

Clean Water Diversion Calculations

Diversion Berm Design Storms

According to the PADEP Erosion and Sediment Pollution Control Program Manual, temporary channels and berms must be designed to convey 1.6 cfs/acre or peak discharge from a 2-year/1-hour storm. Temporary channels in special protection watersheds must be designed to convey 2.25 cfs/acre or the peak discharge from a 5-year/1-hour storm.

The diversions were designed using the peak flow using the Rational Method. The intensity used in the peak flow calculations was based on a 2-year storm using Steel's Formula (for Region 3), which is located on page 114 of the E&S manual,

$$I = \frac{106}{(T_c + 17)}, \text{ in/hr}$$

Typically when using the Rational Method, the time of concentration is used for the storm duration to produce a conservative (highest) intensity since this is the time it takes for the entire drainage area to contribute to the flow. Therefore, the peak flow for all diversions with a time of concentration of less than 60 minutes, will be greater than using the 2-year/1-hour storm for the rainfall intensity.

The rainfall intensity can also be found for specific locations using the National Oceanic and Atmospheric Administration Atlas 14. For example, the intensity for the 2-year/1-hour storm using Steel's Formula is,

$$I = \frac{106}{(60 + 17)} = 1.38 \text{ in/hr}$$

Compare this to the 2-year/1-hour rainfall intensity from NOAA Atlas 14 for western Pennsylvania in Washington County (1.18 in/hr) and eastern Pennsylvania in Delaware County (1.45 in/hr).

For special protection watersheds, the required design storm is the 5-year/1-hour storm if not using the multiplier. Using the Steel's Formula, the design intensity is

$$I = \frac{135}{(T_c + 19)} = \frac{135}{(60 + 19)} = 1.70 \text{ in/hr}$$

The intensity for the 2-year/1-hour storm from NOAA Atlas 14 ranges from 1.48 in/hr in western Pennsylvania to 1.80 in/hr in eastern Pennsylvania.

The 2-year return period storm was used for all of the runoff calculations. However, since the time of concentration was used for the storm duration, the vast majority of the diversions were designed conservatively compared to strictly using the 5-year/1-hour storm event. Since most of the drainage areas are relatively small, time of concentration values were typically between 5 minutes, which corresponds to an intensity of 4.8 in/hr and 35 minutes, which corresponds to an intensity of 2.03 in/hr. The intensities used can be found on the flow summary tables entitled

“TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSIONS”. The calculations have been reviewed to identify if any intensity values were less than the 1.70 in/hr requirement. Revised tables have been provided that use an intensity of the greater of either the 2-year storm with the time of concentration as the duration or the 5-year/1-hour storm.

Level Spreader Design

The clean water diversions must discharge to a stabilized area. In order to prevent damage to downstream properties, the concentrated flow through the pipe must be returned to sheet flow prior to entering receiving waters.

According to the Pennsylvania Department of Environmental Protection Erosion and Sediment Pollution Control Program Manual, drainage areas to earthen level spreaders must be limited to 1.0 acre. Due to the temporary nature of the work and lack of real estate and workspace, structural level spreaders are not feasible. Therefore, we have designed a more construction-friendly level spreader that will be adequate for the limited lifespan of the level spreader.

The clean water diversion will direct the clean runoff to a rock filter to slow the water and allow some filtering and infiltration. Once the water passes through the rock filter, it will enter a pipe that conveys the clean water across the workspace. In order to dissipate energy and return the concentrated flow to sheet flow, the pipe will be connected to a capped perforated pipe situated parallel to the contours. The level spreader will be wrapped with and placed on geotextile fabric for additional protection. AASHTO No. 1 Stone will be placed over the level spreader with a minimum stone depth over the pipe of 4-inches. Compost filter sock will be located up grade from the level spreader acting as a sediment barrier from the workspace. An 18-inch compost filter sock will also be placed down grade of the level spreader.

The pipe specification used was taken from the JM Eagle Technical Bulletin (Eagle Corr PE). A nominal pipe size of 12-inches was chosen in order to be used for a wide range of flows. The 12-inch perforated pipe has circular perforations with a diameter of 0.375 inches. There are six (6) rows of perforations for the 12-inch pipe which corresponds to a nominal water inlet area of 4.10 in²/ft.

The orifice flow equation, $Q = C_d A_o (2gh)^{1/2}$, is used to find the flow through an orifice. The six (6) openings per row is known. Using the nominal water inlet area, the spacing of the rows is calculated and then turned into a ft³/s/ft value based on the number of openings. The peak flow for a diversion is known from the diversion calculations and then a length of level spreader is calculated based on the available static head, the elevation difference across the workspace.

All lengths were then rounded up to the next multiple of 5 feet. The minimum level spreader length was also 5 feet.

After construction and once the disturbed area tributary to the compost filter sock in the vicinity is permanently stabilized with vegetation, the diversions and level spreaders will be removed along with other erosion and sedimentation control BMPs.

Blair County

Blair County
Temporary Slope Pipe Calculations

| | | | | | | | | | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|-------|------|------|------|------|------|------|--------|-------|------|------|------|-------|-------|---------|---------------|
| 6581+55 to 6584+25 PIPE | 0.023 | 0.38 | 0.14 | 0.5 | 0.33 | 0.04 | 0.56 | 0.08 | 0.45 | 0.29 | 27.8 | 0.0263 | 7.42 | 0.85 | 0.99 | 4.15 | 2.1 | 1.95 | 0.01083 | SuperCritical |
| 6584+25 to 6586+25 PIPE | 0.023 | 0.46 | 0.3 | 0.5 | 1.44 | 0.12 | 0.88 | 0.14 | 0.49 | 0.49 | 59.9 | 0.1876 | 11.74 | 2.14 | 2.44 | 4.14 | 2.31 | 2.15 | 0.20618 | SuperCritical |
| 6586+25 to 6588+95 PIPE | 0.023 | 0.34 | 0.34 | 0.5 | 1.51 | 0.14 | 0.98 | 0.15 | 0.46 | 0.49 | 68.7 | 0.2079 | 10.5 | 1.71 | 2.06 | 3.32 | 1.99 | 1.85 | 0.22671 | SuperCritical |
| 6595+75 to 6597+70 PIPE | 0.023 | 0.49 | 0.11 | 0.5 | 0.24 | 0.03 | 0.49 | 0.07 | 0.42 | 0.25 | 22.2 | 0.024 | 7.39 | 0.85 | 0.96 | 4.66 | 2.39 | 2.22 | 0.00573 | SuperCritical |
| 6611+20 to 6612+40 PIPE | 0.023 | 0.03 | 0.45 | 1 | 1.48 | 0.35 | 1.48 | 0.23 | 1 | 0.52 | 45.5 | 0.0195 | 4.26 | 0.28 | 0.74 | 1.27 | 3.75 | 3.49 | 0.0054 | SuperCritical |
| 6612+40 to 6612+55 PIPE | 0.023 | 0.03 | 0.35 | 0.67 | 0.65 | 0.19 | 1.09 | 0.17 | 0.67 | 0.38 | 52.5 | 0.0234 | 3.47 | 0.19 | 0.54 | 1.16 | 1.29 | 1.2 | 0.00882 | SuperCritical |
| 6612+55 to 6612+75 PIPE | 0.023 | 0.03 | 0.37 | 0.5 | 0.5 | 0.16 | 1.05 | 0.15 | 0.43 | 0.36 | 74.9 | 0.0329 | 3.17 | 0.16 | 0.53 | 0.93 | 0.59 | 0.55 | 0.02486 | SubCritical |
| 6612+75 to 6613+70 PIPE | 0.023 | 0.04 | 0.34 | 0.5 | 0.52 | 0.14 | 0.98 | 0.15 | 0.46 | 0.37 | 68.9 | 0.0338 | 3.6 | 0.2 | 0.55 | 1.14 | 0.68 | 0.63 | 0.02689 | SuperCritical |
| 6616+85 to 6620+15 PIPE | 0.023 | 0.06 | 0.2 | 0.5 | 0.27 | 0.07 | 0.69 | 0.11 | 0.49 | 0.26 | 40.6 | 0.0247 | 3.6 | 0.2 | 0.4 | 1.63 | 0.84 | 0.78 | 0.00725 | SuperCritical |
| 6620+15 to 6621+75 PIPE | 0.023 | 0.25 | 0.2 | 0.5 | 0.55 | 0.07 | 0.69 | 0.11 | 0.49 | 0.38 | 40.6 | 0.0355 | 7.35 | 0.84 | 1.04 | 3.32 | 1.71 | 1.59 | 0.03008 | SuperCritical |
| 6621+75 to 6623+35 PIPE | 0.023 | 0.23 | 0.26 | 0.5 | 0.8 | 0.1 | 0.8 | 0.13 | 0.5 | 0.44 | 51.5 | 0.0567 | 7.85 | 0.96 | 1.22 | 3.07 | 1.64 | 1.52 | 0.06364 | SuperCritical |
| 6685+30 to 6687+30 PIPE | 0.023 | 0.19 | 0.42 | 0.67 | 2.13 | 0.23 | 1.22 | 0.19 | 0.65 | 0.64 | 62 | 0.082 | 9.27 | 1.34 | 1.75 | 2.75 | 3.25 | 3.02 | 0.09471 | SuperCritical |
| 6687+30 to 6689+30 PIPE | 0.023 | 0.19 | 0.37 | 1 | 2.59 | 0.27 | 1.31 | 0.2 | 0.97 | 0.69 | 37.2 | 0.0245 | 9.73 | 1.47 | 1.84 | 3.27 | 9.44 | 8.78 | 0.01654 | SuperCritical |
| 6689+30 to 6690+10 PIPE | 0.023 | 0.26 | 0.25 | 0.5 | 0.83 | 0.1 | 0.79 | 0.13 | 0.5 | 0.45 | 50.8 | 0.0603 | 8.29 | 1.07 | 1.32 | 3.27 | 1.74 | 1.62 | 0.0685 | SuperCritical |
| 6690+10 to 6695+00 PIPE | 0.023 | 0.18 | 0.42 | 1 | 3.19 | 0.32 | 1.42 | 0.22 | 0.99 | 0.77 | 42.3 | 0.0289 | 10.09 | 1.58 | 2 | 3.14 | 9.19 | 8.54 | 0.0251 | SuperCritical |
| 6698+35 to 6699+15 PIPE | 0.023 | 0.12 | 0.21 | 0.5 | 0.39 | 0.08 | 0.7 | 0.11 | 0.49 | 0.32 | 41.1 | 0.0282 | 5.12 | 0.41 | 0.61 | 2.3 | 1.18 | 1.1 | 0.01512 | SuperCritical |
| 6699+15 to 6699+70 PIPE | 0.023 | 0.12 | 0.38 | 0.67 | 1.5 | 0.21 | 1.15 | 0.18 | 0.66 | 0.57 | 57.3 | 0.0439 | 7.18 | 0.8 | 1.18 | 2.25 | 2.58 | 2.4 | 0.04697 | SuperCritical |
| 6700+95 to 6703+40 PIPE | 0.023 | 0.13 | 0.25 | 0.5 | 0.59 | 0.1 | 0.79 | 0.13 | 0.5 | 0.39 | 50.9 | 0.038 | 5.87 | 0.54 | 0.79 | 2.31 | 1.23 | 1.14 | 0.03461 | SuperCritical |
| 6708+65 to 6710+55 PIPE | 0.023 | 0.15 | 0.24 | 0.5 | 0.56 | 0.09 | 0.76 | 0.12 | 0.5 | 0.38 | 47.4 | 0.0361 | 6.11 | 0.58 | 0.82 | 2.52 | 1.32 | 1.23 | 0.03118 | SuperCritical |
| 6710+55 to 6712+25 PIPE | 0.023 | 0.19 | 0.38 | 0.5 | 1.27 | 0.16 | 1.05 | 0.15 | 0.43 | 0.49 | 75.5 | 0.1429 | 7.98 | 0.99 | 1.37 | 2.31 | 1.49 | 1.38 | 0.16037 | SuperCritical |
| 6763+70 to 6764+00 PIPE | 0.023 | 0.03 | 0.63 | 1 | 2.5 | 0.52 | 1.83 | 0.28 | 0.97 | 0.68 | 62.7 | 0.024 | 4.83 | 0.36 | 0.99 | 1.16 | 3.75 | 3.49 | 0.01541 | SuperCritical |
| 6764+00 to 6766+05 PIPE | 0.023 | 0.04 | 0.48 | 0.67 | 1.19 | 0.27 | 1.35 | 0.2 | 0.61 | 0.52 | 71.4 | 0.0334 | 4.42 | 0.3 | 0.78 | 1.17 | 1.49 | 1.38 | 0.02956 | SuperCritical |
| 6766+05 to 6767+70 PIPE | 0.023 | 0.06 | 0.43 | 1 | 1.93 | 0.33 | 1.44 | 0.23 | 0.99 | 0.59 | 43.4 | 0.0212 | 5.9 | 0.54 | 0.98 | 1.81 | 5.31 | 4.93 | 0.00919 | SuperCritical |
| 6771+40 to 6772+25 PIPE | 0.023 | 0.02 | 0.38 | 0.67 | 0.61 | 0.21 | 1.15 | 0.18 | 0.66 | 0.37 | 57.2 | 0.023 | 2.93 | 0.13 | 0.52 | 0.92 | 1.05 | 0.98 | 0.00777 | SubCritical |
| 6779+85 to 6788+20 PIPE | 0.023 | 0.01 | 0.64 | 1 | 1.49 | 0.53 | 1.86 | 0.29 | 0.96 | 0.52 | 64 | 0.0195 | 2.81 | 0.12 | 0.76 | 0.66 | 2.17 | 2.01 | 0.00548 | SubCritical |
| 6814+75 - 6817+65 | 0.023 | 0.07 | 0.45 | 0.67 | 1.46 | 0.25 | 1.29 | 0.2 | 0.63 | 0.57 | 67.5 | 0.0423 | 5.76 | 0.52 | 0.97 | 1.6 | 1.97 | 1.83 | 0.0445 | SuperCritical |
| 6835+27 - 6836+00 | 0.023 | 0.08 | 0.35 | 0.5 | 0.76 | 0.15 | 1 | 0.15 | 0.46 | 0.44 | 70.7 | 0.0522 | 5.12 | 0.41 | 0.76 | 1.58 | 0.96 | 0.9 | 0.05743 | SuperCritical |
| 6847+00 - 6851+90 | 0.023 | 0.06 | 0.42 | 0.67 | 1.23 | 0.23 | 1.23 | 0.19 | 0.65 | 0.52 | 63.2 | 0.0345 | 5.24 | 0.43 | 0.85 | 1.53 | 1.82 | 1.7 | 0.03158 | SuperCritical |
| 6853+65 - 6855+70 | 0.023 | 0.02 | 1.81 | 2.5 | 28.7 | 3.81 | 5.09 | 0.75 | 2.23 | 1.83 | 72.5 | 0.0196 | 7.53 | 0.88 | 2.69 | 1.02 | 35.27 | 32.78 | 0.01533 | SuperCritical |
| 6861+70 - 6868+05 | 0.023 | 0.11 | 0.43 | 1 | 2.53 | 0.32 | 1.42 | 0.22 | 0.99 | 0.68 | 42.7 | 0.0242 | 7.92 | 0.97 | 1.4 | 2.46 | 7.18 | 6.68 | 0.01579 | SuperCritical |
| 6877+25 - 6877+25 | 0.023 | 0.07 | 0.26 | 0.5 | 0.46 | 0.11 | 0.81 | 0.13 | 0.5 | 0.35 | 52.8 | 0.031 | 4.37 | 0.3 | 0.56 | 1.68 | 0.9 | 0.84 | 0.02104 | SuperCritical |
| 6880+65 - 6884+85 | 0.023 | 0.14 | 0.5 | 0.67 | 2.36 | 0.28 | 1.4 | 0.2 | 0.58 | 0.65 | 75 | 0.1018 | 8.32 | 1.08 | 1.58 | 2.1 | 2.79 | 2.59 | 0.11627 | SuperCritical |
| 6884+85 - 6889+15 | 0.023 | 0.24 | 0.38 | 0.67 | 2.11 | 0.21 | 1.15 | 0.18 | 0.66 | 0.64 | 57.1 | 0.0804 | 10.14 | 1.6 | 1.98 | 3.19 | 3.65 | 3.39 | 0.09294 | SuperCritical |
| 6917+25 - 6920+10 | 0.023 | 0.07 | 0.76 | 1 | 4.94 | 0.64 | 2.12 | 0.3 | 0.85 | 0.91 | 76.1 | 0.0524 | 7.7 | 0.92 | 1.68 | 1.57 | 5.73 | 5.33 | 0.06018 | SuperCritical |
| 6935+25 - 6936+90 | 0.023 | 0.04 | 0.44 | 1 | 1.61 | 0.33 | 1.45 | 0.23 | 0.99 | 0.54 | 44 | 0.0199 | 4.84 | 0.36 | 0.8 | 1.47 | 4.33 | 4.03 | 0.00639 | SuperCritical |
| 6936+90 - 6938+60 | 0.023 | 0.03 | 0.7 | 1 | 2.93 | 0.59 | 1.99 | 0.3 | 0.91 | 0.73 | 70.2 | 0.0268 | 4.97 | 0.38 | 1.09 | 1.09 | 3.75 | 3.49 | 0.02117 | SuperCritical |
| 6940+35 - 6942+20 | 0.023 | 0.12 | 0.23 | 0.5 | 0.46 | 0.09 | 0.74 | 0.12 | 0.5 | 0.35 | 45.1 | 0.031 | 5.35 | 0.44 | 0.67 | 2.27 | 1.18 | 1.1 | 0.02104 | SuperCritical |
| 6943+70 - 6944+80 | 0.023 | 0.03 | 0.77 | 1 | 3.28 | 0.65 | 2.14 | 0.3 | 0.84 | 0.78 | 77.1 | 0.0296 | 5.05 | 0.4 | 1.17 | 1.01 | 3.75 | 3.49 | 0.02653 | SuperCritical |
| 6959+80 - 6960+80 | 0.023 | 0.04 | 1.2 | 2 | 17.13 | 1.96 | 3.54 | 0.55 | 1.96 | 1.49 | 59.9 | 0.0219 | 8.72 | 1.18 | 2.38 | 1.54 | 27.51 | 25.57 | 0.01795 | SuperCritical |
| 6956+85 - 6959+35 | 0.023 | 0.09 | 1.22 | 2 | 26.4 | 2.01 | 3.58 | 0.56 | 1.95 | 1.8 | 61 | 0.0376 | 13.16 | 2.69 | 3.91 | 2.29 | 41.26 | 38.36 | 0.04263 | SuperCritical |

Blair County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|------------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 5755+85 - 5768+60 | 0.01 | 0.62 | 12.84 | 2.66 | V | 8.0 | 2.00 | 0.39 | SC150 |
| 5768+55 - 5769+75 | 0.02 | 0.22 | 1.11 | 1.87 | V | 8.0 | 2.00 | 0.27 | SC150 |
| 5771+30 - 5795+30 | 0.02 | 0.19 | 0.61 | 1.7 | V | 8.0 | 2.00 | 0.24 | SC150 |
| 5794+15 - 5795+25 | 0.53 | 0.19 | 0.17 | 6.12 | S | 12.5 | 12.00 | 6.28 | P550 |
| 5807+70 - 5811+30 | 0.03 | 0.52 | 2.55 | 3.71 | V | 8.0 | 2.00 | 0.97 | SC150 |
| 5811+30 - 5814+25 | 0.03 | 0.35 | 1.74 | 3.04 | V | 8.0 | 2.00 | 0.66 | SC150 |
| 5830+50 - 5830+95 | 0.03 | 0.37 | 1.46 | 3.05 | V | 8.0 | 2.00 | 0.69 | SC150 |
| 5890+95 - 5893+16 | 0.01 | 0.8 | 4.65 | 2.86 | V | 8.0 | 2.00 | 0.50 | SC150 |
| 5893+16 - 5899+50 | 0.06 | 0.41 | 3.68 | 4.75 | V | 8.0 | 2.00 | 1.54 | SC150 |
| 5896+80 - 5899+30 | 0.14 | 0.23 | 1.18 | 4.92 | S | 9.5 | 3.00 | 2.01 | SC250 |
| 5943+60 - 5947+50 | 0.12 | 0.24 | 1.14 | 4.71 | S | 8.0 | 2.00 | 1.80 | SC150 |
| 5987+30 - 5987+60 | 0.23 | 0.18 | 0.24 | 4.73 | S | 9.5 | 3.00 | 2.58 | SC250 |
| 6037+80 - 6040+50 | 0.05 | 0.32 | 1.14 | 3.57 | V | 8.0 | 2.00 | 1.00 | SC150 |
| 6080+10 - 6080+65 | 0.09 | 0.21 | 0.68 | 3.71 | V | 8.0 | 2.00 | 1.18 | SC150 |
| 6080+60 - 6081+50 | 0.02 | 0.25 | 0.61 | 1.97 | V | 8.0 | 2.00 | 0.31 | SC150 |
| 6122+85 - 6124+75 | 0.02 | 0.3 | 0.88 | 2.2 | V | 8.0 | 2.00 | 0.37 | SC150 |
| 6124+85 - 6125+75 | 0.02 | 0.29 | 0.85 | 2.18 | V | 8.0 | 2.00 | 0.36 | SC150 |
| 6178+40 - 6181+70 | 0.08 | 0.74 | 3.73 | 6.49 | V | 12.5 | 12.00 | 3.69 | P550 |
| 6184+90 - 6187+95 | 0.03 | 0.57 | 2.58 | 3.85 | V | 8.0 | 2.00 | 1.07 | SC150 |
| 6212+85 - 6216+20 | 0.05 | 0.47 | 1.39 | 4.13 | V | 8.0 | 2.00 | 1.47 | SC150 |
| 6249+30 - 6252+45 | 0.07 | 0.31 | 1.47 | 4.2 | V | 8.0 | 2.00 | 1.35 | SC150 |
| 6254+00 - 6256+57 | 0.01 | 0.32 | 0.74 | 1.63 | V | 8.0 | 2.00 | 0.20 | SC150 |
| 6258+40 - 6260+80 | 0.07 | 0.5 | 1.96 | 5.11 | V | 8.0 | 2.00 | 2.18 | SC150 |
| 6260+80 - 6263+30 | 0.12 | 0.49 | 2.5 | 6.64 | S | 12.5 | 12.00 | 3.67 | P550 |
| 6266+60 to 6269+75 CHN | 0.04 | 0.24 | 0.49 | 2.62 | V | 8.0 | 2.00 | 0.60 | SC150 |
| 6266+60 to 6269+75 CHN | 0.06 | 0.22 | 0.49 | 3.05 | V | 8.0 | 2.00 | 0.82 | SC150 |
| 6272+75 to 6273+75 CHN | 0.06 | 0.15 | 0.17 | 2.34 | V | 8.0 | 2.00 | 0.56 | SC150 |
| 6274+15 to 6275+00 CHN | 0.05 | 0.23 | 0.74 | 2.95 | V | 8.0 | 2.00 | 0.72 | SC150 |
| 6275+00 to 6276+70 CHN | 0.05 | 0.26 | 1 | 3.17 | V | 8.0 | 2.00 | 0.81 | SC150 |
| 6278+55 to 6281+05 CHN | 0.07 | 0.26 | 0.47 | 3.45 | V | 8.0 | 2.00 | 1.14 | SC150 |
| 6281+05 to 6285+20 CHN | 0.01 | 0.21 | 0.4 | 1.28 | V | 8.0 | 2.00 | 0.13 | SC150 |
| 6285+20 to 6287+00 CHN | 0.04 | 0.29 | 1.67 | 3.13 | V | 8.0 | 2.00 | 0.72 | SC150 |
| 6341+50 to 6343+80 CHN | 0.08 | 0.32 | 0.88 | 4.25 | V | 8.0 | 2.00 | 1.60 | SC150 |
| 6343+80 to 6345+70 CHN | 0.04 | 0.41 | 1.74 | 3.7 | V | 8.0 | 2.00 | 1.02 | SC150 |
| 6345+70 to 6347+35 CHN | 0.07 | 0.38 | 1.9 | 4.67 | V | 8.0 | 2.00 | 1.66 | SC150 |
| 6347+35 to 6349+95 CHN | 0.08 | 0.29 | 1.74 | 4.35 | V | 8.0 | 2.00 | 1.45 | SC150 |
| 6352+75 to 6354+45 CHN | 0.11 | 0.72 | 15.79 | 9.13 | S | 12.5 | 12.00 | 4.94 | P550 |
| 6354+45 to 6356+00 CHN | 0.06 | 0.39 | 1.69 | 4.35 | V | 8.0 | 2.00 | 1.46 | SC150 |
| 6356+00 to 6356+30 CHN | 0.03 | 0.43 | 1.68 | 3.3 | V | 8.0 | 2.00 | 0.80 | SC150 |

