | Huntington | 38.417651 | -80.576431 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Temporary Access Road | 20 | - | 0.0018 | - | 9 | - | 4-279 |
| S-C49 | UNT to Birch River | Webster | Huntington | 38.416587 | -80.577890 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-279 |
| S-B33 | UNT to Meadow Fork | Webster | Huntington | 38.408941 | -80.589063 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-281 |
| S-B32-Braid | UNT to Meadow Fork | Webster | Huntington | 38.405871 | -80.591069 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-281 |
| S-B32 | UNT to Meadow Fork | Webster | Huntington | 38.405683 | -80.591116 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050007 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-281 |
| S-EF40 | UNT to Meadow Fork | Webster | Huntington | 38.400883 | -80.597787 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050007 | Anode Bed | 52 | - | 0.0084 | - | 41 | - | 4-282 |
| S-B30 | UNT to Meadow Fork | Webster | Huntington | 38.399733 | -80.597536 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050007 | Anode Bed | 27 | - | 0.0024 | - | 12 | - | 4-282 |
| S-B29 | Meadow Fork | Webster | Huntington | 38.399618 | -80.597332 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050007 | Pipeline ROW | 85 | - | 0.0136 | - | 220 | - | 4-282 |
| S-E50 | UNT to Gauley River | Webster | Huntington | 38.370597 | -80.611921 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 93 | - | 0.0085 | - | 138 | - | 4-289 |
| S-E52 | UNT to Gauley River | Webster | Huntington | 38.369110 | -80.611761 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-290 |
| S-E50 | UNT to Gauley River | Webster | Huntington | 38.367280 | -80.612317 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0075 | - | 122 | - | 4-289 |
| S-E49 | UNT to Gauley River | Nicholas | Huntington | 38.365574 | -80.613141 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 88 | - | 0.0020 | - | 33 | - | 4-290 |
| S-E46 | Strouds Creek | Webster | Huntington | 38.363374 | -80.617277 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0152 | - | 73 | - | 4-291 |
| S-E46 | Strouds Creek | Webster | Huntington | 38.363326 | -80.616955 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Temporary Access Road | 43 | - | 0.0296 | - | 143 | - | 4-291 |
| S-F21 | Barn Run | Nicholas | Huntington | 38.355859 | -80.633328 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-293 |
| S-F20 | Barn Run | Nicholas | Huntington | 38.355800 | -80.633223 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-293 |
| S-IJ57 | UNT to Barn Run | Nicholas | Huntington | 38.352362 | -80.636401 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0094 | - | 152 | - | 4-293 |
| S-IJ59 | UNT to Barn Run | Nicholas | Huntington | 38.348372 | -80.641152 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-295 |
| S-IJ60 | UNT to Rockcamp Run | Nicholas | Huntington | 38.343699 | -80.644721 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0141 | - | 227 | - | 4-296 |
| S-IJ62 | UNT to Cherry Run | Nicholas | Huntington | 38.343547 | -80.647035 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 79 | - | 0.0054 | - | 88 | - | 4-296 |
| S-B28 | Cherry Run | Nicholas | Huntington | 38.340083 | -80.655413 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-298 |
| S-B26 | UNT to Cherry Run | Nicholas | Huntington | 38.339012 | -80.659609 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Temporary Access Road | 43 | - | 0.0039 | - | 19 | - | 4-299 |
| S-J32 | Big Beaver Creek | Nicholas | Huntington | 38.331763 | -80.670342 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050005 | Timber Mat Crossing | 22 | - | 0.0177 | - | 86 | - | 4-301 |
| S-A76 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.329126 | -80.671211 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0106 | - | 172 | - | 4-301 |
| S-A75 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.326001 | -80.670358 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 84 | - | 0.0193 | - | 311 | - | 4-302 |

**Table A-1. West Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-A74 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.325540 | -80.670150 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 75 | - | 0.0069 | - | 112 | - | 4-302 |
| S-A73 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.323815 | -80.670069 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 83 | - | 0.0114 | - | 184 | - | 4-302 |
| S-A72 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.321687 | -80.670952 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-302 |
| S-A71 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.321572 | -80.670958 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-302 |
| S-A71-Braid | UNT to Big Beaver Creek | Nicholas | Huntington | 38.321548 | -80.670969 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-302 |
| S-A67 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.317575 | -80.671553 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 76 | - | 0.0121 | - | 196 | - | 4-303 |
| S-A69 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.317217 | -80.671495 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0113 | - | 183 | - | 4-303 |
| S-A69 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.317089 | -80.671565 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 16 | - | 0.0022 | - | 36 | - | 4-303 |
| S-H99 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.312952 | -80.673145 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 96 | | 0.0088 | - | 142 | - | 4-304 |
| S-H96 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.309759 | -80.675706 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Temporary Access Road | 39 | - | 0.0018 | - | 9 | - | 4-304 |
| S-H95 | UNT to Big Beaver Creek | Nicholas | Huntington | 38.309738 | -80.675733 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Temporary Access Road | 259 | - | 0.0178 | - | 86 | - | 4-304 |
| S-A65 | Big Beaver Creek | Nicholas | Huntington | 38.308183 | -80.675347 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050005 | Pipeline ROW | 77 | - | 0.1240 | - | 2000 | - | 4-304 |
| S-A64 | UNT to Granny Run | Nicholas | Huntington | 38.304538 | -80.673827 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 54 | - | 0.0086 | - | 139 | - | 4-306 |
| S-N15 | UNT to Granny Run | Nicholas | Huntington | 38.301571 | -80.674776 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0061 | - | 29 | - | 4-306 |
| S-N14 | Granny Run | Nicholas | Huntington | 38.297014 | -80.676341 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-307 |
| S-N14 | Granny Run | Nicholas | Huntington | 38.296646 | -80.676258 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-307 |
| S-I43 | UNT to Big Run | Nicholas | Huntington | 38.293473 | -80.677158 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-308 |
| S-I44 | Big Run | Nicholas | Huntington | 38.291332 | -80.679265 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0040 | - | 20 | - | 4-308 |
| S-I45 | UNT to Big Run | Nicholas | Huntington | 38.290061 | -80.680304 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0030 | - | 15 | - | 4-308 |
| S-I47 | UNT to Gauley River | Nicholas | Huntington | 38.284291 | -80.685885 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 80 | - | 0.0037 | - | 59 | - | 4-310 |
| S-I48 | UNT to Gauley River | Nicholas | Huntington | 38.280116 | -80.687738 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0051 | - | 22 | - | 4-310 |
| S-J28 | UNT to Little Laurel Creek | Nicholas | Huntington | 38.263235 | -80.687908 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 79 | - | 0.0091 | - | 147 | - | 4-315 |
| S-J25 | UNT to Little Laurel Creek | Nicholas | Huntington | 38.256682 | -80.687348 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0089 | - | 143 | - | 4-317 |
| S-J24 | UNT to Little Laurel Creek | Nicholas | Huntington | 38.256302 | -80.687350 | Perennial | RPW | Category B-2 Trout Waters, Tier 1 | 05050005 | Pipeline ROW | 76 | - | 0.0261 | - | 422 | - | 4-317 |
| S-J24 | UNT to Little Laurel Creek | Nicholas | Huntington | 38.256248 | -80.687358 | Perennial | RPW | Category B-2 Trout Waters, Tier 1 | 05050005 | Pipeline ROW | 76 | - | 0.0261 | - | 421 | - | 4-317 |
| S-J23-EPH | UNT to Little Laurel Creek | Nicholas | Huntington | 38.234331 | -80.707513 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 109 | - | 0.0025 | - | 41 | - | 4-326 |
| S-J22 | UNT to Little Laurel Creek | Nicholas | Huntington | 38.233718 | -80.708268 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 85 | - | 0.0058 | - | 94 | - | 4-326 |
| S-N10 | Skelt Run | Nicholas | Huntington | 38.231025 | -80.710633 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 78 | - | 0.0071 | - | 115 | - | 4-327 |
| S-N10-Braid | Skelt Run | Nicholas | Huntington | 38.230934 | -80.710804 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 101 | - | 0.0069 | - | 112 | - | 4-327 |
| S-EE1 | UNT to Skelt Run | Nicholas | Huntington | 38.228924 | -80.713076 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-327 |
| S-N13-Braid | UNT to Skelt Run | Nicholas | Huntington | 38.226869 | -80.715487 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 37 | - | 0.0050 | - | 24 | - | 4-328 |
| S-N13 | UNT to Skelt Run | Nicholas | Huntington | 38.226851 | -80.715393 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 89 | - | 0.0041 | - | 66 | - | 4-328 |
| S-L41 | Jims Creek | Nicholas | Huntington | 38.220793 | -80.717100 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 76 | - | 0.0349 | - | 564 | - | 4-328 |
| S-L38 | UNT to Riley Branch | Nicholas | Huntington | 38.205534 | -80.718246 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 75 | - | 0.0052 | - | 83 | - | 4-340 |
| S-L35 | Riley Branch | Nicholas | Huntington | 38.204372 | -80.719778 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Temporary Access Road | 52 | - | 0.0048 | - | 31 | - | 4-341 |
| S-L35 | Riley Branch | Nicholas | Huntington | 38.203887 | -80.719122 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 86 | - | 0.0079 | - | 128 | - | 4-341 |
| S-L35 | Riley Branch | Nicholas | Huntington | 38.203097 | -80.719248 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 87 | - | 0.0080 | - | 129 | - | 4-341 |
| S-L35 | Riley Branch | Nicholas | Huntington | 38.200338 | -80.717177 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 79 | - | 0.0072 | - | 117 | - | 4-341 |
| S-I37 | UNT to Hominy Creek | Nicholas | Huntington | 38.196644 | -80.718856 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 40 | - | 0.0056 | - | 27 | - | 4-342 |
| S-I38 | UNT to Hominy Creek | Nicholas | Huntington | 38.194221 | -80.719357 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0089 | - | 143 | - | 4-342 |
| S-I39 | UNT to Hominy Creek | Nicholas | Huntington | 38.194025 | -80.719298 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 79 | - | 0.0126 | - | 204 | - | 4-342 |
| S-I40 | UNT to Hominy Creek | Nicholas | Huntington | 38.187582 | -80.723025 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0133 | - | 214 | - | 4-343 |
| S-I41 | UNT to Hominy Creek | Nicholas | Huntington | 38.179384 | -80.729497 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 78 | - | 0.0143 | - | 231 | - | 4-344 |
| S-I36 | Hominy Creek | Nicholas | Huntington | 38.178889 | -80.729790 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0976 | - | 1575 | - | 4-347 |
| S-I31 | UNT to Hominy Creek | Nicholas | Huntington | 38.163802 | -80.730743 | Ephemeral | NRPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 73 | - | 0.0033 | - | 54 | - | 4-355 |
| S-N8a | UNT to Hominy Creek | Nicholas | Huntington | 38.162363 | -80.733602 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-355 |
| S-VV1 | UNT to Hominy Creek | Nicholas | Huntington | 38.161064 | -80.735022 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-355 |
| S-H88 | Sugar Branch | Nicholas | Huntington | 38.136744 | -80.730560 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 76 | - | 0.0697 | - | 1125 | - | 4-359 |
| S-H71 | UNT to Hominy Creek | Nicholas | Huntington | 38.124315 | -80.735783 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 93 | - | 0.0257 | - | 415 | - | 4-362 |
| S-H67 | UNT to Hominy Creek | Nicholas | Huntington | 38.120580 | -80.736772 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 85 | - | 0.0235 | - | 379 | - | 4-363 |
| S-H64 | UNT to Hominy Creek | Nicholas | Huntington | 38.116279 | -80.735319 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 87 | - | 0.0060 | - | 96 | - | 4-364 |
| S-V3 | UNT to Hominy Creek | Nicholas | Huntington | 38.115823 | -80.730960 | Perennial | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0061 | - | 29 | - | 4-365 |
| S-EF41 | UNT to Hominy Creek | Nicholas | Huntington | 38.107549 | -80.726284 | Intermittent | RPW | Category B-2 Trout Waters, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0038 | - | 61 | - | 4-366 |
| S-J19 | UNT to Meadow Creek | Greenbrier | Huntington | 38.028599 | -80.743623 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-382 |
| S-J20 | UNT to Meadow Creek | Greenbrier | Huntington | 38.023801 | -80.747266 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0152 | - | 73 | - | 4-385 |
| S-I25 | UNT to Meadow Creek | Greenbrier | Huntington | 38.020430 | -80.753194 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 75 | - | 0.0086 | - | 139 | - | 4-390 |
| S-I26 | UNT to Meadow Creek | Greenbrier | Huntington | 38.019129 | -80.755220 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 78 | - | 0.0090 | - | 145 | - | 4-390 |
| S-I27 | UNT to Meadow Creek | Greenbrier | Huntington | 38.018031 | -80.755999 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-390 |
| S-L26 | UNT to Meadow River | Greenbrier | Huntington | 37.981900 | -80.755213 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 205 | - | 0.0141 | - | 227 | - | 4-397 |

**Table A-1. West Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-L26 | UNT to Meadow River | Greenbrier | Huntington | 37.980598 | -80.754872 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 166 | - | 0.0114 | - | 184 | - | 4-397 |
| S-EF38 | UNT to Little Sewell Creek | Greenbrier | Huntington | 37.963259 | -80.733162 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-400 |
| S-L24 | UNT to Little Sewell Creek | Greenbrier | Huntington | 37.963068 | -80.733141 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-400 |
| S-L27 | UNT to Little Sewell Creek | Greenbrier | Huntington | 37.960725 | -80.732852 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-401 |
| S-L30 | UNT to Little Sewell Creek | Greenbrier | Huntington | 37.954276 | -80.739708 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 136 | - | 0.0093 | - | 151 | - | 4-402 |
| S-L22 | Little Sewell Creek | Greenbrier | Huntington | 37.954035 | -80.739868 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050005 | Pipeline ROW | 75 | - | 0.0517 | - | 834 | - | 4-402 |
| S-L20 | UNT to Little Sewell Creek | Greenbrier | Huntington | 37.949579 | -80.742646 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 96 | - | 0.0111 | - | 179 | - | 4-403 |
| S-L10 | UNT to Boggs Creek | Greenbrier | Huntington | 37.938308 | -80.747009 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 103 | - | 0.0071 | - | 115 | - | 4-405 |
| S-L11 | UNT to Boggs Creek | Greenbrier | Huntington | 37.938229 | -80.746912 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 26 | - | 0.0018 | - | 9 | - | 4-405 |
| S-I21 | UNT to Boggs Creek | Greenbrier | Huntington | 37.918228 | -80.736774 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 30 | - | 0.0034 | - | 55 | - | 4-409 |
| S-I21 | UNT to Boggs Creek | Greenbrier | Huntington | 37.918164 | -80.736852 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 77 | - | 0.0089 | - | 143 | - | 4-409 |
| S-I22 | UNT to Boggs Creek | Greenbrier | Huntington | 37.918041 | -80.736833 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 94 | - | 0.0043 | - | 70 | - | 4-409 |
| S-I23a | UNT to Boggs Creek | Greenbrier | Huntington | 37.917347 | -80.738534 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | - | 33 | - | 0.0030 | - | 10 | 4-409 |
| S-IJ54 | UNT to Boggs Creek | Greenbrier | Huntington | 37.917125 | -80.742425 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | - | 31 | - | 0.0036 | - | 17 | 4-410 |
| S-IJ53 | UNT to Boggs Creek | Greenbrier | Huntington | 37.916234 | -80.744156 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | - | 20 | - | 0.0055 | - | 27 | 4-410 |
| S-HH8 | UNT to Buffalo Creek | Greenbrier | Huntington | 37.865308 | -80.753802 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | ATWS | 15 | | 0.0007 | | 3 | | 4-421 |
| S-K25/K18 | UNT to Buffalo Creek | Greenbrier | Huntington | 37.863772 | -80.756993 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | ATWS | 70 | | 0.0096 | | 156 | | 4-421 |
| S-K17 | Buffalo Creek | Greenbrier | Huntington | 37.863065 | -80.757391 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050005 | Pipeline ROW | 75 | - | 0.0432 | - | 698 | - | 4-420 |
| S-K19 | UNT to Buffalo Creek | Greenbrier | Huntington | 37.860940 | -80.757825 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 93 | - | 0.0107 | - | 172 | - | 4-421 |
| S-K21 | UNT to Buffalo Creek | Greenbrier | Huntington | 37.858566 | -80.755584 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 82 | - | 0.0189 | - | 304 | - | 4-422 |
| S-K22 | UNT to Buffalo Creek | Greenbrier | Huntington | 37.858315 | -80.755546 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 78 | - | 0.0125 | - | 202 | - | 4-422 |
| S-UV6 | UNT to Morris Fork | Greenbrier | Huntington | 37.854386 | -80.754981 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 88 | - | 0.0161 | - | 260 | - | 4-422 |
| S-UV2 | Morris Fork | Greenbrier | Huntington | 37.851318 | -80.751436 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050005 | Permanent Access Road | - | 28 | - | 0.0103 | - | 50 | 4-423 |
| S-UV2 | Morris Fork | Greenbrier | Huntington | 37.851099 | -80.752978 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050005 | Pipeline ROW | 88 | - | 0.0324 | - | 523 | - | 4-423 |
| S-U22 | UNT to Meadow River | Greenbrier | Huntington | 37.839558 | -80.748496 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 80 | - | 0.0221 | - | 356 | - | 4-425 |
| S-FF1 | UNT to Meadow River | Greenbrier | Huntington | 37.837560 | -80.751903 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | 11 | - | 0.0008 | - | 4 | - | 4-425 |
| S-FF1 | UNT to Meadow River | Greenbrier | Huntington | 37.837519 | -80.751898 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Permanent Access Road | - | 31 | - | 0.0021 | - | 10 | 4-425 |
| S-EE4 | UNT to Red Spring Branch | Summers | Huntington | 37.813881 | -80.748817 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Pipeline ROW | 137 | - | 0.0079 | - | 127 | - | 4-429 |
| S-M6 | UNT to Red Spring Branch | Summers | Huntington | 37.807650 | -80.746173 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Pipeline ROW | 110 | | 0.0101 | - | 163 | - | 4-430 |
| S-J13 | UNT to Patterson Creek | Summers | Huntington | 37.797484 | -80.733605 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 92 | - | 0.0085 | - | 137 | - | 4-432 |
| S-J13 | UNT to Patterson Creek | Summers | Huntington | 37.796572 | -80.732397 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 96 | - | 0.0088 | - | 142 | - | 4-432 |
| S-J13 | UNT to Patterson Creek | Summers | Huntington | 37.795915 | -80.731850 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050005 | Pipeline ROW | 124 | - | 0.0114 | - | 183 | - | 4-432 |
| S-M5 | Red Spring Branch | Summers | Huntington | 37.792243 | -80.728802 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050004 | Timber Mat Crossing | 22 | - | 0.0030 | - | 15 | - | 4-433 |
| S-M4 | UNT to Red Spring Branch | Summers | Huntington | 37.786834 | -80.728719 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050004 | Temporary Access Road | 47 | - | 0.0032 | - | 16 | - | 4-434 |
| S-I13 | UNT to Lick Creek | Summers | Huntington | 37.782534 | -80.719085 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Timber Mat Crossing | 22 | - | 0.0076 | - | 37 | - | 4-437 |
| S-I14 | UNT to Lick Creek | Summers | Huntington | 37.781099 | -80.719318 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-437 |
| S-I15 | UNT to Lick Creek | Summers | Huntington | 37.779878 | -80.720470 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Timber Mat Crossing | 22 | - | 0.0051 | - | 24 | - | 4-437 |
| S-I16 | UNT to Lick Creek | Summers | Huntington | 37.779381 | -80.721388 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-440 |
| S-I12 | Lick Creek | Summers | Huntington | 37.775891 | -80.710797 | Intermittent | RPW | Warmwater Fishery, Tier 1 | 05050004 | Permanent Access Road | - | 38 | - | 0.0035 | - | 11 | 4-438 |
| S-I17 | UNT to Lick Creek | Summers | Huntington | 37.775160 | -80.728058 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050004 | Pipeline ROW | 78 | - | 0.0045 | - | 72 | - | 4-441 |
| S-I10 | UNT to Lick Creek | Summers | Huntington | 37.772437 | -80.713781 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050004 | Permanent Access Road | - | 26 | - | 0.0018 | - | 9 | 4-439 |
| S-I19 | Lick Creek | Summers | Huntington | 37.772089 | -80.732901 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050004 | Pipeline ROW | 77 | - | 0.0265 | - | 428 | - | 4-441 |
| S-I20 | UNT to Lick Creek | Summers | Huntington | 37.771406 | -80.733241 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050004 | Pipeline ROW | 92 | - | 0.0212 | - | 342 | - | 4-441 |
| S-N5 | UNT to Hungard Creek | Summers | Huntington | 37.704240 | -80.744827 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 87 | - | 0.0040 | - | 65 | - | 4-459 |
| S-K14 | UNT to Righthand Fork Hungard Creek | Summers | Huntington | 37.696788 | -80.739242 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 97 | - | 0.0089 | - | 143 | - | 4-460 |
| S-N3 | UNT to Hungard Creek | Summers | Huntington | 37.694776 | -80.736952 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-461 |
| S-N2 | Hungard Creek | Summers | Huntington | 37.694507 | -80.736682 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050003 | Timber Mat Crossing | 22 | - | 0.0101 | - | 49 | - | 4-461 |
| S-CD23 | UNT to Hungard Creek | Summers | Huntington | 37.694228 | -80.736099 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0045 | - | 22 | - | 4-461 |
| S-N4 | UNT to Hungard Creek | Summers | Huntington | 37.693961 | -80.735841 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0015 | - | 7 | - | 4-461 |
| S-KL29 | Right Fork Hungard Creek | Summers | Huntington | 37.692932 | -80.733839 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 75 | - | 0.0863 | - | 1392 | - | 4-461 |
| S-M3 | Hungard Creek | Summers | Huntington | 37.692868 | -80.734247 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050003 | Pipeline ROW | 80 | - | 0.0183 | - | 295 | - | 4-461 |
| S-CV17 | UNT to Greenbrier River | Summers | Huntington | 37.681865 | -80.730095 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 76 | - | 0.0070 | - | 34 | - | 4-464 |
| S-EF53 | UNT to Greenbrier River | Summers | Huntington | 37.681323 | -80.729672 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Temporary Access Road | 51 | - | 0.0095 | - | 46 | - | 4-464 |
| S-I9 | UNT to Greenbrier River | Summers | Huntington | 37.675977 | -80.732822 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0035 | - | 17 | - | 4-465 |
| S-K10 | UNT to Greenbrier River | Summers | Huntington | 37.675079 | -80.734384 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Temporary Access Road | 9 | - | 0.0013 | - | 6 | - | 4-465 |
| S-K10 | UNT to Greenbrier River | Summers | Huntington | 37.675070 | -80.734447 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Permanent Access Road | - | 31 | - | 0.0043 | - | 21 | 4-465 |
| S-K10 | UNT to Greenbrier River | Summers | Huntington | 37.675058 | -80.734522 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Temporary Access Road | 9 | - | 0.0013 | - | 6 | - | 4-465 |
| S-L4 | UNT to Greenbrier River | Summers | Huntington | 37.673213 | -80.729772 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 77 | - | 0.0176 | - | 284 | - | 4-465 |
| S-L2 | UNT to Greenbrier River | Summers | Huntington | 37.671392 | -80.728311 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 88 | - | 0.0081 | - | 130 | - | 4-467 |

