Table 1. Fee Calculation Summary for the Pennsylvania Pipeline Project (PPP) – Delaware County – 01/30/2017

| **Crossing ID1** | **Resources** | **Permanent Impacts area (acre)** | **Temporary Impact area (acre)** |
| --- | --- | --- | --- |
| 1 | S-B36 | 0.123 | 0.046 |
| 2 | S-B37 | 0.545 | 0.319 |
| 3 | S-B38 |
| 4 | S-B39 |
| 5 | S-B51 | 0.020 | - |
| 6 | S-B52 |
| 7 | S-B53 |
| 8 | S-B54 |
| 9 | S-B55 |
| 10 | S-B56 | 0.006 | 0.100 |
| 11 | S-B57 |
| 12 | S-C43 | 0.117 | 0.083 |
| 13 | C21 | 0.001 | - |
| 14 | S-C42 | 0.012 | - |
| 15 | S-C39 | 0.009 | - |
| 16 | S-C40 |
| 17 | S-C41 |
| 18 | S-C44 | 0.387 | 0.082 |
| 19 | S-C45 |
| 20 | C23 | 0.276 | - |
| 21 | S-C26 | 0.008 | - |
| 22 | S-C24 | 0.011 | - |
| 23 | S-C25 |
| 24 | S-C23 | 0.013 | 0.004 |
| 25 | C10 | 0.007 | - |
| 26 | S-C15 | 0.829 | 0.099 |
| 27 | S-C16 |
| 28 | S-C17 |
| 29 | S-C18 |
| 30 | S-C19 |
| 31 | S-C20 |
| 32 | S-C21 |
| 33 | S-C22 |
| 34 | I1 | 0.014 | - |
| 35 | S-I1 | 0.892 | 0.704 |
| 36 | S-I2 |
| 37 | S-I3 |
| 38 | S-I4 |
| 39 | S-I5 | 0.196 | 0.119 |
| 40 | S-I6 |
| 41 | S-H29 | 0.174 | 0.224 |
| 42 | S-H28 | 0.151 | 0.184 |
| 43 | S-H27 | 0.148 | 0.205 |
| 44 | S-H35 | 0.175 | 0.093 |
| 45 | S-H36 |
| 46 | S-H34 | 0.190 | 0.151 |
| 47 | S-CS6 |
| 48 | S-H37 | 0.244 | 0.030 |
| 49 | S-H38 |
| 50 | S-H39\* | - | - |
| 51 | S-H40 | 0.188 | - |
| 52 | S-H41 |
| 53 | S-H42\* | - | - |
| 54 | S-H43 | 0.102 | - |
| 55 | S-H44\* | - | - |
| 56 | S-H47\* | - | - |
| 57 | H41 | 0.001 | - |
| 58 | I16 | 0.024 | - |
| 59 | S-I17\* | - | - |
| 60 | S-I19\* |
| 61 | S-I20\* |
| 62 | S-I18 | 0.008 | - |
| 63 | BA5 | 0.001 | - |
| 64 | BA6 | 0.002 | - |
| 65 | I5 | 0.129 | 0.830 |
| 66 | S-I7\* | - | - |
| **TOTAL AREA2** | 5.003 | 3.273 |
| **IMPACT FEES3** | $40,800 | $13,200 |
| **Administrative Fees3** | $1,750 |
| **TOTAL FEES** | **$55,750** |
| Notes:1 Crossing ID is the sequential resource crossing from west to east. Some resources are grouped due to shared Chapter 105 Floodway areas.2 Total Area includes wetland impacts, Chapter 105 Floodway impacts, and Chapter 106 Floodplain Fringe impacts.3Fees include the rates listed in the Chapter 105 Fee Calculation Sheet of $8,000 per acre of permanent impact, $4,000 per acre of temporary impact, and a $1,750 administrative fee. Acreages of impact presented in “Total Area” have been rounded up to the next tenth of an acre.4 All application fees have been previously paid unless otherwise indicated.\*PADEP-Waived stream impacts are not included in impact fee calculation |