Blair County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|------------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 6356+30 to 6359+10 CHN | 0.15 | 0.38 | 1.63 | 6.38 | S | 12.5 | 12.00 | 3.56 | P550 |
| 6357+65 to 6359+10 CHN | 0.03 | 0.23 | 0.54 | 2.3 | V | 8.0 | 2.00 | 0.43 | SC150 |
| 6368+70 to 6369+40 CHN | 0.06 | 0.36 | 0.78 | 3.83 | V | 8.0 | 2.00 | 1.35 | SC150 |
| 6369+40 to 6370+20 CHN | 0.05 | 0.39 | 1.67 | 3.99 | V | 8.0 | 2.00 | 1.22 | SC150 |
| 6370+20 to 6371+10 CHN | 0.13 | 0.3 | 1.57 | 5.46 | S | 9.5 | 3.00 | 2.43 | SC250 |
| 6371+10 to 6371+80 CHN | 0.09 | 0.33 | 1.62 | 4.86 | V | 8.0 | 2.00 | 1.85 | SC150 |
| 6371+80 to 6372+75 CHN | 0.08 | 0.37 | 1.66 | 4.82 | V | 8.0 | 2.00 | 1.85 | SC150 |
| 6372+75 to 6373+35 CHN | 0.05 | 0.36 | 1.62 | 3.84 | V | 8.0 | 2.00 | 1.12 | SC150 |
| 6378+80 to 6379+70 CHN | 0.18 | 0.1 | 0.23 | 3.29 | S | 8.0 | 2.00 | 1.12 | SC150 |
| 6379+70 to 6380+90 CHN | 0.1 | 0.14 | 0.41 | 3.07 | S | 8.0 | 2.00 | 0.87 | SC150 |
| 6406+65 to 6408+80 CHN | 0.02 | 0.49 | 1.17 | 2.76 | V | 8.0 | 2.00 | 0.61 | SC150 |
| 6421+00 to 6423+50 CHN | 0.06 | 1.02 | 71.98 | 8.92 | V | 12.5 | 12.00 | 3.82 | P550 |
| 6425+85 to 6427+05 CHN | 0.01 | 0.21 | 0.24 | 1.23 | V | 8.0 | 2.00 | 0.13 | SC150 |
| 6427+80 to 6430+60 CHN | 0.04 | 0.43 | 3.26 | 3.96 | V | 8.0 | 2.00 | 1.07 | SC150 |
| 6438+45 to 6438+50 CHN | 0.6 | 0.07 | 0.1 | 4.49 | S | 9.5 | 3.00 | 2.62 | SC250 |
| 6438+50 to 6440+00 CHN | 0.01 | 0.48 | 2.2 | 2.13 | V | 8.0 | 2.00 | 0.30 | SC150 |
| 6440+00 to 6441+55 CHN | 0.03 | 0.45 | 3.57 | 3.56 | V | 8.0 | 2.00 | 0.84 | SC150 |
| 6446+00 to 6450+15 CHN | 0.005 | 0.46 | 2.24 | 1.51 | V | 8.0 | 2.00 | 0.14 | SC150 |
| 6453+55 to 6454+15 CHN | 0.05 | 0.12 | 0.2 | 1.94 | V | 8.0 | 2.00 | 0.37 | SC150 |
| 6454+85 to 6456+55 CHN | 0.01 | 0.35 | 0.7 | 1.7 | V | 8.0 | 2.00 | 0.22 | SC150 |
| 6460+95 to 6463+70 CHN | 0.07 | 0.19 | 0.62 | 3.13 | V | 8.0 | 2.00 | 0.83 | SC150 |
| 6525+00 to 6525+85 CHN | 0.12 | 0.14 | 0.26 | 3.23 | S | 8.0 | 2.00 | 1.05 | SC150 |
| 6551+30 to 6552+00 CHN | 0.06 | 0.21 | 0.94 | 3.11 | V | 8.0 | 2.00 | 0.79 | SC150 |
| 6552+00 to 6553+15 CHN | 0.03 | 0.2 | 0.32 | 2.04 | V | 8.0 | 2.00 | 0.37 | SC150 |
| 6553+80 to 6554+00 CHN | 0.1 | 0.22 | 0.51 | 3.84 | S | 8.0 | 2.00 | 1.37 | SC150 |
| 6554+00 to 6554+35 CHN | 0.11 | 0.29 | 2.74 | 5.18 | S | 8.0 | 2.00 | 1.99 | SC150 |
| 6554+35 to 6555+95 CHN | 0.01 | 0.4 | 0.98 | 1.86 | V | 8.0 | 2.00 | 0.25 | SC150 |
| 6555+95 to 6558+65 CHN | 0.01 | 0.57 | 2.47 | 2.34 | V | 8.0 | 2.00 | 0.36 | SC150 |
| 6558+65 to 6561+30 CHN | 0.03 | 0.58 | 2.63 | 3.87 | V | 8.0 | 2.00 | 1.09 | SC150 |
| 6561+30 to 6563+35 CHN | 0.01 | 0.67 | 1.62 | 2.35 | V | 8.0 | 2.00 | 0.42 | SC150 |
| 6563+35 to 6565+55 CHN | 0.03 | 0.35 | 0.4 | 2.54 | V | 8.0 | 2.00 | 0.66 | SC150 |
| 6565+55 to 6566+05 CHN | 0.04 | 0.21 | 0.14 | 2.14 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 6566+05 to 6566+70 CHN | 0.05 | 0.23 | 0.17 | 2.49 | V | 8.0 | 2.00 | 0.72 | SC150 |
| 6566+70 to 6568+45 CHN | 0.04 | 0.31 | 0.33 | 2.69 | V | 8.0 | 2.00 | 0.77 | SC150 |
| 6568+45 to 6569+65 CHN | 0.02 | 0.31 | 0.19 | 1.83 | V | 8.0 | 2.00 | 0.39 | SC150 |
| 6569+65 to 6570+05 CHN | 0.03 | 0.22 | 0.09 | 1.77 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 6570+05 to 6571+35 CHN | 0.02 | 0.27 | 0.17 | 1.76 | V | 8.0 | 2.00 | 0.34 | SC150 |
| 6571+35 to 6571+70 CHN | 0.03 | 0.24 | 0.11 | 1.86 | V | 8.0 | 2.00 | 0.45 | SC150 |
| 6571+70 to 6572+35 CHN | 0.03 | 0.24 | 0.15 | 1.99 | V | 8.0 | 2.00 | 0.45 | SC150 |

Blair County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|------------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 6573+30 to 6573+70 CHN | 0.3 | 0.09 | 0.03 | 3.15 | S | 8.0 | 2.00 | 1.68 | SC150 |
| 6576+75 to 6577+70 CHN | 0.22 | 0.1 | 0.07 | 3.3 | S | 8.0 | 2.00 | 1.37 | SC150 |
| 6577+70 to 6578+75 CHN | 0.1 | 0.15 | 0.1 | 2.77 | S | 8.0 | 2.00 | 0.94 | SC150 |
| 6578+75 to 6579+20 CHN | 0.02 | 0.17 | 0.06 | 1.33 | V | 8.0 | 2.00 | 0.21 | SC150 |
| 6579+20 to 6581+55 CHN | 0.03 | 0.26 | 0.31 | 2.27 | V | 8.0 | 2.00 | 0.49 | SC150 |
| 6581+55 to 6584+25 CHN | 0.05 | 0.29 | 0.33 | 2.93 | V | 8.0 | 2.00 | 0.90 | SC150 |
| 6584+25 to 6586+25 CHN | 0.11 | 0.49 | 1.44 | 5.76 | S | 12.5 | 12.00 | 3.36 | P550 |
| 6584+25 to 6586+25 CHN | 0.04 | 0.59 | 1.44 | 3.94 | V | 8.0 | 2.00 | 1.47 | SC150 |
| 6586+25 to 6588+95 CHN | 0.08 | 0.41 | 1.51 | 4.95 | V | 9.5 | 3.00 | 2.05 | SC250 |
| 6595+75 to 6597+70 CHN | 0.02 | 0.27 | 0.24 | 1.86 | V | 8.0 | 2.00 | 0.34 | SC150 |
| 6611+20 to 6612+40 CHN | 0.02 | 0.32 | 1.48 | 2.34 | V | 8.0 | 2.00 | 0.40 | SC150 |
| 6611+20 to 6612+40 CHN | 0.07 | 0.25 | 1.48 | 3.74 | V | 8.0 | 2.00 | 1.09 | SC150 |
| 6612+40 to 6612+55 CHN | 0.13 | 0.16 | 0.65 | 3.85 | S | 8.0 | 2.00 | 1.30 | SC150 |
| 6612+55 to 6612+75 CHN | 0.03 | 0.2 | 0.5 | 2.08 | V | 8.0 | 2.00 | 0.37 | SC150 |
| 6612+75 to 6613+70 CHN | 0.02 | 0.21 | 0.52 | 1.8 | V | 8.0 | 2.00 | 0.26 | SC150 |
| 6616+85 to 6620+15 CHN | 0.07 | 0.14 | 0.27 | 2.55 | V | 8.0 | 2.00 | 0.61 | SC150 |
| 6620+15 to 6621+75 CHN | 0.06 | 0.32 | 0.55 | 3.51 | V | 8.0 | 2.00 | 1.20 | SC150 |
| 6685+30 to 6687+30 CHN | 0.05 | 0.33 | 2.13 | 3.79 | V | 8.0 | 2.00 | 1.03 | SC150 |
| 6687+30 to 6689+30 CHN | 0.06 | 0.35 | 2.59 | 4.26 | V | 8.0 | 2.00 | 1.31 | SC150 |
| 6689+30 to 6690+10 CHN | 0.23 | 0.35 | 0.83 | 6.62 | S | 12.5 | 12.00 | 5.02 | P550 |
| 6690+10 to 6695+00 CHN | 0.04 | 0.47 | 3.19 | 4.13 | V | 8.0 | 2.00 | 1.17 | SC150 |
| 6695+00 to 6696+80 CHN | 0.03 | 0.28 | 0.39 | 2.4 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 6698+35 to 6699+15 CHN | 0.08 | 0.19 | 0.39 | 3.21 | V | 8.0 | 2.00 | 0.95 | SC150 |
| 6699+15 to 6699+70 CHN | 0.09 | 0.31 | 1.5 | 4.7 | V | 8.0 | 2.00 | 1.74 | SC150 |
| 6700+95 to 6703+40 CHN | 0.02 | 0.28 | 0.59 | 2.09 | V | 8.0 | 2.00 | 0.35 | SC150 |
| 6708+65 to 6710+95 CHN | 0.08 | 0.18 | 0.56 | 3.14 | V | 8.0 | 2.00 | 0.90 | SC150 |
| 6710+50 to 6712+25 CHN | 0.05 | 0.27 | 1.27 | 3.3 | V | 8.0 | 2.00 | 0.84 | SC150 |
| 6747+50 to 6749+00 CHN | 0.02 | 0.36 | 1.44 | 2.49 | V | 8.0 | 2.00 | 0.45 | SC150 |
| 6749+00 to 6749+95 CHN | 0.08 | 0.24 | 1.91 | 3.91 | V | 8.0 | 2.00 | 1.20 | SC150 |
| 6763+70 to 6764+00 CHN | 0.13 | 0.33 | 7.75 | 6.28 | S | 9.5 | 3.00 | 2.68 | SC250 |
| 6764+00 to 6766+05 CHN | 0.025 | 0.45 | 1.19 | 0.94 | V | 8.0 | 2.00 | 0.70 | SC150 |
| 6766+05 to 6767+70 CHN | 0.03 | 0.3 | 1.93 | 2.78 | V | 8.0 | 2.00 | 0.56 | SC150 |
| 6771+40 to 6772+25 CHN | 0.04 | 0.16 | 0.61 | 2.11 | V | 8.0 | 2.00 | 0.40 | SC150 |
| 6779+85 to 6788+20 CHN | 0.01 | 0.35 | 4.47 | 1.83 | V | 8.0 | 2.00 | 0.22 | SC150 |
| 6814+75 - 6817+65 | 0.03 | 0.35 | 1.46 | 2.98 | V | 8.0 | 2.00 | 0.66 | SC150 |
| 6835+27 - 6836+00 | 0.04 | 0.26 | 0.76 | 2.82 | V | 8.0 | 2.00 | 0.65 | SC150 |
| 6847+00 - 6851+90 | 0.01 | 0.35 | 1.23 | 1.77 | V | 8.0 | 2.00 | 0.22 | SC150 |
| 6853+65 - 6855+70 | 0.02 | 1.7 | 114.9 | 7.15 | V | 8.0 | 3.00 | 2.12 | SC250 |
| 6861+70 - 6868+05 | 0.02 | 0.39 | 2.53 | 2.7 | V | 8.0 | 2.00 | 0.49 | SC150 |

Blair County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft./ft) | Normal Depth (ft) | Discharge (ft³/s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft²) | Shear Stress (lb/ft²) | Blanket Specification |
|-------------------|-------------------------------|--------------------------|-------------------------------------|------------------------|--|---------------------------------------|--|---|------------------------------|
| 6877+25 - 6877+25 | 0.02 | 0.24 | 0.46 | 1.92 | V | 8.0 | 2.00 | 0.30 | SC150 |
| 6880+65 - 6884+85 | 0.02 | 0.47 | 2.36 | 2.96 | V | 8.0 | 2.00 | 0.59 | SC150 |
| 6884+85 - 6889+15 | 0.05 | 0.38 | 2.11 | 4.05 | V | 8.0 | 2.00 | 1.19 | SC150 |
| 6892+95 - 6890+05 | 0.02 | 0.41 | 3.34 | 2.8 | V | 8.0 | 2.00 | 0.51 | SC150 |
| 6893+00 - 6896+90 | 0.01 | 0.3 | 3.68 | 1.65 | V | 8.0 | 2.00 | 0.19 | SC150 |
| 6917+25 - 6920+10 | 0.05 | 0.5 | 4.94 | 4.89 | V | 8.0 | 2.00 | 1.56 | SC150 |
| 6935+25 - 6936+90 | 0.05 | 0.29 | 1.61 | 3.47 | V | 8.0 | 2.00 | 0.90 | SC150 |
| 6936+90 - 6938+60 | 0.01 | 0.56 | 2.93 | 2.34 | V | 8.0 | 2.00 | 0.35 | SC150 |
| 6940+35 - 6942+20 | 0.01 | 0.25 | 0.46 | 1.41 | V | 8.0 | 2.00 | 0.16 | SC150 |
| 6943+70 - 6944+80 | 0.04 | 0.72 | 13.15 | 5.61 | V | 8.0 | 2.00 | 1.80 | SC150 |
| 6943+70 - 6948+50 | 0.04 | 0.28 | 1.88 | 3.1 | V | 8.0 | 2.00 | 0.70 | SC150 |
| 6959+80 - 6960+80 | 0.04 | 0.83 | 17.13 | 6.14 | V | 9.5 | 3.00 | 2.07 | SC250 |
| 6987+18 - 6989+90 | 0.01 | 0.24 | 2.09 | 1.43 | V | 8.0 | 2.00 | 0.15 | SC150 |
| 6956+85 - 6959+35 | 0.03 | 1.22 | 79.26 | 7.1 | V | 8.0 | 3.00 | 2.28 | SC250 |

**Blair County
Temporary Level Spreader Calculations**

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|-------------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 5768+55 - 5769+75 | 1.11 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 3.98 | 5 | 1.39 |
| 5771+30 - 5795+30 | 0.61 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 1.45 | 5 | 2.10 |
| 5807+70 - 5811+30 | 2.55 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.514 | 4.96 | 5 | 2.57 |
| 5811+30 - 5814+25 | 1.74 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 3.71 | 5 | 2.35 |
| 5815+60 - 5820+35 | 1.46 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 3.11 | 5 | 2.35 |
| 5890+95 - 5893+16 | 4.65 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.514 | 9.04 | 10 | 5.14 |
| 5893+16 - 5899+50 | 3.68 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.514 | 7.16 | 10 | 5.14 |
| 5943+60 - 5947+50 | 1.14 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.514 | 2.22 | 5 | 2.57 |
| 6037+80 - 6040+50 | 1.14 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.555 | 2.05 | 5 | 2.78 |
| 6080+10 - 6080+65 | 0.68 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.297 | 2.29 | 5 | 1.48 |
| 6124+85 - 6125+75 | 0.85 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.364 | 2.34 | 5 | 1.82 |
| 6178+40 - 6181+70 | 3.73 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 8.88 | 10 | 4.20 |
| 6184+90 - 6187+95 | 2.58 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.594 | 4.34 | 5 | 2.97 |
| 6212+85 - 6216+20 | 1.39 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.555 | 2.50 | 5 | 2.78 |
| 6249+30 - 6252+45 | 1.47 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 3.50 | 5 | 2.10 |
| 6254+00 - 6256+57 | 0.74 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.555 | 1.33 | 5 | 2.78 |
| 6258+40 - 6260+80 | 1.96 | 18 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.630 | 3.11 | 5 | 3.15 |
| 6262+80 - 6263+30 | 2.5 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.514 | 4.86 | 5 | 2.57 |
| 6695+00 to 6696+80 PIPE | 0.39 | 15 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.575 | 0.68 | 5 | 2.87 |
| 6266+60 to 6369+75 PIPE | 0.49 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 1.17 | 5 | 2.10 |
| 6272+75 to 6273+75 PIPE | 0.17 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 0.40 | 5 | 2.10 |
| 6274+15 to 6275+00 PIPE | 0.74 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 1.76 | 5 | 2.10 |
| 6275+00 to 6276+70 PIPE | 1 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 2.38 | 5 | 2.10 |
| 6278+55 to 6281+05 PIPE | 0.47 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 1.00 | 5 | 2.35 |
| 6281+05 to 6285+20 PIPE | 0.4 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 0.95 | 5 | 2.10 |
| 6285+20 to 6287+00 PIPE | 1.67 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.514 | 3.25 | 5 | 2.57 |
| 6341+50 to 6343+80 PIPE | 0.88 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.555 | 1.58 | 5 | 2.78 |
| 6343+80 to 6345+70 PIPE | 1.74 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 3.71 | 5 | 2.35 |
| 6345+70 to 6347+35 PIPE | 1.9 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 4.05 | 5 | 2.35 |
| 6347+35 to 6349+95 PIPE | 1.35 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 2.88 | 5 | 2.35 |
| 6352+75 to 6354+45 PIPE | 5.26 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 11.20 | 15 | 7.04 |
| 6354+45 to 6356+00 PIPE | 1.69 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 3.60 | 5 | 2.35 |
| 6356+00 to 6356+30 PIPE | 1.68 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 3.58 | 5 | 2.35 |
| 6356+30 to 6357+65 PIPE | 1.63 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 3.47 | 5 | 2.35 |
| 6357+65 to 6359+10 PIPE | 1.63 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 3.47 | 5 | 2.35 |
| 6368+70 to 6369+40 PIPE | 0.78 | 12.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.525 | 1.49 | 5 | 2.62 |
| 6369+40 to 6370+20 PIPE | 1.67 | 12.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.525 | 3.18 | 5 | 2.62 |
| 6370+20 to 6371+10 PIPE | 1.57 | 12.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.525 | 2.99 | 5 | 2.62 |
| 6371+10 to 6271+80 PIPE | 1.62 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 3.45 | 5 | 2.35 |
| 6371+80 to 6372+75 PIPE | 1.66 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 3.54 | 5 | 2.35 |
| 6372+75 to 6373+35 PIPE | 1.62 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 3.45 | 5 | 2.35 |
| 6378+80 to 6379+70 PIPE | 0.23 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.364 | 0.63 | 5 | 1.82 |
| 6379+70 to 6380+90 PIPE | 0.41 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.364 | 1.13 | 5 | 1.82 |

**Blair County
Temporary Level Spreader Calculations**

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|-------------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 6406+65 to 6408+80 PIPE | 1.17 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 2.49 | 5 | 2.35 |
| 6421+00 to 6423+50 PIPE | 18 | 1.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.182 | 99.00 | 100 | 18.18 |
| 6425+85 to 6427+05 PIPE | 0.24 | 11 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.492 | 0.49 | 5 | 2.46 |
| 6427+80 to 6430+60 PIPE | 3.26 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.378 | 8.61 | 10 | 3.78 |
| 6438+45 to 6438+50 PIPE | 0.1 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 0.21 | 5 | 2.35 |
| 6438+50 to 6440+00 PIPE | 2.2 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.364 | 6.05 | 10 | 3.64 |
| 6440+00 to 6441+55 PIPE | 3.57 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.364 | 9.82 | 10 | 3.64 |
| 6446+00 to 6450+15 PIPE | 2.24 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.364 | 6.16 | 10 | 3.64 |
| 6453+55 to 6454+15 PIPE | 0.2 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.364 | 0.55 | 5 | 1.82 |
| 6454+85 to 6456+55 PIPE | 0.7 | 13.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.545 | 1.28 | 5 | 2.73 |
| 6460+95 to 6463+70 PIPE | 0.62 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 1.32 | 5 | 2.35 |
| 6551+30 to 6552+00 PIPE | 0.94 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.297 | 3.17 | 5 | 1.48 |
| 6552+00 to 6553+15 PIPE | 0.32 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.297 | 1.08 | 5 | 1.48 |
| 6553+80 to 6554+00 PIPE | 0.51 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.364 | 1.40 | 5 | 1.82 |
| 6554+00 to 6554+35 PIPE | 2.74 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.364 | 7.53 | 10 | 3.64 |
| 6554+35 to 6555+96 PIPE | 0.98 | 17.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.621 | 1.58 | 5 | 3.11 |
| 6555+95 to 6558+65 PIPE | 2.47 | 22 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.696 | 3.55 | 5 | 3.48 |
| 6558+65 to 6561+30 PIPE | 2.63 | 23 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.712 | 3.69 | 5 | 3.56 |
| 6561+30 to 6563+35 PIPE | 1.62 | 27 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.771 | 2.10 | 5 | 3.86 |
| 6563+35 to 6565+55 PIPE | 0.4 | 29 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.799 | 0.50 | 5 | 4.00 |
| 6565+55 to 6566+05 PIPE | 0.14 | 24 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.727 | 0.19 | 5 | 3.64 |
| 6566+05 to 6566+70 PIPE | 0.17 | 31 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.827 | 0.21 | 5 | 4.13 |
| 6566+70 to 6568+45 PIPE | 0.33 | 20 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.664 | 0.50 | 5 | 3.32 |
| 6568+45 to 6569+65 PIPE | 0.19 | 31 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.827 | 0.23 | 5 | 4.13 |
| 6569+65 to 6570+05 PIPE | 0.09 | 22.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.704 | 0.13 | 5 | 3.52 |
| 6570+05 to 6571+35 PIPE | 0.17 | 27 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.771 | 0.22 | 5 | 3.86 |
| 6571+35 to 6571+70 PIPE | 0.11 | 20 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.664 | 0.17 | 5 | 3.32 |
| 6571+70 to 6572+35 PIPE | 0.15 | 29 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.799 | 0.19 | 5 | 4.00 |
| 6576+75 to 6577+70 PIPE | 0.07 | 35 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.878 | 0.08 | 5 | 4.39 |
| 6577+70 to 6578+75 PIPE | 0.1 | 33 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.853 | 0.12 | 5 | 4.26 |
| 6578+75 to 6579+20 PIPE | 0.06 | 22 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.696 | 0.09 | 5 | 3.48 |
| 6579+20 to 6581+55 PIPE | 0.31 | 32 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.840 | 0.37 | 5 | 4.20 |
| 6581+55 to 6584+25 PIPE | 0.33 | 33 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.853 | 0.39 | 5 | 4.26 |
| 6584+25 to 6586+25 PIPE | 1.44 | 35 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.878 | 1.64 | 5 | 4.39 |
| 6586+25 to 6588+95 PIPE | 1.51 | 32 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.840 | 1.80 | 5 | 4.20 |
| 6595+75 to 6597+70 PIPE | 0.24 | 20 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.664 | 0.36 | 5 | 3.32 |
| 6611+20 to 6612+40 PIPE | 1.48 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.297 | 4.98 | 5 | 1.48 |
| 6612+40 to 6612+55 PIPE | 0.65 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.297 | 2.19 | 5 | 1.48 |
| 6612+55 to 6612+75 PIPE | 0.5 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.297 | 1.68 | 5 | 1.48 |
| 6612+75 to 6613+70 PIPE | 0.52 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.297 | 1.75 | 5 | 1.48 |
| 6616+85 to 6620+15 PIPE | 0.27 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 0.64 | 5 | 2.10 |
| 6620+15 to 6621+75 PIPE | 0.55 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 1.31 | 5 | 2.10 |
| 6621+75 to 6623+35 PIPE | 0.8 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 1.91 | 5 | 2.10 |