**Table A-1. West Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | USACE District | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (acres)[5] | Permanent Impact Area (acres)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-L1 | UNT to Kelly Creek | Summers | Huntington | 37.668076 | -80.723470 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 76 | - | 0.0104 | - | 168 | - | 4-468 |
| S-J5 | Kelly Creek | Summers | Huntington | 37.666864 | -80.721794 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050003 | Pipeline ROW | 103 | - | 0.0471 | - | 759 | - | 4-468 |
| S-K4 | UNT to Keller Creek | Summers | Huntington | 37.665806 | -80.725709 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Temporary Access Road | - | 22 | - | 0.0010 | - | 4 | 4-468 |
| S-J4 | UNT to Keller Creek | Summers | Huntington | 37.663926 | -80.715460 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-469 |
| S-G47 | UNT to Wind Creek | Summers | Huntington | 37.654112 | -80.702579 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-471 |
| S-G52 | UNT to Wind Creek | Monroe | Huntington | 37.627537 | -80.695593 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0010 | - | 5 | - | 4-479 |
| S-G49 | UNT to Wind Creek | Monroe | Huntington | 37.627381 | -80.695679 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0101 | - | 49 | - | 4-479 |
| S-G48 | Wind Creek | Monroe | Huntington | 37.627308 | -80.695759 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0101 | - | 49 | - | 4-479 |
| S-H61 | UNT to Stoney Creek | Monroe | Huntington | 37.618426 | -80.699138 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0126 | - | 61 | - | 4-483 |
| S-OP1 | Stony Creek | Monroe | Huntington | 37.600003 | -80.700509 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050003 | Pipeline ROW | 78 | - | 0.0090 | - | 145 | - | 4-487 |
| S-IJ64 | UNT to Little Stony Creek | Monroe | Huntington | 37.591822 | -80.705874 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050003 | Timber Mat Crossing | 22 | - | 0.0030 | - | 15 | - | 4-488 |
| S-A63 | Slate Run | Monroe | Huntington | 37.560706 | -80.709825 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Permanent Access Road | - | 25 | - | 0.0057 | - | 28 | 4-492 |
| S-A63 | Slate Run | Monroe | Huntington | 37.560460 | -80.710233 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 88 | - | 0.0203 | - | 327 | - | 4-492 |
| S-A61 | UNT to Slate Run | Monroe | Huntington | 37.559351 | -80.709683 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Temporary Access Road | 8 | - | 0.0012 | - | 6 | - | 4-493 |
| S-A61 | UNT to Slate Run | Monroe | Huntington | 37.559334 | -80.709736 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Permanent Access Road | - | 26 | - | 0.0041 | - | 14 | 4-493 |
| S-A61 | UNT to Slate Run | Monroe | Huntington | 37.559328 | -80.709792 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Temporary Access Road | 8 | - | 0.0013 | - | 6 | - | 4-493 |
| S-A61 | UNT to Slate Run | Monroe | Huntington | 37.559320 | -80.710037 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 81 | - | 0.0131 | - | 211 | - | 4-493 |
| S-A60 | Slate Run | Monroe | Huntington | 37.558698 | -80.709966 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 87 | - | 0.0358 | - | 578 | - | 4-492 |
| S-CV26 | UNT to Slate Run | Monroe | Huntington | 37.556445 | -80.708883 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Permanent Access Road | - | 32 | - | 0.0044 | | 21 | 4-493 |
| S-D31 | Indian Creek | Monroe | Huntington | 37.554163 | -80.710853 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050002 | Pipeline ROW | 75 | - | 0.1120 | - | 1807 | - | 4-493 |
| S-D29 | UNT to Hans Creek | Monroe | Huntington | 37.547394 | -80.712099 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-494 |
| S-D25 | UNT to Hans Creek | Monroe | Huntington | 37.538768 | -80.718855 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Timber Mat Crossing | 22 | - | 0.0020 | - | 10 | - | 4-496 |
| S-F18 | UNT to Hans Creek | Monroe | Huntington | 37.538273 | -80.719070 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Permanent Access Road | - | 26 | - | 0.0107 | - | 52 | 4-496 |
| S-F18 | UNT to Hans Creek | Monroe | Huntington | 37.536872 | -80.716923 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Timber Mat Crossing | 22 | - | 0.0091 | - | 44 | - | 4-496 |
| S-Z5 | UNT to Hans Creek | Monroe | Huntington | 37.524333 | -80.711450 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 75 | - | 0.0034 | - | 56 | - | 4-499 |
| S-Z4 | UNT to Hans Creek | Monroe | Huntington | 37.524302 | -80.711444 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 75 | - | 0.0043 | - | 69 | - | 4-499 |
| S-MN2 | UNT to Hans Creek | Monroe | Huntington | 37.520012 | -80.707606 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 81 | | 0.0130 | - | 210 | - | 4-500 |
| S-CV19 | Hans Creek | Monroe | Huntington | 37.500284 | -80.691498 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050002 | Pipeline ROW | 77 | - | 0.0619 | - | 998 | - | 4-505 |
| S-MN39 | UNT to Blue Lick Creek | Monroe | Huntington | 37.487733 | -80.681765 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 22 | - | 0.0010 | - | 16 | - | 4-510 |
| S-MN38 | UNT to Blue Lick Creek | Monroe | Huntington | 37.487721 | -80.681929 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 22 | | 0.0030 | - | 48 | - | 4-510 |
| S-MN37 | UNT to Blue Lick Creek | Monroe | Huntington | 37.487584 | -80.681992 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 95 | | 0.0040 | - | 65 | - | 4-510 |
| S-MN40 | UNT to Blue Lick Creek | Monroe | Huntington | 37.487519 | -80.681996 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 37 | | 0.0010 | - | 16 | - | 4-510 |
| S-G44 | UNT to Hans Creek | Monroe | Huntington | 37.474870 | -80.676267 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 86 | - | 0.0079 | - | 128 | - | 4-511 |
| S-G43 | UNT to Hans Creek | Monroe | Huntington | 37.473139 | -80.675738 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Timber Mat Crossing | 22 | - | 0.0025 | - | 12 | - | 4-511 |
| S-G42 | UNT to Hans Creek | Monroe | Huntington | 37.472602 | -80.675456 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 79 | - | 0.0055 | - | 88 | - | 4-512 |
| S-MN45 | UNT to Hans Creek | Monroe | Huntington | 37.462878 | -80.670284 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 87 | | 0.0040 | - | 65 | - | 4-513 |
| S-CV27 | UNT to Hans Creek | Monroe | Huntington | 37.462850 | -80.669582 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 37 | - | 0.0017 | - | 8 | - | 4-513 |
| S-E43 | UNT to Dry Creek | Monroe | Huntington | 37.453834 | -80.664417 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 92 | - | 0.0147 | - | 237 | - | 4-515 |
| S-E45 | UNT to Dry Creek | Monroe | Huntington | 37.453798 | -80.664266 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 108 | - | 0.0074 | - | 120 | - | 4-515 |
| S-E40 | Dry Creek | Monroe | Huntington | 37.451003 | -80.667795 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050002 | Temporary Access Road | 43 | - | 0.0117 | - | 57 | - | 4-515 |
| S-E40 | Dry Creek | Monroe | Huntington | 37.450757 | -80.667719 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050002 | Pipeline ROW | 82 | - | 0.0227 | - | 366 | - | 4-515 |
| S-E41 | UNT to Dry Creek | Monroe | Huntington | 37.450692 | -80.667650 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 23 | - | 0.0010 | - | 5 | - | 4-516 |
| S-C38 | UNT to Painter Run | Monroe | Huntington | 37.426915 | -80.694499 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 89 | - | 0.0143 | - | 231 | - | 4-521 |
| S-C39 | Painter Run | Monroe | Huntington | 37.426686 | -80.694499 | Perennial | RPW | Warmwater Fishery, Tier 1 | 05050002 | Pipeline ROW | 109 | - | 0.0125 | - | 202 | - | 4-521 |
| S-C41 | UNT to Painter Run | Monroe | Huntington | 37.426161 | -80.694592 | Intermittent | RPW | Warmwater Fishery, Tier 2 | 05050002 | Pipeline ROW | 143 | - | 0.0100 | - | 161 | - | 4-521 |
| S-C40 | UNT to Painter Run | Monroe | Huntington | 37.425372 | -80.693417 | Perennial | RPW | Warmwater Fishery, Tier 2 | 05050002 | Temporary Access Road | 77 | - | 0.0053 | - | 26 | - | 4-521 |

Notes:
1 - For identified streams without a NHD (National Hydrography Dataset) name, the identified stream was given the name, "Unidentified Tributary (UNT)", of the first named receiving waterbody
2 - In decimal degrees
3 - RPW = Relatively Permanent Waters
- NRPW = Non-Relatively Permanent Waters
- TNW = Traditional Navigable Waters
4 - See Section 1.9.2 and Section 4.2 for more information
5 - Acres are rounded to four decimal places.
6 - Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.
7 - Permanent fill associated with the construction of Permanent access road and facilities. Cubic yards are rounded to the nearest whole number.

Mountain Valley PIPELINE LLC

# Table A-2 (West Virginia Wetland Impacts)

**Table A-2. West Virginia Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-B55 | Harrison | Pittsburgh | 39.436246 | -80.474973 | PEM | RPWWD | 05020002 | Timber Mat Crossing | 0.0054 | - | - | 26 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Floodflow Alteration | 4-36 |
| W-J32-PEM-1 | Harrison | Pittsburgh | 39.391614 | -80.477085 | PEM | RPWWN | 05020002 | Temporary Access Road | 0.0417 | - | - | 202 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-44 |
| W-A10a | Harrison | Pittsburgh | 39.369569 | -80.485054 | PEM | RPWWD | 05020002 | Timber Mat Crossing | 0.0153 | - | - | 74 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention | 4-49 |
| W-B1a | Harrison | Pittsburgh | 39.360192 | -80.492766 | PEM | NRPWW | 05020002 | Pipeline ROW | 0.0119 | - | - | 192 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Floodflow Alteration | 4-50 |
| W-A40 | Harrison | Pittsburgh | 39.358924 | -80.493367 | PEM | RPWWN | 05020002 | Pipeline ROW/ATWS | 0.3111 | - | - | 1,506 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Floodflow Alteration | 4-51 |
| W-A39 | Harrison | Pittsburgh | 39.358865 | -80.490797 | PEM | RPWWN | 05020002 | Permanent Access Road | 0.0280 | - | - | 136 | - | Sediment/Toxicant/Pathogen Retention | 4-51 |
| W-ST11 | Harrison | Pittsburgh | 39.338239 | -80.519656 | PEM | NRPWW | 05020002 | Temporary Access Road/ATWS | 0.0228 | - | - | 110 | - | Sediment/Toxicant/Pathogen Retention | 4-56 |
| W-ST12-PEM | Harrison | Pittsburgh | 39.337471 | -80.522128 | PEM | RPWWD | 05020002 | Temporary Access Road/ATWS | 0.0582 | - | - | 282 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Wildlife Habitat; Production Export | 4-56 |
| W-ST12-PSS | Harrison | Pittsburgh | 39.337457 | -80.522185 | PSS | RPWWD | 05020002 | Temporary Access Road/ATWS | - | 0.1444 | - | 699 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Wildlife Habitat; Production Export | 4-56 |
| W-B2a | Harrison | Pittsburgh | 39.316856 | -80.525315 | PEM | RPWWD | 05020002 | ATWS | 0.1953 | - | - | 945 | - | Sediment/Toxicant Retention, Nutrient Removal | 4-59 |
| W-B4a | Harrison | Pittsburgh | 39.316784 | -80.526129 | PEM | RPWWD | 05020002 | Timber Mat Crossing | 0.0214 | - | - | 104 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-59 |
| W-UU1 | Harrison | Pittsburgh | 39.290258 | -80.518898 | PFO | RPWWD | 05020002 | Pipeline ROW | - | 0.0045 | - | 22 | - | Sediment/Toxicant/Pathogen Retention | 4-66 |
| W-UU3 | Harrison | Pittsburgh | 39.289750 | -80.518517 | PFO | RPWWN | 05020002 | Pipeline ROW | - | 0.0065 | - | 105 | - | Sediment/Toxicant/Pathogen Retention | 4-66 |
| W-UU4a | Harrison | Pittsburgh | 39.253101 | -80.540498 | PEM | RPWWD | 05020002 | Pipeline ROW/ATWS | 0.1268 | - | - | 2,046 | - | Groundwater Recharge/Discharge; Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-74 |
| W-F52 | Harrison | Pittsburgh | 39.250487 | -80.551891 | PEM | NRPWW | 05020002 | Temporary Access Road | 0.0625 | - | - | 302 | - | Sediment/Toxicant/Pathogen Retention | 4-76 |
| W-F54 | Harrison | Pittsburgh | 39.249640 | -80.550121 | PEM | NRPWW | 05020002 | Timber Mat Crossing | 0.0042 | - | - | 20 | - | Sediment/Toxicant/Pathogen Retention | 4-76 |
| W-F53 | Harrison | Pittsburgh | 39.249629 | -80.549909 | PEM | NRPWW | 05020002 | Timber Mat Crossing | 0.0080 | - | - | 39 | - | Sediment/Toxicant/Pathogen Retention | 4-76 |
| W-F55 | Harrison | Pittsburgh | 39.249464 | -80.551040 | PEM | NRPWW | 05020002 | Timber Mat Crossing | 0.0173 | - | - | 84 | - | Sediment/Toxicant/Pathogen Retention | 4-76 |

**Table A-2. West Virginia Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-K43 | Harrison | Pittsburgh | 39.243915 | -80.553961 | PEM | RPWWD | 05020002 | Pipeline ROW | 0.2086 | - | - | 3,365 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-77 |
| W-K44 | Harrison | Pittsburgh | 39.243493 | -80.554033 | PEM | RPWWD | 05020002 | Pipeline ROW | 0.0671 | - | - | 1,083 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration | 4-77 |
| W-CV15 | Harrison | Pittsburgh | 39.223490 | -80.548109 | PEM | RPWWD | 05020002 | Timber Mat Crossing | 0.0512 | - | | 248 | - | Groundwater Recharge/Discharge; Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-81 |
| W-J40 | Lewis | Pittsburgh | 39.167631 | -80.578355 | PEM | RPWWD | 05020002 | Pipeline ROW | 0.2931 | - | - | 4,729 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-92 |
| W-J40 | Lewis | Pittsburgh | 39.167564 | -80.578800 | PEM | RPWWD | 05020002 | Temporary Access Road | 0.1812 | - | - | 877 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-92 |
| W-A24 | Harrison | Pittsburgh | 39.165608 | -80.569523 | PEM | NRPWW | 05020002 | Temporary Access Road | 0.0002 | - | - | 1 | - | Sediment/Toxicant/Pathogen Retention | 4-91 |
| W-VV5 | Lewis | Pittsburgh | 39.137820 | -80.576075 | PEM | RPWWD | 05020002 | ATWS | 0.0202 | - | - | 98 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization; Nutrient Removal/Retention/Transformation | 4-99 |
| W-IJ23 | Lewis | Pittsburgh | 39.131093 | -80.572126 | PEM | RPWWN | 05020002 | Temporary Access Road | 0.0065 | - | - | 31 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-100 |
| W-IJ24 | Lewis | Pittsburgh | 39.130718 | -80.571966 | PEM | RPWWN | 05020002 | Temporary Access Road | 0.0041 | - | - | 20 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-100 |
| W-J20 | Lewis | Pittsburgh | 39.116053 | -80.589196 | PEM | NRPWW | 05020002 | Permanent Access Road | 0.0081 | - | - | 39 | - | Sediment/Toxicant/Pathogen Retention | 4-103 |
| W-J23 | Lewis | Pittsburgh | 39.114118 | -80.586522 | PEM | RPWWN | 05020002 | Pipeline ROW | 0.0130 | - | - | 210 | - | Sediment/Toxicant/Pathogen Retention | 4-103 |
| W-K31 | Lewis | Pittsburgh | 39.080555 | -80.581362 | PEM | NRPWW | 05020002 | Pipeline ROW/Temporary Access Road | 0.1135 | - | - | 549 | - | Sediment/Toxicant/Pathogen Retention | 4-109 |
| W-ST14 | Lewis | Pittsburgh | 39.079947 | -80.583108 | PEM | RPWWD | 05020002 | Anode Bed | 0.0394 | - | - | 191 | - | Sediment/Toxicant/Pathogen Retention | 4-110 |
| W-ST15 | Lewis | Pittsburgh | 39.079855 | -80.582499 | PEM | RPWWN | 05020002 | Anode Bed | 0.0711 | - | - | 344 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-110 |
| W-B46 | Lewis | Pittsburgh | 39.079854 | -80.581439 | PEM | RPWWD | 05020002 | Pipeline ROW/Temporary Access Road | 0.1255 | - | - | 607 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-110 |
| W-B47 | Lewis | Pittsburgh | 39.079451 | -80.581349 | PEM | RPWWD | 05020002 | Timber Mat Crossing | 0.0682 | - | - | 330 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-110 |
| W-B51 | Lewis | Pittsburgh | 39.078107 | -80.581235 | PEM | NRPWW | 05020002 | Timber Mat Crossing | 0.0035 | - | - | 17 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-110 |
| W-B54 | Lewis | Pittsburgh | 39.073907 | -80.581491 | PEM | NRPWW | 05020002 | Timber Mat Crossing | 0.0101 | - | - | 49 | - | Sediment/Toxicant/Pathogen Retention | 4-110 |