**Table 2. Wetland Impact Summary for the Pennsylvania Pipeline Project (PPP) – Delaware County – 12/1/2016**

| **Wetland ID** | **USFWS Cowardin Classification1** | **Coordinates** | **12-Digit HUC Code** | **Crossing Method2,3** | **Length of Centerline Crossing (feet) 4** | **PADEP Permanent Impact5** | **PADEP Temporary Impact6** | **PADEP & USACE Permanent Loss7** | **Conversion Impact (acre)8** | **Exceptional Value** | **Site Plan/E&S Plan/HDD Sheet Number** | **Permit** | **USACE District** | **USACE Section 10/404 Activity** | **Fee Crossing Reference Number** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BA5 | PFO | 39.8466, -75.4103 | 020402020605 | HDD | 6 | 0.001 | - | - | - | - | 46 / ES-6.34PA-DE-0104.0023-RR & -16 | Individual | Philadelphia | Non-jurisdictional | 63 |
| BA6 | PFO | 39.8465, -75.4107 | 020402020605 | HDD | 26 | 0.002 | - | - | - | - | 46 / ES-6.34PA-DE-0104.0023-RR & -16 | Individual | Philadelphia | Non-jurisdictional | 64 |
| C10 | PEM | 39.9053, -75.4468 | 020402020605 | HDD | 51 | 0.004 | - | - | - | PuWS | 22 / ES-6.16PA-DE-0074.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 25 |
| PSS | 39.9055, -75.4467 | 020402020605 | HDD | 51 | 0.003 | - | - | - | PuWS | 22 / ES-6.16PA-DE-0074.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 25 |
| C21 | PFO | 39.9214, -75.4642 | 020402020605 | HDD | 14 | 0.001 | - | - | - | - | 16 / ES-6.12PA-DE-0046.0000-RD | Individual | Philadelphia | Non-jurisdictional | 13 |
| C23 | PEM | 39.9107, -75.4566 | 020402020605 | Open Cut | 243 | 0.276 | - | - | - | Wild Trout | 19 / ES-6.14S-C44 (A&B) | Individual | Philadelphia | Activity in WOUS | 20 |
| H41 | PEM | 39.8542, -75.3993 | 020402020605 | Open Cut | - | 0.001 | - | - | - | - | 42 / ES-6.31 | Individual | Philadelphia | Activity in WOUS | 57 |
| I1 | PEM | 39.8945, -75.4320 | 020402020605 | HDD | 200 | 0.014 | - | - | - | PuWS | 27 / ES-6.20PA-DE-0100.0000-RR & -16 | Individual | Philadelphia | Non-jurisdictional | 34 |
| I5 | PEM | 39.8460, -75.4139 | 020402020605 | Open Cut/ Temporary Matting | 113 | 0.129 | 0.830 | - | - | - | 47 / ES-6.34, 6.35 | Individual | Philadelphia | Activity in WOUS | 65 |
| I16 | PEM | 39.8491, -75.4039 | 020402020607 | HDD | 58 | 0.004 | - | - | - | - | 44 / ES-6.32PA-DE-0104.0023-RR & -16 | Individual | Philadelphia | Non-jurisdictional | 58 |
| PFO | 39.8485, -75.4035 | 020402020607 | HDD | 295 | 0.020 | - | - | - | - | 44 / ES-6.32, 6.33PA-DE-0104.0023-RR & -16 | Individual | Philadelphia | Non-jurisdictional | 58 |
|  | **9 Wetlands** | **3 Temp. Crossings** | **1,057 feet****0.200 mile** | **0.455 acre** | **0.830 acre** | **0 acre** | **0 acre** |  |

Notes:

1 Field classification based on Cowardin et al. 1979. PEM = palustrine emergent wetland, PSS = palustrine scrub-shrub wetland, PFO = palustrine forested wetland, PuB = Palustrine unconsolidated bottom (pond).

2 All open cut wetlands will also require a temporary road crossing (using wetland matting) placed on the travel lane within the workspace limits. HDD areas will not be traveled through unless “Travel Lane” or “Clearing LOD” is indicated. Travel Lane areas are HDD crossings where travel through with equipment is necessary to facilitate installation. Wetland matting will be placed in the Travel Lane in these cases and the impact is presented in the PADEP Temporary Impact columns. “Clearing LOD” areas are areas between HDD exit and entry points where clearing of vegetation is planned to maximize aerial inspection of the line to meet Department of Transportation regulations. “Temporary Matting” is the crossing method used when wetlands are crossed by temporary access roads.

3 Additional crossing details can be found in Attachment 12 which includes the Project’s Erosion and Sediment Control Plan; Additional site-specific drawings (HDD, bore, and site-specific open-cut) can be found in Attachment 7.

4 A “-“ in length of centerline crossing indicates the wetland is located in the construction limits of disturbance but is not directly crossed by the pipeline centerlines.

5 According to the Instructions for the Joint Permit Application, permanent impacts “are those areas affected by a water obstruction or encroachment that consist of both direct and indirect impacts that result from the placement or construction of a water obstruction or encroachment and include areas necessary for the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse floodway or body of water.”. As per the Chapter 105 Fee(s) Calculation Worksheet and for fee purposes only, permanent impacts have been calculated using the area in each wetland or watercourse that is within the 50-foot-wide permanent right-of-way, even if the area is restored to pre-construction conditions. The only permanent impacts are noted in column labelled “PADEP and USACE Permanent Loss” and “Conversion Impact”. Per PADEP direction, Permanent disturbance impacts at HDD and bore crossings are calculated on the width of the pipes multiplied by the length of the crossing. Although PADEP defines operation and maintenance activities as permanent impacts, all wetlands affected by the Project will be restored to pre-construction conditions including the presence of wetland soils, hydrology, and hydrophytic vegetation. In addition, the Project does not involve any permanent fill and there will be no permanent loss of wetland area associated with the Project. SPLP will not maintain the ROW through wetland areas (i.e., no mowing); therefore, the pre- and post-construction conditions of the wetland areas will be the same, except for any noted wetland cover type conversion impacts.