**Blair County
Temporary Level Spreader Calculations**

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|-------------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 6685+30 to 6687+30 PIPE | 2.13 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.514 | 4.14 | 5 | 2.57 |
| 6687+30 to 6689+30 PIPE | 2.59 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.514 | 5.04 | 10 | 5.14 |
| 6689+30 to 6690+10 PIPE | 0.83 | 22 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.696 | 1.19 | 5 | 3.48 |
| 6690+10 to 6695+00 PIPE | 3.19 | 19 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.647 | 4.93 | 5 | 3.24 |
| 6698+35 to 6699+15 PIPE | 0.39 | 11 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.492 | 0.79 | 5 | 2.46 |
| 6699+15 to 6699+70 PIPE | 1.5 | 11 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.492 | 3.05 | 5 | 2.46 |
| 6700+95 to 6703+40 PIPE | 0.59 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.469 | 1.26 | 5 | 2.35 |
| 6708+65 to 6710+55 PIPE | 0.56 | 18 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.630 | 0.89 | 5 | 3.15 |
| 6710+55 to 6712+25 PIPE | 1.27 | 14.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.565 | 2.25 | 5 | 2.83 |
| 6763+70 to 6764+00 PIPE | 2.5 | 4.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.315 | 7.94 | 10 | 3.15 |
| 6764+00 to 6766+05 PIPE | 1.19 | 4.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.315 | 3.78 | 5 | 1.57 |
| 6766+05 to 6767+70 PIPE | 1.93 | 4.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.315 | 6.13 | 10 | 3.15 |
| 6771+40 to 6772+25 PIPE | 0.61 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.257 | 2.37 | 5 | 1.29 |
| 6779+85 to 6788+20 PIPE | 1.49 | 1 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.148 | 10.04 | 15 | 2.23 |
| 6814+75 - 6817+65 | 1.46 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.378 | 3.86 | 5 | 1.89 |
| 6835+27 - 6836+00 | 0.76 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.420 | 1.81 | 5 | 2.10 |
| 6847+00 - 6851+90 | 1.23 | 4.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.315 | 3.91 | 5 | 1.57 |
| 6853+65 - 6855+70 | 28.7 | 1 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.148 | 193.32 | 195 | 28.95 |
| 6861+70 - 6868+05 | 2.53 | 19 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.647 | 3.91 | 5 | 3.24 |
| 6877+25 - 6877+25 | 0.46 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.378 | 1.22 | 5 | 1.89 |
| 6880+65 - 6884+85 | 2.36 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.514 | 4.59 | 5 | 2.57 |
| 6884+85 - 6889+15 | 2.11 | 21.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.688 | 3.07 | 5 | 3.44 |
| 6917+25 - 6920+10 | 4.94 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.364 | 13.58 | 15 | 5.45 |
| 6935+25 - 6936+90 | 1.61 | 5.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.348 | 4.62 | 5 | 1.74 |
| 6936+90 - 6938+60 | 2.93 | 5.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.348 | 8.42 | 10 | 3.48 |
| 6940+35 - 6942+20 | 0.46 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.594 | 0.77 | 5 | 2.97 |
| 6943+70 - 6944+80 | 3.28 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.297 | 11.05 | 15 | 4.45 |
| 6959+80 - 6960+80 | 17.13 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.332 | 51.60 | 55 | 18.26 |
| 6956+85 - 6959+35 | 26.42 | 7 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.393 | 67.26 | 70 | 27.49 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity * (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------------------|-------------------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| 6779+85 | 6788+20 | 2,589,157 1,311,612 | 100 | 0.05 | Type D | 0.300 | 8.17 | 4875 | 0.05 | 0.50 | 162.50 | 170.67 | 1.70 | 0.16 0.23 | 0.01 | 40:1 | 4.47 | 12 | 0.01 | 3 x 12 |
| 6771+40 | 6772+25 | 68,162 | 100 | 0.03 | Type D | 0.400 | 10.52 | 1700 | 0.01 | 0.45 | 62.96 | 73.49 | 1.70 | 0.23 | 0.04 | 24:1 | 0.61 | 12 | 0.02 | 8 |
| 6763+70 | 6764+00 | 863,246 | 100 | 0.01 | Type D | 0.400 | 13.60 | 2820 | 0.04 | 0.80 | 58.75 | 72.35 | 1.70 | 0.23 | 0.13 | 22.5:1 | 7.75 | 12 | 0.03 | 3 - 12" |
| 6764+00 | 6766+05 | 133,117 | 100 | 0.01 | Type D | 0.400 | 13.60 | 3685 | 0.03 | 0.80 | 76.77 | 90.37 | 1.70 | 0.23 | 0.002 | 12.5:1 | 1.19 | 12 | 0.04 | 8 |
| 6766+05 | 6767+70 | 215,550 | 100 | 0.02 | Type D | 0.400 | 11.57 | 2270 | 0.05 | 0.90 | 42.04 | 53.61 | 1.70 | 0.23 | 0.03 | 15.5:1 | 1.93 | 12 | 0.06 | 12 |
| 6747+50 | 6749+00 | 204,776 | 100 | 0.03 | Type D | 0.400 | 10.52 | 3405 | 0.01 | 0.45 | 126.11 | 136.63 | 1.70 | 0.18 | 0.02 | 9:1 | 1.44 | 12 | NO PIPE | |
| 6749+00 | 6749+95 | 213,098 | 100 | 0.03 | Type D | 0.400 | 10.52 | 2055 | 0.02 | 0.65 | 52.69 | 63.22 | 1.70 | 0.23 | 0.08 | 17.5:1 | 1.91 | 12 | 0.02 | 12 |
| 6710+55 | 6712+25 | 87,390 | 100 | 0.18 | Type D | 0.300 | 6.05 | 475 | 0.11 | 0.75 | 10.56 | 16.61 | 3.15 | 0.20 | 0.05 | 10.5:1 | 1.27 | 12 | 0.19 | 6 |
| 6708+65 | 6710+55 | 37,615 | 100 | 0.12 | Type D | 0.300 | 6.65 | 405 | 0.12 | 0.75 | 9.00 | 15.65 | 3.25 | 0.20 | 0.08 | 11.5:1 | 0.56 | 12 | 0.15 | 6 |
| 6700+95 | 6703+40 | 33,766 | 100 | 0.23 | Type D | 0.300 | 5.72 | 280 | 0.16 | 0.90 | 5.19 | 10.90 | 3.80 | 0.20 | 0.02 | 7:1 | 0.59 | 12 | 0.13 | 6 |
| 6695+00 | 6696+80 | 20,581 | 100 | 0.12 | Type D | 0.300 | 6.65 | 170 | 0.26 | 1.30 | 2.18 | 8.83 | 4.10 | 0.20 | 0.03 | 4:1 | 0.39 | 12 | 0.16 | 6 |
| 6690+10 | 6695+00 | 185,544 | 100 | 0.34 | Type D | 0.300 | 5.22 | 510 | 0.34 | 1.40 | 6.07 | 11.29 | 3.75 | 0.20 | 0.04 | 7:1 | 3.19 | 12 | 0.18 | 12 |
| 6698+35 | 6699+15 | 130,028 | 100 | 0.20 | Type D | 0.300 | 5.91 | 670 | 0.30 | 1.30 | 8.59 | 14.50 | 3.37 | 0.20 | 0.08 | 6.5:1 | 0.39 | 12 | 0.12 | 6 |
| 6699+15 | 6699+70 | 106,045 | 100 | 0.05 | Type D | 0.300 | 8.17 | 715 | 0.29 | 1.30 | 9.17 | 17.33 | 3.09 | 0.20 | 0.09 | 6.5:1 | 1.50 | 12 | 0.12 | 8 |
| 6689+30 | 6690+10 | 43,048 | 100 | 0.40 | Type D | 0.300 | 5.02 | 315 | 0.51 | 1.70 | 3.09 | 8.11 | 4.22 | 0.20 | 0.23 | 2:1 | 0.83 | 12 | 0.26 | 6 |
| 6685+30 | 6687+30 | 117,920 | 100 | 0.14 | Type D | 0.300 | 6.42 | 360 | 0.49 | 1.70 | 3.53 | 9.95 | 3.93 | 0.20 | 0.05 | 10:1 | 2.13 | 12 | 0.19 | 8 |
| 6687+30 | 6689+30 | 135,039 | 100 | 0.42 | Type D | 0.300 | 4.97 | 350 | 0.49 | 1.70 | 3.43 | 8.40 | 4.17 | 0.20 | 0.06 | 10:1 | 2.59 | 12 | 0.19 | 12 |
| 6620+15 | 6621+75 | 29,579 | 100 | 0.35 | Type D | 0.300 | 5.18 | 305 | 0.32 | 1.30 | 3.91 | 9.09 | 4.06 | 0.20 | 0.06 | 3:1 | 0.55 | 12 | 0.25 | 6 |
| 6621+75 | 6623+35 | 41,119 | 100 | 0.33 | Type D | 0.300 | 5.25 | 260 | 0.39 | 1.60 | 2.71 | 7.96 | 4.25 | 0.20 | 0.06 | 3:1 | 0.80 | 12 | 0.23 | 6 |
| 6616+85 | 6620+15 | 50,282 15,970 | 100 | 0.16 | Type D | 0.800 | 9.84 | 340 | 0.39 | 4.30 | 1.32 | 11.16 | 3.76 | 0.20 0.35 | 0.07 | 10.5:1 | 0.27 | 12 | 0.06 | 6 |
| 6611+20 | 6612+40 | 135,887 | 100 | 0.13 | Type D | 0.300 | 6.53 | 1135 | 0.16 | 0.90 | 21.02 | 27.55 | 2.38 | 0.20 | 0.02 | 12.5:1 | 1.48 | 12 | 0.03 | 12 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity * (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|----------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|---|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 6612+40 | 6612+55 | 131,111 | 100 | 0.15 | Type D | 0.300 | 6.32 | 815 | 0.06 | 1.80 | 7.55 | 13.86 | 3.43 | 0.20 | 0.13 | 12.5:1 | 0.65 | 12 | 0.03 | 8 |
| | | 43,353 | | | | | | | | | | | | 0.35 | | | | | | |
| 6612+55 | 6612+75 | 104,737 | 100 | 0.20 | Type D | 0.300 | 5.91 | 1030 | 0.16 | 0.90 | 19.07 | 24.98 | 2.53 | 0.20 | 0.03 | 12.5:1 | 0.50 | 12 | 0.03 | 6 |
| | | 62,583 | | | | | | | | | | | | 0.35 | | | | | | |
| 6612+75 | 6613+70 | 178,618 | 100 | 0.13 | Type D | 0.300 | 6.53 | 905 | 0.18 | 1.10 | 13.71 | 20.24 | 2.85 | 0.20 | 0.02 | 12.5:1 | 0.52 | 12 | 0.04 | 6 |
| | | 11,390 | | | | | | | | | | | | 0.35 | | | | | | |
| 6595+75 | 6597+70 | 11,690 | 95 | 0.14 | Type D | 0.300 | 6.30 | 0 | | | 0.00 | 6.30 | 4.55 | 0.20 | 0.02 | 3.5:1 | 0.24 | 12 | 0.49 | 6 |
| 6586+25 | 6588+95 | 86,083 | 100 | 0.12 | Type D | 0.300 | 6.65 | 320 | 0.26 | 1.30 | 4.10 | 10.76 | 3.82 | 0.20 | 0.08 | 3.5:1 | 1.51 | 12 | 0.34 | 6 |
| 6584+25 | 6586+25 | 76,444 | 100 | 0.12 | Type D | 0.300 | 6.65 | 215 | 0.43 | 1.70 | 2.11 | 8.76 | 4.11 | 0.20 | 0.11 | 2:1 | 1.44 | 18 | 0.46 | 6 |
| | | | | | | | | | | | | | | 0.35 | | 0.04 | | | | |
| 6581+55 | 6584+25 | 59,258 | 100 | 0.12 | Type D | 0.400 | 7.61 | 245 | 0.31 | 1.30 | 3.14 | 10.75 | 3.82 | 0.20 | 0.05 | 2.5:1 | 0.33 | 12 | 0.38 | 6 |
| | | 13,710 | | | | | | | | | | | | 0.50 | | | | | | |
| 6579+20 | 6581+55 | 53,245 | 100 | 0.10 | Type D | 0.400 | 7.94 | 185 | 0.33 | 1.30 | 2.37 | 10.32 | 3.88 | 0.20 | 0.03 | 4:1 | 0.31 | 12 | 0.40 | 6 |
| | | 13,980 | | | | | | | | | | | | 0.50 | | | | | | |
| 6578+75 | 6579+20 | 9,784 | 100 | 0.09 | Type D | 0.400 | 8.14 | 195 | 0.34 | 1.30 | 2.50 | 10.64 | 3.83 | 0.20 | 0.02 | 3:1 | 0.06 | 12 | 0.39 | 6 |
| | | 3,175 | | | | | | | | | | | | 0.50 | | | | | | |
| 6577+70 | 6578+75 | 17,734 | 100 | 0.11 | Type D | 0.400 | 7.77 | 175 | 0.30 | 1.30 | 2.24 | 10.01 | 3.92 | 0.20 | 0.10 | 3:1 | 0.10 | 12 | 0.40 | 6 |
| | | 3,682 | | | | | | | | | | | | 0.50 | | | | | | |
| 6576+75 | 6577+70 | 15,516 | 100 | 0.10 | Type D | 0.400 | 7.94 | 205 | 0.29 | 1.30 | 2.63 | 10.57 | 3.84 | 0.20 | 0.22 | 4:1 | 0.07 | 12 | 0.32 | 6 |
| | | 2,156 | | | | | | | | | | | | 0.50 | | | | | | |
| 6573+30 | 6573+70 | 1,599 | 100 | 0.54 | Type D | 0.400 | 5.36 | 10 | 0.70 | 3.00 | 0.06 | 5.41 | 4.73 | 0.20 | 0.30 | 2.5:1 | 0.03 | 12 | NO PIPE | |
| 6571+70 | 6572+35 | 32,657 | 100 | 0.09 | Type D | 0.400 | 8.14 | 445 | 0.30 | 1.30 | 5.71 | 13.85 | 3.44 | 0.20 | 0.03 | 2.5:1 | 0.15 | 12 | 0.21 | 6 |
| | | 5,865 | | | | | | | | | | | | 0.50 | | | | | | |
| 6571+35 | 6571+70 | 5,125 | 100 | 0.42 | Type D | 0.300 | 4.97 | 75 | 0.32 | 1.30 | 0.96 | 5.93 | 4.62 | 0.20 | 0.03 | 2:1 | 0.11 | 12 | 0.32 | 6 |
| 6570+05 | 6571+35 | 40,909 | 100 | 0.13 | Type D | 0.400 | 7.47 | 385 | 0.34 | 1.40 | 4.58 | 12.05 | 3.65 | 0.20 | 0.02 | 2.5:1 | 0.17 | 12 | 0.35 | 6 |
| | | 4,097 | | | | | | | | | | | | 0.50 | | | | | | |
| 6569+65 | 6570+05 | 17,760 | 100 | 0.12 | Type D | 0.400 | 7.61 | 405 | 0.35 | 1.40 | 4.82 | 12.43 | 3.60 | 0.20 | 0.03 | 2:1 | 0.09 | 12 | 0.38 | 6 |
| | | 3,811 | | | | | | | | | | | | 0.50 | | | | | | |
| 6568+45 | 6569+65 | 38,999 | 100 | 0.12 | Type D | 0.400 | 7.61 | 385 | 0.34 | 1.40 | 4.58 | 12.20 | 3.63 | 0.20 | 0.02 | 2:1 | 0.19 | 12 | 0.39 | 6 |
| | | 7,030 | | | | | | | | | | | | 0.50 | | | | | | |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity * (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|----------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------------------|-------------------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| 6566+70 | 6568+45 | 64,351 16,102 | 100 | 0.06 | Type D | 0.400 | 8.95 | 410 | 0.36 | 1.40 | 4.88 | 13.83 | 3.44 | 0.20 0.50 | 0.04 | 2.5:1 | 0.33 | 12 | 0.37 | 6 |
| 6566+05 | 6566+70 | 28,927 7,840 | 100 | 0.16 | Type D | 0.400 | 7.12 | 365 | 0.37 | 1.50 | 4.06 | 11.17 | 3.76 | 0.20 0.50 | 0.05 | 2.5:1 | 0.17 | 12 | 0.38 | 6 |
| 6565+55 | 6566+05 | 23,678 7,058 | 100 | 0.14 | Type D | 0.400 | 7.34 | 385 | 0.39 | 1.60 | 4.01 | 11.35 | 3.74 | 0.20 0.50 | 0.04 | 3:1 | 0.14 | 12 | 0.38 | 6 |
| 6563+35 | 6565+55 | 81,396 13,861 | 100 | 0.16 | Type D | 0.400 | 7.12 | 385 | 0.37 | 1.50 | 4.28 | 11.40 | 3.73 | 0.20 0.50 | 0.03 | 2.5:1 | 0.40 | 12 | 0.38 | 6 |
| 6561+30 | 6563+35 | 89,048 | 100 | 0.26 | Type D | 0.300 | 5.55 | 375 | 0.37 | 1.50 | 4.17 | 9.72 | 3.97 | 0.20 | 0.01 | 3:1 | 1.62 | 18 | 0.31 | 6 |
| 6558+65 | 6561+30 | 155,483 | 100 | 0.19 | Type D | 0.300 | 5.98 | 455 | 0.33 | 1.30 | 5.83 | 11.81 | 3.68 | 0.20 | 0.03 | 4:1 | 2.63 | 18 | 0.27 | 8 |
| 6555+95 | 6558+65 | 186,148 | 100 | 0.15 | Type D | 0.300 | 6.32 | 965 | 0.23 | 1.20 | 13.40 | 19.72 | 2.89 | 0.20 | 0.01 | 6.5:1 | 2.47 | 18 | 0.25 | 8 |
| 6554+35 | 6555+96 | 60,905 | 100 | 0.10 | Type D | 0.300 | 6.94 | 495 | 0.30 | 1.30 | 6.35 | 13.29 | 3.50 | 0.20 | 0.01 | 6.5:1 | 0.98 | 12 | 0.34 | 6 |
| 6553+80 | 6554+00 | 36,817 | 100 | 0.15 | Type D | 0.300 | 6.32 | 935 | 0.25 | 1.30 | 11.99 | 18.30 | 3.00 | 0.20 | 0.10 | 5.5:1 | 0.51 | 12 | 0.13 | 6 |
| 6554+00 | 6554+35 | 200,447 | 100 | 0.12 | Type D | 0.300 | 6.65 | 930 | 0.25 | 1.30 | 11.92 | 18.58 | 2.98 | 0.20 | 0.11 | 12.5:1 | 2.74 | 12 | 0.15 | 8 |
| 6551+30 | 6552+00 | 61,410 114,436 | 100 | 0.22 | Type D | 0.400 | 6.61 | 975 | 0.25 | 1.30 | 12.50 | 19.11 | 2.94 | 0.20 0.50 | 0.06 | 13.5:1 | 0.94 | 12 | 0.10 | 6 |
| 6552+00 | 6553+15 | 96,797 8,821 | 100 | 0.16 | Type D | 0.400 | 7.12 | 975 | 0.25 | 1.30 | 12.50 | 19.62 | 2.89 | 0.20 0.50 | 0.03 | 8:1 | 0.32 | 12 | 0.08 | 6 |
| 6460+95 | 6463+70 | 32,259 | 100 | 0.24 | Type D | 0.300 | 5.66 | 200 | 0.25 | 1.30 | 2.56 | 8.22 | 4.20 | 0.20 | 0.07 | 10.5:1 | 0.62 | 12 | 0.05 | 6 |
| 6454+85 | 6456+55 | 41,621 | 100 | 0.11 | Type D | 0.300 | 6.79 | 210 | 0.10 | 0.70 | 5.00 | 11.79 | 3.68 | 0.20 | 0.01 | 6.5:1 | 0.70 | 12 | 0.56 | 6 |
| 6453+55 | 6454+15 | 9,806 | 100 | 0.25 | Type D | 0.300 | 5.61 | 80 | 0.33 | 1.30 | 1.03 | 6.63 | 4.49 | 0.20 | 0.05 | 14.5:1 | 0.20 | 12 | 0.08 | 6 |
| 6446+00 | 6450+15 | 137,150 | 100 | 0.14 | Type D | 0.300 | 6.42 | 455 | 0.19 | 1.20 | 6.32 | 12.74 | 3.56 | 0.20 | 0.005 | 14:1 | 2.24 | 12 | 0.07 | 12 |
| 6438+50 | 6440+00 | 189,784 | 100 | 0.26 | Type D | 0.300 | 5.55 | 875 | 0.12 | 0.75 | 19.44 | 25.00 | 2.52 | 0.20 | 0.01 | 9:1 | 2.20 | 12 | 0.11 | 8 |
| 6440+00 | 6441+55 | 215,941 | 100 | 0.71 | Type D | 0.300 | 4.39 | 530 | 0.18 | 1.10 | 8.03 | 12.42 | 3.60 | 0.20 | 0.03 | 10:1 | 3.57 | 12 | 0.13 | 12 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity * (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|----------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|---|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 6438+45 | 6438+50 | 29,604 3,600 | 100 | 0.05 | Type D | 0.300 | 8.17 | 735 | 0.21 | 1.20 | 10.21 | 18.37 | 3.00 | 0.20 0.31 | 0.60 | 10:1 | 0.10 | 12 | 0.11 | 6 |
| 6427+80 | 6430+60 | 1,118,596 623,601 | 100 | 0.08 | Type D | 0.400 | 8.37 | 2085 | 0.11 | 0.70 | 49.64 | 58.01 | 1.70 | 0.20 0.31 | 0.04 | 9:1 | 3.26 | 12 | 0.11 | 12 |
| 6425+85 | 6427+05 | 8,013 | 100 | 0.09 | Type D | 0.400 | 8.14 | 0 | | | 0.00 | 8.14 | 4.22 | 0.31 | 0.01 | 9:1 | 0.24 | 12 | 0.11 | 6 |
| 6525+00 | 6525+85 | 8,853 | 100 | 0.09 | Type D | 0.400 | 8.14 | 25 | 0.12 | 1.60 | 0.26 | 8.40 | 4.17 | 0.31 | 0.12 | 8.5:1 | 0.26 | 12 | NO PIPE | |
| 6421+00 | 6423+50 | 5,949,340 | 100 | 0.03 | Type D | 0.400 | 10.52 | 4615 | 0.06 | 1.20 | 64.10 | 74.62 | 1.70 | 0.31 | 0.06 | 15.5:1 | 71.98 | 24 | 0.02 | 4 x 24 |
| 6406+65 | 6408+80 | 58,698 | 100 | 0.10 | Type D | 0.300 | 6.94 | 70 | 0.90 | 3.00 | 0.39 | 7.33 | 4.36 | 0.20 | 0.02 | 3.5:1 | 1.17 | 12 | 0.17 | 6 |
| 6378+80 | 6379+70 | 65,885 25,760 | 100 | 0.25 | Type D | 0.300 | 5.61 | 1495 | 0.18 | 1.10 | 22.65 | 28.26 | 2.34 | 0.20 0.31 | 0.18 | 13.5:1 | 0.23 | 12 | 0.08 | 6 |
| 6379+70 | 6380+90 | 186,558 18,283 | 100 | 0.25 | Type D | 0.300 | 5.61 | 1590 | 0.16 | 0.95 | 27.89 | 33.50 | 2.10 | 0.20 0.31 | 0.10 | 13.5:1 | 0.41 | 12 | 0.08 | 6 |
| 6371+10 | 6371+80 | 207,138 | 100 | 0.11 | Type D | 0.300 | 6.79 | 3490 | 0.16 | 0.95 | 61.23 | 68.02 | 1.70 | 0.20 | 0.09 | 6:1 | 1.62 | 12 | 0.18 | 8 |
| 6371+80 | 6372+75 | 212,192 | 100 | 0.11 | Type D | 0.300 | 6.79 | 3515 | 0.16 | 0.95 | 61.67 | 68.46 | 1.70 | 0.20 | 0.08 | 5:1 | 1.66 | 12 | 0.14 | 8 |
| 6372+75 | 6373+35 | 207,661 | 100 | 0.11 | Type D | 0.300 | 6.79 | 3550 | 0.16 | 0.95 | 62.28 | 69.07 | 1.70 | 0.20 | 0.05 | 6.5:1 | 1.62 | 12 | 0.20 | 8 |
| 6368+70 | 6369+40 | 62,393 | 100 | 0.12 | Type D | 0.300 | 6.65 | 1110 | 0.19 | 1.20 | 15.42 | 22.07 | 2.71 | 0.20 | 0.06 | 3:1 | 0.78 | 12 | 0.19 | 6 |
| 6369+40 | 6370+20 | 213,661 | 100 | 0.16 | Type D | 0.300 | 6.22 | 3170 | 0.16 | 0.95 | 55.61 | 61.84 | 1.70 | 0.20 | 0.05 | 5.5:1 | 1.67 | 12 | 0.24 | 6 |
| 6370+20 | 6371+10 | 200,876 | 100 | 0.16 | Type D | 0.300 | 6.22 | 3210 | 0.16 | 0.95 | 56.32 | 62.54 | 1.70 | 0.20 | 0.13 | 6.5:1 | 1.57 | 12 | 0.18 | 8 |
| 6356+30 | 6357+65 | 129,271 | 100 | 0.17 | Type D | 0.300 | 6.13 | 875 | 0.15 | 0.95 | 15.35 | 21.49 | 2.75 | 0.20 | 0.15 | 3.5:1 | 1.63 | 12 | 0.32 | 6 |
| 6357+65 | 6359+10 | 43,795 | 100 | 0.17 | Type D | 0.300 | 6.13 | 940 | 0.14 | 0.95 | 16.49 | 22.63 | 2.68 | 0.20 | 0.03 | 8.5:1 | 0.54 | 12 | 0.16 | 6 |
| 6354+45 | 6356+00 | 216,489 | 100 | 0.16 | Type D | 0.300 | 6.22 | 2685 | 0.13 | 0.90 | 49.72 | 55.94 | 1.70 | 0.20 | 0.06 | 5:1 | 1.69 | 12 | 0.15 | 12 |
| 6356+00 | 6356+30 | 215,151 | 100 | 0.16 | Type D | 0.300 | 6.22 | 2690 | 0.13 | 0.90 | 49.81 | 56.04 | 1.70 | 0.20 | 0.03 | 5.5:1 | 1.68 | 12 | 0.18 | 6 |
| 6352+75 | 6354+45 | 2,022,828 | 100 | 0.15 | Type D | 0.300 | 6.32 | 3990 | 0.16 | 0.95 | 70.00 | 76.32 | 1.70 | 0.20 | 0.11 | 6.5:1 | 15.79 | 18 | 0.12 | 3 - 12" |
| 6347+35 | 6349+95 | 91,720 | 100 | 0.18 | Type D | 0.300 | 6.05 | 715 | 0.19 | 1.20 | 9.93 | 15.98 | 3.21 | 0.20 | 0.08 | 9.5:1 | 1.35 | 12 | 0.15 | 8 |
| 6343+80 | 6345+70 | 155,139 | 100 | 0.20 | Type D | 0.300 | 5.91 | 1480 | 0.18 | 1.20 | 20.56 | 26.46 | 2.44 | 0.20 | 0.04 | 5.5:1 | 1.74 | 12 | 0.18 | 8 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity * (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|----------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|---|---|------------------------------------|----------------------------------|----------------------------|-----------------------------|----------------------------|-------------------------|
| 6345+70 | 6347+35 | 172,777 | 100 | 0.20 | Type D | 0.300 | 5.91 | 1530 | 0.18 | 1.20 | 21.25 | 27.16 | 2.40 | 0.20 | 0.07 | 5.5:1 | 1.90 | 12 | 0.18 | 8 |
| 6341+50 | 6343+80 | 54,521 | 100 | 0.18 | Type D | 0.300 | 6.05 | 500 | 0.23 | 1.20 | 6.94 | 13.00 | 3.53 | 0.20 | 0.08 | 4:1 | 0.88 | 12 | 0.32 | 6 |
| 6285+20 | 6287+00 | 182,898 | 100 | 0.14 | Type D | 0.300 | 6.42 | 1340 | 0.12 | 0.75 | 29.78 | 36.20 | 1.99 | 0.20 | 0.04 | 12.5:1 | 1.67 | 12 | 0.21 | 8 |
| 6281+05 | 6285+20 | 22,913 43,702 | 100 | 0.36 | Type D | 0.300 | 5.15 | 130 | 0.16 | 0.95 | 2.28 | 7.43 | 4.34 | 0.20 0.35 | 0.01 | 13.5:1 | 0.40 | 12 | 0.25 | 6 |
| 6278+55 | 6281+05 | 49,042 35,106 | 100 | 0.24 | Type D | 0.300 | 5.66 | 390 | 0.18 | 1.10 | 5.91 | 11.57 | 3.71 | 0.20 0.50 | 0.07 | 4:1 | 0.47 | 12 | 0.14 | 6 |
| 6274+15 | 6275+00 | 100,329 63,739 | 100 | 0.21 | Type D | 0.300 | 5.84 | 800 | 0.20 | 1.20 | 11.11 | 16.95 | 3.12 | 0.20 0.50 | 0.05 | 9.5:1 | 0.74 | 12 | 0.13 | 6 |
| 6275+00 | 6276+70 | 44,430 110,375 | 100 | 0.26 | Type D | 0.300 | 5.55 | 620 | 0.17 | 1.20 | 8.61 | 14.17 | 3.40 | 0.20 0.50 | 0.05 | 9.5:1 | 1.00 | 12 | 0.10 | 6 |
| 6272+75 | 6273+75 | 11,759 21,805 | 100 | 0.40 | Type D | 0.300 | 5.02 | 250 | 0.18 | 1.10 | 3.79 | 8.81 | 4.11 | 0.20 0.31 | 0.06 | 6.5:1 | 0.17 | 12 | 0.16 | 6 |
| 6266+60 | 6369+75 | 102,965 27,538 | 100 | 0.17 | Type D | 0.300 | 6.13 | 490 | 0.32 | 1.40 | 5.83 | 11.97 | 3.66 | 0.20 0.31 | 0.04 0.06 | 6.5:1 6.5:1 | 0.49 0.49 | 12 12 | 0.18 0.18 | 6 6 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|----------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|---|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 6814+75 | 6817+65 | 73,073 | 100 | 0.40 | Type D | 0.300 | 5.02 | 150 | 0.19 | 1.10 | 2.27 | 7.30 | 4.36 | 0.20 | 0.03 | 8:1 | 1.46 | 12 | 0.07 | 8 |
| 6835+27 | 6836+00 | 43,315 | 100 | 0.26 | Type D | 0.300 | 5.55 | 326 | 0.18 | 1.05 | 5.17 | 10.73 | 3.82 | 0.20 | 0.04 | 8:1 | 0.76 | 12 | 0.08 | 6 |
| 6847+00 | 6851+90 | 65,423 | 100 | 0.06 | Type D | 0.300 | 7.82 | 46 | 0.09 | 0.75 | 1.02 | 8.85 | 4.10 | 0.20 | 0.01 | 11:1 | 1.23 | 12 | 0.06 | 8 |
| 6853+65 | 6855+70 | 14,715,247 | 100 | 0.03 | Type D | 0.300 | 9.20 | 6669 | 0.05 | 0.55 | 202.09 | 211.29 | 1.70 | 0.20 | 0.02 | 11:1 | 114.86 | 32 | 0.02 | 4 x 30 |
| 6861+70 | 6868+05 | 155,821 | 100 | 0.16 | Type D | 0.300 | 6.22 | 429 | 0.18 | 1.05 | 6.81 | 13.03 | 3.53 | 0.20 | 0.02 | 12:1 | 2.53 | 12 | 0.11 | 12 |
| 6877+25 | 6877+25 | 28,741 | 100 | 0.22 | Type D | 0.300 | 5.78 | 495 | 0.19 | 1.10 | 7.50 | 13.28 | 3.50 | 0.20 | 0.02 | 8:1 | 0.46 | 12 | 0.07 | 6 |
| 6880+65 | 6884+85 | 178,926 | 100 | 0.11 | Type D | 0.300 | 6.79 | 667 | 0.13 | 0.85 | 13.08 | 19.87 | 2.87 | 0.20 | 0.02 | 7:1 | 2.36 | 12 | 0.14 | 8 |
| 6884+85 | 6889+15 | 143,783 | 100 | 0.10 | Type D | 0.300 | 6.94 | 524 | 0.16 | 0.95 | 9.19 | 16.14 | 3.20 | 0.20 | 0.05 | 7:1 | 2.11 | 12 | 0.24 | 8 |
| 6892+95 | 6890+05 | 268,129 | 100 | 0.32 | Type D | 0.300 | 5.29 | 904 | 0.15 | 0.90 | 16.74 | 22.03 | 2.72 | 0.20 | 0.02 | 14:1 | 3.34 | 12 | n/a | n/a |
| 6893+00 | 6896+90 | 330,999 | 100 | 0.18 | Type D | 0.300 | 6.05 | 1054 | 0.12 | 0.85 | 20.67 | 26.72 | 2.42 | 0.20 | 0.01 | 50:1 | 3.68 | 12 | n/a | n/a |
| 6917+25 | 6920+10 | 489,997 | 100 | 0.03 | Type D | 0.300 | 9.20 | 861 | 0.07 | 0.65 | 22.08 | 31.28 | 2.20 | 0.20 | 0.05 | 8:1 | 4.94 | 12 | 0.07 | 12 |
| 6935+25 | 6936+90 | 121,400 | 100 | 0.02 | Type D | 0.300 | 10.11 | 463 | 0.08 | 0.80 | 9.65 | 19.76 | 2.88 | 0.20 | 0.05 | 11:1 | 1.61 | 12 | 0.04 | 12 |
| 6936+90 | 6938+60 | 238,545 | 100 | 0.04 | Type D | 0.300 | 8.60 | 545 | 0.07 | 0.65 | 13.97 | 22.58 | 2.68 | 0.20 | 0.01 | 8:1 | 2.93 | 18 | 0.03 | 12 |
| 6940+35 | 6942+20 | 35,670 | 100 | 0.03 | Type D | 0.300 | 9.20 | 370 | 0.05 | 0.55 | 11.21 | 20.41 | 2.83 | 0.20 | 0.01 | 10:1 | 0.46 | 12 | 0.12 | 6(2) |
| 6943+70 | 6944+80 | 1,684,648 | 100 | 0.03 | Type D | 0.300 | 9.20 | 1720 | 0.06 | 0.60 | 47.78 | 56.98 | 1.70 | 0.20 | 0.04 | 9:1 | 13.15 | 18 | 0.03 | 4 x 12 |
| 6943+70 | 6948+50 | 131,343 | 100 | 0.04 | Type D | 0.300 | 8.60 | 401 | 0.08 | 0.80 | 8.35 | 16.96 | 3.12 | 0.20 | 0.04 | 15:1 | 1.88 | 12 | n/a | n/a |
| 6956+85 | 6959+35 | 10,155,012 | 100 | 0.20 | Type D | 0.300 | 5.91 | 5323 | 0.18 | 1.05 | 84.49 | 90.40 | 1.70 | 0.20 | 0.03 | 15:1 | 79.26 | 24 | 0.09 | 3 x 24 |
| 6959+80 | 6960+80 | 2,054,756 | 100 | 0.22 | Type D | 0.300 | 5.78 | 2564 | 0.23 | 1.20 | 35.61 | 41.39 | 1.82 | 0.20 | 0.04 | 8:1 | 17.13 | 18 | 0.04 | 12(2) |
| 6987+18 | 6989+90 | 205,502 | 100 | 0.30 | Type D | 0.300 | 5.37 | 1600 | 0.18 | 1.05 | 25.40 | 30.77 | 2.22 | 0.20 | 0.01 | 50:1 | 2.09 | 12 | n/a | n/a |