**Table A-2. West Virginia Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-H112 | Lewis | Pittsburgh | 39.066480 | -80.581624 | PEM | NRPWW | 05020002 | Pipeline ROW | 0.0231 | - | - | 373 | - | Sediment/Toxicant/Pathogen Retention | 4-111 |
| W-ME1 | Wetzel | Huntington | 39.561837 | -80.544176 | PEM | RPWWD | 05030201 | ATWS | 0.0382 | - | - | 185 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Floodflow Alteration | 4-1 |
| W-ME2 | Wetzel | Huntington | 39.559744 | -80.546756 | PEM | RPWWN | 05030201 | ATWS | 0.1036 | - | - | 501 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention | 4-1 |
| W-ME3 | Wetzel | Huntington | 39.559075 | -80.547489 | PEM | RPWWN | 05030201 | ATWS | 0.0869 | - | - | 421 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention | 4-1 |
| W-A1a | Wetzel | Huntington | 39.553912 | -80.544941 | PEM | RPWWD | 05030201 | Pipeline ROW | 0.0038 | - | - | 18 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Floodflow Alteration | 4-3 |
| W-A2a | Wetzel | Huntington | 39.553508 | -80.545518 | PEM | RPWWN | 05030201 | Timber Mat Crossing | 0.0424 | - | - | 205 | - | Sediment/Toxicant/Pathogen Retention | 4-3 |
| W-A4a | Wetzel | Huntington | 39.544642 | -80.542833 | PEM | NRPWW | 05030201 | Timber Mat Crossing | 0.0070 | - | - | 34 | - | Sediment/Toxicant/Pathogen Retention | 4-5 |
| W-IJ31 | Wetzel | Huntington | 39.505764 | -80.541781 | PEM | RPWWN | 05030201 | ATWS | 0.0992 | - | - | 480 | - | Sediment/Toxicant/Pathogen Retention | 4-18 |
| W-IJ31 | Wetzel | Huntington | 39.505612 | -80.541681 | PEM | RPWWN | 05030201 | Permanent Access Road | - | - | 0.0082 | - | 40 | Sediment/Toxicant/Pathogen Retention | 4-18 |
| W-A27-PFO | Wetzel | Huntington | 39.502389 | -80.523497 | PFO | RPWWD | 05030201 | Pipeline ROW | - | 0.0547 | - | 882 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Floodflow Alteration | 4-20 |
| W-A27-PEM | Wetzel | Huntington | 39.502356 | -80.523420 | PEM | RPWWD | 05030201 | Pipeline ROW | 0.0497 | - | - | 802 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Floodflow Alteration | 4-20 |
| W-A35 | Wetzel | Huntington | 39.491159 | -80.520537 | PEM | NRPWW | 05030201 | Pipeline ROW | 0.0066 | - | - | 107 | - | Sediment/Toxicant/Pathogen Retention | 4-23 |
| W-A34 | Wetzel | Huntington | 39.489742 | -80.520750 | PEM | RPWWD | 05030201 | Timber Mat Crossing | 0.0296 | - | - | 143 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Floodflow Alteration | 4-23 |
| W-WX5 | Wetzel | Huntington | 39.463909 | -80.502672 | PEM | RPWWD | 05030201 | Temporary Access Road | 0.0011 | - | - | 5 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-28 |
| W-WX4 | Wetzel | Huntington | 39.463864 | -80.502581 | PEM | RPWWD | 05030201 | Temporary Access Road | 0.0095 | - | - | 46 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-28 |
| W-K52 | Doddridge | Huntington | 39.236762 | -80.558524 | PEM | RPWWN | 05030201 | Permanent Access Road | 0.0021 | - | - | 10 | - | Sediment/Toxicant/Pathogen Retention | 4-78 |
| W-K52 | Doddridge | Huntington | 39.236727 | -80.558550 | PEM | RPWWN | 5030201 | Permanent Access Road | - | - | 0.0115 | - | 56 | Sediment/Toxicant/Pathogen Retention | 4-78 |
| W-K45 | Doddridge | Huntington | 39.228900 | -80.552328 | PEM | RPWWD | 05030201 | Pipeline ROW | 0.0401 | - | - | 648 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-80 |

**Table A-2. West Virginia Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-K41 | Doddridge | Huntington | 39.208990 | -80.551957 | PEM | RPWWD | 05030201 | Timber Mat Crossing | 0.0109 | - | - | 53 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-84 |
| W-A23 | Doddridge | Huntington | 39.201188 | -80.552996 | PEM | RPWWD | 05030201 | Pipeline ROW | 0.2701 | - | - | 4,358 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-85 |
| W-A23 | Doddridge | Huntington | 39.201157 | -80.553264 | PEM | RPWWD | 05030201 | Permanent Access Road | - | - | 0.0579 | - | 280 | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-85 |
| W-B57 | Lewis | Huntington | 39.111745 | -80.587352 | PEM | NRPWW | 05030203 | Pipeline ROW/Temporary Access Road | 0.0336 | - | - | 163 | - | Sediment/Toxicant/Pathogen Retention | 4-104 |
| W-K33-PSS | Lewis | Huntington | 39.095059 | -80.585064 | PSS | RPWWD | 05030203 | Pipeline ROW | - | 0.0024 | - | 12 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-106 |
| W-K33-PEM | Lewis | Huntington | 39.095056 | -80.584787 | PEM | RPWWD | 05030203 | Pipeline ROW | 0.1544 | - | - | 2,490 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-106 |
| W-K34-PEM | Lewis | Huntington | 39.093945 | -80.585460 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0253 | - | - | 122 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-106 |
| W-H109 | Lewis | Huntington | 39.053324 | -80.582020 | PEM | NRPWW | 05030203 | Pipeline ROW | - | - | 0.0027 | - | 13 | Sediment/Toxicant/Pathogen Retention | 4-114 |
| W-I22-PEM | Lewis | Huntington | 39.052952 | -80.582437 | PEM | RPWWD | 05030203 | ATWS | 0.0018 | - | - | 9 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration | 4-114 |
| W-I22-PEM | Lewis | Huntington | 39.052768 | -80.582196 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0162 | - | - | 78 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration | 4-114 |
| W-I22-PEM | Lewis | Huntington | 39.052760 | -80.582147 | PEM | RPWWD | 05030203 | Permanent Access Road | - | - | 0.0059 | - | 28 | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration | 4-114 |
| W-KK6 | Lewis | Huntington | 39.017820 | -80.596977 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0212 | - | - | 103 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-119 |
| W-I15 | Lewis | Huntington | 38.968609 | -80.592042 | PEM | RPWWN | 05030203 | Pipeline ROW | 0.0631 | - | - | 1,018 | - | Sediment/Toxicant/Pathogen Retention | 4-128 |
| W-I16 | Lewis | Huntington | 38.964758 | -80.590881 | PEM | NRPWW | 05030203 | Timber Mat Crossing | 0.0177 | - | - | 86 | - | Sediment/Toxicant/Pathogen Retention | 4-129 |
| W-I17 | Lewis | Huntington | 38.964195 | -80.590961 | PEM | NRPWW | 05030203 | Timber Mat Crossing | 0.0017 | | - | 8 | - | Sediment/Toxicant/Pathogen Retention | 4-129 |
| W-I20 | Lewis | Huntington | 38.962362 | -80.590607 | PEM | NRPWW | 05030203 | Timber Mat Crossing | 0.0379 | - | - | 183 | - | Sediment/Toxicant/Pathogen Retention; Wildlife Habitat | 4-129 |
| W-I21 | Lewis | Huntington | 38.962126 | -80.590741 | PEM | NRPWW | 05030203 | Timber Mat Crossing | 0.0631 | - | - | 306 | - | Sediment/Toxicant/Pathogen Retention | 4-129 |
| W-UU7 | Lewis | Huntington | 38.933646 | -80.585074 | PEM | NRPWW | 05030203 | Pipeline ROW | 0.0038 | - | - | 19 | - | Sediment/Toxicant/Pathogen Retention | 4-135 |

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**Individual Permit Application**
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| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-H103 | Lewis | Huntington | 38.933290 | -80.584765 | PEM | RPWWN | 05030203 | ATWS | 0.0037 | - | - | 18 | - | Sediment/Toxicant/Pathogen Retention | 4-135 |
| W-H103 | Lewis | Huntington | 38.933290 | -80.584765 | PEM | RPWWN | 05030203 | Timber Mat Crossing | 0.0050 | - | - | 24 | - | Sediment/Toxicant/Pathogen Retention | 4-135 |
| W-H102 | Lewis | Huntington | 38.933168 | -80.584990 | PEM | RPWWN | 05030203 | ATWS | 0.0129 | - | - | 62 | - | Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-135 |
| W-H107 | Lewis | Huntington | 38.932901 | -80.584200 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0328 | - | - | 159 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-135 |
| W-H98 | Lewis | Huntington | 38.925976 | -80.578373 | PEM | NRPWW | 05030203 | Permanent Access Road | - | - | 0.0331 | - | 160 | Sediment/Toxicant/Pathogen Retention | 4-136 |
| W-H98 | Lewis | Huntington | 38.925868 | -80.578367 | PEM | NRPWW | 05030203 | Temporary Access Road | 0.0032 | - | - | 15 | - | Sediment/Toxicant/Pathogen Retention | 4-136 |
| W-H108 | Lewis | Huntington | 38.918766 | -80.573564 | PEM | RPWWN | 05030203 | Timber Mat Crossing | 0.0278 | - | - | 134 | - | Sediment/Toxicant/Pathogen Retention | 4-140 |
| W-H96 | Lewis | Huntington | 38.913939 | -80.571910 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0039 | | - | 19 | - | Sediment/Toxicant/Pathogen Retention | 4-142 |
| W-H95 | Lewis | Huntington | 38.913311 | -80.571953 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0414 | - | - | 200 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-142 |
| W-VV9 | Lewis | Huntington | 38.904701 | -80.563951 | PEM | RPWWD | 05030203 | Pipeline ROW | 0.0534 | - | - | 259 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-144 |
| W-CD17 | Lewis | Huntington | 38.904074 | -80.563709 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0335 | | - | 162 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-144 |
| W-CD16 | Lewis | Huntington | 38.903722 | -80.563418 | PEM | RPWWN | 05030203 | Temporary Access Road/ ATWS | 0.0023 | - | - | 11 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-144 |
| W-CD16 | Lewis | Huntington | 38.903722 | -80.563418 | PEM | RPWWN | 05030203 | Pipeline ROW | 0.0226 | - | - | 365 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-144 |
| W-VV8 | Lewis | Huntington | 38.903514 | -80.563258 | PEM | RPWWD | 05030203 | Pipeline ROW | 0.0708 | - | - | 1,143 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-144 |
| W-CD18 | Lewis | Huntington | 38.902751 | -80.564644 | PEM | RPWWD | 05030203 | Temporary Access Road | 0.0322 | - | - | 156 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-144 |
| W-CD19 | Lewis | Huntington | 38.902618 | -80.564694 | PEM | RPWWD | 05030203 | Temporary Access Road | 0.0080 | - | - | 39 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-144 |
| W-CD21 | Lewis | Huntington | 38.901049 | -80.566582 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0161 | - | - | 78 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-146 |
| W-CD23 | Lewis | Huntington | 38.898699 | -80.568306 | PEM | RPWWD | 05030203 | Temporary Access Road | 0.0349 | - | - | 169 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-146 |

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| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-CD24 | Lewis | Huntington | 38.898648 | -80.568238 | PEM | RPWWD | 05030203 | Temporary Access Road | 0.0094 | - | - | 45 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-146 |
| W-CD36 | Lewis | Huntington | 38.898177 | -80.568287 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0049 | - | - | 24 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-146 |
| W-CD25 | Lewis | Huntington | 38.898021 | -80.568159 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0100 | - | - | 48 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-146 |
| W-CD26 | Lewis | Huntington | 38.897805 | -80.568155 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0114 | - | - | 55 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-146 |
| W-VV10 | Lewis | Huntington | 38.897282 | -80.567014 | PEM | NRPWW | 05030203 | Temporary Access Road | 0.0091 | - | - | 44 | - | Sediment/Toxicant/Pathogen Retention | 4-146 |
| W-UV17 | Lewis | Huntington | 38.893199 | -80.556196 | PFO | RPWWN | 05030203 | Pipeline ROW | - | 0.0055 | - | 27 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-148 |
| W-ST16 | Lewis | Huntington | 38.892534 | -80.556680 | PEM | RPWWN | 05030203 | Temporary Anode Bed | 0.0711 | - | - | 344 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-148 |
| W-VV11 | Lewis | Huntington | 38.890576 | -80.554852 | PEM | NRPWW | 05030203 | Temporary Access Road | 0.0246 | - | - | 119 | - | Sediment/Toxicant/Pathogen Retention | 4-148 |
| W-VV12 | Lewis | Huntington | 38.890309 | -80.553784 | PEM | NRPWW | 05030203 | Temporary Access Road | 0.0277 | - | - | 134 | - | Sediment/Toxicant/Pathogen Retention | 4-148 |
| W-VV4-PEM | Lewis | Huntington | 38.863280 | -80.525705 | PEM | RPWWD | 05030203 | Timber Mat Crossing | 0.0131 | - | - | 64 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-158 |
| W-VV4-PFO | Lewis | Huntington | 38.863238 | -80.525813 | PFO | RPWWD | 05030203 | Timber Mat Crossing | - | 0.0263 | - | 127 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-158 |
| W-VV3-PEM | Lewis | Huntington | 38.862795 | -80.525190 | PEM | RPWWD | 05030203 | Pipeline ROW | 0.0447 | - | - | 721 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-158 |
| W-VV3-PFO | Braxton | Huntington | 38.862691 | -80.525163 | PFO | RPWWD | 05030203 | Pipeline ROW | - | 0.0160 | - | 259 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-158 |
| W-H90 | Braxton | Huntington | 38.760419 | -80.513602 | PEM | RPWWD | 05030203 | Pipeline ROW | 0.0388 | - | - | 627 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-179 |
| W-QR13 | Braxton | Huntington | 38.751445 | -80.516905 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0618 | - | - | 299 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-180 |
| W-QR12 | Braxton | Huntington | 38.749364 | -80.522081 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0881 | - | - | 426 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-181 |
| W-QR11 | Braxton | Huntington | 38.747846 | -80.521602 | PEM | RPWWN | 05030203 | Temporary Access Road | 0.0559 | - | - | 271 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-181 |
| W-I11b | Braxton | Huntington | 38.708869 | -80.489369 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0098 | - | - | 47 | - | Sediment/Toxicant/Pathogen Retention | 4-194 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-R2 | Webster | Huntington | 38.667178 | -80.480225 | PEM | RPWWD | 05050007 | Temporary Access Road | 0.0620 | - | - | 300 | - | Sediment/Toxicant/Pathogen Retention | 4-201 |
| W-KK3 | Webster | Huntington | 38.667027 | -80.478547 | PEM | RPWWD | 05050007 | Pipeline ROW | 0.0222 | - | - | 357 | - | Sediment/Toxicant/Pathogen Retention | 4-201 |
| W-R3 | Webster | Huntington | 38.666869 | -80.480889 | PEM | NRPWW | 05050007 | Temporary Access Road | 0.0155 | - | - | 75 | - | Sediment/Toxicant/Pathogen Retention | 4-201 |
| W-F46 | Webster | Huntington | 38.664132 | -80.479008 | PEM | RPWWN | 05050007 | Timber Mat Crossing | 0.0039 | | - | 19 | - | Sediment/Toxicant/Pathogen Retention | 4-202 |
| W-R4 | Webster | Huntington | 38.664021 | -80.483434 | PEM | NRPWW | 05050007 | Temporary Access Road | 0.0432 | - | - | 209 | - | Sediment/Toxicant/Pathogen Retention | 4-204 |
| W-H75 | Webster | Huntington | 38.607280 | -80.504722 | PEM | RPWWN | 05050007 | Pipeline ROW | 0.0108 | - | - | 174 | - | Sediment/Toxicant/Pathogen Retention | 4-219 |
| W-H79 | Webster | Huntington | 38.602069 | -80.508493 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0077 | | - | 125 | - | Sediment/Toxicant/Pathogen Retention | 4-220 |
| W-H81 | Webster | Huntington | 38.599491 | -80.506376 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0237 | - | - | 115 | - | Sediment/Toxicant/Pathogen Retention | 4-220 |
| W-H82 | Webster | Huntington | 38.598415 | -80.505238 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0128 | | - | 62 | - | Sediment/Toxicant/Pathogen Retention | 4-221 |
| W-H86 | Webster | Huntington | 38.591803 | -80.508481 | PEM | NRPWW | 05050007 | Pipeline ROW | 0.0013 | - | - | 6 | - | Sediment/Toxicant/Pathogen Retention | 4-222 |
| W-H83 | Webster | Huntington | 38.591372 | -80.508904 | PEM | NRPWW | 05050007 | Pipeline ROW/Temporary Access Road | 0.0177 | - | - | 86 | - | Sediment/Toxicant/Pathogen Retention | 4-222 |
| W-T4 | Webster | Huntington | 38.586855 | -80.518697 | PEM | NRPWW | 05050007 | Temporary Access Road | 0.0403 | - | - | 195 | - | Sediment/Toxicant/Pathogen Retention | 4-224 |
| W-H85 | Webster | Huntington | 38.586644 | -80.510350 | PEM | NRPWW | 05050007 | Pipeline ROW | 0.0069 | - | - | 33 | - | Sediment/Toxicant/Pathogen Retention | 4-222 |
| W-A20-PFO | Webster | Huntington | 38.566923 | -80.529968 | PFO | NRPWW | 05050007 | Timber Mat Crossing | - | 0.0298 | - | 144 | - | Sediment/Toxicant/Pathogen Retention; Production Export; Wildlife Habitat | 4-232 |
| W-A20-PEM | Webster | Huntington | 38.566910 | -80.530098 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0117 | | - | 57 | - | Sediment/Toxicant/Pathogen Retention; Production Export; Wildlife Habitat | 4-232 |
| W-A19 | Webster | Huntington | 38.557156 | -80.538578 | PEM | RPWWD | 05050007 | Temporary Access Road | 0.0265 | - | - | 128 | - | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-235 |
| W-H70 | Webster | Huntington | 38.557097 | -80.526293 | PEM | NRPWW | 05050007 | Permanent Access Road | - | - | 0.0057 | - | 28 | Sediment/Toxicant/Pathogen Retention | 4-238 |
| W-H71 | Webster | Huntington | 38.556454 | -80.526913 | PEM | NRPWW | 05050007 | Permanent Access Road | - | - | 0.0205 | - | 99 | Sediment/Toxicant/Pathogen Retention; Wildlife Habitat | 4-238 |

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**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-H72 | Webster | Huntington | 38.553783 | -80.527760 | PEM | NRPWW | 05050007 | Permanent Access Road | - | - | 0.0064 | - | 31 | Sediment/Toxicant/Pathogen Retention | 4-237 |
| W-H73 | Webster | Huntington | 38.553085 | -80.528148 | PEM | NRPWW | 05050007 | Permanent Access Road | - | - | 0.0061 | - | 29 | Sediment/Toxicant/Pathogen Retention | 4-237 |
| W-H74 | Webster | Huntington | 38.552748 | -80.533585 | PEM | NRPWW | 05050007 | Permanent Access Road | - | - | 0.0115 | - | 56 | Sediment/Toxicant/Pathogen Retention | 4-237 |
| W-H67 | Webster | Huntington | 38.549313 | -80.539242 | PFO | RPWWD | 05050007 | Pipeline ROW/Temporary Access Road | - | 0.0908 | - | 1,465 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat | 4-236 |
| W-H66 | Webster | Huntington | 38.548873 | -80.539592 | PFO | RPWWD | 05050007 | Pipeline ROW | - | 0.2496 | - | 4,026 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat | 4-236 |
| W-H64-PEM | Webster | Huntington | 38.548175 | -80.540709 | PEM | RPWWD | 05050007 | Pipeline ROW | 0.0276 | - | - | 133 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-236 |
| W-H64-PSS | Webster | Huntington | 38.548099 | -80.540896 | PSS | RPWWD | 05050007 | Pipeline ROW | - | 0.0422 | - | 681 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-236 |
| W-H64-PEM-2 | Webster | Huntington | 38.548058 | -80.540847 | PEM | RPWWD | 05050007 | Pipeline ROW | 0.0289 | - | - | 466 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-236 |
| W-H56 | Webster | Huntington | 38.545807 | -80.542983 | PEM | RPWWD | 05050007 | Pipeline ROW | 0.0206 | - | - | 100 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Wildlife Habitat | 4-248 |
| W-O13 | Webster | Huntington | 38.533655 | -80.513682 | PEM | RPWWN | 05050007 | Permanent Access Road | - | - | 0.0405 | - | 196 | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-244 |
| W-KL8 | Webster | Huntington | 38.519565 | -80.545076 | PEM | NRPWW | 05050007 | Pipeline ROW | 0.0976 | - | - | 472 | - | Sediment/Toxicant/Pathogen Retention | 4-252 |
| W-H60 | Webster | Huntington | 38.517850 | -80.544693 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0495 | - | - | 240 | - | Sediment/Toxicant/Pathogen Retention | 4-253 |
| W-H61 | Webster | Huntington | 38.517345 | -80.545025 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0094 | | - | 151 | - | Sediment/Toxicant/Pathogen Retention; Wildlife Habitat | 4-253 |
| W-H62 | Webster | Huntington | 38.517147 | -80.545591 | PEM | NRPWW | 05050007 | Pipeline ROW | 0.0335 | - | - | 162 | - | Sediment/Toxicant/Pathogen Retention; Wildlife Habitat | 4-253 |
| W-B39 | Webster | Huntington | 38.508151 | -80.559329 | PEM | NRPWW | 05050007 | Pipeline ROW | 0.0906 | - | - | 1,462 | - | Sediment/Toxicant/Pathogen Retention | 4-255 |
| W-B31 | Webster | Huntington | 38.494322 | -80.561155 | PEM | RPWWD | 05050007 | Pipeline ROW | 0.0515 | - | - | 831 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-260 |
| W-B35 | Webster | Huntington | 38.493757 | -80.560962 | PSS | RPWWD | 05050007 | Pipeline ROW | - | 0.0108 | - | 174 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-260 |
| W-A18 | Webster | Huntington | 38.481237 | -80.555783 | PEM | RPWWD | 05050007 | Temporary Access Road | 0.2038 | - | - | 986 | - | Sediment/Toxicant/Pathogen Retention | 4-263 |