6 According to the Instructions for the Joint Permit Application, temporary impacts “are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water.”. For purposes of the fee calculation, temporary impact areas consist of areas such as additional temporary workspace and temporary access roads.

7 Loss of wetland acreages due to permanent fill.

8 Total conversion after on-site restoration and plantings. More details regarding restoration and planting of these areas can be found in Tab 11, Enclosure F.

**Table 3. Waterbody Impact Summary for the Pennsylvania Pipeline Project (PPP) – Delaware County – 01/30/2017**

| **Stream ID** | **Stream Name** | **Coordinates** | **Flow Regime1** | **Bank to Bank Width (feet) 2** | **Length of Centerline Stream Crossing at HDD/Bore3** | **Stream Disturbance Length in ROW (feet)4** | **Crossing Method5,6** | **Stream Permanent Impact (square feet)7, 8** | **Stream Temporary Impact (square feet)7, 9** | **PADEP Permanent Floodway Impact (acre)8** | **PADEP Temporary Floodway Disturbance (acre)9** | **Ch. 93 Designated Use10** | **PAFBC Stream Designation11** | **Site Plan/E&S Plan/HDD Plan Sheet Number** | **Permit12** | **USACE District** | **USACE Section 10/404 Activity** | **Fee Crossing Reference Number** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Perm*** | ***Temp*** | **Total** |
| S-B36 | UNT to Chester Creek | 39.9437, -75.5020 | Ephemeral | 4 | - | *29* | *-* | 29 | Dry Crossing | 116 | - | 0.123 | 0.046 | Drains to TSF, MF | Drains to ATW, STS | 3 / ES-6.03 | Individual | Philadelphia | Activity in WOUS | 1 |
| S-B37 | UNT to Chester Creek | 39.9421, -75.4982 | Ephemeral | 6 | - | *289* | *-* | 289 | Dry Crossing | 1,734 | - | 0.545 | 0.319 | Drains to TSF, MF | Drains to ATW, STS | 4 / ES-6.03, 6.04S-B38 (A&B) | Individual | Philadelphia | Activity in WOUS | 2 |
| S-B38 | UNT to Chester Creek | 39.9418, -75.4974 | Perennial | 15 | - | *54* | *-* | 54 | Dry Crossing | 810 | - | Drains to TSF, MF | Drains to ATW, STS | 4 / ES-6.03, 6.04S-B38 (A&B) | Individual | Philadelphia | Activity in WOUS | 3 |
| S-B39 | UNT to Chester Creek | 39.9421 -75.4972 | Ephemeral | 2 | - | *-* | *-* | - | Floodway Only | - | - | Drains to TSF, MF | Drains to ATW, STS | 4 / ES-6.04S-B38 (A&B) | Individual | Philadelphia | Non-jurisdictional | 4 |
| S-B51 | UNT to Chester Creek | 39.9407 -75.4945 | Ephemeral | 1 | n/a | *-* | *-* | - | HDD Floodway | - | - | 0.020 | - | Drains to TSF, MF | Drains to ATW, STS | 5 / ES-6.04PA-DE-0016.0000-RD | Individual | Philadelphia | Non-jurisdictional | 5 |
| S-B52 | UNT to Chester Creek | 39.9408, -75.4943 | Intermittent | 1.5 | 1.5 | *-* | *-* | - | HDD | 4.5 | - | Drains to TSF, MF | Drains to ATW, STS | 5 / ES-6.04PA-DE-0016.0000-RD | Individual | Philadelphia | Non-jurisdictional | 6 |
| S-B53 | UNT to Chester Creek | 39.9407 -75.4940 | Intermittent | 2 | n/a | *-* | *-* | - | HDD Floodway | - | - | Drains to TSF, MF | Drains to ATW, STS | 5 / ES-6.04PA-DE-0016.0000-RD | Individual | Philadelphia | Non-jurisdictional | 7 |
| S-B54 | UNT to Chester Creek | 39.9405, -75.4942 | Perennial | 2 | 2 | *-* | *-* | - | HDD | 6 | - | Drains to TSF, MF | Drains to ATW, STS | 5 / ES-6.04PA-DE-0016.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 8 |
| S-B55 | UNT to Chester Creek | 39.9405, -75.4947 | Ephemeral | 2 | 2 | *-* | *-* | - | HDD | 6 | - | Drains to TSF, MF | Drains to ATW, STS | 5 / ES-6.04PA-DE-0016.0000-RD-16 | Individual | Philadelphia | Non-jurisdictional | 9 |
| S-B56 | UNT to Chester Creek | 39.9401 -75.4904 | Intermittent | 4 | - | *-* | *-* | - | Floodway Only | - | - | 0.006 | 0.100 | Drains to TSF, MF | Drains to ATW, STS | 6 / ES-6.05 | Individual | Philadelphia | Non-jurisdictional | 10 |