Huntingdon County

Huntingdon County
Temporary Diversion Berm Calculations

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Left Side Slope (ft/ft (H:V)) | Right Side Slope (ft/ft (H:V)) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Flow Type |
|-------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------------|-----------------|--------------------|----------------------|---------------|---------------|
| 7955+08 - 7955+55 CHN | 0.025 | 0.02 | 0.11 | 12.5 | 0.1 | 0.08 | 0.07 | 1.44 | 0.05 | 1.34 | 0.1 | 0.0272 | 1.13 | 0.02 | 0.13 | 0.86 | Subcritical |
| 7955+69 - 7958+71 CHN - | 0.025 | 0.05 | 0.13 | 20 | 0.1 | 0.38 | 0.18 | 2.81 | 0.06 | 2.69 | 0.15 | 0.0227 | 2.12 | 0.07 | 0.2 | 1.44 | Supercritical |
| 7968+73 - 7969+04 CHN - | 0.025 | 0.06 | 1.17 | 0.5 | 0.1 | 1.79 | 0.41 | 2.48 | 0.16 | 0.7 | 1.17 | 0.0587 | 4.38 | 0.3 | 1.47 | 1.01 | Supercritical |
| 7969+38 - 7969+91 CHN - | 0.025 | 0.15 | 0.33 | 1 | 0.1 | 0.25 | 0.06 | 0.8 | 0.08 | 0.37 | 0.42 | 0.0439 | 4.12 | 0.26 | 0.6 | 1.78 | Supercritical |
| 7974+63 - 7977+32 CHN- | 0.025 | 0.04 | 0.46 | 4 | 0.1 | 1.69 | 0.44 | 2.37 | 0.18 | 1.9 | 0.53 | 0.0191 | 3.86 | 0.23 | 0.69 | 1.41 | Supercritical |
| 7791+51 - 7795+49 CHN - | 0.025 | 0.03 | 0.4 | 15 | 0.1 | 4.03 | 1.19 | 6.38 | 0.19 | 6.01 | 0.45 | 0.0163 | 3.37 | 0.18 | 0.57 | 1.33 | Supercritical |
| 7958+71 - 7962+31 CHN | 0.025 | 0.04 | 0.3 | 14 | 0.1 | 1.99 | 0.62 | 4.47 | 0.14 | 4.19 | 0.35 | 0.0178 | 3.19 | 0.16 | 0.46 | 1.46 | Supercritical |
| 8030+50 to 8032+00 CHN | 0.025 | 0.04 | 0.47 | 0.1 | 5 | 2.21 | 0.55 | 2.84 | 0.19 | 2.38 | 0.54 | 0.0179 | 3.99 | 0.25 | 0.71 | 1.46 | Supercritical |
| 8068+25 to 8069+50 CHN | 0.025 | 0.03 | 0.26 | 0.1 | 35 | 3.14 | 1.2 | 9.43 | 0.13 | 9.19 | 0.29 | 0.018 | 2.61 | 0.11 | 0.37 | 1.27 | Supercritical |
| 8095+40 to 8096+25 CHN | 0.025 | 0.01 | 0.2 | 0.1 | 70 | 1.71 | 1.36 | 13.99 | 0.1 | 13.81 | 0.17 | 0.021 | 1.26 | 0.02 | 0.22 | 0.71 | Subcritical |
| 8106+40 to 8107+00 CHN | 0.025 | 0.05 | 0.1 | 0.1 | 22 | 0.2 | 0.11 | 2.33 | 0.05 | 2.24 | 0.12 | 0.0249 | 1.76 | 0.05 | 0.15 | 1.38 | Supercritical |
| 8127+80 to 8128+30 CHN | 0.025 | 0.07 | 0.1 | 0.1 | 8 | 0.08 | 0.04 | 0.91 | 0.04 | 0.81 | 0.12 | 0.0271 | 1.98 | 0.06 | 0.16 | 1.56 | Supercritical |
| 8128+00 to 8128+75 CHN | 0.025 | 0.15 | 0.11 | 0.1 | 6 | 0.11 | 0.04 | 0.78 | 0.05 | 0.67 | 0.15 | 0.0263 | 3 | 0.14 | 0.25 | 2.26 | Supercritical |
| 8128+30 to 8129+00 CHN | 0.025 | 0.06 | 0.23 | 0.1 | 6 | 0.53 | 0.17 | 1.66 | 0.1 | 1.43 | 0.28 | 0.0213 | 3.16 | 0.16 | 0.39 | 1.63 | Supercritical |
| 8135+37 to 8136+00 CHN | 0.025 | 0.05 | 0.32 | 0.1 | 12 | 2.4 | 0.64 | 4.24 | 0.15 | 3.93 | 0.4 | 0.0173 | 3.76 | 0.22 | 0.54 | 1.65 | Supercritical |
| 8136+30 to 8136+86 CHN | 0.025 | 0.05 | 0.15 | 0.1 | 10 | 0.26 | 0.12 | 1.68 | 0.07 | 1.53 | 0.18 | 0.0231 | 2.24 | 0.08 | 0.23 | 1.43 | Supercritical |
| 8162+75 to 8163+50 CHN | 0.025 | 0.06 | 0.61 | 0.1 | 5 | 5.56 | 0.95 | 3.73 | 0.25 | 3.11 | 0.78 | 0.0158 | 5.85 | 0.53 | 1.14 | 1.87 | Supercritical |
| 8163+50 to 8164+25 CHN | 0.025 | 0.09 | 0.42 | 0.1 | 7 | 3.67 | 0.63 | 3.41 | 0.19 | 3 | 0.58 | 0.0163 | 5.8 | 0.52 | 0.95 | 2.23 | Supercritical |
| 8165+25 to 8166+75 CHN | 0.025 | 0.09 | 0.24 | 0.1 | 4 | 0.44 | 0.12 | 1.23 | 0.1 | 0.98 | 0.31 | 0.0229 | 3.74 | 0.22 | 0.46 | 1.9 | Supercritical |
| 8168+50 to 8171+25 CHN | 0.025 | 0.02 | 0.3 | 0.1 | 16 | 1.71 | 0.74 | 5.17 | 0.14 | 4.89 | 0.31 | 0.0183 | 2.3 | 0.08 | 0.39 | 1.04 | Supercritical |
| 8181+00 to 8182+90 CHN | 0.025 | 0.04 | 0.56 | 0.1 | 5 | 3.57 | 0.79 | 3.4 | 0.23 | 2.84 | 0.66 | 0.0168 | 4.5 | 0.31 | 0.87 | 1.5 | Supercritical |
| 8182+90 to 8184+90 CHN | 0.025 | 0.15 | 0.3 | 0.1 | 3 | 0.75 | 0.14 | 1.25 | 0.11 | 0.93 | 0.43 | 0.0226 | 5.35 | 0.44 | 0.75 | 2.43 | Supercritical |
| 8184+90 to 8186+75 CHN | 0.025 | 0.03 | 0.83 | 0.1 | 5 | 8.88 | 1.75 | 5.06 | 0.35 | 4.22 | 0.95 | 0.0149 | 5.07 | 0.4 | 1.23 | 1.39 | Supercritical |
| 8186+75 to 8189+00 CHN | 0.025 | 0.05 | 0.2 | 0.1 | 6 | 0.31 | 0.12 | 1.41 | 0.09 | 1.21 | 0.23 | 0.0229 | 2.57 | 0.1 | 0.3 | 1.44 | Supercritical |
| 8189+00 to 8190+00 CHN | 0.025 | 0.04 | 0.32 | 0.1 | 6 | 1 | 0.31 | 2.28 | 0.14 | 1.96 | 0.37 | 0.0196 | 3.18 | 0.16 | 0.48 | 1.4 | Supercritical |
| 8218+25 to 8220+00 CHN | 0.025 | 0.03 | 0.26 | 0.1 | 11 | 0.95 | 0.38 | 3.15 | 0.12 | 2.9 | 0.28 | 0.0195 | 2.51 | 0.1 | 0.36 | 1.22 | Supercritical |
| 8220+15 to 8220+50 CHN | 0.025 | 0.05 | 0.19 | 0.1 | 15 | 0.75 | 0.28 | 3.09 | 0.09 | 2.91 | 0.23 | 0.0204 | 2.68 | 0.11 | 0.3 | 1.52 | Supercritical |
| 8382+50 to 8383+50 CHN | 0.025 | 0.04 | 0.2 | 0.1 | 5 | 0.22 | 0.1 | 1.2 | 0.08 | 1 | 0.22 | 0.0243 | 2.24 | 0.08 | 0.27 | 1.26 | Supercritical |
| 8383+50 to 8385+50 CHN | 0.025 | 0.05 | 0.2 | 0.1 | 9 | 0.5 | 0.19 | 2.03 | 0.09 | 1.84 | 0.24 | 0.0212 | 2.69 | 0.11 | 0.31 | 1.49 | Supercritical |
| 8389+30 to 8389+90 CHN | 0.025 | 0.13 | 0.25 | 0.1 | 2 | 0.27 | 0.07 | 0.82 | 0.08 | 0.53 | 0.33 | 0.0295 | 4.03 | 0.25 | 0.51 | 2 | Supercritical |
| 8413+45 to 8414+35 CHN | 0.025 | 0.05 | 0.32 | 0.1 | 12 | 2.4 | 0.64 | 4.24 | 0.15 | 3.93 | 0.4 | 0.0173 | 3.76 | 0.22 | 0.54 | 1.65 | Supercritical |

**Huntingdon County
Temporary Slope Pipe Calculations**

| | | | | | | | | | | | | | | | | | | | | |
|-------------------------|-------|------|------|-----|------|------|------|------|------|------|------|--------|------|------|------|------|------|------|---------|---------------|
| 8189+00 to 8190+00 PIPE | 0.012 | 0.1 | 0.26 | 0.5 | 1 | 0.1 | 0.8 | 0.13 | 0.5 | 0.47 | 51.2 | 0.0234 | 9.89 | 1.52 | 1.78 | 3.88 | 2.07 | 1.92 | 0.02707 | SuperCritical |
| 8218+25 to 8220+00 PIPE | 0.012 | 0.04 | 0.33 | 0.5 | 0.95 | 0.14 | 0.95 | 0.15 | 0.47 | 0.47 | 66.5 | 0.0211 | 6.85 | 0.73 | 1.06 | 2.23 | 1.31 | 1.22 | 0.02443 | SuperCritical |
| 8220+15 to 8220+50 PIPE | 0.012 | 0.06 | 0.25 | 0.5 | 0.75 | 0.1 | 0.79 | 0.13 | 0.5 | 0.43 | 50.2 | 0.0139 | 7.6 | 0.9 | 1.15 | 3.02 | 1.6 | 1.49 | 0.01522 | SuperCritical |
| 8382+50 to 8383+50 PIPE | 0.012 | 0.21 | 0.09 | 0.5 | 0.22 | 0.03 | 0.45 | 0.06 | 0.39 | 0.24 | 19 | 0.0064 | 8.48 | 1.12 | 1.21 | 5.81 | 3 | 2.79 | 0.00131 | SuperCritical |
| 8383+50 to 8385+50 PIPE | 0.012 | 0.17 | 0.15 | 0.5 | 0.5 | 0.05 | 0.58 | 0.09 | 0.46 | 0.36 | 30.3 | 0.0089 | 9.94 | 1.54 | 1.69 | 5.3 | 2.7 | 2.51 | 0.00677 | SuperCritical |

Huntingdon County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|---------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 7042+25 - 7043+05 | 0.12 | 0.12 | 0.22 | 2.92 | S | 8.0 | 2.00 | 0.90 | SC150 |
| 7045+90 - 7046+00 | 0.24 | 0.14 | 0.56 | 4.72 | S | 9.5 | 3.00 | 2.10 | SC250 |
| 7047+50 - 7049+20 | 0.02 | 0.25 | 0.29 | 1.85 | V | 8.0 | 2.00 | 0.31 | SC150 |
| 7087+40 - 7095+20 | 0.01 | 1.1 | 6.19 | 3.28 | V | 8.0 | 2.00 | 0.69 | SC150 |
| 7095+20 - 7106+60 | 0.01 | 0.84 | 2.98 | 2.73 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 7105+33 - 7106+20 | 0.03 | 0.22 | 0.2 | 2.03 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 7116+00 - 7117+70 | 0.04 | 0.31 | 1.97 | 3.29 | V | 8.0 | 2.00 | 0.77 | SC150 |
| 7122+65 - 7123+80 | 0.02 | 0.26 | 1.53 | 2.09 | V | 8.0 | 2.00 | 0.32 | SC150 |
| 7125+25 - 7125+25 | 0.04 | 0.14 | 0.23 | 1.89 | V | 8.0 | 2.00 | 0.35 | SC150 |
| 7126+00 - 7126+65 | 0.01 | 0.26 | 0.62 | 1.47 | V | 8.0 | 2.00 | 0.16 | SC150 |
| 7130+70 - 7131+05 | 0.03 | 0.07 | 0.06 | 1.08 | V | 8.0 | 2.00 | 0.13 | SC150 |
| 7131+05 - 7131+50 | 0.03 | 0.1 | 0.17 | 1.4 | V | 8.0 | 2.00 | 0.19 | SC150 |
| 7132+90 - 7135+15 | 0.04 | 0.32 | 1.91 | 3.33 | V | 8.0 | 2.00 | 0.80 | SC150 |
| 7174+90 - 7174+90 | 0.02 | 0.11 | 0.15 | 1.2 | V | 8.0 | 2.00 | 0.14 | SC150 |
| 7194+00 - 7194+00 | 0.06 | 0.33 | 1.76 | 4.05 | V | 8.0 | 2.00 | 1.24 | SC150 |
| 7201+30 - 7208+00 | 0.03 | 0.31 | 0.5 | 2.55 | V | 8.0 | 2.00 | 0.58 | SC150 |
| 7213+20 - 7214+20 | 0.01 | 0.21 | 0.13 | 1.17 | V | 8.0 | 2.00 | 0.13 | SC150 |
| 7217+35 - 7219+40 | 0.05 | 0.33 | 0.96 | 3.53 | V | 8.0 | 2.00 | 1.03 | SC150 |
| 7228+81 - 7229+30 | 0.04 | 0.44 | 3.14 | 4.02 | V | 8.0 | 2.00 | 1.10 | SC150 |
| 7239+50 - 7240+48 | 0.04 | 0.21 | 0.36 | 2.4 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 7240+48 - 7243+25 | 0.1 | 0.18 | 0.42 | 3.52 | S | 8.0 | 2.00 | 1.12 | SC150 |
| 724975-725220 BERM | 0.095 | 0.34 | 1.24 | 4.91 | V | 9.5 | 3.00 | 2.02 | SC250 |
| 726770-726925 BERM | 0.02 | 0.58 | 2.76 | 3.25 | V | 8.0 | 2.00 | 0.72 | SC150 |
| 726925-727210 BERM | 0.033 | 0.41 | 1.71 | 3.39 | V | 8.0 | 2.00 | 0.84 | SC150 |
| 728385-728770 BERM | 0.036 | 0.38 | 1.82 | 3.44 | V | 8.0 | 2.00 | 0.85 | SC150 |
| 729380-729640 BERM | 0.02 | 0.46 | 1.26 | 2.75 | V | 8.0 | 2.00 | 0.57 | SC150 |
| 730865-731075 BERM | 0.032 | 0.39 | 1.92 | 3.29 | V | 8.0 | 2.00 | 0.78 | SC150 |
| 732505-732595 BERM | 0.296 | 0.14 | 0.14 | 4.47 | S | 9.5 | 3.00 | 2.59 | SC250 |
| 732610-732725 BERM1 | 0.061 | 0.44 | 5.35 | 5.03 | V | 8.0 | 2.00 | 1.67 | SC150 |
| 732610-732725 BERM2 | 0.119 | 0.38 | 5.35 | 6.47 | S | 9.5 | 3.00 | 2.82 | SC250 |
| 733885-733955 BERM | 0.026 | 0.24 | 0.4 | 2.14 | V | 8.0 | 2.00 | 0.39 | SC150 |
| 734050-734145 BERM | 0.118 | 0.4 | 10.68 | 6.74 | S | 9.5 | 3.00 | 2.95 | SC250 |
| 734145-734205 BERM | 0.035 | 0.25 | 0.69 | 2.6 | V | 8.0 | 2.00 | 0.55 | SC150 |
| 734885-734925 BERM | 0.178 | 0.15 | 0.15 | 3.74 | S | 8.0 | 2.00 | 1.67 | SC150 |
| 735120-735335 BERM | 0.15 | 0.35 | 1.16 | 5.95 | S | 12.5 | 12.00 | 3.28 | P550 |
| 748610-748855 BERM | 0.018 | 0.38 | 1.81 | 2.48 | V | 8.0 | 2.00 | 0.43 | SC150 |
| 748855-749340 BERM | 0.047 | 0.35 | 2.58 | 3.8 | V | 8.0 | 2.00 | 1.03 | SC150 |
| 749340-749710 BERM | 0.0068 | 0.39 | 1.19 | 1.55 | V | 8.0 | 2.00 | 0.17 | SC150 |
| 749710-749795 BERM | 0.012 | 0.15 | 0.16 | 1.11 | V | 8.0 | 2.00 | 0.11 | SC150 |

Huntingdon County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|-------------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 749920-750225 BERM | 0.062 | 0.32 | 4.18 | 4.19 | V | 8.0 | 2.00 | 1.24 | SC150 |
| 750225-750670 BERM | 0.013 | 0.43 | 2.76 | 2.33 | V | 8.0 | 2.00 | 0.35 | SC150 |
| 750670-751050 BERM | 0.042 | 0.29 | 1.35 | 3.17 | V | 8.0 | 2.00 | 0.76 | SC150 |
| 751945-752050 BERM | 0.08 | 0.51 | 7.01 | 6.32 | V | 8.0 | 2.00 | 2.55 | SC250 |
| 754600-754760 BERM | 0.091 | 0.27 | 1.98 | 4.45 | V | 8.0 | 2.00 | 1.53 | SC150 |
| 755145-755380 BERM | 0.107 | 0.25 | 1.53 | 4.54 | S | 8.0 | 2.00 | 1.67 | SC150 |
| 7641+91 - 7650+41 CHN- | 0.13 | 0.35 | 7.72 | 6.45 | S | 9.5 | 3.00 | 2.84 | SC250 |
| 7650+41 - 7654+18 CHN - | 0.04 | 0.34 | 6.34 | 3.59 | V | 8.0 | 2.00 | 0.85 | SC150 |
| 7654+18 - 7655+33 CHN- | 0.07 | 0.16 | 0.73 | 2.83 | V | 8.0 | 2.00 | 0.70 | SC150 |
| 7655+33 - 7659+21 CHN- | 0.25 | 0.13 | 1.25 | 5.05 | S | 9.5 | 3.00 | 2.03 | SC250 |
| 7661+90 - 7662+37 CHN - | 0.04 | 0.13 | 0.05 | 1.63 | V | 8.0 | 2.00 | 0.32 | SC150 |
| 7665+88 - 7668+37 CHN - | 0.01 | 0.51 | 6.16 | 2.33 | V | 8.0 | 2.00 | 0.32 | SC150 |
| 7668+37 - 7670+45 CHN- | 0.03 | 0.22 | 0.85 | 2.28 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 7672+35 - 7673+37 CHN | 0.12 | 0.58 | 26.38 | 8.71 | S | 12.5 | 12.00 | 4.34 | P550 |
| 7747+75 - 7749+75 CHN - | 0.05 | 1.48 | 1.81 | 3.83 | V | 12.5 | 12.00 | 4.62 | P550 |
| 7789+20 - 7791+51 CHN- | 0.03 | 0.57 | 3.35 | 3.98 | V | 8.0 | 2.00 | 1.07 | SC150 |
| 7834+12 - 7834+38 CHN- | 0.03 | 0.56 | 0.44 | 2.59 | V | 8.0 | 2.00 | 1.05 | SC150 |
| 7853+49 - 7853+87 CHN- | 0.14 | 0.46 | 3.95 | 7.38 | S | 12.5 | 12.00 | 4.02 | P550 |
| 7854+15 - 7854+72 CHN | 0.11 | 0.42 | 4.05 | 6.41 | S | 9.5 | 3.00 | 2.88 | SC250 |
| 7860+07 - 7861+06 CHN- | 0.02 | 0.62 | 2.58 | 3.31 | V | 8.0 | 2.00 | 0.77 | SC150 |
| 7865+30 - 7865+70 CHN- | 0.05 | 1.01 | 19.67 | 7.5 | V | 12.5 | 12.00 | 3.15 | P550 |
| 7871+25 - 7873+16 CHN - | 0.03 | 3.33 | 20.68 | 6.23 | V | 12.5 | 12.00 | 6.23 | P550 |
| 7876+37 - 7878+39 CHN - | 0.02 | 0.81 | 5.29 | 3.95 | V | 8.0 | 2.00 | 1.01 | SC150 |
| 7878+92 - 7879+51 CHN | 0.25 | 0.14 | 0.73 | 4.88 | S | 9.5 | 3.00 | 2.18 | SC250 |
| 7883+00 - 7884+27 CHN - | 0.033 | 0.24 | 1.44 | 2.53 | V | 8.0 | 2.00 | 0.49 | SC150 |
| 7904+51 - 7906+26 CHN - | 0.06 | 0.55 | 4.11 | 5.43 | V | 9.5 | 3.00 | 2.06 | SC250 |
| 7922+75 - 7923+53 CHN - | 0.01 | 0.74 | 6.25 | 2.84 | V | 8.0 | 2.00 | 0.46 | SC150 |
| 7932+73 - 7933+10 CHN | 0.27 | 0.08 | 0.25 | 3.49 | S | 8.0 | 2.00 | 1.35 | SC150 |
| 7950+55 - 7951+06 CHN | 0.45 | 0.16 | 0.34 | 6.4 | S | 12.5 | 12.00 | 4.49 | P550 |
| 7951+58 - 7952+42 CHN - | 0.05 | 0.23 | 0.34 | 2.77 | V | 8.0 | 2.00 | 0.72 | SC150 |
| 7955+08 - 7955+55 CHN | 0.02 | 0.11 | 0.08 | 1.13 | V | 8.0 | 2.00 | 0.14 | SC150 |
| 7955+69 - 7958+71 CHN - | 0.05 | 0.13 | 0.38 | 2.12 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 7968+73 - 7969+04 CHN - | 0.06 | 1.17 | 1.79 | 4.38 | V | 12.5 | 12.00 | 4.38 | P550 |
| 7969+38 - 7969+91 CHN - | 0.15 | 0.33 | 0.25 | 4.12 | S | 12.5 | 12.00 | 3.09 | P550 |
| 7974+63 - 7977+32 CHN- | 0.04 | 0.46 | 1.69 | 3.86 | V | 8.0 | 2.00 | 1.15 | SC150 |
| 7791+51 - 7795+49 CHN - | 0.03 | 0.4 | 4.03 | 3.37 | V | 8.0 | 2.00 | 0.75 | SC150 |
| 7958+71 - 7962+31 CHN | 0.04 | 0.3 | 1.99 | 3.19 | V | 8.0 | 2.00 | 0.75 | SC150 |
| 8030+50 to 8032+00 CHN | 0.04 | 0.47 | 2.21 | 3.99 | V | 8.0 | 2.00 | 1.17 | SC150 |
| 8068+25 to 8069+50 CHN | 0.03 | 0.26 | 3.14 | 2.61 | V | 8.0 | 2.00 | 0.49 | SC150 |