**Table A-2. West Virginia Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-E28 | Webster | Huntington | 38.443010 | -80.551309 | PSS | RPWWD | 05050007 | Permanent Access Road | - | - | 0.0084 | - | 40 | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Wildlife Habitat | 4-269 |
| W-E30 | Webster | Huntington | 38.441535 | -80.550864 | PEM | RPWWN | 05050007 | Temporary Access Road | - | - | 0.0316 | - | 153 | Sediment/Toxicant/Pathogen Retention | 4-269 |
| W-F26 | Webster | Huntington | 38.428623 | -80.567054 | PEM | NRPWW | 05050007 | Timber Mat Crossing | 0.0045 | | - | 22 | - | Sediment/Toxicant/Pathogen Retention | 4-277 |
| W-F29 | Webster | Huntington | 38.424050 | -80.570711 | PEM | RPWWD | 05050007 | Timber Mat Crossing | 0.0071 | - | - | 34 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-278 |
| W-F28 | Webster | Huntington | 38.423890 | -80.570659 | PEM | RPWWD | 05050007 | Timber Mat Crossing | 0.0071 | - | - | 34 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-278 |
| W-F40 | Webster | Huntington | 38.421461 | -80.570007 | PSS | RPWWD | 05050007 | Temporary Access Road | - | 0.0188 | - | 91 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-278 |
| W-F41 | Webster | Huntington | 38.417599 | -80.576458 | PEM | RPWWD | 05050007 | Temporary Access Road | 0.0002 | - | - | 1 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-279 |
| W-B30 | Webster | Huntington | 38.405713 | -80.591171 | PEM | RPWWD | 05050007 | Timber Mat Crossing | 0.0429 | - | - | 208 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-281 |
| W-B28 | Webster | Huntington | 38.399940 | -80.597527 | PEM | RPWWD | 05050007 | Pipeline ROW/Anode Bed | 0.2983 | - | - | 4,812 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-282 |
| W-E21 | Webster | Huntington | 38.370595 | -80.611923 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0389 | - | - | 627 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-289 |
| W-E18-PEM | Webster | Huntington | 38.367359 | -80.612334 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0208 | - | - | 101 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-290 |
| W-E18-PSS | Webster | Huntington | 38.367284 | -80.612248 | PSS | RPWWD | 05050005 | Pipeline ROW | - | 0.0538 | - | 868 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Production Export; Wildlife Habitat | 4-290 |
| W-E16 | Nicholas | Huntington | 38.364427 | -80.614459 | PEM | NRPWW | 05050005 | Timber Mat Crossing | 0.0091 | - | - | 44 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-291 |
| W-E13 | Webster | Huntington | 38.364017 | -80.616570 | PFO | RPWWN | 05050005 | Timber Mat Crossing | - | 0.0107 | - | 52 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-291 |
| W-F13 | Nicholas | Huntington | 38.356737 | -80.631888 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0394 | - | - | 191 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-293 |
| W-F12 | Nicholas | Huntington | 38.356528 | -80.632264 | PEM | RPWWD | 05050005 | Timber Mat Crossing | 0.0576 | - | - | 279 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-293 |
| W-F11 | Nicholas | Huntington | 38.355680 | -80.633383 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0652 | - | - | 315 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-293 |
| W-K23 | Nicholas | Huntington | 38.355273 | -80.633811 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0489 | - | - | 789 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-293 |

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| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-K20 | Nicholas | Huntington | 38.354644 | -80.634586 | PEM | RPWWD | 05050005 | Timber Mat Crossing | 0.0100 | | - | 48 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-293 |
| W-IJ51 | Nicholas | Huntington | 38.352366 | -80.636369 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0410 | - | - | 662 | - | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-293 |
| W-IJ50 | Nicholas | Huntington | 38.350787 | -80.637226 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0528 | - | - | 852 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-294 |
| W-IJ55 | Nicholas | Huntington | 38.343568 | -80.646491 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0218 | - | - | 352 | - | Sediment/Toxicant/Pathogen Retention | 4-296 |
| W-B27 | Nicholas | Huntington | 38.339713 | -80.655364 | PEM | RPWWD | 05050005 | Timber Mat Crossing | 0.0874 | - | - | 423 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-299 |
| W-B26-PEM-1 | Nicholas | Huntington | 38.339034 | -80.659282 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0273 | - | - | 132 | - | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-299 |
| W-B26-PEM-2 | Nicholas | Huntington | 38.338935 | -80.659254 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0060 | - | - | 29 | - | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-299 |
| W-FF6-PSS | Nicholas | Huntington | 38.337803 | -80.658933 | PSS | RPWWN | 05050005 | Timber Mat Crossing | - | 0.0333 | - | 161 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Wildlife Habitat | 4-299 |
| W-FF6-PEM | Nicholas | Huntington | 38.337774 | -80.658995 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0793 | - | - | 384 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-299 |
| W-FF3 | Nicholas | Huntington | 38.332776 | -80.669068 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0444 | - | - | 716 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-301 |
| W-FF4 | Nicholas | Huntington | 38.329122 | -80.671098 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0037 | - | - | 18 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-301 |
| W-A17 | Nicholas | Huntington | 38.327813 | -80.670776 | PEM | NRPWW | 05050005 | Pipeline ROW | 0.1300 | - | - | 2,098 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-301 |
| W-A15 | Nicholas | Huntington | 38.323735 | -80.670118 | PSS | RPWWD | 05050005 | Pipeline ROW | - | 0.0891 | - | 1,437 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat | 4-302 |
| W-A14 | Nicholas | Huntington | 38.321643 | -80.670901 | PFO | RPWWD | 05050005 | Timber Mat Crossing | - | 0.0374 | - | 181 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat | 4-302 |
| W-H53 | Nicholas | Huntington | 38.313047 | -80.673265 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0039 | - | - | 63 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-304 |
| W-H50 | Nicholas | Huntington | 38.309707 | -80.676585 | PEM | NRPWW | 05050005 | Temporary Access Road | 0.0114 | - | - | 55 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-304 |
| W-N25 | Nicholas | Huntington | 38.302028 | -80.674533 | PEM | RPWWD | 05050005 | Timber Mat Crossing | 0.0104 | | - | 50 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-306 |
| W-N24 | Nicholas | Huntington | 38.299148 | -80.675928 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0031 | | - | 15 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-307 |

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| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-N22 | Nicholas | Huntington | 38.296941 | -80.676479 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0030 | | - | 14 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-307 |
| W-I7 | Nicholas | Huntington | 38.293453 | -80.677084 | PFO | RPWWD | 05050005 | Timber Mat Crossing | - | 0.0333 | - | 161 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat | 4-308 |
| W-CV13 | Nicholas | Huntington | 38.273139 | -80.686452 | PEM | RPWWN | 05050005 | Permanent Access Road | 0.0159 | - | - | 77 | - | Sediment/Toxicant/Pathogen Retention | 4-312 |
| W-CV12 | Nicholas | Huntington | 38.271829 | -80.685245 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0098 | - | - | 47 | - | Sediment/Toxicant/Pathogen Retention | 4-312 |
| W-RS04 | Nicholas | Huntington | 38.264804 | -80.683146 | PEM | NRPWW | 05050005 | Temporary Access Road | 0.0254 | - | - | 123 | - | Sediment/Toxicant/Pathogen Retention | 4-316 |
| W-J8 | Nicholas | Huntington | 38.263168 | -80.687930 | PFO | RPWWD | 05050005 | Pipeline ROW | - | 0.0533 | - | 860 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat | 4-315 |
| W-MN4 | Nicholas | Huntington | 38.262968 | -80.683949 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0463 | - | - | 224 | - | Sediment/Toxicant/Pathogen Retention | 4-316 |
| W-J7 | Nicholas | Huntington | 38.233731 | -80.708250 | PFO | RPWWD | 05050005 | Pipeline ROW | - | 0.0693 | - | 1,119 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Wildlife Habitat; Production Export | 4-326 |
| W-N18 | Nicholas | Huntington | 38.224246 | -80.716448 | PEM | NRPWW | 05050005 | Pipeline ROW | 0.0075 | - | - | 36 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-328 |
| W-L28 | Nicholas | Huntington | 38.203621 | -80.719372 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0064 | - | - | 31 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-341 |
| W-L27 | Nicholas | Huntington | 38.202610 | -80.718505 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0029 | | - | 14 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-341 |
| W-I11a | Nicholas | Huntington | 38.179434 | -80.729511 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0579 | - | - | 934 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration | 4-344 |
| W-U7 | Nicholas | Huntington | 38.178298 | -80.729744 | PEM | RPWWN | 05050005 | ATWS | 0.0666 | - | - | 322 | - | Sediment/Toxicant/Pathogen Retention; Wildlife Habitat | 4-347 |
| W-I5 | Nicholas | Huntington | 38.175595 | -80.730736 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0082 | - | - | 133 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-347 |
| W-VV2 | Nicholas | Huntington | 38.161072 | -80.735000 | PEM | RPWWD | 05050005 | Timber Mat Crossing | 0.0136 | - | - | 66 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization | 4-355 |
| W-N16 | Nicholas | Huntington | 38.157063 | -80.738304 | PEM | NRPWW | 05050005 | Timber Mat Crossing | 0.0232 | - | - | 112 | - | Sediment/Toxicant/Pathogen Retention | 4-356 |
| W-H41 | Nicholas | Huntington | 38.127873 | -80.733868 | PEM | RPWWN | 05050005 | Timber Mat Crossing | 0.0151 | | - | 73 | - | Sediment/Toxicant/Pathogen Retention | 4-362 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-H33 | Nicholas | Huntington | 38.124326 | -80.735761 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0590 | - | - | 952 | - | Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Sediment/Shoreline Stabilization, Production Export | 4-362 |
| W-H35 | Nicholas | Huntington | 38.124117 | -80.736018 | PEM | RPWWN | 05050005 | Pipeline ROW | - | - | 0.0177 | - | 285 | Sediment/Toxicant/Pathogen Retention | 4-362 |
| W-H31 | Nicholas | Huntington | 38.116376 | -80.735285 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0139 | - | - | 67 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-364 |
| W-EF31 | Nicholas | Huntington | 38.107483 | -80.726303 | PEM | RPWWD | 05050005 | Pipeline ROW/ATWS | 0.0208 | - | - | 336 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-366 |
| W-M18 | Greenbrier | Huntington | 38.061194 | -80.720732 | PEM | NRPWW | 05050005 | Timber Mat Crossing | 0.0364 | - | - | 176 | - | Sediment/Toxicant/Pathogen Retention | 4-374 |
| W-M20 | Greenbrier | Huntington | 38.060869 | -80.723064 | PEM | NRPWW | 05050005 | Pipeline ROW | 0.0031 | - | - | 15 | - | Sediment/Toxicant/Pathogen Retention | 4-374 |
| W-M23 | Greenbrier | Huntington | 38.060683 | -80.722348 | PEM | NRPWW | 05050005 | Pipeline ROW | 0.0616 | - | - | 994 | - | Sediment/Toxicant/Pathogen Retention | 4-374 |
| W-M22 | Greenbrier | Huntington | 38.060661 | -80.722616 | PSS | NRPWW | 05050005 | Pipeline ROW | - | 0.0039 | - | 19 | - | Sediment/Toxicant/Pathogen Retention; Wildlife Habitat; Production Export | 4-374 |
| W-J6 | Greenbrier | Huntington | 38.053361 | -80.732198 | PFO | RPWWD | 05050005 | Pipeline ROW | - | 0.0744 | - | 1,201 | - | Sediment/Toxicant/Pathogen Retention; Wildlife Habitat; Production Export | 4-376 |
| W-ST27 | Greenbrier | Huntington | 38.029124 | -80.742585 | PEM | NRPWW | 05050005 | Temporary Access Road | 0.0075 | - | - | 36 | - | Sediment/Toxicant/Pathogen Retention | 4-382 |
| W-KL40 | Greenbrier | Huntington | 38.029060 | -80.736807 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0312 | - | - | 151 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-388 |
| W-ST28 | Greenbrier | Huntington | 38.028800 | -80.743155 | PEM | NRPWW | 05050005 | Temporary Access Road | 0.0310 | - | - | 150 | - | Sediment/Toxicant/Pathogen Retention | 4-382 |
| W-IJ60 | Greenbrier | Huntington | 38.024335 | -80.739643 | PEM | RPWWN | 05050005 | Temporary Access Road | 0.0174 | - | - | 84 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-387 |
| W-IJ59 | Greenbrier | Huntington | 38.022031 | -80.743027 | PEM | RPWWN | 05050005 | Temporary Access Road | 0.0024 | - | - | 12 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-387 |
| W-IJ58-PEM-3 | Greenbrier | Huntington | 38.021808 | -80.743351 | PEM | RPWWD | 05050005 | Temporary Access Road | 0.0056 | - | - | 27 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-387 |
| W-V6 | Greenbrier | Huntington | 37.993269 | -80.756363 | PEM | RPWWN | 05050005 | Temporary Access Road | 0.0422 | - | - | 204 | - | Sediment/Toxicant/Pathogen Retention | 4-394 |
| W-HS1 | Greenbrier | Huntington | 37.986454 | -80.758418 | PEM | NRPWW | 05050005 | Pipeline ROW | - | - | 0.0360 | - | 581 | Sediment/Toxicant/Pathogen Retention | 4-395 |

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**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-QR2 | Greenbrier | Huntington | 37.983978 | -80.756817 | PEM | RPWWD | 05050005 | Permanent Access Road | - | - | 0.0010 | - | 5 | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export | 4-397 |
| W-QR2 | Greenbrier | Huntington | 37.983212 | -80.756099 | PEM | RPWWD | 05050005 | Pipeline ROW/Temporary Access Road | 0.2435 | - | - | 3,929 | - | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export | 4-397 |
| W-L16 | Greenbrier | Huntington | 37.980653 | -80.754908 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0247 | - | - | 398 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-397 |
| W-L19 | Greenbrier | Huntington | 37.954250 | -80.739757 | PEM | RPWWD | 05050005 | Pipeline ROW/Temporary Access Road | 0.1060 | - | - | 1,711 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-402 |
| W-L13 | Greenbrier | Huntington | 37.953825 | -80.740037 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0316 | - | - | 509 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Wildlife Habitat | 4-402 |
| W-L12 | Greenbrier | Huntington | 37.953736 | -80.739892 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0075 | - | - | 36 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-402 |
| W-L11 | Greenbrier | Huntington | 37.949563 | -80.742715 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0194 | - | - | 94 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-403 |
| W-L4 | Greenbrier | Huntington | 37.938675 | -80.746774 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0404 | - | - | 196 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-405 |
| W-L2 | Greenbrier | Huntington | 37.938326 | -80.746878 | PEM | RPWWD | 05050005 | Pipeline ROW/Temporary Access Road | 0.0393 | - | - | 635 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration | 4-405 |
| W-IJ47-PEM | Greenbrier | Huntington | 37.916423 | -80.743551 | PEM | RPWWD | 05050005 | Permanent Access Road | - | - | 0.0113 | - | 55 | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export | 4-410 |
| W-IJ47-PEM | Greenbrier | Huntington | 37.916255 | -80.743867 | PEM | RPWWD | 05050005 | Permanent Access Road | - | - | 0.0520 | - | 252 | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export | 4-410 |
| W-W10 | Greenbrier | Huntington | 37.911495 | -80.727880 | PEM | NRPWW | 05050005 | Temporary Access Road | 0.0488 | - | - | 236 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-412 |
| W-K7 | Greenbrier | Huntington | 37.863700 | -80.757095 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0078 | - | - | 126 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-421 |
| W-K7 | Greenbrier | Huntington | 37.863527 | -80.757286 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.3206 | - | - | 5,173 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-421 |
| W-IJ30 | Greenbrier | Huntington | 37.862357 | -80.757476 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.3236 | - | - | 5,221 | - | Floodflow Alteration, Sediment/Toxicant/Pathogen Retention | 4-421 |
| W-UV9 | Greenbrier | Huntington | 37.862309 | -80.757756 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.1090 | - | - | 1,759 | - | Floodflow Alteration, Sediment/Toxicant/Pathogen Retention | 4-421 |
| W-UV11 | Greenbrier | Huntington | 37.861173 | -80.757726 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0285 | - | - | 138 | - | Sediment/Toxicant/Pathogen Retention | 4-421 |
| W-UV10 | Greenbrier | Huntington | 37.861066 | -80.757954 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0035 | - | - | 17 | - | Sediment/Toxicant/Pathogen Retention | 4-421 |

**Table A-2. West Virginia Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-K9-PEM-1 | Greenbrier | Huntington | 37.860916 | -80.757817 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.0354 | - | - | 572 | - | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export | 4-421 |
| W-K10 | Greenbrier | Huntington | 37.858743 | -80.755724 | PEM | RPWWN | 05050005 | Pipeline ROW | 0.0068 | - | - | 33 | - | Sediment/Toxicant/Pathogen Retention | 4-422 |
| W-UV4 | Greenbrier | Huntington | 37.854391 | -80.755038 | PSS | RPWWD | 05050005 | Pipeline ROW | - | 0.0885 | - | 1,427 | - | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export | 4-422 |
| W-UV8 | Greenbrier | Huntington | 37.851590 | -80.752937 | PEM | RPWWD | 05050005 | Pipeline ROW | 0.4913 | - | - | 7,926 | - | Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-423 |
| W-EE4 | Summers | Huntington | 37.813845 | -80.748769 | PEM | RPWWD | 05050004 | Pipeline ROW | 0.0453 | - | - | 730 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Wildlife Habitat | 4-429 |
| W-M2 | Summers | Huntington | 37.807721 | -80.746088 | PEM | RPWWD | 05050004 | Pipeline ROW | 0.1064 | - | - | 1,717 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Wildlife Habitat | 4-430 |
| W-I10 | Summers | Huntington | 37.783907 | -80.718899 | PEM | NRPWW | 05050005 | Permanent Access Road | - | - | 0.0550 | - | 266 | Sediment/Toxicant/Pathogen Retention | 4-437 |
| W-EF40 | Summers | Huntington | 37.693888 | -80.735663 | PEM | RPWWD | 05050003 | Timber Mat Crossing | 0.0889 | - | - | 430 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention | 4-461 |
| W-MM20-PFO | Summers | Huntington | 37.681648 | -80.730225 | PFO | RPWWD | 05050003 | Pipeline ROW, Temporary Access Road, ATWS | - | 0.2990 | - | 3,773 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Floodflow Alteration | 4-464 |
| W-EF36 | Summers | Huntington | 37.675423 | -80.732001 | PEM | RPWWN | 05050003 | Timber Mat Crossing | 0.0035 | - | - | 17 | - | Sediment/Toxicant/Pathogen Retention | 4-465 |
| W-K2-PEM | Summers | Huntington | 37.668130 | -80.723493 | PEM | RPWWD | 05050003 | Pipeline ROW | 0.0140 | - | - | 225 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention | 4-468 |
| W-G7 | Summers | Huntington | 37.654106 | -80.702592 | PEM | NRPWW | 05050003 | Timber Mat Crossing | 0.0121 | - | - | 59 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-471 |
| W-OP1 | Monroe | Huntington | 37.600067 | -80.700400 | PEM | RPWWD | 05050003 | Pipeline ROW | 0.1359 | - | - | 2,193 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Sediment/Shoreline Stabilization | 4-487 |
| W-A13 | Monroe | Huntington | 37.559410 | -80.710082 | PEM | RPWWD | 05050002 | Pipeline ROW/Temporary Access Road | 0.2991 | - | - | 4,826 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-493 |
| W-A13 | Monroe | Huntington | 37.559332 | -80.709734 | PEM | RPWWD | 05050002 | Permanent Access Road | - | - | 0.0228 | - | 110 | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-493 |
| W-MN14 | Monroe | Huntington | 37.520227 | -80.707365 | PEM | RPWWD | 05050002 | Pipeline ROW/Access Road/ATWS | 0.0390 | - | - | 313 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-500 |
| W-MN15 | Monroe | Huntington | 37.520166 | -80.707532 | PEM | RPWWN | 05050002 | Pipeline ROW | 0.0070 | - | - | 113 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-500 |
| W-MN18-PEM | Monroe | Huntington | 37.487662 | -80.681791 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.0510 | - | - | 823 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention | 4-510 |

**Table A-2. West Virginia Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (acres)[4] | Permanent Conversion Impacts (acres)[4] | Permanent Fill Impacts (acres)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Wetland Functions and Values[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-MN18-PFO | Monroe | Huntington | 37.487474 | -80.681854 | PFO | RPWWD | 05050002 | Pipeline ROW | - | 0.1750 | - | 2,823 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention | 4-510 |
| W-MN1 | Monroe | Huntington | 37.473153 | -80.675740 | PEM | RPWWD | 05050002 | Timber Mat Crossing | 0.0187 | - | - | 90 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal, Sediment/Shoreline Stabilization | 4-512 |
| W-G6 | Monroe | Huntington | 37.472534 | -80.675718 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.0684 | - | - | 1,103 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-512 |
| W-CV25-PSS-1 | Monroe | Huntington | 37.462852 | -80.669557 | PSS | RPWWD | 05050002 | Pipeline ROW | - | 0.0270 | - | 436 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-513 |
| W-MN24 | Monroe | Huntington | 37.462833 | -80.670273 | PEM | NRPWW | 05050002 | Pipeline ROW | 0.0100 | - | - | 161 | - | Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation | 4-513 |
| W-CV25-PEM-2 | Monroe | Huntington | 37.462746 | -80.669518 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.0200 | - | - | 323 | - | Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation | 4-513 |
| W-E12 | Monroe | Huntington | 37.450761 | -80.667516 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.0041 | - | - | 20 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-516 |
| W-C14 | Monroe | Huntington | 37.427083 | -80.694569 | PEM | RPWWN | 05050002 | Pipeline ROW | 0.0113 | - | - | 55 | - | Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-521 |
| W-C13 | Monroe | Huntington | 37.426734 | -80.694534 | PEM | RPWWD | 05050002 | Pipeline ROW | 0.2172 | - | - | 3,503 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-521 |
| W-C17 | Monroe | Huntington | 37.425547 | -80.693481 | PEM | RPWWD | 05050002 | Temporary Access Road | 0.0306 | - | - | 148 | - | Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation | 4-521 |

Notes:
1 - In decimal degrees.
2 - PEM = Palustrine Emergent
- PSS = Palustrine Scrub-Shrub
- PFO = Palustrine Forested
3 - RPWWD = Wetlands directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waterways (TNWs)
- RPWWN = Wetlands adjacent but not directly abutting RPWs that flow directly or indirectly into TNWs
- NRPWW = Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
4 - Construction of access roads will not result in impacts to tidal wetlands or wetlands adjacent to tidal waters. Construction, maintenance, or expansion of substation facilities will not result in discharges to non-tidal wetlands adjacent to tidal waters of the United States. Acres are rounded to four decimal places.
5 - Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.
6 - Permanent fill associated with the construction of permanent access road and facilities. Cubic yards are rounded to the nearest whole number.
7 - Functions and Values were determined using *The Highway Methodology Workbook Supplement: Wetland Functions and Values; A Descriptive Approach* , NAEEP-360-1-30a. New England District: USACE, 1999.