| S-B57 | UNT to Chester Creek | 39.9402 -75.4906 | Ephemeral | 1 | - | *-* | *-* | - | Floodway Only | - | - | Drains to TSF, MF | Drains to ATW, STS | 6 / ES-6.05 | Individual | Philadelphia | Non-jurisdictional | 11 |
| S-C15 | UNT to Chester Creek | 39.9032 -75.4444 | Ephemeral | 2 | - | *-* | *-* | - | Floodway Only | - | - | 0.829 | 0.099 | Drains to TSF, MF | Drains to ATW, STS | 23 / ES-6.17 | Individual | Philadelphia | Non-jurisdictional | 26 |
| S-C16 | UNT to Chester Creek | 39.9042, -75.4454 | Perennial | 8 | - | *57* | *-* | 57 | Dry Crossing/ Temporary Bridge | 456 | - | Drains to TSF, MF | Drains to ATW, STS | 23 / ES-6.17 | Individual | Philadelphia | Activity in WOUS | 27 |
| S-C17 | UNT to Chester Creek | 39.9042 -75.4460 | Perennial | 16 | - | *-* | *-* | - | Floodway Only | - | - | Drains to TSF, MF | Drains to ATW, STS | 23 / ES-6.17 | Individual | Philadelphia | Non-jurisdictional | 28 |
| S-C18 | UNT to Chester Creek | 39.9037 -75.4455 | Perennial | 7 | - | *-* | *-* | - | Floodway Only | - | - | Drains to TSF, MF | Drains to ATW, STS | 23 / ES-6.17 | Individual | Philadelphia | Non-jurisdictional | 29 |
| S-C19 | UNT to Chester Creek | 39.9030 -75.4444 | Ephemeral | 9 | - | *-* | *-* | - | Floodway Only | - | - | Drains to TSF, MF | Drains to ATW, STS | 23 / ES-6.17 | Individual | Philadelphia | Non-jurisdictional | 30 |
| S-C20 | UNT to Chester Creek | 39.9030 -75.4442 | Ephemeral | 2 | - | *-* | *-* | - | Floodway Only | - | - | Drains to TSF, MF | Drains to ATW, STS | 23 / ES-6.17 | Individual | Philadelphia | Non-jurisdictional | 31 |
| S-C21 | UNT to Chester Creek | 39.9038 -75.4455 | Ephemeral | 3 | - | *-* | *-* | - | Floodway Only | - | - | Drains to TSF, MF | Drains to ATW, STS | 23 / ES-6.17 | Individual | Philadelphia | Non-jurisdictional | 32 |
| S-C22 | UNT to Chester Creek | 39.9042 -75.4448 | Intermittent | 7 | - | *-* | *-* | - | Floodway Only | - | - | Drains to TSF, MF | Drains to ATW, STS | 23 / ES-6.17 | Individual | Philadelphia | Non-jurisdictional | 33 |
| S-C23 | UNT to Chester Creek | 39.9054, -75.4469 | Perennial | 10 | 10 | *-* | *-* | - | HDD | 30 | - | 0.013 | 0.004 | TSF, MF | Drains to ATW, STS | 22 / ES-6.16PA-DE-0074.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 24 |
| S-C24 | UNT to Chester Creek | 39.9067, -75.4480 | Ephemeral | 2 | 2 | *-* | *-* | - | HDD | 6 | - | 0.011 | - | Drains to TSF, MF | Drains to ATW, STS | 22 / ES-6.16PA-DE-0074.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 22 |
| S-C25 | UNT to Chester Creek | 39.9065, -75.4480 | Ephemeral | 1 | 1 | *-* | *-* | - | HDD | 3 | - | Drains to TSF, MF | Drains to ATW, STS | 22 / ES-6.16PA-DE-0074.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 23 |
| S-C26 | UNT to Rocky Run | 39.9077, -75.4505 | Ephemeral | 4 | 4 | *-* | *-* | - | HDD | 12 | - | 0.008 | - | Drains to HQ-CWF, MF | Drains to TNR | 21 / ES-6.16PA-DE-0074.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 21 |
| S-C39 | UNT to Chester Creek | 39.9155 -75.4595 | Ephemeral | 2 | n/a | *-* | *-* | - | HDD Floodway | - | - | 0.009 | - | Drains to TSF, MF | Drains to ATW, STS | 18 / ES-6.13PA-DE-0046.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 15 |
| S-C40 | UNT to Chester Creek | 39.9156, -75.4595 | Intermittent | 3 | 3 | *-* | *-* | - | HDD | 9 | - | Drains to TSF, MF | Drains to ATW, STS | 18 / ES-6.13PA-DE-0046.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 16 |
| S-C41 | UNT to Chester Creek | 39.9159 -75.4595 | Ephemeral | 2.5 | n/a | *-* | *-* | - | HDD Floodway | - | - | Drains to TSF, MF | Drains to ATW, STS | 18 / ES-6.13PA-DE-0046.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 17 |