Huntingdon County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|------------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 8095+40 to 8096+25 CHN | 0.01 | 0.2 | 1.71 | 1.26 | V | 8.0 | 2.00 | 0.12 | SC150 |
| 8106+40 to 8107+00 CHN | 0.05 | 0.1 | 0.2 | 1.76 | V | 8.0 | 2.00 | 0.31 | SC150 |
| 8127+80 to 8128+30 CHN | 0.07 | 0.1 | 0.08 | 1.98 | V | 8.0 | 2.00 | 0.44 | SC150 |
| 8128+00 to 8128+75 CHN | 0.15 | 0.11 | 0.11 | 3 | S | 8.0 | 2.00 | 1.03 | SC150 |
| 8128+30 to 8129+00 CHN | 0.06 | 0.23 | 0.53 | 3.16 | V | 8.0 | 2.00 | 0.86 | SC150 |
| 8135+37 to 8136+00 CHN | 0.05 | 0.32 | 2.4 | 3.76 | V | 8.0 | 2.00 | 1.00 | SC150 |
| 8136+30 to 8136+86 CHN | 0.05 | 0.15 | 0.26 | 2.24 | V | 8.0 | 2.00 | 0.47 | SC150 |
| 8162+75 to 8163+50 CHN | 0.06 | 0.61 | 5.56 | 5.85 | V | 9.5 | 3.00 | 2.28 | SC250 |
| 8163+50 to 8164+25 CHN | 0.09 | 0.42 | 3.67 | 5.8 | V | 9.5 | 3.00 | 2.36 | SC250 |
| 8165+25 to 8166+75 CHN | 0.09 | 0.24 | 0.44 | 3.74 | V | 8.0 | 2.00 | 1.35 | SC150 |
| 8168+50 to 8171+25 CHN | 0.02 | 0.3 | 1.71 | 2.3 | V | 8.0 | 2.00 | 0.37 | SC150 |
| 8181+00 to 8182+90 CHN | 0.04 | 0.56 | 3.57 | 4.5 | V | 8.0 | 2.00 | 1.40 | SC150 |
| 8182+90 to 8184+90 CHN | 0.15 | 0.3 | 0.75 | 5.35 | S | 9.5 | 3.00 | 2.81 | SC250 |
| 8184+90 to 8186+75 CHN | 0.03 | 0.83 | 8.88 | 5.07 | V | 8.0 | 2.00 | 1.55 | SC150 |
| 8186+75 to 8189+00 CHN | 0.05 | 0.2 | 0.31 | 2.57 | V | 8.0 | 2.00 | 0.62 | SC150 |
| 8189+00 to 8190+00 CHN | 0.04 | 0.32 | 1 | 3.18 | V | 8.0 | 2.00 | 0.80 | SC150 |
| 8218+25 to 8220+00 CHN | 0.03 | 0.26 | 0.95 | 2.51 | V | 8.0 | 2.00 | 0.49 | SC150 |
| 8220+15 to 8220+50 CHN | 0.05 | 0.19 | 0.75 | 2.68 | V | 8.0 | 2.00 | 0.59 | SC150 |
| 8382+50 to 8383+50 CHN | 0.04 | 0.2 | 0.22 | 2.24 | V | 8.0 | 2.00 | 0.50 | SC150 |
| 8383+50 to 8385+50 CHN | 0.05 | 0.2 | 0.5 | 2.69 | V | 8.0 | 2.00 | 0.62 | SC150 |
| 8389+30 to 8389+90 CHN | 0.13 | 0.25 | 0.27 | 4.03 | S | 9.5 | 3.00 | 2.03 | SC250 |
| 8413+45 to 8414+35 CHN | 0.05 | 0.32 | 2.4 | 3.76 | V | 8.0 | 2.00 | 1.00 | SC150 |

Huntingdon County
Temporary Perforated Pipe Level Spreader Calculations

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|------------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 7042+25 - 7043+05 | 0.22 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 0.91 | 5 | 1.21 |
| 7045+90 - 7046+00 | 0.56 | 9 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.418 | 1.34 | 5 | 2.09 |
| 7047+50 - 7049+20 | 0.29 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 0.52 | 5 | 2.79 |
| 7087+40 - 7095+20 | 6.19 | 9 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.418 | 14.80 | 15 | 6.27 |
| 7095+20 - 7101+60 | 2.98 | 15 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.540 | 5.52 | 10 | 5.40 |
| 7116+00 - 7117+70 | 1.97 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 8.16 | 10 | 2.41 |
| 7122+80 - 7145+00 | 0.23 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 1.17 | 5 | 0.99 |
| 7130+70 - 7131+05 | 0.06 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 0.22 | 5 | 1.39 |
| 7131+05 - 7131+50 | 0.17 | 7 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.369 | 0.46 | 5 | 1.84 |
| 7132+90 - 7135+15 | 1.91 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 6.85 | 10 | 2.79 |
| 7174+90 - 7174+90 | 0.15 | 38 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.859 | 0.17 | 5 | 4.30 |
| 7194+00 - 7194+00 | 1.76 | 7 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.369 | 4.77 | 5 | 1.84 |
| 7201+30 - 7208+00 | 0.5 | 24 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.683 | 0.73 | 5 | 3.41 |
| 7213+20 - 7214+20 | 0.13 | 15 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.540 | 0.24 | 5 | 2.70 |
| 7217+35 - 7219+40 | 0.96 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 2.44 | 5 | 1.97 |
| 7228+81 - 7229+30 | 3.14 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 7.12 | 10 | 4.41 |
| 7239+50 - 7240+48 | 0.36 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 0.75 | 5 | 2.41 |
| 7240+48 - 7243+25 | 0.42 | 29 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.751 | 0.56 | 5 | 3.75 |
| 724975-725220 PIPE | 1.24 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 2.22 | 5 | 2.79 |
| 726770-726925 PIPE | 2.76 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 7.00 | 10 | 3.94 |
| 726925-727210 PIPE | 1.71 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 4.34 | 5 | 1.97 |
| 728385-728770 PIPE | 1.82 | 19 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.608 | 3.00 | 5 | 3.04 |
| 729380-729640 PIPE | 1.26 | 20 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.623 | 2.02 | 5 | 3.12 |
| 732610-732725 PIPE1 | 5.35 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 22.16 | 25 | 6.04 |
| 732610-732725 PIPE2 | 5.35 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 17.17 | 20 | 6.23 |
| 733885-733955 PIPE | 0.4 | 38 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.859 | 0.47 | 5 | 4.30 |
| 734050-734145 PIPE | 10.68 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 21.25 | 25 | 12.56 |
| 734145-734205 PIPE | 0.69 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 1.37 | 5 | 2.51 |
| 734885-734925 PIPE | 0.15 | 7 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.369 | 0.41 | 5 | 1.84 |
| 748610-748855 PIPE | 1.81 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 5.81 | 10 | 3.12 |
| 748855-749340 PIPE | 2.58 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 5.34 | 10 | 4.83 |
| 749340-749710 PIPE | 1.19 | 15 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.540 | 2.20 | 5 | 2.70 |
| 749710-749795 PIPE | 0.16 | 11 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.462 | 0.35 | 5 | 2.31 |
| 750225-750670 PIPE | 2.76 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 5.49 | 10 | 5.03 |
| 750670-751050 PIPE | 1.35 | 24 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.683 | 1.98 | 5 | 3.41 |
| 751945-752050 PIPE | 7.01 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 22.49 | 25 | 7.79 |
| 754600-754760 PIPE | 1.98 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 5.80 | 10 | 3.41 |
| 7641+91 - 7650+41 PIPE | 7.72 | 18 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.591 | 13.06 | 15 | 8.87 |
| 7650+41 - 7654+18 PIPE | 6.34 | 32 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.788 | 8.04 | 10 | 7.88 |
| 7654+18 - 7655+33 PIPE | 0.73 | 32 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.788 | 0.93 | 5 | 3.94 |
| 7655+33 - 7659+21 PIPE | 1.25 | 32 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.788 | 1.59 | 5 | 3.94 |
| 7665+88 - 7668+37 PIPE | 6.16 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 13.98 | 15 | 6.61 |
| 7668+37 - 7670+45 PIPE | 0.85 | 20 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.623 | 1.36 | 5 | 3.12 |
| 7789+20 - 7791+51 PIPE | 3.35 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 10.75 | 15 | 4.67 |

Huntingdon County
Temporary Perforated Pipe Level Spreader Calculations

| | | | | | | | | | | | | |
|-------------------------|-------|----|----|-------|---|------|------|------|-------|-------|----|-------|
| 7791+51 - 7795+49 PIPE | 4.03 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 16.69 | 20 | 4.83 |
| 7834+12 - 7834+38 PIPE | 0.44 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 2.23 | 5 | 0.99 |
| 7860+07 - 7861+06 PIPE | 2.58 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 8.28 | 10 | 3.12 |
| 7865+30 - 7865+70 PIPE | 19.67 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 81.48 | 85 | 20.52 |
| 7871+25 - 7873+16 PIPE | 10.34 | 1 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 74.19 | 75 | 10.45 |
| 7883+00 - 7884+27 PIPE | 1.44 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.522 | 2.76 | 5 | 2.61 |
| 7904+51 - 7906+26 PIPE | 4.11 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 12.04 | 15 | 5.12 |
| 7922+75 - 7923+53 PIPE | 3.13 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 15.88 | 20 | 3.94 |
| 7951+58 - 7952+42 PIPE | 0.34 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 1.09 | 5 | 1.56 |
| 7955+69 - 7958+71 PIPE | 0.38 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 1.22 | 5 | 1.56 |
| 7958+71 - 7962+31 PIPE | 1.99 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 6.39 | 10 | 3.12 |
| 7968+73 - 7969+04 PIPE | 1.79 | 24 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.683 | 2.62 | 5 | 3.41 |
| 7969+38 - 7969+91 PIPE | 0.25 | 18 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.591 | 0.42 | 5 | 2.96 |
| 7974+63 - 7977+32 PIPE | 1.69 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 3.83 | 5 | 2.20 |
| 8030+50 to 8032+00 PIPE | 2.21 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 5.01 | 10 | 4.41 |
| 8068+25 to 8069+50 PIPE | 3.14 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 15.93 | 20 | 3.94 |
| 8095+40 to 8096+25 PIPE | 1.71 | 1 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 12.27 | 15 | 2.09 |
| 8127+80 to 8128+30 PIPE | 0.08 | 9 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.418 | 0.19 | 5 | 2.09 |
| 8128+30 to 8129+00 PIPE | 0.53 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 1.20 | 5 | 2.20 |
| 8135+37 to 8136+00 PIPE | 2.4 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 5.45 | 10 | 4.41 |
| 8136+30 to 8136+86 PIPE | 0.5 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 1.13 | 5 | 2.20 |
| 8162+75 to 8163+50 PIPE | 5.56 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 9.97 | 10 | 5.58 |
| 8163+50 to 8164+25 PIPE | 3.67 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 6.58 | 10 | 5.58 |
| 8165+25 to 8166+75 PIPE | 0.44 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 1.00 | 5 | 2.20 |
| 8168+50 to 8171+25 PIPE | 1.71 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 5.49 | 10 | 3.12 |
| 8181+00 to 8182+90 PIPE | 3.57 | 32 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.788 | 4.53 | 5 | 3.94 |
| 8182+90 to 8184+90 PIPE | 0.75 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.522 | 1.44 | 5 | 2.61 |
| 8184+90 to 8186+75 PIPE | 8.88 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.522 | 17.03 | 20 | 10.43 |
| 8186+75 to 8189+00 PIPE | 0.31 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 0.70 | 5 | 2.20 |
| 8189+00 to 8190+00 PIPE | 1 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 2.54 | 5 | 1.97 |
| 8218+25 to 8220+00 PIPE | 0.95 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 3.05 | 5 | 1.56 |
| 8220+15 to 8220+50 PIPE | 0.75 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 1.49 | 5 | 2.51 |
| 8382+50 to 8383+50 PIPE | 0.22 | 18 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.591 | 0.37 | 5 | 2.96 |
| 8383+50 to 8385+50 PIPE | 0.5 | 18 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.591 | 0.85 | 5 | 2.96 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|----------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|---|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 7042+25 | 7043+05 | 14,813 | 100 | 0.04 | Type D | 0.300 | 8.60 | 272 | 0.09 | 0.70 | 6.48 | 15.08 | 3.30 | 0.20 | 0.12 | 11:1 | 0.22 | 12 | 0.08 | 6 |
| 7045+90 | 7046+00 | 30,830 | 100 | 0.16 | Type D | 0.300 | 6.22 | 284 | 0.26 | 1.30 | 3.64 | 9.86 | 3.95 | 0.20 | 0.24 | 12:1 | 0.56 | 12 | 0.21 | 6 |
| 7047+50 | 7049+20 | 14,009 | 100 | 0.24 | Type D | 0.300 | 5.66 | 76 | 0.22 | 1.15 | 1.10 | 6.76 | 4.46 | 0.20 | 0.02 | 5:1 | 0.29 | 12 | 0.20 | 6 |
| 7087+40 | 7095+20 | 384,888 | 100 | 0.14 | Type D | 0.300 | 6.42 | 493 | 0.25 | 1.20 | 6.85 | 13.27 | 3.50 | 0.20 | 0.01 | 3:1 | 6.19 | 24 | 0.13 | 12 |
| 7095+20 | 7106+60 | 164,383 | 100 | 0.12 | Type D | 0.300 | 6.65 | 265 | 0.30 | 1.40 | 3.15 | 9.81 | 3.95 | 0.20 | 0.01 | 3:1 | 2.98 | 18 | 0.25 | 8 |
| 7105+33 | 7106+20 | 10,340 | 100 | 0.20 | Type D | 0.300 | 5.91 | 192 | 0.27 | 1.30 | 2.46 | 8.37 | 4.18 | 0.20 | 0.03 | 4:1 | 0.20 | 12 | 0.05 | 6 |
| 7116+00 | 7117+70 | 126,847 | 100 | 0.02 | Type D | 0.300 | 10.11 | 300 | 0.03 | 1.20 | 4.17 | 14.28 | 3.39 | 0.20 | 0.04 | 12:1 | 1.97 | 12 | 0.02 | 12 |
| 7122+65 | 7123+80 | 91,118 | 100 | 0.06 | Type D | 0.300 | 7.82 | 503 | 0.08 | 2.00 | 4.19 | 12.02 | 3.65 | 0.20 | 0.02 | 22:1 | 1.53 | 12 | n/a | n/a |
| 7125+25 | 7125+25 | 12,113 | 100 | 0.08 | Type D | 0.300 | 7.32 | 170 | 0.07 | 1.80 | 1.57 | 8.89 | 4.09 | 0.20 | 0.04 | 13:1 | 0.23 | 12 | 0.08 | 6 |
| 7126+00 | 7126+65 | 36,955 | 100 | 0.04 | Type D | 0.300 | 8.60 | 515 | 0.14 | 2.50 | 3.43 | 12.04 | 3.65 | 0.20 | 0.01 | 12:1 | 0.62 | 12 | n/a | n/a |
| 7130+70 | 7131+05 | 3,188 | 100 | 0.19 | Type D | 0.300 | 5.98 | 197 | 0.06 | 1.65 | 1.99 | 7.97 | 4.25 | 0.20 | 0.03 | 22:1 | 0.06 | 12 | 0.06 | 6 |
| 7131+05 | 7131+50 | 9,308 | 100 | 0.11 | Type D | 0.300 | 6.79 | 418 | 0.14 | 2.50 | 2.79 | 9.58 | 3.99 | 0.20 | 0.03 | 22:1 | 0.17 | 12 | 0.07 | 6 |
| 7132+90 | 7135+15 | 104,659 | 100 | 0.13 | Type D | 0.300 | 6.53 | 480 | 0.15 | 2.55 | 3.14 | 9.67 | 3.97 | 0.20 | 0.04 | 11:1 | 1.91 | 12 | 0.10 | 6 |
| 7174+90 | 7174+90 | 7,569 | 100 | 0.22 | Type D | 0.300 | 5.78 | 175 | 0.12 | 2.40 | 1.22 | 6.99 | 4.42 | 0.20 | 0.02 | 19:1 | 0.15 | 12 | 0.21 | 6 |
| 7194+00 | 7194+00 | 126,188 | 100 | 0.08 | Type D | 0.300 | 7.32 | 882 | 0.30 | 1.40 | 10.50 | 17.82 | 3.04 | 0.20 | 0.06 | 8:1 | 1.76 | 12 | 0.08 | 0.67 |
| 7201+30 | 7208+00 | 27,142 | 100 | 0.14 | Type D | 0.300 | 6.42 | 215 | 0.19 | 1.10 | 3.26 | 9.68 | 3.97 | 0.20 | 0.03 | 4:1 | 0.50 | 12 | 0.39 | 6 |
| 7213+20 | 7214+20 | 6,246 | 100 | 0.16 | Type D | 0.300 | 6.22 | 58 | 0.17 | 1.05 | 0.92 | 7.14 | 4.39 | 0.20 | 0.01 | 5:1 | 0.13 | 12 | 0.24 | 6 |
| 7217+35 | 7219+40 | 53,890 | 100 | 0.07 | Type D | 0.300 | 7.55 | 165 | 0.16 | 1.00 | 2.75 | 10.30 | 3.88 | 0.20 | 0.05 | 5:1 | 0.96 | 12 | 0.11 | 6 |
| 7228+81 | 7229+30 | 270,696 | 100 | 0.11 | Type D | 0.300 | 6.79 | 927 | 0.12 | 0.85 | 18.18 | 24.97 | 2.53 | 0.20 | 0.04 | 8:1 | 3.14 | 12 | 0.18 | 8 |
| 7239+50 | 7240+48 | 20,539 | 100 | 0.11 | Type D | 0.300 | 6.79 | 203 | 0.12 | 0.85 | 3.98 | 10.77 | 3.82 | 0.20 | 0.04 | 7:1 | 0.36 | 12 | 0.16 | 6 |
| 7240+48 | 7243+25 | 24,174 | 100 | 0.09 | Type D | 0.300 | 7.12 | 210 | 0.12 | 0.85 | 4.12 | 11.23 | 3.75 | 0.20 | 0.10 | 7:1 | 0.42 | 12 | 0.31 | 6 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------|--------------------------------|-----------------------|----------------------------|
| 7249+75 | 7252+20 | 75,429 | 100 | 0.10 | Type D | 0.30 | 6.94 | 424 | 0.24 | 1.25 | 5.65 | 12.60 | 3.58 | 0.20 | 1.24 | 12 | 0.15 | 6 |
| 7267+70 | 7269+25 | 190,781 | 100 | 0.14 | Type D | 0.30 | 6.42 | 677 | 0.20 | 1.10 | 10.26 | 16.68 | 3.15 | 0.20 | 2.76 | 18 | 0.12 | 12 |
| 7269+25 | 7272+10 | 128,501 | 100 | 0.13 | Type D | 0.30 | 6.53 | 788 | 0.17 | 1.00 | 13.13 | 19.66 | 2.89 | 0.20 | 1.71 | 12 | 0.13 | 8 |
| 7283+85 | 7287+70 | 118,038 | 100 | 0.08 | Type D | 0.30 | 7.32 | 389 | 0.14 | 0.90 | 7.20 | 14.52 | 3.36 | 0.20 | 1.82 | 12 | 0.19 | 8 |
| 7293+80 | 7296+40 | 69,875 | 100 | 0.12 | Type D | 0.30 | 6.65 | 247 | 0.24 | 1.25 | 3.29 | 9.95 | 3.93 | 0.20 | 1.26 | 12 | 0.29 | 6 |
| 7308+65 | 7310+75 | 49,681 | 100 | 0.05 | Type D | 0.80 | 12.91 | 226 | 0.13 | 2.40 | 1.57 | 14.48 | 3.37 | 0.50 | 1.92 | 12 | N/A | N/A |
| 7325+05 | 7325+95 | 6,932 | 100 | 0.17 | Type D | 0.30 | 6.13 | 113 | 0.30 | 1.30 | 1.45 | 7.58 | 4.31 | 0.20 | 0.14 | 12 | N/A | N/A |
| 7326+10 | 7327+25 | 377,134 | 100 | 0.06 | Type D | 0.80 | 12.37 | 1705 | 0.09 | 2.10 | 13.53 | 25.91 | 2.47 | 0.50 | 10.69 | 12 (2) | 0.06 & 0.13 | 12 (3) |
| 7338+85 | 7339+55 | 7,320 | 100 | 0.15 | Type D | 0.02 | 1.78 | 170 | 0.16 | 2.75 | 1.03 | 5.00 | 4.82 | 0.50 | 0.40 | 12 | 0.29 | 6 |
| 7340+50 | 7341+45 | 208,709 | 100 | 0.02 | Type D | 0.02 | 2.85 | 1013 | 0.05 | 4.30 | 3.93 | 6.78 | 4.46 | 0.50 | 10.68 | 12 | 0.11 | 8 (2) |
| 7341+45 | 7342+05 | 17,313 | 100 | 0.07 | Type D | 0.80 | 11.94 | 218 | 0.12 | 2.30 | 1.58 | 13.52 | 3.47 | 0.50 | 0.69 | 12 | 0.20 | 6 |
| 7348+85 | 7349+25 | 8,805 | 100 | 0.19 | Type D | 0.30 | 5.98 | 419 | 0.28 | 1.30 | 5.37 | 11.35 | 3.74 | 0.20 | 0.15 | 12 | 0.13 | 6 |
| 7351+20 | 7353+35 | 55,113 | 100 | 0.11 | Type D | 0.02 | 1.92 | 334 | 0.33 | 1.35 | 4.12 | 6.04 | 4.60 | 0.20 | 1.16 | 12 | 0.19 | 6 |
| 7486+10 | 7488+55 | 155,050 | 100 | 0.06 | Type D | 0.80 | 12.37 | 565 | 0.10 | 0.77 | 12.23 | 24.60 | 2.55 | 0.20 | 1.81 | 12 | 0.07 | 8 |
| 7488+55 | 7493+40 | 217,589 | 100 | 0.06 | Type D | 0.80 | 12.37 | 508 | 0.09 | 0.73 | 11.60 | 23.97 | 2.59 | 0.20 | 2.58 | 12 | 0.16 | 8 |
| 7493+40 | 7497+10 | 75,066 | 100 | 0.04 | Type D | 0.30 | 8.60 | 234 | 0.10 | 0.77 | 5.06 | 13.67 | 3.46 | 0.20 | 1.19 | 12 | 0.16 | 6 |
| 7497+10 | 7497+95 | 8,308 | 100 | 0.12 | Type D | 0.30 | 6.65 | 79 | 0.08 | 0.70 | 1.88 | 8.54 | 4.15 | 0.20 | 0.16 | 12 | 0.15 | 6 |
| 7499+20 | 7502+25 | 171,061 | 100 | 0.05 | Type D | 0.80 | 12.91 | 1308 | 0.05 | 2.20 | 9.91 | 22.82 | 2.66 | 0.40 | 4.18 | 12 | 0.22 | 12 |
| 7502+25 | 7506+70 | 161,146 | 100 | 0.03 | Type D | 0.30 | 9.20 | 369 | 0.08 | 2.75 | 2.24 | 11.44 | 3.73 | 0.20 | 2.76 | 12 | 0.19 | 8 |
| 7506+70 | 7510+50 | 42,483 | 100 | 0.04 | Type D | 0.30 | 8.60 | 236 | 0.10 | 0.77 | 5.11 | 13.71 | 3.45 | 0.40 | 1.35 | 12 | 0.24 | 6 |
| 7519+45 | 7520+50 | 220,042 | 100 | 0.06 | Type D | 0.30 | 7.82 | 550 | 0.12 | 1.60 | 5.73 | 13.55 | 3.47 | 0.40 | 7.01 | 18 | 0.12 | 12 |
| 7546+00 | 7547+60 | 139,741 | 100 | 0.05 | Type D | 0.30 | 8.17 | 383 | 0.08 | 0.70 | 9.12 | 17.28 | 3.09 | 0.20 | 1.98 | 12 | 0.08 | 8 |
| 7551+45 | 7553+80 | 115,757 | 100 | 0.04 | Type D | 0.30 | 8.60 | 489 | 0.09 | 0.73 | 11.16 | 19.77 | 2.88 | 0.20 | 1.53 | 12 | N/A | N/A |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|---|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 7641+91 | 7650+41 | 274,279 | 100 | 0.03 | Type D | 0.300 | 9.20 | 1281 | 0.84 | 2.55 | 8.37 | 17.57 | 3.07 | 0.40 | 0.13 | 20:1 | 7.72 | 12 | 0.31 | 12 |
| 7650+41 | 7654+18 | 234,969 | 100 | 0.03 | Type D | 0.300 | 9.20 | 1566 | 0.69 | 2.65 | 9.85 | 19.05 | 2.94 | 0.40 | 0.04 | 30:1 | 6.34 | 12 | 0.50 | 12 |
| 7654+18 | 7655+33 | 26,800 | 100 | 0.03 | Type D | 0.300 | 9.20 | 1552 | 0.70 | 2.65 | 9.76 | 18.96 | 2.95 | 0.40 | 0.07 | 20:1 | 0.73 | 12 | 0.50 | 6 |
| 7655+33 | 7659+21 | 49,378 | 100 | 0.03 | Type D | 0.300 | 9.20 | 1925 | 0.61 | 2.65 | 12.11 | 21.31 | 2.77 | 0.40 | 0.25 | 30:1 | 1.25 | 12 | 0.39 | 6 |
| 7661+90 | 7662+37 | 2,150 | 100 | 0.33 | Type D | 0.300 | 5.25 | 27 | 0.26 | 3.50 | 0.13 | 5.38 | 4.74 | 0.20 | 0.04 | 3.5:1 | 0.05 | 12 | 0.50 | 6 |
| 7665+88 | 7668+37 | 198,320 | 100 | 0.03 | Type D | 0.300 | 9.20 | 815 | 0.23 | 2.65 | 5.13 | 14.33 | 3.38 | 0.40 | 0.01 | 20:1 | 6.16 | 18 | 0.13 | 12 |
| 7668+37 | 7670+45 | 29,149 | 100 | 0.03 | Type D | 0.300 | 9.20 | 1153 | 0.16 | 2.65 | 7.25 | 16.45 | 3.17 | 0.40 | 0.03 | 15:1 | 0.85 | 12 | 0.30 | 6 |
| 7672+35 | 7673+37 | 957,734 | 100 | 0.14 | Type D | 0.300 | 6.47 | 1850 | 0.14 | 2.60 | 11.86 | 18.33 | 3.00 | 0.40 | 0.12 | 18:1 | 26.38 | 18 | N/A | N/A |
| 7747+75 | 7749+75 | 99,128 | 100 | 0.17 | Type D | 0.300 | 6.13 | 667 | 0.21 | 3.10 | 3.59 | 9.72 | 3.97 | 0.20 | 0.05 | 0.33 | 1.81 | 32 | 0.13 | 8 |
| 7789+20 | 7791+51 | 158,368 | 100 | 0.10 | Type D | 0.300 | 6.94 | 3174 | 0.06 | 2.40 | 22.04 | 28.99 | 2.31 | 0.40 | 0.03 | 5:1 | 3.35 | 18 | 0.06 | 12 |
| 7791+51 | 7795+49 | 190,895 | 100 | 0.10 | Type D | 0.300 | 6.94 | 3189 | 0.06 | 2.40 | 22.15 | 29.09 | 2.30 | 0.40 | 0.03 | 15:1 | 4.03 | 12 | 0.04 | 12 |
| 7834+12 | 7834+38 | 19,611 | 100 | 0.08 | Type D | 0.300 | 7.32 | 473 | 0.10 | 1.00 | 7.88 | 15.20 | 3.29 | 0.30 | 0.03 | 1:1 | 0.44 | 18 | 0.02 | 6 |
| 7853+49 | 7853+87 | 144,437 | 100 | 0.05 | Type D | 0.400 | 9.57 | 1483 | 0.17 | 2.75 | 8.99 | 18.56 | 2.98 | 0.40 | 0.14 | 5:1 | 3.95 | 12 | N/A | N/A |
| 7854+15 | 7854+72 | 141,584 | 100 | 0.07 | Type D | 0.400 | 8.63 | 1131 | 0.19 | 2.25 | 8.38 | 17.01 | 3.12 | 0.40 | 0.11 | 7:1 | 4.05 | 12 | N/A | N/A |
| 7860+07 | 7861+06 | 91,985 | 100 | 0.01 | Type D | 0.400 | 13.60 | 613 | 0.14 | 2.50 | 4.09 | 17.69 | 3.06 | 0.40 | 0.02 | 4:1 | 2.58 | 18 | 0.03 | 12 |
| 7865+30 | 7865+70 | 880,971 | 100 | 0.07 | Type D | 0.400 | 8.63 | 1080 | 0.05 | 2.55 | 7.06 | 15.69 | 3.24 | 0.30 | 0.05 | 5:1 | 19.67 | 24 | 0.03 | 24 |
| 7871+25 | 7873+16 | 1,317,370 | 100 | 0.07 | Type D | 0.400 | 8.63 | 2254 | 0.04 | 1.80 | 20.87 | 29.50 | 2.28 | 0.30 | 0.03 | 0.5:1 | 20.68 | 32 | 0.01 | 2 X 24 |
| 7876+37 | 7878+39 | 241,822 | 100 | 0.03 | Type D | 0.400 | 10.52 | 1677 | 0.22 | 1.65 | 16.94 | 27.46 | 2.38 | 0.40 | 0.02 | 4:1 | 5.29 | 18 | N/A | N/A |
| 7878+92 | 7879+51 | 32,566 | 100 | 0.03 | Type D | 0.300 | 9.20 | 1573 | 0.22 | 1.50 | 17.48 | 26.68 | 2.43 | 0.40 | 0.25 | 15:1 | 0.73 | 12 | N/A | N/A |
| 7883+00 | 7884+27 | 64,879 | 100 | 0.03 | Type D | 0.400 | 10.52 | 1480 | 0.19 | 1.50 | 16.44 | 26.97 | 2.41 | 0.40 | 0.03 | 20:1 | 1.44 | 12 | 0.22 | 8 |
| 7904+51 | 7906+26 | 160,861 | 100 | 0.04 | Type D | 0.300 | 8.60 | 1123 | 0.21 | 1.50 | 12.48 | 21.08 | 2.78 | 0.40 | 0.06 | 5:1 | 4.11 | 18 | 0.06 | 12 |
| 7922+75 | 7923+53 | 225,079 | 100 | 0.04 | Type D | 0.300 | 8.60 | 853 | 0.09 | 1.50 | 9.48 | 18.08 | 3.02 | 0.40 | 0.01 | 8:1 | 6.25 | 18 | 0.05 | 2 X 12 |
| 7932+73 | 7933+10 | 8,531 | 100 | 0.01 | Type D | 0.300 | 11.89 | 368 | 0.21 | 1.50 | 4.09 | 15.98 | 3.21 | 0.40 | 0.27 | 23:1 | 0.25 | 12 | N/A | N/A |
| 7950+55 | 7951+06 | 11,109 | 100 | 0.08 | Type D | 0.300 | 7.32 | 665 | 0.24 | 1.50 | 7.39 | 14.70 | 3.34 | 0.40 | 0.45 | 4:1 | 0.34 | 12 | N/A | N/A |
| 7951+58 | 7952+42 | 16,877 | 100 | 0.21 | Type D | 0.300 | 5.84 | 218 | 0.22 | 3.15 | 1.15 | 6.99 | 4.42 | 0.20 | 0.05 | 4.5:1 | 0.34 | 12 | 0.20 | 6 |
| 7955+08 | 7955+55 | 3,667 | 100 | 0.24 | Type D | 0.300 | 5.66 | 71 | 0.15 | 2.70 | 0.44 | 6.10 | 4.59 | 0.20 | 0.02 | 12.5:1 | 0.08 | 12 | N/A | N/A |
| 7955+69 | 7958+71 | 66,312 | 100 | 0.09 | Type D | 0.400 | 8.14 | 312 | 0.25 | 1.50 | 3.47 | 11.61 | 3.71 | 0.40 | 0.05 | 20:1 | 0.38 | 12 | 0.11 | 6 |
| 7958+71 | 7962+31 | 76,342 | 100 | 0.06 | Type D | 0.400 | 8.95 | 582 | 0.14 | 1.50 | 6.47 | 15.42 | 3.27 | 0.40 | 0.04 | 14:1 | 1.99 | 12 | 0.15 | 8 |
| 7968+73 | 7969+04 | 7,816 | 100 | 0.02 | Type D | 0.800 | 16.00 | 282 | 0.32 | 1.50 | 3.13 | 19.13 | 2.93 | 0.40 | 0.06 | 0.5:1 | 1.79 | 24 | 0.13 | 8 |
| 7969+38 | 7969+91 | 7,490 | 100 | 0.04 | Type D | 0.400 | 9.84 | 291 | 0.34 | 1.50 | 3.23 | 13.07 | 3.52 | 0.40 | 0.15 | 1:1 | 0.25 | 12 | 0.23 | 6 |
| 7974+63 | 7977+32 | 59,789 | 100 | 0.03 | Type D | 0.400 | 10.52 | 614 | 0.13 | 1.50 | 6.82 | 17.35 | 3.09 | 0.40 | 0.04 | 4:1 | 1.69 | 12 | 0.16 | 8 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|-----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|---|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 8030+50 | 8032+00 | 152,034 | 100 | 0.24 | HSG D | 0.300 | 5.66 | 1006 | 0.42 | 1.55 | 10.82 | 16.48 | 3.17 | 0.20 | 0.04 | 5:1 | 2.21 | 12 | 0.16 | 6 |
| 8068+25* | 8069+50* | 304,642 | 100 | 0.14 | HSG D | 0.300 | 6.42 | 1574 | 0.20 | 1.10 | 23.85 | 30.27 | 2.24 | 0.20 | 0.03 | 35:1 | 3.14 | 12 | 0.02 | 12 |
| 8095+40 | 8096+25 | 75,419 | 100 | 0.11 | HSG D | 0.400 | 7.77 | 642 | 0.08 | 1.25 | 8.56 | 16.33 | 3.18 | 0.31 | 0.01 | 70:1 | 1.71 | 12 | 0.02 | 8 |
| 8106+40 | 8107+00 | 9,425 | 100 | 0.11 | HSG D | 0.300 | 6.79 | 214 | 0.20 | 1.10 | 3.24 | 10.03 | 3.92 | 0.23 | 0.05 | 22:1 | 0.20 | 12 | N/A | N/A |
| 8127+80 L | 8128+30 L | 3,985 | 100 | 0.17 | HSG D | 0.300 | 6.13 | 73 | 0.16 | 1.00 | 1.22 | 7.35 | 4.35 | 0.20 | 0.07 | 8:1 | 0.08 | 12 | 0.10 | 6 |
| 8128+30 L | 8129+00 L | 35,520 | 100 | 0.11 | HSG D | 0.300 | 6.79 | 471 | 0.15 | 0.90 | 8.72 | 15.51 | 3.26 | 0.20 | 0.06 | 6:1 | 0.53 | 12 | 0.09 | 6 |
| 8128+00 R | 8128+75 R | 5,695 | 100 | 0.13 | HSG D | 0.300 | 6.53 | 144 | 0.18 | 1.00 | 2.40 | 8.93 | 4.09 | 0.20 | 0.15 | 6:1 | 0.11 | 12 | N/A | N/A |
| 8135+37 | 8136+00 | 157,524 | 100 | 0.41 | HSG D | 0.300 | 4.99 | 1558 | 0.15 | 2.60 | 9.99 | 14.98 | 3.31 | 0.20 | 0.05 | 12:1 | 2.40 | 12 | 0.11 | 8 |
| 8136+30 | 8136+86 | 13,239 | 100 | 0.18 | HSG D | 0.300 | 6.05 | 264 | 0.16 | 2.70 | 1.63 | 7.68 | 4.29 | 0.20 | 0.05 | 10:1 | 0.26 | 12 | N/A | N/A |
| 8162+75 | 8163+50 | 288,688 | 100 | 0.04 | HSG D | 0.800 | 13.60 | 786 | 0.07 | 1.80 | 7.28 | 20.88 | 2.80 | 0.30 | 0.06 | 5:1 | 5.56 | 18 | 0.20 | 8 |
| 8163+50 | 8164+25 | 294,372 | 100 | 0.02 | HSG D | 0.800 | 16.00 | 658 | 0.07 | 1.80 | 6.09 | 22.09 | 2.71 | 0.20 | 0.09 | 7:1 | 3.67 | 12 | 0.08 | 8 |
| 8165+25 | 8166+75 | 23,456 | 100 | 0.36 | HSG D | 0.300 | 5.15 | 303 | 0.33 | 1.40 | 3.61 | 8.76 | 4.12 | 0.20 | 0.09 | 4:1 | 0.44 | 12 | 0.13 | 6 |
| 8168+50 | 8171+25 | 102,780 | 100 | 0.40 | HSG D | 0.300 | 5.02 | 644 | 0.38 | 1.50 | 7.16 | 12.18 | 3.63 | 0.20 | 0.02 | 16:1 | 1.71 | 12 | 0.07 | 6 |
| 8181+00 | 8182+90 | 259,733 | 100 | 0.31 | HSG D | 0.300 | 5.33 | 1100 | 0.33 | 1.40 | 13.10 | 18.43 | 2.99 | 0.20 | 0.04 | 5:1 | 3.57 | 18 | 0.30 | 6 |
| 8182+90 | 8184+90 | 51,984 | 100 | 0.48 | HSG D | 0.300 | 4.81 | 888 | 0.25 | 1.25 | 11.84 | 16.65 | 3.15 | 0.20 | 0.15 | 3:1 | 0.75 | 12 | 0.20 | 6 |
| 8184+90* | 8186+75* | 1,047,630 | 32 | 0.01 | HSG D | 0.300 | 6.98 | 2207 | 0.21 | 1.10 | 33.44 | 40.42 | 1.85 | 0.20 | 0.03 | 5:1 | 8.88 | 18 | 0.17 | 12 |
| 8186+75 | 8189+00 | 15,206 | 95 | 0.11 | HSG D | 0.300 | 6.63 | 0 | N/A | N/A | 0.00 | 6.63 | 4.49 | 0.20 | 0.05 | 6:1 | 0.31 | 12 | 0.11 | 6 |
| 8189+00 | 8190+00 | 65,551 | 56 | 0.06 | HSG D | 0.300 | 5.97 | 453 | 0.11 | 0.85 | 8.88 | 14.85 | 3.33 | 0.20 | 0.04 | 6:1 | 1.00 | 12 | 0.10 | 6 |
| 8218+25 | 8220+00 | 48,000 | 100 | 0.07 | HSG D | 0.400 | 8.63 | 454 | 0.12 | 1.50 | 5.04 | 13.68 | 3.46 | 0.25 | 0.03 | 11:1 | 0.95 | 12 | 0.04 | 6 |
| 8220+15 | 8220+50 | 29,534 | 100 | 0.08 | HSG D | 0.400 | 8.37 | 331 | 0.09 | 1.30 | 4.24 | 12.61 | 3.58 | 0.31 | 0.05 | 15:1 | 0.75 | 12 | 0.06 | 6 |
| 8382+50 | 8383+50 | 11,497 | 100 | 0.08 | HSG D | 0.300 | 7.32 | 56 | 0.17 | 1.00 | 0.93 | 8.25 | 4.20 | 0.20 | 0.04 | 5:1 | 0.22 | 12 | 0.21 | 6 |
| 8383+50 | 8385+50 | 26,822 | 100 | 0.10 | HSG D | 0.300 | 6.94 | 91 | 0.09 | 0.75 | 2.02 | 8.97 | 4.08 | 0.20 | 0.05 | 9:1 | 0.50 | 12 | 0.17 | 6 |
| 8389+30 | 8389+90 | 4,303 | 100 | 0.12 | HSG D | 0.300 | 6.65 | 147 | 0.50 | 3.20 | 0.77 | 7.42 | 4.34 | 0.20 | 0.41 | 2:1 | 0.09 | 12 | N/A | N/A |
| 8413+45 | 8414+35 | 13,426 | 100 | 0.19 | HSG D | 0.300 | 5.98 | 338 | 0.26 | 3.50 | 1.61 | 7.59 | 4.31 | 0.20 | 0.13 | 2:1 | 0.27 | 12 | N/A | N/A |