Mountain Valley PIPELINE LLC

# Table A-3 (West Virginia Stream Impact Summary)

# Table A-3. West Virginia Stream Impacts Summary *(revised 3/1/2021)*
# Individual Permit Application
# Mountain Valley Pipeline Project

| USACE District | Cowardin Class | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Fill (cubic yards) | Permanent Fill (cubic yards) |
|---|---|---|---|---|---|
| Pittsburgh District | Ephemeral | 617 | 137 | 500 | 42 |
| | Intermittent | 332 | 0 | 622 | 0 |
| | Perennial | 1,007 | 55 | 4,458 | 178 |
| | **Pittsburgh District Total** | **1,956** | **192** | **5,580** | **220** |
| Huntington District | Ephemeral | 4,966 | 265 | 4,761 | 92 |
| | Intermittent | 5,599 | 296 | 8,445 | 152 |
| | Perennial | 8,586 | 363 | 42,750 | 586 |
| | **Huntington District Total** | **19,151** | **924** | **55,956** | **830** |
| All District | Ephemeral | 5,583 | 402 | 5,261 | 134 |
| | Intermittent | 5,931 | 296 | 9,067 | 152 |
| | Perennial | 9,593 | 418 | 47,208 | 764 |
| | **All Districts Grand total** | **21,107** | **1,116** | **61,536** | **1,050** |

Mountain Valley PIPELINE LLC

# Table A-4 (West Virginia Wetland Impact Summary)

## Table A-4. West Virginia Wetland Impacts Summary *(revised 3/1/2021)*
## Individual Permit Application
## Mountain Valley Pipeline Project

| USACE District | Cowardin Class | Temporary Impacts (acres) | Permanent Conversion Impacts (acres) | Permanent Fill Impacts (acres) | Temporary Fill (cubic yards) | Permanent Fill (cubic yards) |
|---|---|---|---|---|---|---|
| Pittsburgh District | PEM | 2.2376 | 0.0000 | 0.0000 | 19,229 | 0 |
| | PSS | 0.0000 | 0.1444 | 0.0000 | 699 | 0 |
| | PFO | 0.0000 | 0.0110 | 0.0000 | 127 | 0 |
| | **Pittsburgh District Total** | **2.2376** | **0.1554** | **0.0000** | **20,055** | **0** |
| Huntington District | PEM | 7.9213 | 0.0000 | 0.4374 | 90,148 | 2,723 |
| | PSS | 0.0000 | 0.3698 | 0.0084 | 5,306 | 40 |
| | PFO | 0.0000 | 1.2251 | 0.0000 | 17,100 | 0 |
| | **Huntington District Total** | **7.9213** | **1.5949** | **0.4458** | **112,554** | **2,763** |
| All District | PEM | 10.1589 | 0.0000 | 0.4374 | 109,377 | 2,723 |
| | PSS | 0.0000 | 0.5142 | 0.0084 | 6,005 | 40 |
| | PFO | 0.0000 | 1.2361 | 0.0000 | 17,227 | 0 |
| | **All Districts Grand Total** | **10.1589** | **1.7503** | **0.4458** | **132,609** | **2,763** |

Mountain Valley PIPELINE LLC

# Table B-1 (Virginia Stream Impacts)

**Table B-1. Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (square feet)[5] | Permanent Impact Area (square feet)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-Q12 | UNT to Kimballton Branch | Giles | 37.375311 | -80.680878 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 86 | - | 344 | - | 127 | - | 4-531 |
| S-Q13 | Kimballton Branch | Giles | 37.374377 | -80.682038 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 90 | - | 1350 | - | 500 | - | 4-532 |
| S-P6 | UNT to Stony Creek | Giles | 37.362202 | -80.688092 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 78 | - | 466 | - | 173 | - | 4-535 |
| S-S5-Braid-2 | Stony Creek | Giles | 37.360325 | -80.684214 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 122 | - | 13 | - | 4-536 |
| S-S5-Braid-1 | Stony Creek | Giles | 37.360276 | -80.684193 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-536 |
| S-S5 | Stony Creek | Giles | 37.360071 | -80.683960 | Perennial | RPW | Candy darter, Green floater, pistol grip, Natural Trout, Coldwater Fishery, Stockable Trout | 05050002 | Timber Mat Crossing | 40 | - | 802 | - | 178 | - | 4-536 |
| S-G29 | UNT to Dry Branch | Giles | 37.350430 | -80.658259 | Ephemeral | NRPW | - | 05050002 | Pipeline ROW | 30 | - | 122 | - | 13 | - | 4-541 |
| S-G30 | UNT to Dry Branch | Giles | 37.350373 | -80.658230 | Ephemeral | NRPW | - | 05050002 | Pipeline ROW | 85 | - | 680 | - | 252 | - | 4-541 |
| S-G32 | Dry Branch | Giles | 37.349095 | -80.652040 | Intermittent | RPW | - | 05050002 | Pipeline ROW | 110 | - | 662 | - | 244 | - | 4-542 |
| S-G33 | UNT to Dry Branch | Giles | 37.348641 | -80.647225 | Perennial | RPW | - | 05050002 | Pipeline ROW | 99 | - | 793 | - | 293 | - | 4-542 |
| S-G35 | UNT to Little Stony Creek | Giles | 37.344876 | -80.633426 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 25 | - | 501 | - | 69 | - | 4-544 |
| S-SS4 | UNT to Little Stony Creek | Giles | 37.344859 | -80.631295 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-544 |
| S-G35 | UNT to Little Stony Creek | Giles | 37.344779 | -80.633379 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 25 | - | 501 | - | 69 | - | 4-544 |
| S-Z7 | UNT to Little Stony Creek | Giles | 37.344278 | -80.626185 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-545 |
| S-Z7-Braid-1 | UNT to Little Stony Creek | Giles | 37.344277 | -80.626113 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-545 |
| S-Z9 | UNT to Little Stony Creek | Giles | 37.344163 | -80.628400 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-544 |
| S-Z10 | UNT to Little Stony Creek | Giles | 37.342351 | -80.620823 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 240 | - | 27 | - | 4-545 |
| S-Z11 | UNT to Little Stony Creek | Giles | 37.342236 | -80.620542 | Perennial | RPW | Natural Trout, Coldwater Fishery, Stockable Trout | 05050002 | Timber Mat Crossing | 20 | - | 100 | - | 11 | - | 4-545 |
| S-Z12-EPH | UNT to Little Stony Creek | Giles | 37.342214 | -80.620312 | Ephemeral | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 122 | - | 13 | - | 4-545 |
| S-Z13 | Little Stony Creek | Giles | 37.342172 | -80.620090 | Perennial | RPW | Natural Trout, Coldwater Fishery, Stockable Trout | 05050002 | Timber Mat Crossing | 25 | - | 501 | - | 69 | - | 4-545 |
| S-Z14 | UNT to Little Stony Creek | Giles | 37.340977 | -80.618031 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-545 |
| S-YZ1 | Doe Creek | Giles | 37.338952 | -80.614618 | Intermittent | RPW | - | 05050002 | Temporary Access Road | 102 | - | 1019 | - | 113 | - | 4-546 |
| S-A34 | UNT to Doe Creek | Giles | 37.337763 | -80.606008 | Ephemeral | NRPW | - | 05050002 | Pipeline ROW | 86 | - | 601 | - | 223 | - | 4-548 |
| S-A33 | UNT to Doe Creek | Giles | 37.337639 | -80.605571 | Ephemeral | NRPW | - | 05050002 | Pipeline ROW | 111 | - | 775 | - | 288 | - | 4-548 |
| S-YZ1 | Doe Creek | Giles | 37.337562 | -80.614711 | Intermittent | RPW | - | 05050002 | Temporary Access Road | 92 | - | 919 | - | 102 | - | 4-546 |
| S-YZ1 | Doe Creek | Giles | 37.337048 | -80.614625 | Intermittent | RPW | - | 05050002 | Temporary Access Road | 121 | - | 1211 | - | 134 | - | 4-546 |
| S-A32 | UNT to Doe Creek | Giles | 37.335094 | -80.596868 | Perennial | RPW | - | 05050002 | Pipeline ROW | 78 | - | 1250 | - | 462 | - | 4-549 |
| S-QQ2 | Sinking Creek | Craig | 37.333152 | -80.429438 | Perennial | RPW | Natural Trout, Coldwater Fishery, Stockable Trout | 05050002 | Temporary Access Road | 40 | - | 1398 | - | 156 | - | 4-581 |
| S-MN11-Upstream | UNT to Sinking Creek | Giles | 37.332869 | -80.559168 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 15 | - | 61 | - | 7 | - | 4-554 |
| S-MN11-Upstream | UNT to Sinking Creek | Giles | 37.332191 | -80.559979 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 30 | - | 122 | - | 13 | - | 4-554 |
| S-MN11-Downstream | UNT to Sinking Creek | Giles | 37.332146 | -80.560079 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 37 | - | 183 | - | 21 | - | 4-554 |
| S-Y3 | UNT to Doe Creek | Giles | 37.331748 | -80.583355 | Ephemeral | NRPW | - | 05050002 | Timber Mat Crossing | 20 | - | 200 | - | 22 | - | 4-551 |
| S-Y2 | Doe Creek | Giles | 37.331332 | -80.583047 | Perennial | RPW | - | 05050002 | Timber Mat Crossing | 25 | - | 501 | - | 69 | - | 4-551 |
| S-PP4 | UNT to Sinking Creek | Craig | 37.328329 | -80.422810 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 84 | - | 170 | - | 62 | - | 4-579 |
| S-PP3 | UNT to Sinking Creek | Craig | 37.326705 | -80.425803 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 82 | - | 244 | - | 91 | - | 4-579 |
| S-RR4 | UNT to Sinking Creek | Giles | 37.326015 | -80.556831 | Perennial | RPW | - | 05050002 | Temporary Access Road | 85 | - | 257 | - | 28 | - | 4-556 |
| S-E24 | UNT to Sinking Creek | Giles | 37.325728 | -80.565082 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 81 | - | 1620 | - | 600 | - | 4-553 |
| S-E25-Downstream | UNT to Sinking Creek | Giles | 37.325638 | -80.564680 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 161 | - | 18 | - | 4-553 |
| S-E25-Upstream | UNT to Sinking Creek | Giles | 37.325607 | -80.564373 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 15 | - | 148 | - | 17 | - | 4-553 |
| S-E25-Downstream | UNT to Sinking Creek | Giles | 37.325566 | -80.564634 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 161 | - | 18 | - | 4-553 |
| S-PP1 | UNT to Sinking Creek | Craig | 37.324781 | -80.431446 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 86 | - | 257 | - | 96 | - | 4-578 |
| S-RR5 | UNT to Sinking Creek | Giles | 37.323702 | -80.555627 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 83 | - | 832 | - | 307 | - | 4-555 |
| S-PA07 | UNT to Sinking Creek | Giles | 37.323533 | -80.555257 | Intermittent | RPW | - | 05050002 | Pipeline ROW | 115 | - | 231 | - | 85 | - | 4-555 |
| S-IJ18-EPH | UNT to Sinking Creek | Giles | 37.322737 | -80.552396 | Ephemeral | NRPW | - | 05050002 | Pipeline ROW | 74 | - | 444 | - | 164 | - | 4-555 |
| S-IJ19 | UNT to Sinking Creek | Giles | 37.322194 | -80.553058 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 43 | - | 170 | - | 19 | - | 4-555 |
| S-IJ19 | UNT to Sinking Creek | Giles | 37.321823 | -80.55311 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 9 | - | 35 | - | 4 | - | 4-555 |
| S-IJ18-INT | UNT to Sinking Creek | Giles | 37.321756 | -80.553011 | Intermittent | RPW | - | 05050002 | Temporary Access Road | 44 | - | 174 | - | 20 | - | 4-555 |
| S-PP22 | UNT to Craig Creek | Montgomery | 37.321090 | -80.412831 | Intermittent | RPW | Atlantic Pigtoe, Coldwater Fishery | 02080201 | Timber Mat Crossing | 44 | - | 174 | - | 20 | - | 4-584 |
| S-OO12 | UNT to Sinking Creek | Giles | 37.318956 | -80.440648 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 25 | - | 48 | - | 6 | - | 4-577 |
| S-OO13 | UNT to Sinking Creek | Giles | 37.318930 | -80.440930 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 77 | - | 1542 | - | 570 | - | 4-577 |
| S-OO14 | UNT to Sinking Creek | Giles | 37.318647 | -80.441619 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 86 | - | 344 | - | 127 | - | 4-577 |
| S-IJ17 | UNT to Sinking Creek | Giles | 37.318324 | -80.547720 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 31 | - | 248 | - | 28 | - | 4-558 |
| S-IJ16-b | UNT to Sinking Creek | Giles | 37.318246 | -80.547711 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 78 | - | 780 | - | 289 | - | 4-558 |
| S-PP21 | UNT to Craig Creek | Montgomery | 37.317187 | -80.409235 | Perennial | RPW | Atlantic Pigtoe, Coldwater Fishery | 02080201 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-584 |

**Table B-1. Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (square feet)[5] | Permanent Impact Area (square feet)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-PP20 | UNT to Craig Creek | Montgomery | 37.316523 | -80.408646 | Perennial | RPW | Atlantic Pigtoe, Coldwater Fishery | 02080201 | Timber Mat Crossing | 20 | - | 122 | - | 13 | - | 4-584 |
| S-RR13 | Craig Creek | Montgomery | 37.314504 | -80.402613 | Perennial | RPW | Atlantic Pigtoe, Stockable Trout, Coldwater Fishery | 02080201 | Temporary Access Road | 41 | - | 1433 | - | 159 | - | 4-585 |
| S-HH18 | UNT to Craig Creek | Montgomery | 37.313910 | -80.398683 | Perennial | RPW | Atlatnic pigtoe, orangefin madtom Coldwater Fishery | 02080201 | Timber Mat Crossing | 20 | - | 122 | - | 13 | - | 4-586 |
| S-RR14 | UNT to Craig Creek | Montgomery | 37.313615 | -80.402521 | Ephemeral | NRPW | Atlantic Pigtoe, Coldwater Fishery | 02080201 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-585 |
| S-OO6 | Craig Creek | Montgomery | 37.313511 | -80.404606 | Perennial | RPW | Atlantic Pigtoe, Stockable Trout, Coldwater Fishery | 02080201 | Timber Mat Crossing | 35 | - | 701 | - | 136 | - | 4-585 |
| S-QQ3 | UNT to Sinking Creek | Giles | 37.311869 | -80.532365 | Ephemeral | NRPW | - | 05050002 | Temporary Access Road | 15 | - | 30 | - | 3 | - | 4-560 |
| S-IJ16-a | UNT to Sinking Creek | Giles | 37.311730 | -80.544091 | Ephemeral | NRPW | - | 05050002 | Permanent Access Road | 6 | - | 44 | - | 5 | - | 4-559 |
| S-IJ16-a | UNT to Sinking Creek | Giles | 37.311730 | -80.544091 | Ephemeral | NRPW | - | 05050002 | Permanent Access Road | - | 45 | - | 314 | - | 35 | 4-559 |
| S-NN17 | Sinking Creek | Giles | 37.311616 | -80.515786 | Perennial | RPW | Green floater, Non-listed mussels, Natural Trout, Coldwater Fishery, Stockable Trout | 05050002 | Timber Mat Crossing | 55 | - | 1102 | - | 336 | - | 4-564 |
| S-KL43 | UNT to Sinking Creek | Giles | 37.307524 | -80.466665 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 75 | - | 749 | - | 278 | - | 4-573 |
| S-NN11 | UNT to Sinking Creek | Giles | 37.305508 | -80.467231 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 84 | - | 418 | - | 156 | - | 4-573 |
| S-NN12 | UNT to Sinking Creek | Giles | 37.300454 | -80.472911 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 88 | - | 174 | - | 65 | - | 4-571 |
| S-MN21 | UNT to Mill Creek | Montgomery | 37.299397 | -80.391243 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 80 | - | 562 | - | 207 | - | 4-588 |
| S-MM17 | UNT to Sinking Creek | Giles | 37.298226 | -80.480624 | Perennial | RPW | - | 05050002 | Temporary Access Road | 49 | - | 96 | - | 11 | - | 4-569 |
| S-MN22 | UNT to Mill Creek | Montgomery | 37.297166 | -80.386612 | Ephemeral | NRPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 96 | - | 192 | - | 71 | - | 4-589 |
| S-RR2 | Greenbriar Branch | Giles | 37.296666 | -80.494174 | Perennial | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 161 | - | 18 | - | 4-567 |
| S-YZ6 | UNT to Greenbriar Branch | Giles | 37.296612 | -80.494165 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 05050002 | Timber Mat Crossing | 20 | - | 122 | - | 13 | - | 4-567 |
| S-EF62 | UNT to Mill Creek | Montgomery | 37.296356 | -80.375118 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 76 | - | 836 | - | 310 | - | 4-590 |
| S-MM18 | UNT to Sinking Creek | Giles | 37.296226 | -80.481455 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 05050002 | Pipeline ROW | 88 | - | 440 | - | 163 | - | 4-569 |
| S-IJ52 | UNT to Mill Creek | Montgomery | 37.296153 | -80.367510 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 84 | - | 1346 | - | 498 | - | 4-591 |
| S-EF65 | Mill Creek | Montgomery | 37.295743 | -80.375921 | Intermittent | RPW | Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery, Stockable Trout | 03010101 | Pipeline ROW | 152 | - | 910 | - | 338 | - | 4-590 |
| S-G36 | North Fork Roanoke River | Montgomery | 37.268586 | -80.313161 | Perennial | RPW | Roanoke logperch, Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery | 03010101 | Temporary Access Road | 26 | - | 518 | - | 58 | - | 4-602 |
| S-G38 | UNT to North Fork Roanoke River | Montgomery | 37.267002 | -80.312898 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-603 |
| S-G40 | UNT to North Fork Roanoke River | Montgomery | 37.264882 | -80.307302 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-603 |
| S-PP23 | UNT to North Fork Roanoke River | Montgomery | 37.264858 | -80.307151 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 48 | - | 6 | - | 4-604 |
| S-G39 | UNT to North Fork Roanoke River | Montgomery | 37.264817 | -80.308486 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 82 | - | 492 | - | 182 | - | 4-604 |
| S-MM14 | UNT to Flatwoods Branch | Montgomery | 37.258717 | -80.293210 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 105 | - | 736 | - | 272 | - | 4-608 |
| S-MM15 | UNT to Flatwoods Branch | Montgomery | 37.258673 | -80.296446 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 82 | - | 492 | - | 182 | - | 4-608 |
| S-MM11 | UNT to Flatwoods Branch | Montgomery | 37.258403 | -80.288186 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 80 | - | 640 | - | 237 | - | 4-609 |
| S-F15 | UNT to Flatwoods Branch | Montgomery | 37.258198 | -80.286029 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 129 | - | 775 | - | 287 | - | 4-609 |
| S-MM13 | UNT to Flatwoods Branch | Montgomery | 37.258176 | -80.289222 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 85 | - | 427 | - | 157 | - | 4-608 |
| S-F16a/F16b | UNT to Flatwoods Branch | Montgomery | 37.257998 | -80.284735 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 81 | - | 244 | - | 90 | - | 4-609 |
| S-C36 | UNT to Flatwoods Branch | Montgomery | 37.257260 | -80.281611 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 96 | - | 287 | - | 107 | - | 4-609 |
| S-C36 | UNT to Flatwoods Branch | Montgomery | 37.257133 | -80.281475 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 36 | - | 109 | - | 40 | - | 4-609 |
| S-MM31 | UNT to Flatwoods Branch | Montgomery | 37.256959 | -80.280329 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-609 |
| S-C29 | Flatwoods Branch | Montgomery | 37.256387 | -80.278021 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 46 | - | 57 | - | 20 | - | 4-610 |
| S-C25 | UNT to Bradshaw Creek | Montgomery | 37.254342 | -80.267895 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 115 | - | 344 | - | 128 | - | 4-611 |
| S-C24 | UNT to Bradshaw Creek | Montgomery | 37.254135 | -80.266743 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 108 | - | 322 | - | 120 | - | 4-611 |
| S-C21 | Bradshaw Creek | Montgomery | 37.251791 | -80.258990 | Perennial | RPW | Roanoke logperch, Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 25 | - | 501 | - | 69 | - | 4-613 |
| S-NN19 | UNT to Roanoke River | Montgomery | 37.244319 | -80.206995 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 76 | - | 266 | - | 99 | - | 4-627 |
| S-AB16 | UNT to Roanoke River | Montgomery | 37.231693 | -80.198778 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 100 | - | 11 | - | 4-631 |
| S-I1 | UNT to Roanoke River | Montgomery | 37.231179 | -80.198460 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 279 | - | 31 | - | 4-631 |
| S-CD12b | UNT to South Fork Roanoke River | Montgomery | 37.229764 | -80.201144 | Perennial | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 122 | - | 13 | - | 4-631 |
| S-EF19 | UNT to Indian Run | Montgomery | 37.216102 | -80.197390 | Ephemeral | NRPW | Warmwater Fishery, Tier 2 | 03010101 | Pipeline ROW | 79 | - | 396 | - | 146 | - | 4-634 |
| S-EF20a | UNT to Roanoke River | Montgomery | 37.210922 | -80.193318 | Perennial | RPW | Orangefin madtom, Non-listed mussels | 03010101 | Pipeline ROW | 80 | - | 479 | - | 178 | - | 4-635 |
| S-MM22 | UNT to Roanoke River | Montgomery | 37.205284 | -80.187282 | Perennial | RPW | Orangefin madtom, Non-listed mussels | 03010101 | Pipeline ROW | 175 | - | 2627 | - | 972 | - | 4-637 |
| S-IJ50 | UNT to Roanoke River | Roanoke | 37.194064 | -80.167933 | Perennial | RPW | Orangefin madtom, Non-listed mussels | 03010101 | Pipeline ROW | 77 | - | 1925 | - | 713 | - | 4-641 |
| S-Y13 | UNT to Bottom Creek | Roanoke | 37.187687 | -80.151146 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 85 | - | 680 | - | 252 | - | 4-644 |
| S-Y14 | UNT to Bottom Creek | Roanoke | 37.187568 | -80.151049 | Perennial | RPW | Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 77 | - | 1076 | - | 399 | - | 4-644 |
| S-EF57 | UNT to Bottom Creek | Roanoke | 37.181736 | -80.148948 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Temporary Access Road | 42 | - | 335 | - | 37 | - | 4-645 |
| S-EF55 | UNT to Bottom Creek | Roanoke | 37.181506 | -80.149497 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 33 | - | 266 | - | 98 | - | 4-645 |
| S-EF34b | UNT to Bottom Creek | Roanoke | 37.181385 | -80.149140 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 81 | - | 810 | - | 300 | - | 4-645 |
| S-EF33 | UNT to Bottom Creek | Roanoke | 37.179186 | -80.141000 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 148 | - | 1333 | - | 493 | - | 4-647 |
| S-IJ82 | UNT to Bottom Creek | Roanoke | 37.170458 | -80.138216 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 301 | - | 33 | - | 4-648 |