| S-C42 | UNT to Chester Creek | 39.9206, -75.4637 | Intermittent | 5 | 5 | *-* | *-* | - | HDD | 15 | - | 0.012 | - | Drains to TSF, MF | Drains to ATW, STS | 16 / ES-6.12PA-DE-0046.0000-RD & -16 | Individual | Philadelphia | Non-jurisdictional | 14 |
| S-C43 | UNT to Chester Creek | 39.9274, -75.4700 | Ephemeral | 1 | - | *50* | *-* | 50 | Dry Crossing | 50 | - | 0.117 | 0.083 | Drains to TSF, MF | Drains to ATW, STS | 13 / ES-6.10 | Individual | Philadelphia | Activity in WOUS | 12 |
| S-C44 | Rocky Run | 39.9102, -75.4571 | Perennial | 27 | - | *50* | *-* | 50 | Dry Crossing | 1,350 | - | 0.151 | 0.035 | HQ-CWF, MF | TNR | 19 / ES-6.14S-C44 (A&B) | Individual | Philadelphia | Activity in WOUS | 18 |
| S-C45 | UNT to Rocky Run | 39.9122 -75.4568 | Intermittent | 5 | - | *-* | *-* | - | Floodway Only | - | - | Drains to HQ-CWF, MF | Drains to TNR | 19 / ES-6.14 | Individual | Philadelphia | Non-jurisdictional | 19 |
| S-H27 | UNT to Crum Run | 39.8843, -75.4194 | Perennial | 12 | - | *54* | *-* | 54 | Dry Crossing | 648 | - | 0.148 | 0.205 | Drains to TSF, MF | n/a | 31 / ES-6.23 | Individual | Philadelphia | Activity in WOUS | 43 |
| S-H28 | Crum Run | 39.8861, -75.4198 | Perennial | 27 | - | *51* | *-* | 51 | Dry Crossing | 1,377 | - | 0.151 | 0.184 | TSF, MF | n/a | 30 / ES-6.23S-H28 (A&B) | Individual | Philadelphia | Activity in WOUS | 42 |
| S-H29 | Chrome Run | 39.8884, -75.4239 | Perennial | 32 | - | *52* | *-* | 52 | Dry Crossing | 1,664 | - | 0.159 | 0.203 | TSF, MF | n/a | 29 / ES-6.22S-H29 (A&B) | Individual | Philadelphia | Activity in WOUS | 41 |
| S-H34 | UNT to Chester Creek | 39.8737, -75.4125 | Intermittent | 8 | - | *50* | *62* | 112 | Dry Crossing | 400 | 496 | 0.126 | 0.151 | Drains to TSF, MF | n/a | 35 / ES-6.26 | Individual | Philadelphia | Activity in WOUS | 46 |
| S-CS6 | Chester Creek | 39.8733 -75.4130 | Perennial | 80 | - | *-* | *-* | - | Floodway Only | - | - | TSF, MF | n/a | 35 / ES-6.26 | Individual | Philadelphia | Non-jurisdictional | 47 |
| S-H35 | UNT to Chester Creek | 39.8803, -75.4135 | Perennial | 7 | - | *51* | *-* | 51 | Dry Crossing | 357 | - | 0.175 | 0.093 | TSF, MF | n/a | 33 / ES-6.24 | Individual | Philadelphia | Activity in WOUS | 44 |
| S-H36 | UNT to Chester Creek | 39.8803, -75.4131 | Intermittent | 3 | - | *36* | *-* | 36 | Dry Crossing | 108 | - | Drains to TSF, MF | n/a | 33 / ES-6.24 | Individual | Philadelphia | Activity in WOUS | 45 |
| S-H37 | Chester Creek | 39.8700, -75.4111 | Perennial | 100 | 100 | *-* | *-* | - | HDD | 300 | - | 0.022 | - | TSF, MF | ATW, STS | 36 / ES-6.26, 6.27PA-DE-0104.0008-WX & -16 | Individual | Philadelphia | Section 10/ SLLA | 48 |
| S-H38 | UNT to Chester Creek | 39.8700 -75.4117 | Intermittent | 8 | n/a | *-* | *-* | - | HDD Floodway | - | - | Drains to TSF, MF | Drains to ATW, STS | 36 / ES-6.27PA-DE-0104.0008-WX & -16 | Individual | Philadelphia | Non-jurisdictional | 49 |
| S-H39 | UNT to Chester Creek | 39.8687, -75.4104 | Ephemeral | 8 | - | *160* | *-* | 160 | Clearing LOD | 1,280 | - | 0.273 | - | Drains to TSF, MF | Drains to ATW, STS | 37 / ES-6.27PA-DE-0104.0008-WX & -16 | PA-Waived | Philadelphia | Non-jurisdictional | 50 |
| S-H40 | UNT to Chester Creek | 39.8670, -75.4080 | Ephemeral | 5.5 | 370 | *9* | *-* | 9 | HDD Floodway/ Clearing LOD | 49.5 | - | 0.188 | - | Drains to WWF, MF | Drains to ATW, STS | 37 / ES-6.27, 6.28PA-DE-0104.0008-WX & -16 | Individual | Philadelphia | Non-jurisdictional | 51 |
| S-H41 | Chester Creek | 39.8659, -75.4069 | Perennial | 100 | 265 | *-* | *-* | - | HDD | 300 | - | WWF, MF | ATW, STS | 38 / ES-6.28PA-DE-0104.0008-WX & -16 | Individual | Philadelphia | Section 10/ SLLA | 52 |