Juniata County

Juniata County
Temporary Diversion Berm Calculations

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Left Side Slope (ft/ft (H:V)) | Right Side Slope (ft/ft (H:V)) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Flow Type |
|-----------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------------|-----------------|--------------------|----------------------|---------------|---------------|
| 8450+00 - 8453+25 CHN | 0.025 | 0.024 | 0.19 | 16 | 0.1 | 0.57 | 0.3 | 3.31 | 0.09 | 3.13 | 0.2 | 0.0212 | 1.87 | 0.05 | 0.25 | 1.06 | Supercritical |
| 8453+25 - 8455+20 CHN | 0.025 | 0.092 | 0.12 | 22 | 0.1 | 0.41 | 0.15 | 2.72 | 0.06 | 2.61 | 0.15 | 0.0226 | 2.65 | 0.11 | 0.23 | 1.92 | Supercritical |
| 8455+20 - 8457+75 CHN | 0.025 | 0.11 | 0.13 | 33.5 | 0.1 | 0.96 | 0.3 | 4.62 | 0.07 | 4.5 | 0.18 | 0.021 | 3.18 | 0.16 | 0.29 | 2.17 | Supercritical |
| 8457+75 - 8460+15 CHN | 0.025 | 0.025 | 0.37 | 5 | 0.1 | 0.93 | 0.34 | 2.25 | 0.15 | 1.88 | 0.38 | 0.0201 | 2.7 | 0.11 | 0.48 | 1.11 | Supercritical |
| 8460+15 - 8464+03 CHN | 0.025 | 0.155 | 0.13 | 22 | 0.1 | 0.7 | 0.19 | 3.02 | 0.06 | 2.89 | 0.19 | 0.0211 | 3.69 | 0.21 | 0.34 | 2.55 | Supercritical |
| 8477+55 - 8478+54 CHN | 0.025 | 0.061 | 0.19 | 33 | 0.1 | 1.69 | 0.57 | 6.32 | 0.09 | 6.15 | 0.23 | 0.0194 | 2.96 | 0.14 | 0.32 | 1.71 | Supercritical |
| 8522+57 - 8525+77 CHN | 0.025 | 0.022 | 0.69 | 4 | 0.1 | 3.64 | 0.97 | 3.54 | 0.28 | 2.83 | 0.72 | 0.0172 | 3.73 | 0.22 | 0.91 | 1.12 | Supercritical |
| 8528+76 - 8531+83 CHN | 0.025 | 0.059 | 0.22 | 22 | 0.1 | 1.66 | 0.52 | 4.99 | 0.1 | 4.79 | 0.27 | 0.0188 | 3.19 | 0.16 | 0.38 | 1.71 | Supercritical |
| 8531+83 - 8536+45 CHN | 0.025 | 0.017 | 0.42 | 17 | 0.1 | 3.94 | 1.5 | 7.54 | 0.2 | 7.15 | 0.42 | 0.0164 | 2.63 | 0.11 | 0.53 | 1.02 | Supercritical |

Juniata County
Temporary Slope Pipe Calculations

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Diameter (ft) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Percent Full (%) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Maximum Discharge (ft ³ /s) | Discharge Full (ft ³ /s) | Slope Full (ft/ft) | Flow Type |
|------------------------|-----------------------|-----------------------|-------------------|---------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------|------------------------|-----------------|--------------------|----------------------|---------------|--|-------------------------------------|--------------------|---------------|
| 8450+00 - 8453+25 PIPE | 0.023 | 0.22 | 0.21 | 0.5 | 0.57 | 0.08 | 0.71 | 0.11 | 0.49 | 0.38 | 42.9 | 0.0367 | 7.08 | 0.78 | 0.99 | 3.09 | 1.6 | 1.49 | 0.03231 | SuperCritical |
| 8453+25 - 8455+20 PIPE | 0.023 | 0.31 | 0.16 | 0.5 | 0.41 | 0.06 | 0.61 | 0.09 | 0.47 | 0.33 | 32.7 | 0.029 | 7.34 | 0.84 | 1 | 3.75 | 1.9 | 1.77 | 0.01671 | SuperCritical |
| 8455+20 - 8457+75 PIPE | 0.023 | 0.41 | 0.24 | 0.5 | 0.96 | 0.09 | 0.77 | 0.12 | 0.5 | 0.47 | 48.4 | 0.0792 | 10.2 | 1.62 | 1.86 | 4.14 | 2.18 | 2.03 | 0.09164 | SuperCritical |
| 8457+75 - 8460+15 PIPE | 0.023 | 0.47 | 0.23 | 0.5 | 0.93 | 0.09 | 0.74 | 0.12 | 0.5 | 0.46 | 45.7 | 0.0744 | 10.65 | 1.76 | 1.99 | 4.48 | 2.34 | 2.17 | 0.086 | SuperCritical |
| 8460+15 - 8464+03 PIPE | 0.023 | 0.38 | 0.21 | 0.5 | 0.7 | 0.08 | 0.7 | 0.11 | 0.49 | 0.42 | 41.3 | 0.0464 | 9.14 | 1.3 | 1.5 | 4.08 | 2.1 | 1.95 | 0.04872 | SuperCritical |
| 8477+55 - 8478+54 PIPE | 0.023 | 0.08 | 0.48 | 0.67 | 1.69 | 0.27 | 1.35 | 0.2 | 0.6 | 0.6 | 71.7 | 0.0528 | 6.25 | 0.61 | 1.09 | 1.65 | 2.11 | 1.96 | 0.05962 | SuperCritical |
| 8522+57 - 8525+77 PIPE | 0.023 | 0.05 | 0.68 | 1 | 3.64 | 0.57 | 1.94 | 0.29 | 0.93 | 0.81 | 68.2 | 0.0331 | 6.38 | 0.63 | 1.31 | 1.44 | 4.84 | 4.5 | 0.03268 | SuperCritical |
| 8528+76 - 8531+83 PIPE | 0.023 | 0.1 | 0.44 | 0.67 | 1.66 | 0.24 | 1.26 | 0.19 | 0.64 | 0.59 | 65.1 | 0.0513 | 6.83 | 0.72 | 1.16 | 1.95 | 2.35 | 2.19 | 0.05752 | SuperCritical |
| 8531+83 - 8536+45 PIPE | 0.023 | 0.16 | 0.49 | 1 | 3.94 | 0.39 | 1.56 | 0.25 | 1 | 0.84 | 49.3 | 0.0366 | 10.2 | 1.62 | 2.11 | 2.89 | 8.66 | 8.05 | 0.03828 | SuperCritical |

Juniata County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|-----------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 8450+00 - 8453+25 CHN | 0.024 | 0.19 | 0.57 | 1.87 | V | 8.0 | 2.00 | 0.28 | SC150 |
| 8453+25 - 8455+20 CHN | 0.092 | 0.12 | 0.41 | 2.65 | V | 8.0 | 2.00 | 0.69 | SC150 |
| 8455+20 - 8457+75 CHN | 0.11 | 0.13 | 0.96 | 3.18 | S | 8.0 | 2.00 | 0.89 | SC150 |
| 8457+75 - 8460+15 CHN | 0.025 | 0.37 | 0.93 | 2.7 | V | 8.0 | 2.00 | 0.58 | SC150 |
| 8460+15 - 8464+03 CHN | 0.155 | 0.13 | 0.7 | 3.69 | S | 8.0 | 2.00 | 1.26 | SC150 |
| 8477+55 - 8478+54 CHN | 0.061 | 0.19 | 1.69 | 2.96 | V | 8.0 | 2.00 | 0.72 | SC150 |
| 8522+57 - 8525+77 CHN | 0.022 | 0.69 | 3.64 | 3.73 | V | 8.0 | 2.00 | 0.95 | SC150 |
| 8528+76 - 8531+83 CHN | 0.059 | 0.22 | 1.66 | 3.19 | V | 8.0 | 2.00 | 0.81 | SC150 |
| 8531+83 - 8536+45 CHN | 0.017 | 0.42 | 3.94 | 2.63 | V | 8.0 | 2.00 | 0.45 | SC150 |

Juniata County
Temporary Slope Pipe Calculations

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|------------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 8450+00 - 8453+25 PIPE | 0.57 | 18 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.591 | 0.96 | 5 | 2.96 |
| 8453+25 - 8455+20 PIPE | 0.41 | 29 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.751 | 0.55 | 5 | 3.75 |
| 8455+20 - 8457+75 PIPE | 0.96 | 32 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.788 | 1.22 | 5 | 3.94 |
| 8457+75 - 8460+15 PIPE | 0.93 | 36 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.836 | 1.11 | 5 | 4.18 |
| 8460+15 - 8464+03 PIPE | 0.7 | 32 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.788 | 0.89 | 5 | 3.94 |
| 8477+55 - 8478+54 PIPE | 1.69 | 20 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.623 | 2.71 | 5 | 3.12 |
| 8522+57 - 8525+77 PIPE | 3.64 | 7 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.369 | 9.87 | 10 | 3.69 |
| 8528+76 - 8531+83 PIPE | 1.66 | 9 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.418 | 3.97 | 5 | 2.09 |
| 8531+83 - 8536+45 PIPE | 3.94 | 12 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 8.16 | 10 | 4.83 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|----------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------------------|-------------------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| 8450+00 | 8453+25 | 30,080 | 100 | 0.09 | Type D | 0.400 | 8.14 | 43 | 0.14 | 1.70 | 0.42 | 8.56 | 4.15 | 0.20 | 0.024 | 16:1 | 0.57 | 12 | 0.22 | 6 |
| 8453+25 | 8455+20 | 24,660 | 100 | 0.05 | Type D | 0.400 | 9.34 | 302 | 0.13 | 1.65 | 3.05 | 12.39 | 3.61 | 0.20 | 0.092 | 22:1 | 0.41 | 12 | 0.31 | 6 |
| 8455+20 | 8457+75 | 53,500 | 100 | 0.10 | Type D | 0.400 | 7.94 | 228 | 0.15 | 1.70 | 2.24 | 10.18 | 3.90 | 0.20 | 0.110 | 33.5:1 | 0.96 | 12 | 0.41 | 6 |
| 8457+75 | 8460+15 | 57,270 | 100 | 0.04 | Type D | 0.400 | 9.84 | 344 | 0.18 | 1.80 | 3.19 | 13.02 | 3.53 | 0.20 | 0.025 | 5:1 | 0.93 | 12 | 0.47 | 6 |
| 8460+15 | 8464+03 | 41,512 | 100 | 0.08 | Type D | 0.400 | 8.37 | 464 | 0.23 | 2.30 | 3.36 | 11.73 | 3.69 | 0.20 | 0.155 | 22:1 | 0.70 | 12 | 0.38 | 6 |
| 8477+55 | 8478+54 | 109,577 | 100 | 0.05 | Type D | 0.400 | 9.34 | 535 | 0.15 | 1.70 | 5.25 | 14.58 | 3.36 | 0.20 | 0.061 | 33:1 | 1.69 | 12 | 0.08 | 8 |
| 8522+57 | 8525+77 | 193,814 | 100 | 0.01 | Type D | 0.300 | 11.89 | 1016 | 0.07 | 1.50 | 11.29 | 23.18 | 2.64 | 0.31 | 0.022 | 4:1 | 3.64 | 18 | 0.05 | 12 |
| 8528+76 | 8531+83 | 66,400 | 100 | 0.02 | Type D | 0.300 | 10.11 | 420 | 0.10 | 2.30 | 3.04 | 13.16 | 3.51 | 0.31 | 0.059 | 22:1 | 1.66 | 12 | 0.10 | 8 |
| 8531+83 | 8536+45 | 181,074 | 100 | 0.07 | Type D | 0.400 | 8.63 | 1032 | 0.09 | 1.90 | 9.05 | 17.69 | 3.06 | 0.31 | 0.017 | 17:1 | 3.94 | 12 | 0.16 | 12 |