**Table B-1. Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (square feet)[5] | Permanent Impact Area (square feet)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-IJ85 | UNT to Bottom Creek | Roanoke | 37.169474 | -80.130356 | Perennial | RPW | Natural Trout, Coldwater Fishery | 03010101 | Permanent Access Road | - | 50 | - | 401 | - | 44 | 4-650 |
| S-IJ83 | UNT to Bottom Creek | Roanoke | 37.169211 | -80.138258 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 148 | - | 741 | - | 82 | - | 4-649 |
| S-IJ88 | Bottom Creek | Roanoke | 37.168395 | -80.138295 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 30 | - | 1960 | - | 726 | - | 4-649 |
| S-IJ84 | UNT to Bottom Creek | Roanoke | 37.168361 | -80.138381 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 35 | - | 527 | - | 58 | - | 4-649 |
| S-IJ89 | UNT to Bottom Creek | Roanoke | 37.165862 | -80.139317 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 200 | - | 22 | - | 4-649 |
| S-IJ90 | UNT to Bottom Creek | Roanoke | 37.165685 | -80.139378 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 100 | - | 11 | - | 4-649 |
| S-KL25 | UNT to Mill Creek | Roanoke | 37.160173 | -80.134799 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 82 | - | 409 | - | 152 | - | 4-651 |
| S-ST9b | UNT to Mill Creek | Roanoke | 37.154424 | -80.129179 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 301 | - | 33 | - | 4-652 |
| S-KL55 | UNT to Mill Creek | Roanoke | 37.150009 | -80.13246 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 301 | - | 33 | - | 4-653 |
| S-IJ12 | UNT to Mill Creek | Roanoke | 37.148333 | -80.133919 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 261 | - | 29 | - | 4-653 |
| S-EF44 | UNT to Bottom Creek | Roanoke | 37.143003 | -80.138399 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-654 |
| S-IJ43 | Mill Creek | Roanoke | 37.138636 | -80.139715 | Perennial | RPW | Orangefin madtom, Stockable Trout, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 362 | - | 40 | - | 4-655 |
| S-Y9 | UNT to Mill Creek | Roanoke | 37.134576 | -80.137649 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 44 | - | 174 | - | 20 | - | 4-656 |
| S-Y7 | UNT to Mill Creek | Roanoke | 37.134481 | -80.137622 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 32 | - | 126 | - | 14 | - | 4-656 |
| S-Y8 | UNT to Mill Creek | Roanoke | 37.134176 | -80.137484 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-656 |
| S-B22 | UNT to Mill Creek | Roanoke | 37.128922 | -80.133769 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-659 |
| S-B23 | UNT to Mill Creek | Roanoke | 37.128853 | -80.133910 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 14 | - | 26 | - | 3 | - | 4-659 |
| S-B25 | UNT to Mill Creek | Roanoke | 37.128490 | -80.132601 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 76 | - | 379 | - | 42 | - | 4-659 |
| S-B21 | UNT to Mill Creek | Roanoke | 37.128484 | -80.130943 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 92 | - | 366 | - | 136 | - | 4-659 |
| S-H1 | Green Creek | Franklin | 37.127733 | -80.116787 | Perennial | RPW | Orangefin madtom, Natural Trout, Coldwater Fishery | 03010101 | Timber Mat Crossing | 20 | - | 200 | - | 22 | - | 4-661 |
| S-G26 | UNT to Green Creek | Franklin | 37.127077 | -80.111387 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-662 |
| S-G27 | UNT to Green Creek | Franklin | 37.126962 | -80.111052 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-662 |
| S-G24 | UNT to Green Creek | Franklin | 37.126412 | -80.121398 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 75 | - | 449 | - | 167 | - | 4-661 |
| S-G25 | UNT to Green Creek | Franklin | 37.125398 | -80.121401 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 42 | - | 292 | - | 33 | - | 4-661 |
| S-RR18 | UNT to Green Creek | Franklin | 37.125055 | -80.113578 | Intermittent | RPW | - | 03010101 | Permanent Access Road | 8 | - | 17 | - | 2 | - | 4-662 |
| S-D11 | UNT to North Fork Blackwater River | Franklin | 37.124137 | -80.086182 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 200 | - | 22 | - | 4-666 |
| S-D8 | North Fork Blackwater River | Franklin | 37.123098 | -80.074673 | Perennial | RPW | Natural Trout, Coldwater Fishery | 03010101 | Pipeline ROW | 78 | - | 941 | - | 349 | - | 4-667 |
| S-D12 | UNT to North Fork Blackwater River | Franklin | 37.121558 | -80.085642 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 54 | - | 322 | - | 120 | - | 4-666 |
| S-D13 | UNT to North Fork Blackwater River | Franklin | 37.121513 | -80.085680 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 117 | - | 466 | - | 173 | - | 4-666 |
| S-D14 | UNT to North Fork Blackwater River | Franklin | 37.121473 | -80.088457 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 234 | - | 701 | - | 260 | - | 4-666 |
| S-II4 | UNT to North Fork Blackwater River | Franklin | 37.115679 | -80.060300 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 301 | - | 33 | - | 4-670 |
| S-GH7 | UNT to North Fork Blackwater River | Franklin | 37.106614 | -80.054219 | Perennial | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 179 | - | 20 | - | 4-672 |
| S-GH15 | UNT to North Fork Blackwater River | Franklin | 37.106177 | -80.050105 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 75 | - | 301 | - | 111 | - | 4-674 |
| S-GH14 | UNT to North Fork Blackwater River | Franklin | 37.105883 | -80.048861 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 76 | - | 305 | - | 113 | - | 4-674 |
| S-GH11 | UNT to North Fork Blackwater River | Franklin | 37.104707 | -80.046220 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 77 | - | 231 | - | 86 | - | 4-674 |
| S-GH9 | UNT to North Fork Blackwater River | Franklin | 37.104329 | -80.045343 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 78 | - | 314 | - | 116 | - | 4-674 |
| S-RR08 | UNT to North Fork Blackwater River | Franklin | 37.103290 | -80.041868 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-674 |
| S-RR09 | UNT to North Fork Blackwater River | Franklin | 37.102491 | -80.041046 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 77 | - | 693 | - | 257 | - | 4-675 |
| S-RR11 | UNT to North Fork Blackwater River | Franklin | 37.101127 | -80.039653 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 77 | - | 540 | - | 200 | - | 4-675 |
| S-IJ1 | UNT to North Fork Blackwater River | Franklin | 37.093062 | -80.027724 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 107 | - | 1285 | - | 476 | - | 4-677 |
| S-IJ2 | UNT to North Fork Blackwater River | Franklin | 37.092891 | -80.027593 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 40 | - | 100 | - | 37 | - | 4-677 |
| S-II6 | UNT to Little Creek | Franklin | 37.092697 | -79.978402 | Intermittent | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-685 |
| S-IJ3 | UNT to North Fork Blackwater River | Franklin | 37.092600 | -80.027231 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 77 | - | 383 | - | 143 | - | 4-677 |
| S-GH6 | UNT to Little Creek | Franklin | 37.092397 | -79.983227 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-684 |
| S-II12 | UNT to Little Creek | Franklin | 37.091608 | -79.987839 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 39 | - | 4 | - | 4-684 |
| S-II11 | UNT to Little Creek | Franklin | 37.091564 | -79.988051 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-684 |
| S-II8 | UNT to Little Creek | Franklin | 37.091413 | -79.993944 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 39 | - | 4 | - | 4-683 |
| S-II9 | UNT to Little Creek | Franklin | 37.091382 | -79.990620 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 401 | - | 44 | - | 4-683 |
| S-II7 | UNT to Little Creek | Franklin | 37.091354 | -79.992013 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-683 |
| S-IJ4 | UNT to North Fork Blackwater River | Franklin | 37.091189 | -80.024366 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-677 |
| S-KL2 | UNT to Little Creek | Franklin | 37.090361 | -79.996354 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 74 | - | 8 | - | 4-682 |
| S-GH2 | UNT to Teels Creek | Franklin | 37.090153 | -79.953936 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 39 | - | 4 | - | 4-689 |
| S-GH4 | UNT to Teels Creek | Franklin | 37.089812 | -79.956077 | Perennial | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 100 | - | 11 | - | 4-688 |
| S-GH3 | UNT to Teels Creek | Franklin | 37.089745 | -79.956042 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 122 | - | 13 | - | 4-688 |

**Table B-1. Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (square feet)[5] | Permanent Impact Area (square feet)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-IJ10 | Little Creek | Franklin | 37.089179 | -80.005026 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-681 |
| S-E29 | UNT to Teels Creek | Franklin | 37.089178 | -79.950110 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 80 | - | 640 | - | 237 | - | 4-689 |
| S-E28 | Teels Creek | Franklin | 37.089047 | -79.9613 | Perennial | RPW | - | 03010101 | Pipeline ROW | 82 | - | 984 | - | 364 | - | 4-687 |
| S-E28 | Teels Creek | Franklin | 37.085247 | -79.948057 | Perennial | RPW | - | 03010101 | Pipeline ROW | 76 | - | 910 | - | 338 | - | 4-687 |
| S-E28 | Teels Creek | Franklin | 37.082875 | -79.945556 | Perennial | RPW | - | 03010101 | Pipeline ROW | 101 | - | 1211 | - | 449 | - | 4-687 |
| S-EF4 | UNT to Teels Creek | Franklin | 37.078963 | -79.941911 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 80 | - | 880 | - | 326 | - | 4-691 |
| S-EF7 | UNT to Teels Creek | Franklin | 37.074664 | -79.941123 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 39 | - | 4 | - | 4-692 |
| S-EF7 | UNT to Teels Creek | Franklin | 37.074636 | -79.941336 | Ephemeral | NRPW | - | 03010101 | ATWS | 22 | - | 44 | - | 5 | - | 4-692 |
| S-EF12 | Teels Creek | Franklin | 37.073367 | -79.939865 | Perennial | RPW | - | 03010101 | Pipeline ROW | 79 | - | 1581 | - | 585 | - | 4-692 |
| S-MM42 | UNT to Teels Creek | Franklin | 37.070703 | -79.937069 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 81 | - | 161 | - | 60 | - | 4-693 |
| S-D23 | Teels Creek | Franklin | 37.070322 | -79.931039 | Perennial | RPW | - | 03010101 | Pipeline ROW | 92 | - | 2087 | - | 772 | - | 4-694 |
| S-D22 | UNT to Teels Creek | Franklin | 37.070101 | -79.929732 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 83 | - | 662 | - | 246 | - | 4-694 |
| S-D18 | UNT to Teels Creek | Franklin | 37.069560 | -79.926213 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 30 | - | 61 | - | 7 | - | 4-694 |
| S-RR15 | UNT to Teels Creek | Franklin | 37.069542 | -79.933892 | Perennial | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 26 | - | 31 | - | 4-694 |
| S-D20 | UNT to Teels Creek | Franklin | 37.069485 | -79.926230 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 76 | - | 610 | - | 225 | - | 4-694 |
| S-EF48 | UNT to Blackwater River | Franklin | 37.064748 | -79.874420 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 86 | - | 170 | - | 64 | - | 4-705 |
| S-YZ4 | UNT to Blackwater River | Franklin | 37.064723 | -79.878190 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 84 | - | 253 | - | 93 | - | 4-704 |
| S-C14 | Teels Creek | Franklin | 37.063956 | -79.921985 | Perennial | RPW | - | 03010101 | Pipeline ROW | 90 | - | 3655 | - | 1,353 | - | 4-696 |
| S-YZ5 | UNT to Blackwater River | Franklin | 37.063464 | -79.878281 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 86 | - | 344 | - | 127 | - | 4-704 |
| S-KL41 | UNT to Blackwater River | Franklin | 37.062262 | -79.862639 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 75 | - | 902 | - | 333 | - | 4-706 |
| S-KL39 | UNT to Blackwater River | Franklin | 37.061193 | -79.880018 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 121 | - | 788 | - | 291 | - | 4-704 |
| S-C16 | UNT to Teels Creek | Franklin | 37.060610 | -79.921179 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 301 | - | 33 | - | 4-696 |
| S-KL54 | UNT to Maggodee Creek | Franklin | 37.059535 | -79.840624 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 76 | - | 758 | - | 281 | - | 4-710 |
| S-C8 | UNT to Blackwater River | Franklin | 37.059098 | -79.853595 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 86 | - | 431 | - | 159 | - | 4-708 |
| S-F4 | UNT to Blackwater River | Franklin | 37.059060 | -79.853379 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 82 | - | 819 | - | 91 | - | 4-708 |
| S-C17 | Teels Creek | Franklin | 37.058390 | -79.918015 | Perennial | RPW | - | 03010101 | Timber Mat Crossing | 30 | - | 601 | - | 100 | - | 4-696 |
| S-KL52 | UNT to Maggodee Creek | Franklin | 37.058165 | -79.844877 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 105 | - | 105 | - | 39 | - | 4-709 |
| S-S11 | UNT to Maggodee Creek | Franklin | 37.057776 | -79.838583 | Perennial | RPW | - | 03010101 | Temporary Access Road | 41 | - | 453 | - | 50 | - | 4-710 |
| S-F8 | UNT to Maggodee Creek | Franklin | 37.057724 | -79.836406 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 83 | - | 2492 | - | 922 | - | 4-710 |
| S-CD6 | Little Creek | Franklin | 37.057584 | -79.913921 | Perennial | RPW | - | 03010101 | Pipeline ROW | 77 | - | 4426 | - | 1,639 | - | 4-698 |
| S-HH4 | UNT to Maggodee Creek | Franklin | 37.056594 | -79.835785 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 97 | - | 871 | - | 323 | - | 4-711 |
| S-KL51 | UNT to Blackwater River | Franklin | 37.056084 | -79.850384 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 67 | - | 370 | - | 136 | - | 4-708 |
| S-KL38 | UNT to Blackwater River | Franklin | 37.055912 | -79.883177 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 78 | - | 545 | - | 202 | - | 4-702 |
| S-C20 | UNT to Maggodee Creek | Franklin | 37.055193 | -79.833881 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-711 |
| S-C19 | Maggodee Creek | Franklin | 37.055147 | -79.830098 | Perennial | RPW | - | 03010101 | Pipeline ROW | 75 | - | 3006 | - | 1,113 | - | 4-711 |
| S-KL36 | UNT to Blackwater River | Franklin | 37.053336 | -79.884604 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 148 | - | 17 | - | 4-702 |
| S-F11 | Blackwater River | Franklin | 37.052843 | -79.825711 | Perennial | TNW | Non-listed mussels | 03010101 | Pipeline ROW | 91 | - | 6765 | - | 2,506 | - | 4-712 |
| S-KL35 | UNT to Blackwater River | Franklin | 37.052125 | -79.886182 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 35 | - | 87 | - | 10 | - | 4-702 |
| S-F9b | UNT to Blackwater River | Franklin | 37.049238 | -79.817223 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 76 | - | 1141 | - | 422 | - | 4-713 |
| S-II2 | Little Creek | Franklin | 37.049219 | -79.908513 | Perennial | RPW | - | 03010101 | Pipeline ROW | 76 | - | 3245 | - | 1,203 | - | 4-699 |
| S-F10 | UNT to Blackwater River | Franklin | 37.048037 | -79.813934 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 179 | - | 20 | - | 4-713 |
| S-CD1 | UNT to Blackwater River | Franklin | 37.047765 | -79.897636 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 104 | - | 366 | - | 135 | - | 4-701 |
| S-F9a | UNT to Blackwater River | Franklin | 37.047172 | -79.813000 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 301 | - | 33 | - | 4-713 |
| S-MM29 | UNT to Maple Branch | Franklin | 37.043871 | -79.822898 | Perennial | RPW | - | 03010101 | Temporary Access Road | 42 | - | 632 | - | 70 | - | 4-714 |
| S-MM23 | Maple Branch | Franklin | 37.043854 | -79.822974 | Perennial | RPW | - | 03010101 | Temporary Access Road | 78 | - | 1559 | - | 173 | - | 4-714 |
| S-GG4 | UNT to Blackwater River | Franklin | 37.042742 | -79.809015 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 200 | - | 22 | - | 4-716 |
| S-A36 | UNT to Foul Ground Creek | Franklin | 37.037916 | -79.804237 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 77 | - | 309 | - | 114 | - | 4-717 |
| S-A38 | UNT to Foul Ground Creek | Franklin | 37.036271 | -79.799442 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 30 | - | 270 | - | 30 | - | 4-718 |
| S-A40 | UNT to Foul Ground Creek | Franklin | 37.036173 | -79.799240 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 13 | - | 74 | - | 8 | - | 4-718 |
| S-A41 | Foul Ground Creek | Franklin | 37.031714 | -79.788213 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 76 | - | 910 | - | 338 | - | 4-720 |
| S-GH36 | UNT to Foul Ground Creek | Franklin | 37.031063 | -79.778588 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-721 |
| S-KL17 | UNT to Foul Ground Creek | Franklin | 37.031011 | -79.778435 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 100 | - | 11 | - | 4-721 |
| S-GH37 | UNT to Foul Ground Creek | Franklin | 37.030974 | -79.778190 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 46 | - | 139 | - | 15 | - | 4-721 |
| S-GH38 | UNT to Foul Ground Creek | Franklin | 37.030972 | -79.778083 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 7 | - | 22 | - | 2 | - | 4-721 |