| S-H42 | UNT to Chester Creek | 39.8627 -75.4031 | Ephemeral | 6 | n/a | *-* | *-* | - | HDD Floodway | - | - | 0.017 | - | Drains to WWF, MF | Drains to ATW, STS | 39 / ES-6.29PA-DE-0104.0008-WX & -16 | PADEP-Waived | Philadelphia | Non-jurisdictional | 53 |
| S-H43 | Baldwin Run | 39.8575, -75.4006 | Perennial | 33 | 40 | *-* | *-* | - | HDD/ Clearing LOD | 99 | - | 0.079 | - | WWF, MF | n/a | 41 / ES-6.30PA-DE-0104.0025-RD & -16S-H43 (A&B) | Individual | Philadelphia | Non-jurisdictional | 54 |
| S-H44 | UNT to Baldwin Run | 39.8573, -75.4001 | Ephemeral | 4 | 4 | *41* | *-* | 41 | HDD/ Clearing LOD | 164 | - | 0.137 | - | Drains to WWF, MF | n/a | 41 / ES-6.30PA-DE-0104.0025-RD & -16 | PADEP-Waived | Philadelphia | Non-jurisdictional | 55 |
| S-H47 | UNT to Chester Creek | 39.8543 -75.3989 | Ephemeral | 8 | - | *-* | *-* | - | Floodway Only | - | - | 0.006 | - | Drains to WWF, MF | n/a | 42 / ES-6.31 | PADEP-Waived | Philadelphia | Non-jurisdictional | 56 |
| S-I1 | UNT to Chester Creek | 39.8944, -75.4317 | Ephemeral | 2 | - | *14* | *-* | 14 | Temporary Bridge | 28 | - | 0.427 | 0.285 | Drains to TSF, MF | Drains to ATW, STS | 27 / ES-6.20 | Individual | Philadelphia | Non-jurisdictional | 35 |
| S-I2 | UNT to Chester Creek | 39.8942, -75.4314 | Perennial | 7 | 7 | *154* | *-* | 154 | HDD/ Temporary Bridge | 1,078 | - | TSF, MF | Drains to ATW, STS | 27 / ES-6.20PA-DE-0100.0000-RR & -16 | Individual | Philadelphia | Non-jurisdictional | 36 |
| S-I3 | UNT to Chester Creek | 39.8942 -75.4314 | Ephemeral | 2 | n/a | *-* | *-* | - | HDD Floodway | - | - | Drains to TSF, MF | Drains to ATW, STS | 27 / ES-6.20PA-DE-0100.0000-RR & -16 | Individual | Philadelphia | Non-jurisdictional | 37 |
| S-I4 | Chester Creek | 39.8932 -75.4312 | Perennial | 70 | n/a | *-* | *-* | - | HDD Floodway | - | - | TSF, MF | ATW,STS | 27 / ES-6.20PA-DE-0100.0000-RR & -16 | Individual | Philadelphia | Section 10/ SLLA | 38 |
| S-I5 | UNT to Chester Creek | 39.8919, -75.4293 | Intermittent | 25 | - | *54* | *-* | 54 | Dry Crossing/ Temporary Bridge | 1,350 | - | 0.196 | 0.119 | Drains to TSF, MF | Drains to ATW, STS | 28 / ES-6.21S-I5 (A&B) | Individual | Philadelphia | Activity in WOUS | 39 |
| S-I6 | UNT to Chester Creek | 39.8920, -75.4294 | Ephemeral | 6 | - | *51* | *-* | 51 | Dry Crossing/ Temporary Bridge | 306 | - | Drains to TSF, MF | Drains to ATW, STS | 28 / ES-6.21S-I5 (A&B) | Individual | Philadelphia | Activity in WOUS | 40 |
| S-I7 | UNT to Baldwin Run | 39.8452 -75.4181 | Ephemeral | 1 | - | *-* | *-* | - | Twin Oaks Station | - | - | 0.050 | - | Drains to WWF, MF | n/a | 47 / ES-6.35 | PADEP-Waived | Philadelphia | Non-jurisdictional | 66 |
| S-I17 | UNT to Baldwin Run | 39.8480 -75.4049 | Ephemeral | 4 | n/a | *-* | *-* | - | HDD Floodway | - | - | 0.022 | - | Drains to WWF, MF | n/a | 45 / ES-6.33PA-DE-0104.0023-RR & -16 | PADEP-Waived | Philadelphia | Non-jurisdictional | 59 |
| S-I19 | UNT to Baldwin Run | 39.8483 -75.4051 | Ephemeral | 5 | n/a | *-* | *-* | - | HDD Floodway | - | - | Drains to WWF, MF | n/a | 45 / ES-6.32, 6.33PA-DE-0104.0023-RR & -16 | PADEP-Waived | Philadelphia | Non-jurisdictional | 60 |
| S-I20 | UNT to Baldwin Run | 39.8481 -75.4057 | Ephemeral | 3 | n/a | *-* | *-* | - | HDD Floodway | - | - | Drains to WWF, MF | n/a | 45 / ES-6.33PA-DE-0104.0023-RR & -16 | PADEP-Waived | Philadelphia | Non-jurisdictional | 61 |
| S-I18 | UNT to Baldwin Run | 39.8476, -75.4057 | Perennial | 13 | 13 | *-* | *-* | - | HDD | 39 | - | 0.008 | - | Drains to WWF, MF | n/a | 45 / ES-6.33PA-DE-0104.0023-RR & -16 | Individual | Philadelphia | Non-jurisdictional | 62 |
| **TOTAL** | ***1,306*** | ***62*** | ***1,368*** |  |
|  | **57 Streams** | **34 Temp. Crossings** | **14,155 sq. ft****0.325 acre** | **496 sq. ft****0.011 acre** | **4.028 acres** | **1.926 acre** |  |