Perry County

**Perry County
Temporary Diversion Berm Calculations**

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Left Side Slope (ft/ft (H:V)) | Right Side Slope (ft/ft (H:V)) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Flow Type |
|------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------------|-----------------|--------------------|----------------------|---------------|---------------|
| 8616+65 to 8617+75 CHN | 0.025 | 0.09 | 0.2 | 0.1 | 10.5 | 0.81 | 0.22 | 2.36 | 0.09 | 2.16 | 0.27 | 0.0199 | 3.67 | 0.21 | 0.41 | 2.03 | Supercritical |
| 8644+90 to 8646+80 CHN | 0.025 | 0.09 | 0.26 | 0.1 | 10 | 1.46 | 0.34 | 2.87 | 0.12 | 2.62 | 0.35 | 0.0184 | 4.3 | 0.29 | 0.55 | 2.11 | Supercritical |
| 8668+10 to 8668+75 CHN | 0.025 | 0.58 | 0.1 | 0.1 | 1.5 | 0.03 | 0.01 | 0.27 | 0.03 | 0.15 | 0.15 | 0.0453 | 4.11 | 0.26 | 0.36 | 3.31 | Supercritical |
| 8706+20 to 8706+55 CHN | 0.025 | 0.13 | 0.24 | 0.1 | 9 | 1.33 | 0.27 | 2.45 | 0.11 | 2.22 | 0.35 | 0.0186 | 4.93 | 0.38 | 0.62 | 2.49 | Supercritical |
| 8706+55 to 8706+65 CHN | 0.025 | 0.05 | 0.24 | 0.1 | 9 | 0.81 | 0.27 | 2.43 | 0.11 | 2.2 | 0.29 | 0.0199 | 3.04 | 0.14 | 0.39 | 1.54 | Supercritical |
| 8706+65 to 8706+65 CHN | 0.025 | 0.07 | 0.26 | 0.1 | 6.5 | 0.79 | 0.22 | 1.94 | 0.11 | 1.69 | 0.32 | 0.0201 | 3.64 | 0.21 | 0.46 | 1.79 | Supercritical |
| 8706+65 to 8707+20 CHN | 0.025 | 0.07 | 0.24 | 0.1 | 6.5 | 0.77 | 0.2 | 1.86 | 0.11 | 1.62 | 0.31 | 0.0204 | 3.54 | 0.19 | 0.44 | 1.78 | Supercritical |
| 8717+15 to 8720+75 CHN | 0.025 | 0.06 | 0.24 | 0.1 | 10.5 | 1.02 | 0.3 | 2.77 | 0.11 | 2.54 | 0.3 | 0.0193 | 3.35 | 0.17 | 0.41 | 1.7 | Supercritical |
| 8729+55 to 8731+25 CHN | 0.025 | 0.004 | 0.42 | 0.1 | 17.5 | 1.99 | 1.55 | 7.78 | 0.2 | 7.39 | 0.32 | 0.018 | 1.28 | 0.03 | 0.45 | 0.49 | Subcritical |
| 8753+60 to 8755+50 CHN | 0.025 | 0.05 | 0.37 | 0.1 | 9 | 2.44 | 0.61 | 3.68 | 0.17 | 3.33 | 0.45 | 0.0172 | 4.01 | 0.25 | 0.62 | 1.65 | Supercritical |
| 8755+50 to 8757+45 CHN | 0.025 | 0.08 | 0.32 | 0.1 | 9 | 2.08 | 0.45 | 3.17 | 0.14 | 2.87 | 0.42 | 0.0175 | 4.59 | 0.33 | 0.64 | 2.04 | Supercritical |
| 8759+45 to 8761+10 CHN | 0.025 | 0.04 | 0.3 | 0.1 | 11.5 | 1.72 | 0.54 | 3.81 | 0.14 | 3.53 | 0.35 | 0.018 | 3.21 | 0.16 | 0.46 | 1.45 | Supercritical |
| 8761+10 to 8765+60 CHN | 0.025 | 0.04 | 0.39 | 0.1 | 10 | 2.94 | 0.78 | 4.34 | 0.18 | 3.96 | 0.46 | 0.0167 | 3.78 | 0.22 | 0.61 | 1.5 | Supercritical |
| 8761+10 to 8765+60 CHN | 0.025 | 0.05 | 0.38 | 0.1 | 10 | 2.94 | 0.72 | 4.16 | 0.17 | 3.8 | 0.46 | 0.0167 | 4.11 | 0.26 | 0.64 | 1.67 | Supercritical |
| 8765+60 to 8771+30 CHN | 0.025 | 0.05 | 0.44 | 0.1 | 6.5 | 2.75 | 0.63 | 3.3 | 0.19 | 2.88 | 0.53 | 0.017 | 4.39 | 0.3 | 0.74 | 1.66 | Supercritical |
| 8765+60 to 8771+30 CHN | 0.025 | 0.07 | 0.37 | 0.1 | 8.5 | 2.75 | 0.58 | 3.51 | 0.17 | 3.16 | 0.48 | 0.0169 | 4.74 | 0.35 | 0.72 | 1.95 | Supercritical |
| 8796+40 to 8799+45 CHN | 0.025 | 0.04 | 0.42 | 0.1 | 8 | 2.86 | 0.73 | 3.85 | 0.19 | 3.44 | 0.5 | 0.0168 | 3.92 | 0.24 | 0.66 | 1.5 | Supercritical |
| 8799+45 to 8803+45 CHN | 0.025 | 0.02 | 0.42 | 0.1 | 11.5 | 2.92 | 1.03 | 5.3 | 0.2 | 4.9 | 0.44 | 0.0168 | 2.83 | 0.12 | 0.55 | 1.09 | Supercritical |
| 8803+45 to 8804+05 CHN | 0.025 | 0.32 | 0.17 | 0.1 | 9 | 0.85 | 0.14 | 1.75 | 0.08 | 1.58 | 0.29 | 0.0197 | 6.17 | 0.59 | 0.77 | 3.69 | Supercritical |
| 8806+45 to 8807+60 CHN | 0.025 | 0.03 | 0.34 | 0.1 | 7.5 | 1.28 | 0.44 | 2.91 | 0.15 | 2.58 | 0.37 | 0.0187 | 2.92 | 0.13 | 0.47 | 1.25 | Supercritical |
| 8807+60 to 8809+40 CHN | 0.025 | 0.07 | 0.33 | 0.1 | 7.5 | 1.83 | 0.42 | 2.84 | 0.15 | 2.52 | 0.43 | 0.0179 | 4.38 | 0.3 | 0.63 | 1.9 | Supercritical |
| 8811+85 to 8815+85 CHN | 0.025 | 0.04 | 0.36 | 0.1 | 6 | 1.33 | 0.39 | 2.53 | 0.15 | 2.18 | 0.41 | 0.0188 | 3.41 | 0.18 | 0.54 | 1.42 | Supercritical |
| 8815+85 to 8818+30 CHN | 0.025 | 0.06 | 0.34 | 0.1 | 6.5 | 1.52 | 0.38 | 2.56 | 0.15 | 2.23 | 0.42 | 0.0184 | 4.05 | 0.26 | 0.59 | 1.74 | Supercritical |
| 8815+85 to 8818+30 CHN | 0.025 | 0.01 | 0.47 | 0.1 | 6.5 | 1.52 | 0.73 | 3.58 | 0.21 | 3.11 | 0.42 | 0.0184 | 2.07 | 0.07 | 0.54 | 0.75 | Subcritical |
| 8818+30 to 8819+25 CHN | 0.025 | 0.05 | 0.2 | 0.1 | 4.5 | 0.22 | 0.09 | 1.1 | 0.08 | 0.9 | 0.22 | 0.0246 | 2.48 | 0.1 | 0.29 | 1.39 | Supercritical |
| 8825+05 to 8825+60 CHN | 0.025 | 0.09 | 0.14 | 0.1 | 6 | 0.18 | 0.06 | 1.03 | 0.06 | 0.88 | 0.18 | 0.0246 | 2.81 | 0.12 | 0.27 | 1.84 | Supercritical |
| 8827+75 to 8829+70 CHN | 0.025 | 0.08 | 0.35 | 0.1 | 3.5 | 1.01 | 0.23 | 1.65 | 0.14 | 1.28 | 0.46 | 0.021 | 4.47 | 0.31 | 0.66 | 1.87 | Supercritical |
| 8829+70 to 8833+85 CHN | 0.025 | 0.04 | 0.24 | 0.1 | 4.5 | 0.34 | 0.13 | 1.35 | 0.1 | 1.11 | 0.27 | 0.0232 | 2.54 | 0.1 | 0.34 | 1.29 | Supercritical |
| 8877+95 to 8878+90 CHN | 0.025 | 0.13 | 0.12 | 0.1 | 2.5 | 0.05 | 0.02 | 0.45 | 0.04 | 0.32 | 0.16 | 0.0341 | 2.61 | 0.11 | 0.23 | 1.86 | Supercritical |
| 8881+60 to 8882+20 CHN | 0.025 | 0.17 | 0.42 | 0.1 | 3.5 | 2.38 | 0.32 | 1.97 | 0.16 | 1.53 | 0.64 | 0.0187 | 7.35 | 0.84 | 1.26 | 2.81 | Supercritical |
| 8935+70 to 8936+35 CHN | 0.025 | 0.02 | 0.14 | 0.1 | 20 | 0.25 | 0.19 | 2.85 | 0.06 | 2.73 | 0.13 | 0.024 | 1.35 | 0.03 | 0.16 | 0.91 | Subcritical |
| 8942+20 to 8944+05 CHN | 0.025 | 0.02 | 0.29 | 0.1 | 24 | 2.29 | 1.01 | 7.25 | 0.14 | 6.99 | 0.3 | 0.0181 | 2.26 | 0.08 | 0.37 | 1.05 | Supercritical |
| 8972+00 to 8976+70 CHN | 0.025 | 0.06 | 0.45 | 0.1 | 4 | 1.96 | 0.42 | 2.32 | 0.18 | 1.86 | 0.56 | 0.0187 | 4.66 | 0.34 | 0.79 | 1.73 | Supercritical |
| 8894+72 - 8986+88 | 0.025 | 0.03 | 0.71 | 0.1 | 5 | 5.85 | 1.28 | 4.32 | 0.3 | 3.61 | 0.8 | 0.0157 | 4.57 | 0.32 | 1.03 | 1.35 | Supercritical |
| 8988+06 - 8990+24 | 0.025 | 0.08 | 0.4 | 0.1 | 17 | 7.63 | 1.37 | 7.23 | 0.19 | 6.85 | 0.55 | 0.0151 | 5.56 | 0.48 | 0.88 | 2.19 | Supercritical |
| 8994+77 - 8997+05 | 0.025 | 0.08 | 0.6 | 0.1 | 16 | 20.83 | 2.88 | 10.18 | 0.28 | 9.62 | 0.84 | 0.0131 | 7.24 | 0.82 | 1.41 | 2.34 | Supercritical |
| 9005+33 - 9007+27 | 0.025 | 0.22 | 0.34 | 0.1 | 12 | 5.58 | 0.69 | 4.4 | 0.16 | 4.08 | 0.56 | 0.0154 | 8.1 | 1.02 | 1.36 | 3.48 | Supercritical |
| 9041+74 - 9043+65 | 0.025 | 0.05 | 0.3 | 0.1 | 10 | 1.65 | 0.46 | 3.35 | 0.14 | 3.06 | 0.37 | 0.0181 | 3.55 | 0.2 | 0.5 | 1.61 | Supercritical |
| 9057+01 - 9058+54 | 0.025 | 0.01 | 0.36 | 0.1 | 50 | 6.25 | 3.32 | 18.56 | 0.18 | 18.23 | 0.33 | 0.017 | 1.89 | 0.06 | 0.42 | 0.78 | Subcritical |
| 9065+77 - 9069+39 | 0.025 | 0.03 | 0.56 | 0.1 | 8 | 5.12 | 1.26 | 5.05 | 0.25 | 4.51 | 0.63 | 0.0156 | 4.07 | 0.26 | 0.81 | 1.36 | Supercritical |
| 9101+86 - 9104+93 | 0.025 | 0.11 | 0.2 | 0.1 | 13 | 1.13 | 0.27 | 2.87 | 0.1 | 2.68 | 0.28 | 0.0192 | 4.12 | 0.26 | 0.47 | 2.27 | Supercritical |
| 9107+01 - 9109+06 | 0.025 | 0.04 | 0.25 | 0.1 | 27 | 2.57 | 0.87 | 7.12 | 0.12 | 6.89 | 0.3 | 0.018 | 2.94 | 0.13 | 0.39 | 1.45 | Supercritical |
| 9116+33 - 9122+08 | 0.025 | 0.03 | 0.57 | 0.1 | 4 | 2.58 | 0.67 | 2.93 | 0.23 | 2.34 | 0.63 | 0.0181 | 3.85 | 0.23 | 0.8 | 1.27 | Supercritical |
| 9128+36 - 9130+77 | 0.025 | 0.1 | 0.36 | 0.1 | 17 | 6.46 | 1.11 | 6.51 | 0.17 | 6.17 | 0.51 | 0.0154 | 5.79 | 0.52 | 0.88 | 2.4 | Supercritical |
| 9131+08 - 9132+86 | 0.025 | 0.01 | 0.86 | 0.1 | 5 | 5.72 | 1.9 | 5.27 | 0.36 | 4.4 | 0.79 | 0.0158 | 3.01 | 0.14 | 1 | 0.81 | Subcritical |

Perry County
Temporary Slope Pipe Calculations

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Diameter (ft) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Percent Full (%) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Maximum Discharge (ft ³ /s) | Discharge Full (ft ³ /s) | Slope Full (ft/ft) | Flow Type |
|-------------------------|-----------------------|-----------------------|-------------------|---------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------|------------------------|-----------------|--------------------|----------------------|---------------|--|-------------------------------------|--------------------|---------------|
| 8644+90 to 8646+80 PIPE | 0.023 | 0.09 | 0.41 | 0.67 | 1.46 | 0.23 | 1.21 | 0.19 | 0.65 | 0.57 | 61.8 | 0.0423 | 6.38 | 0.63 | 1.05 | 1.9 | 2.23 | 2.08 | 0.0445 | SuperCritical |
| 8706+20 to 8706+55 PIPE | 0.023 | 0.11 | 0.37 | 0.67 | 1.33 | 0.2 | 1.11 | 0.18 | 0.67 | 0.54 | 54.6 | 0.0376 | 6.75 | 0.71 | 1.07 | 2.19 | 2.47 | 2.3 | 0.03693 | SuperCritical |
| 8706+55 to 8706+65 PIPE | 0.023 | 0.11 | 0.33 | 0.5 | 0.81 | 0.14 | 0.95 | 0.14 | 0.47 | 0.45 | 65.8 | 0.0579 | 5.91 | 0.54 | 0.87 | 1.94 | 1.13 | 1.05 | 0.06524 | SuperCritical |
| 8706+65 to 8706+65 PIPE | 0.023 | 0.12 | 0.43 | 1 | 2.67 | 0.32 | 1.43 | 0.23 | 0.99 | 0.7 | 42.9 | 0.025 | 8.29 | 1.07 | 1.5 | 2.56 | 7.5 | 6.98 | 0.01758 | SuperCritical |
| 8706+65 to 8707+20 PIPE | 0.023 | 0.12 | 0.31 | 0.5 | 0.79 | 0.13 | 0.91 | 0.14 | 0.48 | 0.44 | 62.8 | 0.0555 | 6.09 | 0.58 | 0.89 | 2.07 | 1.18 | 1.1 | 0.06206 | SuperCritical |
| 8717+15 to 8720+75 PIPE | 0.023 | 0.11 | 0.4 | 0.5 | 1.02 | 0.17 | 1.1 | 0.15 | 0.4 | 0.47 | 79.4 | 0.0896 | 6.1 | 0.58 | 0.98 | 1.67 | 1.13 | 1.05 | 0.10345 | SuperCritical |
| 8729+55 to 8731+25 PIPE | 0.023 | 0.05 | 0.47 | 1 | 1.99 | 0.36 | 1.5 | 0.24 | 1 | 0.6 | 46.5 | 0.0214 | 5.56 | 0.48 | 0.95 | 1.64 | 4.84 | 4.5 | 0.00977 | SuperCritical |
| 8753+60 to 8755+50 PIPE | 0.023 | 0.13 | 0.54 | 0.67 | 2.44 | 0.3 | 1.48 | 0.2 | 0.54 | 0.65 | 80.1 | 0.1093 | 8.06 | 1.01 | 1.55 | 1.89 | 2.68 | 2.5 | 0.12428 | SuperCritical |
| 8755+50 to 8757+45 PIPE | 0.023 | 0.11 | 0.5 | 0.67 | 2.08 | 0.28 | 1.4 | 0.2 | 0.58 | 0.63 | 74.6 | 0.0781 | 7.37 | 0.84 | 1.34 | 1.87 | 2.47 | 2.3 | 0.09032 | SuperCritical |
| 8759+45 to 8761+10 PIPE | 0.023 | 0.11 | 0.43 | 0.67 | 1.72 | 0.24 | 1.25 | 0.19 | 0.64 | 0.6 | 64.6 | 0.0544 | 7.14 | 0.79 | 1.23 | 2.05 | 2.47 | 2.3 | 0.06176 | SuperCritical |
| 8761+10 to 8765+60 PIPE | 0.023 | 0.07 | 0.53 | 1 | 2.94 | 0.42 | 1.63 | 0.26 | 1 | 0.74 | 53 | 0.0269 | 6.95 | 0.75 | 1.28 | 1.88 | 5.73 | 5.33 | 0.02132 | SuperCritical |
| 8765+60 to 8771+30 PIPE | 0.023 | 0.14 | 0.6 | 0.67 | 2.75 | 0.33 | 1.66 | 0.2 | 0.41 | 0.66 | 89.3 | 0.1416 | 8.28 | 1.07 | 1.66 | 1.63 | 2.79 | 2.59 | 0.15787 | SuperCritical |
| 8796+40 to 8799+45 PIPE | 0.023 | 0.16 | 0.57 | 0.67 | 2.86 | 0.32 | 1.58 | 0.2 | 0.47 | 0.66 | 85.3 | 0.1542 | 8.93 | 1.24 | 1.81 | 1.92 | 2.98 | 2.77 | 0.17075 | SuperCritical |
| 8799+45 to 8803+45 PIPE | 0.023 | 0.07 | 0.53 | 1 | 2.92 | 0.42 | 1.63 | 0.26 | 1 | 0.73 | 52.8 | 0.0267 | 6.94 | 0.75 | 1.28 | 1.88 | 5.73 | 5.33 | 0.02103 | SuperCritical |
| 8806+45 to 8807+60 PIPE | 0.023 | 0.08 | 0.4 | 0.67 | 1.28 | 0.22 | 1.17 | 0.18 | 0.66 | 0.53 | 59 | 0.036 | 5.92 | 0.54 | 0.94 | 1.82 | 2.11 | 1.96 | 0.0342 | SuperCritical |
| 8807+60 to 8809+40 PIPE | 0.023 | 0.08 | 0.51 | 0.67 | 1.83 | 0.29 | 1.43 | 0.2 | 0.57 | 0.61 | 76.7 | 0.0608 | 6.31 | 0.62 | 1.13 | 1.56 | 2.11 | 1.96 | 0.06991 | SuperCritical |
| 8811+85 to 8815+85 PIPE | 0.023 | 0.19 | 0.39 | 0.5 | 1.33 | 0.17 | 1.09 | 0.15 | 0.41 | 0.49 | 78.7 | 0.1581 | 8.02 | 1 | 1.39 | 2.22 | 1.49 | 1.38 | 0.17589 | SuperCritical |
| 8815+85 to 8818+30 PIPE | 0.023 | 0.13 | 0.38 | 0.67 | 1.52 | 0.2 | 1.14 | 0.18 | 0.66 | 0.58 | 56.4 | 0.0447 | 7.42 | 0.86 | 1.23 | 2.36 | 2.68 | 2.5 | 0.04823 | SuperCritical |
| 8815+85 to 8818+30 PIPE | 0.023 | 0.13 | 0.38 | 0.67 | 1.52 | 0.2 | 1.14 | 0.18 | 0.66 | 0.58 | 56.4 | 0.0447 | 7.42 | 0.86 | 1.23 | 2.36 | 2.68 | 2.5 | 0.04823 | SuperCritical |
| 8818+30 to 8819+25 PIPE | 0.023 | 0.11 | 0.16 | 0.5 | 0.22 | 0.05 | 0.59 | 0.09 | 0.46 | 0.24 | 31.1 | 0.0237 | 4.23 | 0.28 | 0.43 | 2.22 | 1.13 | 1.05 | 0.00481 | SuperCritical |
| 8825+05 to 8825+60 PIPE | 0.023 | 0.09 | 0.15 | 0.5 | 0.18 | 0.05 | 0.57 | 0.08 | 0.46 | 0.21 | 29.5 | 0.023 | 3.72 | 0.21 | 0.36 | 2.01 | 1.02 | 0.95 | 0.00322 | SuperCritical |
| 8827+75 to 8829+70 PIPE | 0.023 | 0.24 | 0.29 | 0.5 | 1.01 | 0.12 | 0.87 | 0.14 | 0.49 | 0.47 | 58.7 | 0.0878 | 8.42 | 1.1 | 1.4 | 3.01 | 1.67 | 1.55 | 0.10143 | SuperCritical |
| 8829+70 to 8833+85 PIPE | 0.023 | 0.15 | 0.18 | 0.5 | 0.34 | 0.06 | 0.64 | 0.1 | 0.48 | 0.3 | 35.9 | 0.0266 | 5.36 | 0.45 | 0.63 | 2.6 | 1.32 | 1.23 | 0.01149 | SuperCritical |
| 8877+95 to 8878+90 PIPE | 0.023 | 0.3 | 0.06 | 0.5 | 0.05 | 0.01 | 0.35 | 0.04 | 0.32 | 0.11 | 11.7 | 0.0225 | 3.91 | 0.24 | 0.3 | 3.45 | 1.87 | 1.74 | 0.00025 | SuperCritical |
| 8881+60 to 8882+20 PIPE | 0.023 | 0.18 | 0.46 | 0.67 | 2.38 | 0.26 | 1.3 | 0.2 | 0.62 | 0.65 | 68.3 | 0.1036 | 9.27 | 1.34 | 1.79 | 2.55 | 3.16 | 2.94 | 0.11825 | SuperCritical |
| 8942+20 to 8944+05 PIPE | 0.023 | 0.06 | 0.48 | 1 | 2.29 | 0.37 | 1.53 | 0.24 | 1 | 0.65 | 47.9 | 0.0229 | 6.17 | 0.59 | 1.07 | 1.78 | 5.31 | 4.93 | 0.01293 | SuperCritical |
| 8972+00 to 8976+70 PIPE | 0.023 | 0.2 | 0.39 | 0.67 | 1.96 | 0.21 | 1.16 | 0.18 | 0.66 | 0.62 | 57.8 | 0.0693 | 9.29 | 1.34 | 1.73 | 2.9 | 3.33 | 3.1 | 0.08019 | SuperCritical |
| 8894+72 - 8986+88 | 0.023 | 0.08 | 0.85 | 1 | 5.85 | 0.71 | 2.34 | 0.3 | 0.72 | 0.95 | 84.6 | 0.0731 | 8.25 | 1.06 | 1.9 | 1.47 | 6.13 | 5.7 | 0.0844 | SuperCritical |
| 8988+06 - 8990+24 | 0.023 | 0.15 | 0.8 | 1 | 7.63 | 0.67 | 2.22 | 0.3 | 0.8 | 0.98 | 80.1 | 0.1292 | 11.32 | 1.99 | 2.79 | 2.17 | 8.39 | 7.8 | 0.14358 | SuperCritical |
| 8994+77 - 8997+05 | 0.023 | 0.41 | 0.68 | 1 | 10.42 | 0.57 | 1.94 | 0.29 | 0.93 | 0.99 | 68.1 | 0.2519 | 18.28 | 5.19 | 5.87 | 4.12 | 13.87 | 12.89 | 0.26777 | SuperCritical |
| 9005+33 - 9007+27 | 0.023 | 0.34 | 0.49 | 1 | 5.58 | 0.38 | 1.54 | 0.25 | 1 | 0.94 | 48.5 | 0.0664 | 14.77 | 3.39 | 3.87 | 4.23 | 12.63 | 11.74 | 0.07679 | SuperCritical |
| 9041+74 - 9043+65 | 0.023 | 0.14 | 0.39 | 0.67 | 1.65 | 0.21 | 1.16 | 0.18 | 0.66 | 0.59 | 58 | 0.0508 | 7.78 | 0.94 | 1.33 | 2.42 | 2.79 | 2.59 | 0.05683 | SuperCritical |
| 9057+01 - 9058+54 | 0.023 | 0.52 | 0.46 | 1 | 6.25 | 0.35 | 1.49 | 0.24 | 1 | 0.96 | 45.8 | 0.0841 | 17.81 | 4.93 | 5.38 | 5.29 | 15.62 | 14.52 | 0.09634 | SuperCritical |
| 9065+77 - 9069+39 | 0.023 | 0.33 | 0.47 | 1 | 5.12 | 0.36 | 1.5 | 0.24 | 1 | 0.92 | 46.6 | 0.0561 | 14.28 | 3.17 | 3.64 | 4.2 | 12.44 | 11.57 | 0.06465 | SuperCritical |
| 9101+86 - 9104+93 | 0.023 | 0.23 | 0.32 | 0.5 | 1.13 | 0.13 | 0.93 | 0.14 | 0.48 | 0.48 | 64.2 | 0.1111 | 8.48 | 1.12 | 1.44 | 2.84 | 1.64 | 1.52 | 0.12696 | SuperCritical |
| 9107+01 - 9109+06 | 0.023 | 0.08 | 0.47 | 1 | 2.57 | 0.36 | 1.51 | 0.24 | 1 | 0.69 | 47.1 | 0.0244 | 7.07 | 0.78 | 1.25 | 2.06 | 6.13 | 5.7 | 0.01629 | SuperCritical |
| 9128+36 - 9130+77 | 0.023 | 0.17 | 0.66 | 1 | 6.46 | 0.55 | 1.9 | 0.29 | 0.95 | 0.97 | 66.3 | 0.0902 | 11.68 | 2.12 | 2.78 | 2.69 | 8.93 | 8.3 | 0.10292 | SuperCritical |
| 9131+08 - 9132+86 | 0.023 | 0.13 | 0.67 | 1 | 5.72 | 0.56 | 1.92 | 0.29 | 0.94 | 0.95 | 66.9 | 0.0698 | 10.25 | 1.63 | 2.3 | 2.35 | 7.81 | 7.26 | 0.08069 | SuperCritical |

Perry County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|------------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 8616+65 to 8617+75 CHN | 0.09 | 0.2 | 0.81 | 3.67 | V | 8.0 | 2.00 | 1.12 | SC150 |
| 8644+90 to 8646+80 CHN | 0.09 | 0.26 | 1.46 | 4.3 | V | 8.0 | 2.00 | 1.46 | SC150 |
| 8668+10 to 8668+75 CHN | 0.58 | 0.1 | 0.03 | 4.11 | S | 12.5 | 12.00 | 3.62 | P550 |
| 8706+20 to 8706+55 CHN | 0.13 | 0.24 | 1.33 | 4.93 | S | 8.0 | 2.00 | 1.95 | SC150 |
| 8706+55 to 8706+65 CHN | 0.05 | 0.24 | 0.81 | 3.04 | V | 8.0 | 2.00 | 0.75 | SC150 |
| 8706+65 to 8706+65 CHN | 0.07 | 0.24 | 0.7 | 3.54 | V | 8.0 | 2.00 | 1.05 | SC150 |
| 8706+65 to 8707+20 CHN | 0.07 | 0.24 | 0.79 | 3.64 | V | 8.0 | 2.00 | 1.05 | SC150 |
| 8717+15 to 8720+75 CHN | 0.06 | 0.24 | 1.02 | 3.35 | V | 8.0 | 2.00 | 0.90 | SC150 |
| 8729+55 to 8731+25 CHN | 0.004 | 0.42 | 1.99 | 1.28 | V | 8.0 | 2.00 | 0.10 | SC150 |
| 8753+60 to 8755+50 CHN | 0.05 | 0.37 | 2.44 | 4.01 | V | 8.0 | 2.00 | 1.15 | SC150 |
| 8755+50 to 8757+45 CHN | 0.08 | 0.32 | 2.08 | 4.59 | V | 8.0 | 2.00 | 1.60 | SC150 |
| 8759+45 to 8761+10 CHN | 0.04 | 0.3 | 1.72 | 3.21 | V | 8.0 | 2.00 | 0.75 | SC150 |
| 8761+10 to 8765+60 CHN | 0.04 | 0.39 | 2.94 | 3.78 | V | 8.0 | 2.00 | 0.97 | SC150 |
| 8761+10 to 8765+60 CHN | 0.05 | 0.38 | 2.94 | 4.11 | V | 8.0 | 2.00 | 1.19 | SC150 |
| 8765+60 to 8771+30 CHN | 0.05 | 0.44 | 2.75 | 4.39 | V | 8.0 | 2.00 | 1.37 | SC150 |
| 8765+60 to 8771+30 CHN | 0.07 | 0.37 | 2.75 | 4.74 | V | 8.0 | 2.00 | 1.62 | SC150 |
| 8796+40 to 8799+45 CHN | 0.04 | 0.42 | 2.86 | 3.92 | V | 8.0 | 2.00 | 1.05 | SC150 |
| 8799+45 to 8803+45 CHN | 0.02 | 0.42 | 2.92 | 2.83 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 8803+45 to 8804+05 CHN | 0.32 | 0.17 | 0.85 | 6.17 | S | 12.5 | 12.00 | 3.39 | P550 |
| 8806+45 to 8807+60 CHN | 0.03 | 0.34 | 1.28 | 2.92 | V | 8.0 | 2.00 | 0.64 | SC150 |
| 8807+60 to 8809+40 CHN | 0.07 | 0.33 | 1.83 | 4.38 | V | 8.0 | 2.00 | 1.44 | SC150 |
| 8811+85 to 8815+85 CHN | 0.04 | 0.36 | 1.33 | 3.41 | V | 8.0 | 2.00 | 0.90 | SC150 |
| 8815+85 to 8818+30 CHN | 0.06 | 0.34 | 1.52 | 4.05 | V | 8.0 | 2.00 | 1.27 | SC150 |
| 8815+85 to 8818+30 CHN | 0.01 | 0.47 | 1.52 | 2.07 | V | 8.0 | 2.00 | 0.29 | SC150 |
| 8818+30 to 8819+25 CHN | 0.05 | 0.2 | 0.22 | 2.48 | V | 8.0 | 2.00 | 0.62 | SC150 |
| 8825+05 to 8825+60 CHN | 0.09 | 0.14 | 0.18 | 2.81 | V | 8.0 | 2.00 | 0.79 | SC150 |
| 8827+75 to 8829+70 CHN | 0.08 | 0.35 | 1.01 | 4.47 | V | 8.0 | 2.00 | 1.75 | SC150 |
| 8829+70 to 8833+85 CHN | 0.04 | 0.24 | 0.34 | 2.54 | V | 8.0 | 2.00 | 0.60 | SC150 |
| 8877+95 to 8878+90 CHN | 0.13 | 0.12 | 0.05 | 2.61 | S | 8.0 | 2.00 | 0.97 | SC150 |
| 8881+60 to 8882+20 CHN | 0.17 | 0.42 | 2.38 | 7.35 | S | 12.5 | 12.00 | 4.46 | P550 |
| 8935+70 to 8936+35 CHN | 0.02 | 0.14 | 0.25 | 1.35 | V | 8.0 | 2.00 | 0.17 | SC150 |
| 8942+20 to 8944+05 CHN | 0.02 | 0.29 | 2.29 | 2.26 | V | 8.0 | 2.00 | 0.36 | SC150 |
| 8972+00 to 8976+70 CHN | 0.06 | 0.45 | 1.96 | 4.66 | V | 8.0 | 2.00 | 1.68 | SC150 |
| 8894+72 - 8986+88 | 0.03 | 0.71 | 5.85 | 4.57 | V | 8.0 | 2.00 | 1.33 | SC150 |
| 8988+06 - 8990+24 | 0.08 | 0.4 | 7.63 | 5.56 | V | 8.0 | 2.00 | 2.00 | SC150 |
| 8994+77 - 8997+05 | 0.08 | 0.6 | 20.83 | 7.24 | V | 9.5 | 3.00 | 3.00 | SC250 |
| 9005+33 - 9007+27 | 0.22 | 0.34 | 5.58 | 8.1 | S | 12.5 | 12.00 | 4.67 | P550 |
| 9041+74 - 9043+65 | 0.05 | 0.3 | 1.65 | 3.55 | V | 8.0 | 2.00 | 0.94 | SC150 |
| 9057+01 - 9058+54 | 0.01 | 0.36 | 6.25 | 1.89 | V | 8.0 | 2.00 | 0.22 | SC150 |