**Table B-1. Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (square feet)[5] | Permanent Impact Area (square feet)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-GH39 | UNT to Foul Ground Creek | Franklin | 37.030861 | -79.778069 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 103 | - | 414 | - | 153 | - | 4-721 |
| S-GH40 | UNT to Foul Ground Creek | Franklin | 37.028893 | -79.774785 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 89 | - | 266 | - | 99 | - | 4-721 |
| S-GH44 | UNT to Foul Ground Creek | Franklin | 37.028392 | -79.773359 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 103 | - | 619 | - | 69 | - | 4-721 |
| S-G22 | UNT to Poplar Camp Creek | Franklin | 37.019612 | -79.761958 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 80 | - | 958 | - | 356 | - | 4-723 |
| S-G23 | UNT to Poplar Camp Creek | Franklin | 37.019526 | -79.762002 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 42 | - | 126 | - | 14 | - | 4-723 |
| S-G21 | UNT to Poplar Camp Creek | Franklin | 37.019359 | -79.761643 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 54 | - | 161 | - | 18 | - | 4-723 |
| S-G20 | Poplar Camp Creek | Franklin | 37.017364 | -79.760000 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 200 | - | 22 | - | 4-724 |
| S-G18 | UNT to Blackwater River | Franklin | 37.009236 | -79.754238 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 81 | - | 161 | - | 60 | - | 4-725 |
| S-G17 | UNT to Blackwater River | Franklin | 37.005496 | -79.752655 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 100 | - | 11 | - | 4-726 |
| S-E18 | UNT to Blackwater River | Franklin | 37.001271 | -79.747749 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 94 | - | 658 | - | 244 | - | 4-727 |
| S-E17 | UNT to Blackwater River | Franklin | 37.000529 | -79.742760 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 95 | - | 758 | - | 281 | - | 4-727 |
| S-E14 | UNT to Blackwater River | Franklin | 36.995814 | -79.735144 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 82 | - | 1638 | - | 607 | - | 4-728 |
| S-H38 | UNT to Jacks Creek | Franklin | 36.989430 | -79.722366 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 240 | - | 27 | - | 4-730 |
| S-H32 | UNT to Jacks Creek | Franklin | 36.988273 | -79.708199 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 200 | - | 22 | - | 4-732 |
| S-H37 | UNT to Jacks Creek | Franklin | 36.988031 | -79.717450 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 82 | - | 492 | - | 182 | - | 4-731 |
| S-H34 | UNT to Jacks Creek | Franklin | 36.988009 | -79.711881 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-732 |
| S-H36 | UNT to Jacks Creek | Franklin | 36.988008 | -79.714922 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-731 |
| S-H30 | UNT to Jacks Creek | Franklin | 36.987961 | -79.702711 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 4 | - | 4 | - | 1 | - | 4-734 |
| S-A18 | UNT to Jacks Creek | Franklin | 36.987818 | -79.700634 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 87 | - | 227 | - | 84 | - | 4-734 |
| S-A19/H26 | UNT to Jacks Creek | Franklin | 36.987719 | -79.698901 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 212 | - | 1485 | - | 550 | - | 4-734 |
| S-A20 | UNT to Jacks Creek | Franklin | 36.987715 | -79.698555 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-734 |
| S-H28 | UNT to Jacks Creek | Franklin | 36.985174 | -79.692272 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 16 | - | 96 | - | 11 | - | 4-735 |
| S-H27 | UNT to Jacks Creek | Franklin | 36.985124 | -79.692272 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 36 | - | 362 | - | 40 | - | 4-735 |
| S-A22 | UNT to Jacks Creek | Franklin | 36.984846 | -79.691870 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 20 | - | 161 | - | 18 | - | 4-735 |
| S-MM44 | UNT to Little Jacks Creek | Franklin | 36.982507 | -79.687818 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 78 | - | 9 | - | 4-735 |
| S-MM46 | UNT to Little Jacks Creek | Franklin | 36.982240 | -79.687500 | Intermittent | RPW | - | 03010101 | Timber Mat Crossing | 9 | - | 26 | - | 3 | - | 4-735 |
| S-MM45 | UNT to Little Jacks Creek | Franklin | 36.981971 | -79.686901 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 33 | - | 131 | - | 15 | - | 4-735 |
| S-MM48 | UNT to Little Jacks Creek | Franklin | 36.979223 | -79.684192 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 25 | - | 174 | - | 19 | - | 4-736 |
| S-H25 | Little Jacks Creek | Franklin | 36.978529 | -79.682186 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-736 |
| S-H24 | UNT to Little Jacks Creek | Franklin | 36.978025 | -79.680682 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 200 | - | 22 | - | 4-736 |
| S-H23 | UNT to Turkey Creek | Franklin | 36.976421 | -79.677525 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 92 | - | 462 | - | 170 | - | 4-738 |
| S-HH1 | UNT to Turkey Creek | Franklin | 36.974647 | -79.674453 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 18 | - | 91 | - | 10 | - | 4-738 |
| S-A13 | Turkey Creek | Franklin | 36.973282 | -79.673075 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 161 | - | 18 | - | 4-738 |
| S-A11 | UNT to Turkey Creek | Franklin | 36.973237 | -79.669898 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 55 | - | 166 | - | 18 | - | 4-740 |
| S-H17 | Dinner Creek | Franklin | 36.972125 | -79.662987 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 101 | - | 806 | - | 299 | - | 4-741 |
| S-A7 | UNT to Dinner Creek | Franklin | 36.972032 | -79.662504 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 122 | - | 13 | - | 4-741 |
| S-SS8 | Polecat Creek | Franklin | 36.970904 | -79.657370 | Perennial | RPW | Orangefin madtom, | 03010101 | Timber Mat Crossing | 20 | - | 161 | - | 18 | - | 4-741 |
| S-CD8 | UNT to Owens Creek | Franklin | 36.970522 | -79.653726 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 78 | - | 353 | - | 130 | - | 4-742 |
| S-AB8 | UNT to Owens Creek | Franklin | 36.970133 | -79.651328 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 84 | - | 335 | - | 124 | - | 4-742 |
| S-DD3 | Owens Creek | Franklin | 36.969118 | -79.645042 | Intermittent | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 301 | - | 33 | - | 4-743 |
| S-G16 | Strawfield Creek | Franklin | 36.968640 | -79.642174 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 30 | - | 601 | - | 100 | - | 4-743 |
| S-G15 | UNT to Parrot Branch | Franklin | 36.967711 | -79.636590 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 88 | - | 793 | - | 293 | - | 4-744 |
| S-G13 | Parrot Branch | Franklin | 36.967025 | -79.630747 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 161 | - | 18 | - | 4-744 |
| S-D3 | UNT to Jonnikin Creek | Pittsylvania | 36.965631 | -79.605542 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 200 | - | 22 | - | 4-747 |
| S-D4 | UNT to Jonnikin Creek | Pittsylvania | 36.965600 | -79.604894 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 105 | - | 632 | - | 233 | - | 4-747 |
| S-D2 | Jonnikin Creek | Pittsylvania | 36.965405 | -79.599130 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 362 | - | 40 | - | 4-748 |
| S-D7 | UNT to Jonnikin Creek | Franklin | 36.964763 | -79.617043 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 80 | - | 640 | - | 237 | - | 4-746 |
| S-D1-EPH | UNT to Jonnikin Creek | Pittsylvania | 36.964430 | -79.595691 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 61 | - | 610 | - | 226 | - | 4-748 |
| S-D1-INT | UNT to Jonnikin Creek | Pittsylvania | 36.964407 | -79.595841 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 29 | - | 292 | - | 32 | - | 4-748 |
| S-G11 | UNT to Jonnikin Creek | Pittsylvania | 36.962420 | -79.590500 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 77 | - | 462 | - | 171 | - | 4-749 |
| S-G9 | UNT to Jonnikin Creek | Pittsylvania | 36.959361 | -79.586437 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 79 | - | 318 | - | 117 | - | 4-751 |
| S-G8 | UNT to Jonnikin Creek | Pittsylvania | 36.957805 | -79.583545 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 90 | - | 362 | - | 133 | - | 4-751 |
| S-Q15 | UNT to Jonnikin Creek | Pittsylvania | 36.957580 | -79.583492 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 103 | - | 514 | - | 191 | - | 4-751 |
| S-A6 | UNT to Rocky Creek | Pittsylvania | 36.952275 | -79.580460 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 100 | - | 11 | - | 4-750 |

**Table B-1. Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (square feet)[5] | Permanent Impact Area (square feet)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-H11-Braid | UNT to Rocky Creek | Pittsylvania | 36.949615 | -79.579553 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 85 | - | 170 | - | 19 | - | 4-750 |
| S-F2 | UNT to Rocky Creek | Pittsylvania | 36.944049 | -79.571442 | Ephemeral | NRPW | - | 03010101 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-753 |
| S-C7 | UNT to Rocky Creek | Pittsylvania | 36.944016 | -79.571517 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 401 | - | 44 | - | 4-753 |
| S-C3 | Harpen Creek | Pittsylvania | 36.929762 | -79.526109 | Perennial | RPW | Roanoke logperch, Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 362 | - | 40 | - | 4-758 |
| S-C4 | UNT to Harpen Creek | Pittsylvania | 36.929745 | -79.526290 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 58 | - | 231 | - | 26 | - | 4-758 |
| S-H13 | Harpen Creek | Pittsylvania | 36.925105 | -79.517350 | Perennial | RPW | Orangefin madtom | 03010101 | Pipeline ROW | 77 | - | 1542 | - | 570 | - | 4-759 |
| S-G6 | UNT to Harpen Creek | Pittsylvania | 36.920737 | -79.505898 | Intermittent | RPW | - | 03010101 | Pipeline ROW | 80 | - | 479 | - | 178 | - | 4-761 |
| S-G5 | UNT to Harpen Creek | Pittsylvania | 36.917694 | -79.496604 | Ephemeral | NRPW | - | 03010101 | Pipeline ROW | 77 | - | 462 | - | 171 | - | 4-762 |
| S-G4 | Harpen Creek | Pittsylvania | 36.916463 | -79.492669 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 30 | - | 601 | - | 100 | - | 4-762 |
| S-G3 | UNT to Harpen Creek | Pittsylvania | 36.915658 | -79.490029 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 179 | - | 20 | - | 4-762 |
| S-CC16 | UNT to Harpen Creek | Pittsylvania | 36.913003 | -79.487838 | Perennial | RPW | Orangefin madtom | 03010101 | Timber Mat Crossing | 20 | - | 222 | - | 24 | - | 4-763 |
| S-CC14 | UNT to Cherrystone Creek | Pittsylvania | 36.905329 | -79.471492 | Intermittent | RPW | - | 03010105 | Timber Mat Crossing | 20 | - | 161 | - | 18 | - | 4-765 |
| S-CC13 | UNT to Cherrystone Creek | Pittsylvania | 36.905307 | -79.471574 | Intermittent | RPW | - | 03010105 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-765 |
| S-MM8 | UNT to Cherrystone Creek | Pittsylvania | 36.902991 | -79.468220 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 122 | - | 13 | - | 4-766 |
| S-CC15 | UNT to Cherrystone Creek | Pittsylvania | 36.901941 | -79.466535 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 122 | - | 13 | - | 4-766 |
| S-CC8 | UNT to Cherrystone Creek | Pittsylvania | 36.899437 | -79.462685 | Intermittent | RPW | - | 03010105 | Timber Mat Crossing | 20 | - | 161 | - | 18 | - | 4-766 |
| S-CC5 | UNT to Cherrystone Creek | Pittsylvania | 36.899411 | -79.462483 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 240 | - | 27 | - | 4-766 |
| S-CC5 | UNT to Cherrystone Creek | Pittsylvania | 36.899248 | -79.462396 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 54 | - | 649 | - | 240 | - | 4-766 |
| S-CC9 | UNT to Cherrystone Creek | Pittsylvania | 36.897740 | -79.458046 | Ephemeral | NRPW | - | 03010105 | Pipeline ROW | 81 | - | 444 | - | 165 | - | 4-767 |
| S-CC10 | UNT to Cherrystone Creek | Pittsylvania | 36.897315 | -79.456119 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 78 | - | 701 | - | 260 | - | 4-767 |
| S-MM10 | UNT to Cherrystone Creek | Pittsylvania | 36.895915 | -79.452960 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 9 | - | 61 | - | 7 | - | 4-768 |
| S-CC11 | UNT to Cherrystone Creek | Pittsylvania | 36.895808 | -79.452920 | Perennial | RPW | Orangefin madtom | 03010105 | Pipeline ROW | 87 | - | 697 | - | 258 | - | 4-768 |
| S-CC1 | Cherrystone Creek | Pittsylvania | 36.894043 | -79.445744 | Perennial | RPW | Orangefin madtom | 03010105 | Pipeline ROW | 82 | - | 1228 | - | 456 | - | 4-769 |
| S-CC3 | UNT to Cherrystone Creek | Pittsylvania | 36.893727 | -79.444763 | Ephemeral | NRPW | - | 03010105 | Pipeline ROW | 91 | - | 727 | - | 270 | - | 4-769 |
| S-P5 | UNT to Cherrystone Creek | Pittsylvania | 36.892751 | -79.440053 | Ephemeral | NRPW | - | 03010105 | Timber Mat Crossing | 20 | - | 100 | - | 11 | - | 4-769 |
| S-IJ35-EPH | UNT to Pole Bridge Branch | Pittsylvania | 36.891451 | -79.433781 | Ephemeral | NRPW | - | 03010105 | Pipeline ROW | 171 | - | 684 | - | 253 | - | 4-770 |
| S-Q4 | UNT to Pole Bridge Branch | Pittsylvania | 36.886114 | -79.430914 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 100 | - | 11 | - | 4-771 |
| S-Q3 | Pole Bridge Branch | Pittsylvania | 36.884444 | -79.428220 | Perennial | RPW | Orangefin madtom | 03010105 | Pipeline ROW | 75 | - | 1873 | - | 694 | - | 4-771 |
| S-Q2 | UNT to Pole Bridge Branch | Pittsylvania | 36.884284 | -79.427914 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-771 |
| S-B6 | UNT to Pole Bridge Branch | Pittsylvania | 36.879063 | -79.420189 | Ephemeral | NRPW | - | 03010105 | Pipeline ROW | 84 | - | 841 | - | 311 | - | 4-772 |
| S-B8 | UNT to Pole Bridge Branch | Pittsylvania | 36.877937 | -79.417992 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 82 | - | 327 | - | 121 | - | 4-773 |
| S-B9 | UNT to Pole Bridge Branch | Pittsylvania | 36.877416 | -79.416255 | Perennial | RPW | Orangefin madtom | 03010105 | Pipeline ROW | 78 | - | 545 | - | 202 | - | 4-773 |
| S-DD4-Braid-1 | UNT to Mill Creek | Pittsylvania | 36.871651 | -79.404061 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010105 | Pipeline ROW | 67 | - | 401 | - | 149 | - | 4-775 |
| S-DD4 | UNT to Mill Creek | Pittsylvania | 36.871478 | -79.403907 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010105 | Pipeline ROW | 147 | - | 880 | - | 327 | - | 4-775 |
| S-KL27 | UNT to Mill Creek | Pittsylvania | 36.866534 | -79.400511 | Ephemeral | NRPW | Natural Trout, Coldwater Fishery | 03010105 | Pipeline ROW | 84 | - | 83 | - | 31 | - | 4-776 |
| S-C1 | Mill Creek | Pittsylvania | 36.863513 | -79.397914 | Intermittent | RPW | Natural Trout, Coldwater Fishery | 03010105 | Pipeline ROW | 92 | - | 553 | - | 204 | - | 4-777 |
| S-G2 | Little Cherrystone Creek | Pittsylvania | 36.851931 | -79.386051 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-779 |
| S-B2 | UNT to Little Cherrystone Creek | Pittsylvania | 36.849394 | -79.377780 | Ephemeral | NRPW | - | 03010105 | Timber Mat Crossing | 20 | - | 100 | - | 11 | - | 4-780 |
| S-H55 | UNT to Little Cherrystone Creek | Pittsylvania | 36.843486 | -79.369222 | Ephemeral | NRPW | - | 03010105 | Timber Mat Crossing | 20 | - | 61 | - | 7 | - | 4-781 |
| S-H54 | UNT to Little Cherrystone Creek | Pittsylvania | 36.841112 | -79.366848 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 240 | - | 27 | - | 4-781 |
| S-GG11 | UNT to Little Cherrystone Creek | Pittsylvania | 36.841093 | -79.366942 | Perennial | RPW | - | 03010105 | Timber Mat Crossing | 46 | - | 366 | - | 41 | - | 4-781 |
| S-H3 | UNT to Little Cherrystone Creek | Pittsylvania | 36.834501 | -79.360244 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 18 | - | 109 | - | 12 | - | 4-783 |
| S-H5 | UNT to Little Cherrystone Creek | Pittsylvania | 36.833412 | -79.359823 | Perennial | RPW | Orangefin madtom | 03010105 | Pipeline ROW | 83 | - | 662 | - | 246 | - | 4-783 |
| S-OO1 | UNT to Little Cherrystone Creek | Pittsylvania | 36.830285 | -79.356618 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 84 | - | 418 | - | 156 | - | 4-783 |
| S-H44 | UNT to Little Cherrystone Creek | Pittsylvania | 36.829823 | -79.346016 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 33 | - | 266 | - | 29 | - | 4-785 |
| S-H42 | UNT to Little Cherrystone Creek | Pittsylvania | 36.828993 | -79.344442 | Perennial | RPW | Orangefin madtom | 03010105 | Permanent Access Road | - | 15 | - | 74 | - | 11 | 4-785 |
| S-H42 | UNT to Little Cherrystone Creek | Pittsylvania | 36.828958 | -79.344315 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 139 | - | 16 | - | 4-785 |

**Table B-1. Virginia Stream Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Stream ID | NHD Stream Name[1] | County | Latitude[2] | Longitude[2] | Flow Regime | Water Type[3] | Stream Designation[4] | HUC 8 | Impact Type | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Impact Area (square feet)[5] | Permanent Impact Area (square feet)[5] | Temporary Fill (cubic yard)[6] | Permanent Fill (cubic yard)[7] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-OO2 | UNT to Little Cherrystone Creek | Pittsylvania | 36.828831 | -79.353849 | Intermittent | RPW | - | 03010105 | Pipeline ROW | 78 | - | 392 | - | 144 | - | 4-784 |
| S-EF26 | Little Cherrystone Creek | Pittsylvania | 36.828207 | -79.349814 | Perennial | RPW | Orangefin madtom | 03010105 | Timber Mat Crossing | 20 | - | 401 | - | 44 | - | 4-784 |

Notes:

1 - For identified streams without a NHD (National Hydrography Dataset) name, the identified stream was given the name, "Unidentified Tributary (UNT)", of the first named receiving waterbody

2 - In decimal degrees

3 - RPW = Relatively Permanent Waters
- NRPW = Non-Relatively Permanent Waters
- TNW = Traditional Navigable Waters

4 - See Section 1.9.2 and Section 4.2 for more information

5 - Impact square feet are rounded to the nearest whole number.

6 - Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.

7 - Permanent fill associated with the construction of Permanent access road and facilities. Cubic yards are rounded to the nearest whole number.