Notes:

Many streams share a FEMA NFHL 100-year floodway or a PADEP assumed 50-foot buffer. These features have therefore been grouped together.

All direct stream impacts are temporary, and the stream bank, bed, and channel will be restored to the pre-construction conditions in accordance with the Erosion and Sediment Control Plan.

1 Flow regime is defined according to field classification. Ephemeral streams are identified herein as “intermittent” features according to PADEP guidance on the definitions set forth in Chapter 105.

2 The bank-to-bank width is defined at the crossing location, and may not reflect the data presented in the wetland report and stream data forms, which is an estimated measurement taken of the survey area in the field, and not at the centerline crossing.

3 Pipe length crossing the stream is measured from bank to bank at HDDs and bores. The values listed may therefore not always be identical to the bank to bank width presented in the stream data forms, which is an estimated measurement taken of the survey area in the field, and not at the center line crossing.

4 Length of stream traversing limits of disturbance. A “-“ length indicates that the stream is not located within the construction workspaces, and only the floodway extends into the construction workspaces. The disturbance length has been supplied to show the impact to the waterbody within the 50 foot permanent ROW and temporarily impacted areas for construction, except at HDD crossing where the permanent impacts are limited to the width of the pipelines (3 feet).

5 All streams that will be crossed using a “Dry Crossing” method will also require a temporary bridge crossing. “Open Cut Floodway” will require a travel lane across the floodway, but no matting or bridge will be used unless a wetland is present.

6 Crossing Methods:  “Dry Crossing” designates a “dry pump bypass”, “dry flume”, “cofferdam” or “dry open-cut” methods which temporarily convey stream flow around the in-stream workspace or construction is conducted when the waterway is and is anticipated to be dry during the crossing. Horizontal Directional Drill (HDD) avoids all surface impacts in waters, wetlands and floodways, and involves drilling below the stream; however, a travel lane across the stream may be required during construction in some cases and is noted by “Travel-LOD” or “Clearing and Travel LOD.” Details of the crossing methods are provided in Attachment 12 which includes the Project’s Erosion and Sediment Control Plan; additional site-specific drawings and cross sections can be found in Attachment 7.

7 For non-HDD crossings, this number is calculated on the Bank to Bank Width multiplied by the Length of stream disturbance in the ROW for permanent and temporary workspaces. At HDD and bore crossings, this is based on 3 feet (width of the two pipes) represented in the bank width column multiplied by the Length of Centerline Stream Crossing at HDD/Bore.

8 According to the Instructions for the Joint Permit Application, permanent impacts “are those areas affected by a water obstruction or encroachment that consist of both direct and indirect impacts that result from the placement or construction of a water obstruction or encroachment and include areas necessary for the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water.”  As per the Chapter 105 Fee(s) Calculation Worksheet and for fee purposes only, permanent impacts have been calculated using the area in each wetland or watercourse that is within the 50-foot-wide permanent right-of-way. All stream bed and banks are to be restored to pre-construction conditions. Per PADEP direction, Permanent disturbance impacts at HDD and bore crossings are calculated on the width of the pipes multiplied by the length of the crossing. This calculations also accounts for the temporary placement of an HDD telemetry wire along the HDD alignment. See Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Enclosure E, Part 4 for discussion of the telemetry wire installation. Although PADEP defines operation and maintenance activities as permanent impacts, all streams affected by the Project will be restored to pre-construction conditions including the elevation/contours, channel substrate, stream banks, and flow conditions/patterns. In addition, the Project does not involve any permanent fill and there will be no permanent loss of stream area associated with the Project.

9 According to the Instructions for the Joint Permit Application, temporary impacts “are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water.”  For purposes of the fee calculation, temporary impact areas consist of areas such as additional temporary workspace and temporary access roads.

10 Information listed is based on Pennsylvania Data File Access (PASDA) “Designated Use” GIS shapefile (2016/08, from PASDA). Where delineated streams are not directly classified according to Chapter 93, they have been designated as “drains to.” It is assumed that all streams classified as “drains to” are afforded the same designation as the immediately downstream surface water it drains to.

11 PAFBC Designations: ATW = Approved Trout Water; STS = Stocked Trout Stream; TNR = Trout Natural Reproduction, Class A = Class A Water, WTS = Wilderness Trout Stream. Where delineated streams are not directly classified according to PAFBC data, they have been designated as “drains to”. It is assumed that all streams classified as “drains to” are afforded the same protection and analysis as streams classified directly as trout waters.

12 Streams that drain less than 100 acres at the point of intersection are waived from PADEP Chapter 105 permitting pursuant to 25 Pa. Code §105.12(a)(2).

Table 4. Chapter 106 Floodplain Impacts on the Pennsylvania Pipeline Project (PPP) – Delaware County – 12/1/2016

| **Stream ID1** | **Stream Name** | **Coordinates** | **Crossing Method2** | **Permanent Floodplain Disturbance (acre) 3, 5** | **Temporary Floodplain Disturbance (acre) 4, 5** | **Total Floodplain Disturbance (acre)** | **Site Plan Sheet Number** | **Permit** | **USACE District** | **USACE Section 10/404 Activity** | **Fee Crossing Reference Number** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S-C44 | Rocky Run | 39.9102, -75.4570 | Open Cut | *0.236* | *0.047* | 0.283 | 19 | Individual | Philadelphia | Non-jurisdictional | 18 |
| S-CS6 | Chester Creek | 39.8733, -75.4130 | Open Cut | *0.064* | *-* | 0.064 | 35 | Individual | Philadelphia | Non-jurisdictional | 47 |
| S-H29 | Chrome Run | 39.8884, -75.4239 | Open Cut | *0.015* | *0.021* | 0.036 | 29 | Individual | Philadelphia | Non-jurisdictional | 41 |
| S-H37 | Chester Creek | 39.8700, -75.4111 | HDD | *0.222* | *0.03* | 0.252 | 36 | Individual | Philadelphia | Non-jurisdictional | 48 |
| S-H43 | Baldwin Run | 39.8574, -75.4005 | HDD | *0.023* | *-* | 0.023 | 41 | Individual | Philadelphia | Non-jurisdictional | 54 |
| S-I4 | Chester Creek | 39.8932, -75.4312 | HDD/ Open Cut | *0.465* | *0.419* | 0.884 | 27 | Individual | Philadelphia | Non-jurisdictional | 38 |
|  | **6 Floodplains** | ***1.025 acres*** | ***0.517 acre*** | **1.542 acres** |  |

Notes:

100-Year Floodplain data is from the FEMA National Flood Hazard Layer (NFHL) geographic dataset, downloaded 9/2016, available at: http://www.floodmaps.fema.gov/NFHL/status.shtml

The Floodplain Fringe layer was developed by “erasing” (i.e. removing) the Chapter 105 areas from the entirety of the 100-year floodplain data. The above acreages represent the floodplain fringe impacts not covered by the Chapter 105 calculations.

1 These are the identified streams closest to the extents of the NFHL data. These areas have been named and grouped for easier review and analysis.

2 Crossing Methods: Open Cut is conventional construction technique in uplands and Horizontal Directional Drill (HDD) and bore both involve drilling below the floodplain. Typicals of these crossing methods can be found within Attachment 12 (Erosion and Sediment Control Plan).

3 Permanent disturbances are those areas of floodplain impact within the proposed permanent utility ROW. Permanent impacts as HDD crossings are calculated on the width of the bore (3 feet) multiplied by the length of crossing.

4 Temporary disturbances are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into the floodway. These areas consist of additional temporary workspaces and temporary access roads.

5 Permanent and temporary impact totals in have been added to the Chapter 105 impact totals in Table 3 for streams with the same stream ID, and presented in Table 1 as one record.