Mountain Valley PIPELINE LLC

# Table B-2 (Virginia Wetland Impacts)

**Table B-2. Virginia Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (square feet)[4] | Permanent Conversion Impacts (square feet)[4] | Permanent Fill Impacts (square feet)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-Z11 | Giles | Norfolk | 37.346591 | -80.641713 | PEM | NRPWW | 05050002 | Pipeline ROW | 1,141 | - | - | 423 | - | 4-543 |
| W-Z3 | Giles | Norfolk | 37.342244 | -80.620612 | PSS | RPWWD | 05050002 | Timber Mat Crossing | - | 592 | - | 66 | - | 4-545 |
| W-CD12 | Giles | Norfolk | 37.318644 | -80.441717 | PEM | RPWWD | 05050002 | Pipeline ROW | 906 | - | - | 335 | - | 4-577 |
| W-MM10 | Giles | Norfolk | 37.298219 | -80.480617 | PEM | RPWWD | 05050002 | Temporary Access Road | 1,106 | - | - | 123 | - | 4-569 |
| W-RR1b | Giles | Norfolk | 37.296670 | -80.494042 | PEM | RPWWD | 05050002 | Timber Mat Crossing | 244 | - | - | 27 | - | 4-567 |
| W-IJ46-PEM | Montgomery | Norfolk | 37.296153 | -80.367508 | PEM | RPWWD | 03010101 | Pipeline ROW | 1,281 | - | - | 474 | - | 4-591 |
| W-AD4 | Montgomery | Norfolk | 37.286984 | -80.330124 | PEM | RPWWD | 03010101 | Temporary Access Road | 301 | - | - | 33 | - | 4-596 |
| W-NN6 | Montgomery | Norfolk | 37.268174 | -80.316468 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 362 | - | - | 40 | - | 4-603 |
| W-F9-PFO | Montgomery | Norfolk | 37.258109 | -80.285892 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 736 | - | 82 | - | 4-609 |
| W-C12-PEM | Montgomery | Norfolk | 37.257265 | -80.281667 | PEM | RPWWD | 03010101 | Pipeline ROW | 8,999 | - | - | 3,333 | - | 4-609 |
| W-C12 | Montgomery | Norfolk | 37.257192 | -80.281649 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 2,278 | - | 253 | - | 4-609 |
| W-C11 | Montgomery | Norfolk | 37.257107 | -80.281351 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 2,008 | - | 223 | - | 4-609 |
| W-C6 | Montgomery | Norfolk | 37.255860 | -80.275715 | PEM | NRPWW | 03010101 | Timber Mat Crossing | 605 | - | - | 67 | - | 4-610 |
| W-C5 | Montgomery | Norfolk | 37.255606 | -80.274237 | PEM | NRPWW | 03010101 | Pipeline ROW | 1,978 | - | - | 732 | - | 4-610 |
| W-AB7 | Montgomery | Norfolk | 37.231426 | -80.198615 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 174 | - | - | 19 | - | 4-631 |
| W-KL58 | Montgomery | Norfolk | 37.229183 | -80.203106 | PEM | RPWWD | 03010101 | Permanent Access Road | - | - | 1,707 | - | 190 | 4-631 |
| W-EF5-PFO | Montgomery | Norfolk | 37.210948 | -80.193359 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 3,711 | - | 1,374 | - | 4-635 |
| W-EF18 | Roanoke | Norfolk | 37.179449 | -80.140665 | PSS | RPWWD | 03010101 | Temporary Access Road | - | 227 | - | 25 | - | 4-647 |
| W-EF17 | Roanoke | Norfolk | 37.179402 | -80.140600 | PFO | RPWWD | 03010101 | Temporary Access Road | - | 976 | - | 108 | - | 4-647 |
| W-IJ94-PEM | Roanoke | Norfolk | 37.170092 | -80.138294 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 880 | - | - | 98 | - | 4-649 |
| W-IJ96-PEM | Roanoke | Norfolk | 37.169461 | -80.130376 | PEM | RPWWD | 03010101 | Permanent Access Road | - | - | 579 | - | 63 | 4-650 |
| W-IJ96-PEM | Roanoke | Norfolk | 37.169461 | -80.130376 | PEM | RPWWD | 03010101 | Permanent Access Road | 122 | - | - | 14 | - | 4-650 |
| W-IJ97 | Roanoke | Norfolk | 37.169197 | -80.129448 | PEM | RPWWD | 03010101 | Permanent Access Road | - | - | 22 | - | 2 | 4-650 |
| W-IJ95-PSS | Roanoke | Norfolk | 37.169068 | -80.138278 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 1,106 | - | 123 | - | 4-649 |
| W-IJ102 | Roanoke | Norfolk | 37.168289 | -80.138375 | PFO | RPWWD | 03010101 | Timber Mat Crossing | - | 436 | - | 48 | - | 4-649 |
| W-KL17 | Roanoke | Norfolk | 37.160152 | -80.134774 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 1,895 | - | 702 | - | 4-651 |
| W-KL16* | Roanoke | Norfolk | 37.159927 | -80.134257 | PEM | ISOLATE | 03010101 | Timber Mat Crossing | 618 | - | - | 69 | | 4-651 |
| W-KL15* | Roanoke | Norfolk | 37.158853 | -80.133802 | PEM | ISOLATE | 03010101 | Pipeline ROW | 1,451 | - | - | 537 | - | 4-651 |
| W-EF42 | Roanoke | Norfolk | 37.157611 | -80.133722 | PEM | RPWWD | 03010101 | Pipeline ROW | 362 | - | - | 40 | - | 4-652 |
| W-HS02 | Roanoke | Norfolk | 37.157427 | -80.133413 | PEM | RPWWD | 03010101 | Pipeline ROW | 12,602 | - | - | 4,668 | - | 4-652 |
| W-AB6-PEM-2 | Roanoke | Norfolk | 37.156825 | -80.131998 | PEM | RPWWD | 03010101 | Pipeline ROW | 14,248 | - | - | 5,277 | - | 4-652 |
| W-AB6-PFO-1 | Roanoke | Norfolk | 37.156713 | -80.131681 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 2,692 | - | 997 | - | 4-652 |
| W-AB6-PEM-1 | Roanoke | Norfolk | 37.156170 | -80.130794 | PEM | RPWWD | 03010101 | Pipeline ROW | 2,818 | - | - | 1,044 | - | 4-652 |
| W-AB6-PSS | Roanoke | Norfolk | 37.156034 | -80.130603 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 266 | - | 30 | - | 4-652 |
| W-AB5 | Roanoke | Norfolk | 37.155840 | -80.130227 | PFO | RPWWN | 03010101 | Pipeline ROW | - | 183 | - | 20 | - | 4-652 |
| W-AB3-PEM-2 | Roanoke | Norfolk | 37.155664 | -80.129569 | PEM | RPWWD | 03010101 | Pipeline ROW | 6,739 | - | - | 2,495 | - | 4-652 |
| W-EF46 | Roanoke | Norfolk | 37.154575 | -80.129122 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 2,971 | - | 330 | - | 4-652 |
| W-KL48-PSS-1 | Roanoke | Norfolk | 37.152292 | -80.130022 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 1,978 | - | 733 | - | 4-653 |
| W-KL48-PEM | Roanoke | Norfolk | 37.151965 | -80.130049 | PEM | RPWWD | 03010101 | Pipeline ROW | 274 | - | - | 31 | - | 4-653 |
| W-KL48-PSS-2 | Roanoke | Norfolk | 37.150926 | -80.131271 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 1,150 | - | 128 | - | 4-653 |
| W-KL50 | Roanoke | Norfolk | 37.150728 | -80.131537 | PEM | RPWWN | 03010101 | Pipeline ROW | 1,777 | - | - | 658 | - | 4-653 |
| W-KL49 | Roanoke | Norfolk | 37.150297 | -80.132193 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 662 | - | - | 74 | - | 4-653 |
| W-KL51-PEM | Roanoke | Norfolk | 37.150006 | -80.132403 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 274 | - | - | 30 | - | 4-653 |
| W-KL51-PSS | Roanoke | Norfolk | 37.149975 | -80.132476 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 348 | - | 39 | - | 4-653 |
| W-MN7-PEM | Roanoke | Norfolk | 37.148328 | -80.133901 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 505 | - | - | 56 | - | 4-653 |
| W-EF44 | Roanoke | Norfolk | 37.142977 | -80.138322 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 370 | - | - | 41 | - | 4-654 |
| W-IJ36 | Roanoke | Norfolk | 37.138922 | -80.139845 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 5,388 | - | 599 | - | 4-655 |
| W-Z7 | Roanoke | Norfolk | 37.136601 | -80.128216 | PSS | RPWWD | 03010101 | Temporary Access Road | - | 13 | - | 1 | - | 4-657 |
| W-Z6 | Roanoke | Norfolk | 37.136466 | -80.128238 | PFO | RPWWD | 03010101 | Temporary Access Road | - | 122 | - | 14 | - | 4-657 |
| W-IJ62 | Roanoke | Norfolk | 37.135529 | -80.134044 | PEM | RPWWD | 03010101 | Temporary Access Road | 4 | - | - | 1 | - | 4-656 |
| W-Y2 | Roanoke | Norfolk | 37.134284 | -80.137448 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 823 | - | - | 91 | - | 4-656 |
| W-IJ10 | Roanoke | Norfolk | 37.132561 | -80.131744 | PEM | RPWWD | 03010101 | Permanent Access Road | 87 | - | - | 10 | - | 4-656 |
| W-Q11 | Roanoke | Norfolk | 37.132470 | -80.131638 | PEM | RPWWD | 03010101 | Permanent Access Road | 566 | - | - | 63 | - | 4-656 |
| W-KL1 | Roanoke | Norfolk | 37.132456 | -80.131463 | PEM | RPWWN | 03010101 | Permanent Access Road | 78 | - | - | 9 | - | 4-656 |
| W-B25-PEM-4 | Roanoke | Norfolk | 37.128942 | -80.133774 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 405 | - | - | 45 | - | 4-659 |
| W-B25-PEM-1 | Roanoke | Norfolk | 37.128645 | -80.133283 | PEM | RPWWD | 03010101 | Pipeline ROW | 8,425 | - | - | 3,120 | - | 4-659 |
| W-B24-PSS | Roanoke | Norfolk | 37.128540 | -80.130794 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 7,131 | - | 2,641 | - | 4-659 |
| W-B24-PEM | Roanoke | Norfolk | 37.128530 | -80.131060 | PEM | RPWWD | 03010101 | Pipeline ROW | 4,491 | - | - | 1,663 | - | 4-659 |
| W-B25-PSS-2 | Roanoke | Norfolk | 37.128527 | -80.132335 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 3,615 | - | 402 | - | 4-659 |
| W-B25-PEM-1 | Roanoke | Norfolk | 37.128449 | -80.132802 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 610 | - | - | 68 | - | 4-659 |
| W-B25-PEM-2 | Roanoke | Norfolk | 37.128436 | -80.132646 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 209 | - | - | 78 | - | 4-659 |
| W-ST2-PEM | Franklin | Norfolk | 37.125329 | -80.121460 | PEM | RPWWD | 03010101 | Pipeline ROW | 4,975 | - | - | 1,842 | - | 4-661 |
| W-RR4 | Franklin | Norfolk | 37.125117 | -80.113530 | PEM | RPWWD | 03010101 | Permanent Access Road | 941 | - | - | 105 | - | 4-662 |

**Table B-2. Virginia Wetland Impacts *(revised 3/1/2021)***
**Individual Permit Application**
**Mountain Valley Pipeline Project**

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (square feet)[4] | Permanent Conversion Impacts (square feet)[4] | Permanent Fill Impacts (square feet)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-RR3 | Franklin | Norfolk | 37.124214 | -80.114746 | PEM | RPWWD | 03010101 | Permanent Access Road | 83 | - | - | 9 | - | 4-662 |
| W-KL41 | Franklin | Norfolk | 37.123851 | -80.115802 | PEM | RPWWD | 03010101 | Permanent Access Road | 998 | - | - | 111 | - | 4-661 |
| W-D4 | Franklin | Norfolk | 37.122629 | -80.076102 | PEM | RPWWN | 03010101 | Permanent Access Road | 135 | - | - | 15 | - | 4-667 |
| W-D4 | Franklin | Norfolk | 37.122625 | -80.076071 | PEM | RPWWN | 03010101 | Permanent Access Road | - | - | 39 | - | 4 | 4-667 |
| W-D7-PEM | Franklin | Norfolk | 37.121559 | -80.085750 | PEM | RPWWD | 03010101 | Pipeline ROW | 693 | - | - | 77 | - | 4-666 |
| W-EF3 | Franklin | Norfolk | 37.117734 | -80.095992 | PEM | RPWWD | 03010101 | Permanent Access Road | 1,154 | - | - | 128 | - | 4-665 |
| W-IJ1 | Franklin | Norfolk | 37.092927 | -80.027568 | PEM | RPWWD | 03010101 | Pipeline ROW | 1,812 | - | - | 671 | - | 4-677 |
| W-IJ2-PSS | Franklin | Norfolk | 37.092645 | -80.027176 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 348 | - | 129 | - | 4-677 |
| W-IJ2-PEM | Franklin | Norfolk | 37.092596 | -80.027214 | PEM | RPWWD | 03010101 | Pipeline ROW | 732 | - | - | 271 | - | 4-677 |
| W-GH2 | Franklin | Norfolk | 37.092404 | -79.983182 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 566 | - | 63 | - | 4-684 |
| W-II8 | Franklin | Norfolk | 37.091357 | -79.992006 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 383 | - | - | 43 | - | 4-683 |
| W-IJ6 | Franklin | Norfolk | 37.089156 | -80.005036 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 200 | - | - | 22 | - | 4-681 |
| W-E7 | Franklin | Norfolk | 37.084557 | -79.947595 | PEM | RPWWD | 03010101 | Pipeline ROW | 10,986 | - | - | 4,068 | - | 4-690 |
| W-E8 | Franklin | Norfolk | 37.082843 | -79.946100 | PEM | RPWWD | 03010101 | Pipeline ROW | 3,010 | - | - | 1,114 | - | 4-690 |
| W-EF51 | Franklin | Norfolk | 37.064781 | -79.874460 | PEM | RPWWD | 03010101 | Pipeline ROW | 579 | - | - | 64 | - | 4-705 |
| W-KL43b | Franklin | Norfolk | 37.059608 | -79.840707 | PEM | RPWWD | 03010101 | Pipeline ROW | 17 | - | - | 2 | - | 4-710 |
| W-CD6 | Franklin | Norfolk | 37.057586 | -79.915232 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 4,069 | - | - | 452 | - | 4-698 |
| W-CD5 | Franklin | Norfolk | 37.055438 | -79.910624 | PFO | RPWWN | 03010101 | Pipeline ROW | - | 4,948 | - | 1,833 | - | 4-698 |
| W-EF48 | Franklin | Norfolk | 37.052142 | -79.886197 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 348 | - | - | 39 | - | 4-702 |
| W-CD1 | Franklin | Norfolk | 37.047767 | -79.897568 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 4,818 | - | 1,785 | - | 4-701 |
| W-DD1 | Franklin | Norfolk | 37.031961 | -79.788589 | PEM | RPWWN | 03010101 | Pipeline ROW | 3,541 | - | - | 1,312 | - | 4-720 |
| W-A12-PFO | Franklin | Norfolk | 37.031754 | -79.788099 | PFO | RPWWD | 03010101 | Pipeline ROW | - | 174 | - | 19 | - | 4-720 |
| W-A12-PEM | Franklin | Norfolk | 37.031643 | -79.788111 | PEM | RPWWD | 03010101 | Pipeline ROW | 2,836 | - | - | 1,050 | - | 4-720 |
| W-GH16 | Franklin | Norfolk | 37.028394 | -79.773243 | PFO | RPWWD | 03010101 | Timber Mat Crossing | - | 2,862 | - | 318 | - | 4-722 |
| W-H17 | Franklin | Norfolk | 36.989390 | -79.722090 | PFO | RPWWD | 03010101 | Timber Mat Crossing | - | 1,607 | - | 179 | - | 4-730 |
| W-H11 | Franklin | Norfolk | 36.988077 | -79.702803 | PEM | RPWWD | 03010101 | Pipeline ROW | 2,039 | - | - | 755 | - | 4-734 |
| W-H16 | Franklin | Norfolk | 36.988073 | -79.714967 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 1,011 | - | - | 112 | - | 4-731 |
| W-H14 | Franklin | Norfolk | 36.988069 | -79.711841 | PEM | RPWWD | 03010101 | Timber Mat Crossing | 266 | - | - | 30 | - | 4-732 |
| W-A8 | Franklin | Norfolk | 36.987947 | -79.700844 | PEM | RPWWD | 03010101 | Pipeline ROW | 671 | - | - | 75 | - | 4-734 |
| W-H15 | Franklin | Norfolk | 36.987938 | -79.714829 | PSS | RPWWD | 03010101 | Timber Mat Crossing | - | 309 | - | 35 | - | 4-731 |
| W-H9 | Franklin | Norfolk | 36.978536 | -79.682057 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 370 | - | - | 41 | - | 4-736 |
| W-H6 | Franklin | Norfolk | 36.972189 | -79.663042 | PEM | RPWWD | 03010101 | Pipeline ROW | 248 | - | - | 28 | - | 4-741 |
| W-D3 | Pittsylvania | Norfolk | 36.965318 | -79.598760 | PFO | RPWWN | 03010101 | Timber Mat Crossing | - | 1,241 | - | 138 | - | 4-748 |
| W-MM17 | Franklin | Norfolk | 36.964731 | -79.617067 | PEM | RPWWD | 03010101 | Pipeline ROW | 296 | - | - | 110 | - | 4-746 |
| W-B5 | Pittsylvania | Norfolk | 36.959293 | -79.586201 | PEM | RPWWN | 03010101 | Pipeline ROW | 209 | - | - | 23 | - | 4-751 |
| W-B4-PSS | Pittsylvania | Norfolk | 36.957884 | -79.583666 | PSS | RPWWD | 03010101 | Pipeline ROW | - | 205 | - | 23 | - | 4-751 |
| W-C1 | Pittsylvania | Norfolk | 36.929954 | -79.526831 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 793 | - | - | 88 | - | 4-758 |
| W-H5 | Pittsylvania | Norfolk | 36.924983 | -79.517159 | PEM | RPWWD | 03010101 | Pipeline ROW | 9,004 | - | - | 3,335 | - | 4-759 |
| W-B3 | Pittsylvania | Norfolk | 36.916508 | -79.492360 | PEM | RPWWN | 03010101 | Timber Mat Crossing | 57 | - | - | 6 | - | 4-762 |
| W-CC2-PEM | Pittsylvania | Norfolk | 36.905418 | -79.471566 | PEM | RPWWD | 03010105 | Timber Mat Crossing | 1,185 | - | - | 132 | - | 4-765 |
| W-MM5 | Pittsylvania | Norfolk | 36.903012 | -79.468192 | PSS | RPWWD | 03010105 | Timber Mat Crossing | - | 1,699 | - | 189 | - | 4-766 |
| W-MM9 | Pittsylvania | Norfolk | 36.894087 | -79.446110 | PEM | RPWWN | 03010105 | Timber Mat Crossing | 470 | - | - | 52 | - | 4-769 |
| W-MM8-PEM | Pittsylvania | Norfolk | 36.894034 | -79.445486 | PEM | RPWWN | 03010105 | Pipeline ROW | 2,409 | - | - | 893 | - | 4-769 |
| W-MM8-PFO | Pittsylvania | Norfolk | 36.893930 | -79.445461 | PFO | RPWWN | 03010105 | Pipeline ROW | - | 1,834 | - | 679 | - | 4-769 |
| W-Q2 | Pittsylvania | Norfolk | 36.884674 | -79.428607 | PFO | RPWWD | 03010105 | Pipeline ROW | - | 16,422 | - | 6,082 | - | 4-771 |
| W-Q1 | Pittsylvania | Norfolk | 36.883985 | -79.427305 | PEM | RPWWD | 03010105 | Pipeline ROW | 636 | - | - | 236 | - | 4-771 |
| W-G2 | Pittsylvania | Norfolk | 36.851816 | -79.385930 | PEM | RPWWD | 03010105 | Timber Mat Crossing | 1,507 | - | - | 167 | - | 4-779 |
| W-H1 | Pittsylvania | Norfolk | 36.836097 | -79.360895 | PEM | RPWWN | 03010105 | Pipeline ROW | 479 | - | - | 53 | - | 4-782 |
| W-EF6 | Pittsylvania | Norfolk | 36.835004 | -79.339128 | PFO | RPWWD | 03010105 | Pipeline ROW | - | 2,905 | - | 323 | - | 4-786 |
| W-H2 | Pittsylvania | Norfolk | 36.834817 | -79.360479 | PEM | RPWWD | 03010105 | Pipeline ROW | 34,791 | - | - | 12,886 | - | 4-782 |

## Table B-2. Virginia Wetland Impacts *(revised 3/1/2021)*
## Individual Permit Application
## Mountain Valley Pipeline Project

| Wetland ID | County | USACE District | Latitude[1] | Longitude[1] | Cowardin Class[2] | USACE Water Type[3] | HUC 8 | Impact Type | Temporary Impacts (square feet)[4] | Permanent Conversion Impacts (square feet)[4] | Permanent Fill Impacts (square feet)[4] | Temporary Fill (cubic yards)[5] | Permanent Fill (cubic yards)[6] | Figure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-IJ21 | Pittsylvania | Norfolk | 36.834623 | -79.338527 | PFO | RPWWN | 03010105 | Timber Mat Crossing | - | 462 | - | 51 | - | 4-786 |
| W-H3 | Pittsylvania | Norfolk | 36.833741 | -79.360081 | PEM | RPWWN | 03010105 | Pipeline ROW | 2,217 | - | - | 821 | - | 4-783 |
| W-MM3 | Pittsylvania | Norfolk | 36.830361 | -79.356631 | PSS | RPWWD | 03010105 | Pipeline ROW | - | 1,481 | - | 548 | - | 4-783 |
| W-IJ22-PEM | Pittsylvania | Norfolk | 36.827780 | -79.350264 | PEM | RPWWD | 03010105 | Timber Mat Crossing | 1,699 | - | - | 189 | - | 4-784 |
| W-IJ22-PFO | Pittsylvania | Norfolk | 36.827748 | -79.350295 | PFO | RPWWD | 03010105 | Timber Mat Crossing | - | 3,419 | - | 380 | - | 4-784 |

Notes:

1 - In decimal degrees.

2 - PEM = Palustrine Emergent
- PSS = Palustrine Scrub-Shrub
- PFO = Palustrine Forested

3 - RPWWD = Wetlands directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waterways (TNWs)
- RPWWN = Wetlands adjacent but not directly abutting RPWs that flow directly or indirectly into TNWs
- NRPWW = Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

4 - Construction of access roads will not result in impacts to tidal wetlands or wetlands adjacent to tidal waters. Construction, maintenance, or expansion of substation facilities will not result in discharges to non-tidal wetlands adjacent to tidal waters of the United States.
- Impact square feet are rounded to the nearest whole number.

5 - Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.

6 - Permanent fill associated with the construction of permanent access road and facilities. Cubic yards are rounded to the nearest whole number.

* - VDEQ does not require a VWPP for W-KL15 or W-KL16 per the VDEQ 1/23/2018 IWOMEV Determination

Mountain Valley PIPELINE LLC

# Table B-3 (Virginia Stream Impact Summary)

# Table B-3. Virginia Stream Impacts Summary *(revised 3/1/2021)*
# Individual Permit Application
# Mountain Valley Pipeline Project

| Cowardin Class | Temporary Impact (linear ft) | Permanent Impact (linear ft) | Temporary Fill (cubic yards) | Permanent Fill (cubic yards) |
|---|---|---|---|---|
| Ephemeral | 3,966 | 45 | 6,274 | 35 |
| Intermittent | 6,383 | 0 | 10,478 | 0 |
| Perennial | 6,921 | 65 | 30,294 | 55 |
| **Norfolk District Total** | **17,270** | **110** | **47,046** | **90** |

Mountain Valley PIPELINE LLC

# Table B-4 (Virginia Wetland Impact Summary)

# Table B-4. Virginia Wetland Impacts Summary *(revised 3/1/2021)*
# Individual Permit Application
# Mountain Valley Pipeline Project

| Cowardin Class | Temporary Impacts (square feet)[1] | Permanent Conversion Impacts (square feet) | Permanent Fill Impacts (square feet) | Temporary Fill (cubic yards) | Permanent Fill (cubic yards) |
|---|---|---|---|---|---|
| PEM | 174,346 | 0 | 2,347 | 57,313 | 259 |
| PSS | 0 | 33,296 | 0 | 7,029 | 0 |
| PFO | 0 | 51,826 | 0 | 14,683 | 0 |
| **Norfolk District Total** | **174,346** | **85,122** | **2,347** | **78,419** | **259** |

Notes:

1 - Includes temporary impacts to W-KL15 and W-KL16, two isolated wetland that VDEQ does not require a VWPP for per the VDEQ 1/23/2018 IWOMEV Determination.