Perry County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft./ft) | Normal Depth (ft) | Discharge (ft³/s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft²) | Shear Stress (lb/ft²) | Blanket Specification |
|-------------------|-------------------------------|--------------------------|-------------------------------------|------------------------|--|---|--|---|------------------------------|
| 9065+77 - 9069+39 | 0.03 | 0.56 | 5.12 | 4.07 | V | 8.0 | 2.00 | 1.05 | SC150 |
| 9101+86 - 9104+93 | 0.11 | 0.2 | 1.13 | 4.12 | S | 8.0 | 2.00 | 1.37 | SC150 |
| 9107+01 - 9109+06 | 0.04 | 0.25 | 2.57 | 2.94 | V | 8.0 | 2.00 | 0.62 | SC150 |
| 9116+33 - 9122+08 | 0.03 | 0.57 | 2.58 | 3.85 | V | 8.0 | 2.00 | 1.07 | SC150 |
| 9128+36 - 9130+77 | 0.1 | 0.36 | 6.46 | 5.79 | S | 9.5 | 3.00 | 2.25 | SC250 |
| 9131+08 - 9132+86 | 0.01 | 0.86 | 5.72 | 3.01 | V | 8.0 | 2.00 | 0.54 | SC150 |

Perry County
Temporary Perforated Pipe Level Spreader Calculations

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|--------------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 8644+90 to 8646+80 PIPE | 1.46 | 8.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.406 | 3.59 | 5 | 2.03 |
| 8706+20 to 8706+55 PIPE | 1.33 | 11.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.473 | 2.81 | 5 | 2.36 |
| 8706+55 to 8706+65 PIPE | 0.81 | 11.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.473 | 1.71 | 5 | 2.36 |
| 8706+65 to 8706+65 PIPE | 2.67 | 11.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.473 | 5.65 | 10 | 4.73 |
| 8706+65 to 8707+20 PIPE | 0.79 | 11.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.473 | 1.67 | 5 | 2.36 |
| 8717+15 to 8720+75 PIPE | 1.02 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 2.31 | 5 | 2.20 |
| 8729+55 to 8731+25 PIPE | 1.99 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 6.39 | 10 | 3.12 |
| 8753+60 to 8755+50 PIPE | 2.44 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 5.05 | 10 | 4.83 |
| 8755+50 to 8757+45 PIPE | 2.08 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 4.31 | 5 | 2.41 |
| 8759+45 to 8761+10 PIPE | 1.72 | 8.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.406 | 4.23 | 5 | 2.03 |
| 8761+10 to 8765+60 PIPE | 2.94 | 4.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.296 | 9.94 | 10 | 2.96 |
| 8765+60 to 8771+30 PIPE | 2.75 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 5.70 | 10 | 4.83 |
| 8796+40 to 8799+45 PIPE | 2.86 | 15 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.540 | 5.30 | 10 | 5.40 |
| 8799+45 to 8803+45 PIPE | 2.92 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.355 | 8.22 | 10 | 3.55 |
| 8806+45 to 8807+60 PIPE | 1.28 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.355 | 3.60 | 5 | 1.78 |
| 8807+60 to 8809+40 PIPE | 1.83 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.355 | 5.15 | 10 | 3.55 |
| 8811+85 to 8815+85 PIPE | 1.33 | 14.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.531 | 2.51 | 5 | 2.65 |
| 8815+85 to 8818+30 PIPE1 | 1.52 | 8.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.406 | 3.74 | 5 | 2.03 |
| 8815+85 to 8818+30 PIPE2 | 1.52 | 8.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.406 | 3.74 | 5 | 2.03 |
| 8818+30 to 8819+25 PIPE | 0.22 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 0.56 | 5 | 1.97 |
| 8825+05 to 8825+60 PIPE | 0.18 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.355 | 0.51 | 5 | 1.78 |
| 8827+75 to 8829+70 PIPE | 1.01 | 16.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.566 | 1.78 | 5 | 2.83 |
| 8829+70 to 8833+85 PIPE | 0.34 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 0.70 | 5 | 2.41 |
| 8877+95 to 8878+90 PIPE | 0.05 | 26.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.717 | 0.07 | 5 | 3.59 |
| 8881+60 to 8882+20 PIPE | 2.38 | 19.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.615 | 3.87 | 5 | 3.08 |
| 8942+20 to 8944+05 PIPE | 2.29 | 4.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.296 | 7.75 | 10 | 2.96 |
| 8972+00 to 8976+70 PIPE | 1.96 | 22.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.661 | 2.96 | 5 | 3.31 |
| 8894+72 - 8986+88 | 5.85 | 34 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.813 | 7.20 | 10 | 8.13 |
| 8988+06 - 8990+24 | 7.63 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 22.35 | 25 | 8.54 |
| 8994+77 - 8997+05 | 10.42 | 33.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.807 | 12.92 | 15 | 12.10 |
| 9005+33 - 9007+27 | 5.58 | 30 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.763 | 7.31 | 10 | 7.63 |
| 9041+74 - 9043+65 | 1.65 | 14.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.531 | 3.11 | 5 | 2.65 |
| 9057+01 - 9058+54 | 6.25 | 48 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.966 | 6.47 | 10 | 9.66 |
| 9065+77 - 9069+39 | 5.12 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 10.60 | 15 | 7.24 |
| 9101+86 - 9104+93 | 1.13 | 22 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.654 | 1.73 | 5 | 3.27 |
| 9107+01 - 9109+06 | 2.57 | 8.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.406 | 6.32 | 10 | 4.06 |
| 9128+36 - 9130+77 | 6.46 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 13.38 | 15 | 7.24 |
| 9131+08 - 9132+86 | 5.72 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 12.98 | 15 | 6.61 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity* (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|--|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 8972+00 | 8976+70 | 107,937 | 100 | 0.15 | Type D | 0.300 | 6.32 | 255 | 0.20 | 1.20 | 3.54 | 9.86 | 3.95 | 0.20 | 0.06 | 4:1 | 1.96 | 12 | 0.20 | 8 |
| 8942+20 | 8944+05 | 206,512 | 100 | 0.27 | Type D | 0.300 | 5.51 | 1220 | 0.14 | 0.95 | 21.40 | 26.91 | 2.41 | 0.20 | 0.02 | 24:1 | 2.29 | 12 | 0.06 | 12 |
| 8935+70 | 8936+35 | 27,341 | 100 | 0.02 | Type D | 0.300 | 10.11 | 337 | 0.01 | 0.35 | 16.05 | 26.16 | 2.46 | 0.16 | 0.02 | 20:1 | 0.25 | 12 | NO PIPE | |
| 8881+60 | 8882+20 | 175,872 | 100 | 0.13 | Type D | 0.300 | 6.53 | 710 | 0.14 | 0.95 | 12.46 | 18.99 | 2.95 | 0.20 | 0.17 | 3.5:1 | 2.38 | 12 | 0.18 | 8 |
| 8877+95 | 8878+90 | 2,325 | 45 | 0.31 | Type D | 0.300 | 3.67 | | | | | 5.00 | 4.82 | 0.20 | 0.13 | 2.5:1 | 0.05 | 12 | 0.30 | 6 |
| 8827+75 | 8829+70 | 52,169 | 100 | 0.10 | Type D | 0.300 | 6.94 | 90 | 0.26 | 1.30 | 1.15 | 8.10 | 4.22 | 0.20 | 0.08 | 3.5:1 | 1.01 | 12 | 0.24 | 6 |
| 8829+70 | 8833+85 | 16,655 | 100 | 0.15 | Type D | 0.300 | 6.32 | 60 | 0.37 | 1.50 | 0.67 | 6.98 | 4.42 | 0.20 | 0.04 | 4.5:1 | 0.34 | 12 | 0.15 | 6 |
| 8825+05 | 8825+60 | 10,490 | 100 | 0.12 | Type D | 0.300 | 6.65 | 370 | 0.21 | 1.20 | 5.14 | 11.79 | 3.68 | 0.20 | 0.09 | 6:1 | 0.18 | 12 | 0.09 | 6 |
| 8806+45 | 8807+60 | 98,999 | 100 | 0.10 | Type D | 0.300 | 6.94 | 780 | 0.16 | 0.95 | 13.68 | 20.63 | 2.82 | 0.20 | 0.03 | 7.5:1 | 1.28 | 12 | 0.08 | 8 |
| 8807+60 | 8809+40 | 138,583 | 100 | 0.12 | Type D | 0.300 | 6.65 | 755 | 0.16 | 0.95 | 13.25 | 19.90 | 2.87 | 0.20 | 0.07 | 7.5:1 | 1.83 | 12 | 0.08 | 8 |
| 8811+85 | 8815+85 | 115,328 | 100 | 0.09 | Type D | 0.300 | 7.12 | 875 | 0.09 | 0.80 | 18.23 | 25.35 | 2.50 | 0.20 | 0.04 | 6:1 | 1.33 | 12 | 0.19 | 6 |
| 8815+85 | 8818+30 | 120,911 | 100 | 0.10 | Type D | 0.300 | 6.94 | 715 | 0.10 | 0.80 | 14.90 | 21.84 | 2.73 | 0.20 | 0.06 | 6.5:1 | 1.52 | 12 | | |
| | | | | | | | | | | | | | | | 0.01 | 6.5:1 | 1.52 | 12 | 0.13 | 8 |
| 8818+30 | 8819+25 | 13,417 | 100 | 0.10 | Type D | 0.300 | 6.94 | 260 | 0.11 | 0.80 | 5.42 | 12.36 | 3.61 | 0.20 | 0.05 | 4.5:1 | 0.22 | 12 | 0.11 | 6 |
| 8796+40 | 8799+45 | 182,142 | 100 | 0.09 | Type D | 0.300 | 7.12 | 540 | 0.26 | 1.30 | 6.92 | 14.04 | 3.41 | 0.20 | 0.04 | 8:1 | 2.86 | 12 | 0.16 | 8 |
| 8799+45 | 8803+45 | 207,054 | 100 | 0.07 | Type D | 0.300 | 7.55 | 720 | 0.22 | 1.20 | 10.00 | 17.55 | 3.07 | 0.20 | 0.02 | 11.5:1 | 2.92 | 12 | 0.07 | 12 |
| 8803+45 | 8804+05 | 61,371 | 100 | 0.08 | Type D | 0.300 | 7.32 | 790 | 0.21 | 1.20 | 10.97 | 18.29 | 3.00 | 0.20 | 0.32 | 9:1 | 0.85 | 12 | NO PIPE | |
| 8759+45 | 8761+10 | 158,190 | 100 | 0.11 | Type D | 0.300 | 6.79 | 1200 | 0.19 | 0.95 | 21.05 | 27.84 | 2.36 | 0.20 | 0.04 | 11.5:1 | 1.72 | 12 | 0.11 | 8 |
| 8761+10 | 8765+60 | 189,723 | 100 | 0.24 | Type D | 0.300 | 5.66 | 630 | 0.20 | 1.20 | 8.75 | 14.41 | 3.37 | 0.20 | 0.04 | 10:1 | 2.94 | 12 | | |
| | | | | | | | | | | | | | | | 0.05 | 10:1 | 2.94 | 12 | 0.07 | 8 |
| 8765+60 | 8771+30 | 222,047 | 100 | 0.15 | Type D | 0.300 | 6.32 | 960 | 0.17 | 1.00 | 16.00 | 22.32 | 2.70 | 0.20 | 0.05 | 6.5:1 | 2.75 | 12 | 0.14 | 8 |
| | | | | | | | | | | | | | | | 0.07 | 8.5:1 | 2.75 | 12 | 0.14 | 8 |
| 8753+60 | 8755+50 | 206,296 | 100 | 0.11 | Type D | 0.300 | 6.79 | 1255 | 0.20 | 1.20 | 17.43 | 24.22 | 2.57 | 0.20 | 0.05 | 9:1 | 2.44 | 12 | 0.13 | 8 |
| 8755+50 | 8757+45 | 159,879 | 100 | 0.11 | Type D | 0.300 | 6.79 | 1060 | 0.24 | 1.30 | 13.59 | 20.38 | 2.84 | 0.20 | 0.08 | 9:1 | 2.08 | 12 | 0.11 | 8 |
| 8729+55 | 8731+25 | 127,192 | 100 | 0.18 | Type D | 0.300 | 6.05 | 435 | 0.13 | 0.90 | 8.06 | 14.11 | 3.41 | 0.20 | 0.004 | 17.5:1 | 1.99 | 12 | 0.05 | 12 |
| 8717+15 | 8720+75 | 60,296 | 100 | 0.08 | Type D | 0.300 | 7.32 | 260 | 0.15 | 0.95 | 4.56 | 11.88 | 3.67 | 0.20 | 0.06 | 10.5:1 | 1.02 | 12 | 0.11 | 6 |
| 8706+20 | 8706+55 | 183,337 | 100 | 0.40 | Type D | 0.300 | 5.02 | 3235 | 0.23 | 1.20 | 44.93 | 49.95 | 1.58 | 0.20 | 0.13 | 9:1 | 1.33 | 12 | 0.11 | 8 |
| 8706+55 | 8706+65 | 104,134 | 100 | 0.39 | Type D | 0.300 | 5.05 | 3280 | 0.22 | 1.20 | 45.56 | 50.61 | 1.70 | 0.20 | 0.05 | 9:1 | 0.81 | 12 | 0.11 | 6 |
| 8706+65 | 8707+20 | 101,703 | 100 | 0.40 | Type D | 0.300 | 5.02 | 3470 | 0.22 | 1.20 | 48.19 | 53.22 | 1.70 | 0.20 | 0.07 | 6.5:1 | 0.79 | 12 | 0.12 | 6 |
| 8668+10 | 8668+75 | 1,475 | 100 | 0.34 | Type D | 0.300 | 5.22 | 20 | 0.40 | 1.60 | 0.21 | 5.43 | 4.73 | 0.20 | 0.58 | 1.5:1 | 0.03 | 12 | NO PIPE | |
| 8644+90 | 8646+80 | 130,528 | 100 | 0.42 | Type D | 0.300 | 4.97 | 1670 | 0.23 | 1.30 | 21.41 | 26.38 | 2.44 | 0.20 | 0.09 | 10:1 | 1.46 | 12 | 0.09 | 8 |
| 8616+65 | 8617+75 | 34,231 | 100 | 0.16 | Type D | 0.400 | 7.12 | 705 | 0.11 | 1.50 | 7.83 | 14.95 | 3.32 | 0.31 | 0.09 | 10.5:1 | 0.81 | 12 | NO PIPE | |

* Intensity calculated as 2-year return period with TC as duration OR 5-year/1-hr storm, whichever is greater

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|----------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------------------|-------------------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| 8984+72 | 8986+88 | 233,119 | 100 | 0.04 | Type D | 0.400 | 9.84 | 1826 | 0.32 | 2.55 | 11.93 | 21.77 | 2.73 | 0.40 | 0.03 | 5:1 | 5.85 | 18 | 0.08 | 12 |
| 8988+06 | 8990+24 | 303,803 | 100 | 0.03 | Type D | 0.400 | 10.98 | 1714 | 0.34 | 2.65 | 10.78 | 21.76 | 2.73 | 0.40 | 0.08 | 17:1 | 7.63 | 12 | 0.15 | 12 |
| 8994+77 | 8997+05 | 707,517 | 100 | 0.10 | Type D | 0.300 | 6.94 | 1422 | 0.33 | 2.60 | 9.12 | 16.06 | 3.21 | 0.40 | 0.08 | 16:1 | 20.83 | 18 | 0.41 | 2 x 12 |
| 9005+33 | 9007+27 | 171,402 | 100 | 0.08 | Type D | 0.300 | 7.32 | 806 | 0.28 | 2.40 | 5.60 | 12.91 | 3.54 | 0.40 | 0.22 | 12:1 | 5.58 | 12 | 0.34 | 12 |
| 9041+74 | 9043+65 | 82,582 | 100 | 0.04 | Type D | 0.300 | 8.87 | 641 | 0.05 | 1.00 | 10.68 | 19.56 | 2.90 | 0.30 | 0.05 | 10:1 | 1.65 | 12 | 0.14 | 8 |
| 9057+01 | 9058+54 | 205,816 | 100 | 0.06 | Type D | 0.300 | 7.82 | 1194 | 0.36 | 2.75 | 7.24 | 15.06 | 3.31 | 0.40 | 0.01 | 50:1 | 6.25 | 12 | 0.52 | 12 |
| 9065+77 | 9069+39 | 242,859 | 100 | 0.01 | Type D | 0.300 | 11.89 | 2328 | 0.25 | 2.25 | 17.24 | 29.14 | 2.30 | 0.40 | 0.03 | 8:1 | 5.12 | 18 | 0.33 | 12 |
| 9101+86 | 9104+93 | 27,725 | 100 | 0.44 | Type D | 0.400 | 5.62 | 182 | 0.30 | 2.50 | 1.21 | 6.83 | 4.45 | 0.40 | 0.11 | 13:1 | 1.13 | 12 | 0.23 | 6 |
| 9107+01 | 9109+06 | 72,329 | 100 | 0.11 | Type D | 0.300 | 6.79 | 550 | 0.32 | 2.55 | 3.59 | 10.39 | 3.87 | 0.40 | 0.04 | 27:1 | 2.57 | 12 | 0.08 | 12 |
| 9116+33 | 9122+08 | 104,788 | 100 | 0.02 | Type D | 0.300 | 10.11 | 1339 | 0.18 | 1.80 | 12.40 | 22.51 | 2.68 | 0.40 | 0.03 | 4:1 | 2.58 | 18 | - | - |
| 9128+36 | 9130+77 | 289,122 | 100 | 0.01 | Type D | 0.300 | 11.89 | 1455 | 0.14 | 1.65 | 14.70 | 26.59 | 2.43 | 0.40 | 0.10 | 17:1 | 6.46 | 12 | 0.17 | 12 |
| 9131+08 | 9132+86 | 256,618 | 100 | 0.02 | Type D | 0.400 | 11.57 | 1537 | 0.09 | 1.70 | 15.07 | 26.64 | 2.43 | 0.40 | 0.01 | 5:1 | 5.72 | 18 | 0.13 | 12 |

Cumberland County

**Cumberland County
Temporary Diversion Berm Calculations**

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Left Side Slope (ft/ft (H:V)) | Right Side Slope (ft/ft (H:V)) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Flow Type |
|---------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------------|-----------------|--------------------|----------------------|---------------|---------------|
| 10406+15 - 10407+70 | 0.025 | 0.03 | 0.64 | 0.1 | 22 | 21.54 | 4.58 | 14.83 | 0.31 | 14.23 | 0.75 | 0.0134 | 4.7 | 0.34 | 0.99 | 1.46 | Supercritical |
| 10420+70 - 10427+00 | 0.025 | 0.02 | 0.51 | 0.1 | 50 | 21.28 | 6.41 | 25.81 | 0.25 | 25.34 | 0.54 | 0.0145 | 3.32 | 0.17 | 0.68 | 1.16 | Supercritical |
| 10432+90 - 10434+15 | 0.025 | 0.03 | 0.5 | 0.1 | 21 | 10.21 | 2.59 | 10.91 | 0.24 | 10.45 | 0.57 | 0.0147 | 3.94 | 0.24 | 0.74 | 1.4 | Supercritical |
| 10470+50 - 10477+25 | 0.025 | 0.02 | 0.48 | 0.1 | 30 | 11.06 | 3.47 | 14.9 | 0.23 | 14.46 | 0.51 | 0.015 | 3.18 | 0.16 | 0.64 | 1.15 | Supercritical |
| 10493+55 - 10497+20 | 0.025 | 0.06 | 0.99 | 0.1 | 7 | 29.34 | 3.5 | 8.02 | 0.44 | 7.05 | 1.34 | 0.0124 | 8.37 | 1.09 | 2.08 | 2.09 | Supercritical |
| 10579+50 - 10588+70 | 0.025 | 0.01 | 0.56 | 0.1 | 32 | 12.73 | 5.08 | 18.58 | 0.27 | 18.06 | 0.52 | 0.0148 | 2.5 | 0.1 | 0.66 | 0.83 | Subcritical |
| 10630+25 - 10634+90 | 0.025 | 0.02 | 0.32 | 0.1 | 44 | 5.45 | 2.24 | 14.34 | 0.16 | 14.05 | 0.33 | 0.0171 | 2.44 | 0.09 | 0.41 | 1.08 | Supercritical |
| 10634+90 - 10635+90 | 0.025 | 0.02 | 0.22 | 0.1 | 30 | 1.44 | 0.75 | 6.94 | 0.11 | 6.73 | 0.22 | 0.0197 | 1.91 | 0.06 | 0.28 | 1.01 | Supercritical |
| 10638+50 - 10639+62 | 0.025 | 0.01 | 0.25 | 0.1 | 36 | 1.67 | 1.14 | 9.29 | 0.12 | 9.06 | 0.22 | 0.0196 | 1.47 | 0.03 | 0.28 | 0.73 | Subcritical |
| 10661+40 - 10664+60 | 0.025 | 0.01 | 0.33 | 0.1 | 10 | 0.89 | 0.53 | 3.59 | 0.15 | 3.28 | 0.29 | 0.0196 | 1.67 | 0.04 | 0.37 | 0.73 | Subcritical |
| 10676+50 - 10681+10 | 0.025 | 0.11 | 0.31 | 0.1 | 7 | 1.72 | 0.33 | 2.47 | 0.13 | 2.17 | 0.43 | 0.0181 | 5.17 | 0.42 | 0.72 | 2.33 | Supercritical |
| 10702+45 - 10739+20 | 0.025 | 0.01 | 0.2 | 0.1 | 29 | 0.71 | 0.57 | 5.94 | 0.1 | 5.76 | 0.17 | 0.0215 | 1.25 | 0.02 | 0.22 | 0.7 | Subcritical |
| 10716+70 - 10717+80 | 0.025 | 0.06 | 0.69 | 0.1 | 4 | 6.11 | 0.99 | 3.56 | 0.28 | 2.85 | 0.89 | 0.0161 | 6.19 | 0.6 | 1.29 | 1.85 | Supercritical |
| 10735+45 - 10739+20 | 0.025 | 0.01 | 0.59 | 0.1 | 70 | 32.27 | 12.32 | 42.1 | 0.29 | 41.56 | 0.56 | 0.0142 | 2.62 | 0.11 | 0.7 | 0.85 | Subcritical |
| 10739+20 - 10742+50 | 0.025 | 0.01 | 0.62 | 0.1 | 34 | 17.19 | 6.46 | 21.55 | 0.3 | 20.99 | 0.58 | 0.0143 | 2.66 | 0.11 | 0.73 | 0.85 | Subcritical |
| 10746+50 - 10747+90 | 0.025 | 0.02 | 0.31 | 0.1 | 56 | 6.45 | 2.69 | 17.66 | 0.15 | 17.37 | 0.32 | 0.0172 | 2.4 | 0.09 | 0.4 | 1.07 | Supercritical |
| 10664+60 - 10674+50 | 0.025 | 0.02 | 0.68 | 0.1 | 3 | 2.45 | 0.73 | 2.85 | 0.25 | 2.12 | 0.69 | 0.0193 | 3.38 | 0.18 | 0.86 | 1.02 | Supercritical |

Cumberland County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|--------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 9172+32 - 9174+18 | 0.18 | 0.29 | 3.22 | 6.82 | S | 12.5 | 12.00 | 3.26 | P550 |
| 9189+39 - 9190+16 | 0.1 | 0.22 | 0.61 | 4.11 | S | 8.0 | 2.00 | 1.37 | SC150 |
| 9191+23 - 9193+38 | 0.14 | 0.15 | 0.91 | 3.9 | S | 8.0 | 2.00 | 1.31 | SC150 |
| 9194+86 - 9197+80 | 0.01 | 0.94 | 16.9 | 3.49 | V | 8.0 | 2.00 | 0.59 | SC150 |
| 9199+12 - 9201+20 | 0.04 | 0.25 | 1.17 | 2.9 | V | 8.0 | 2.00 | 0.62 | SC150 |
| 9210+32 - 9211+52 | 0.02 | 0.43 | 1.3 | 2.82 | V | 8.0 | 2.00 | 0.54 | SC150 |
| 9212+93 - 9214+96 | 0.04 | 0.44 | 4.39 | 4.19 | V | 8.0 | 2.00 | 1.10 | SC150 |
| 9237+83 - 9241+27 | 0.01 | 0.9 | 5.13 | 3.19 | V | 8.0 | 2.00 | 0.56 | SC150 |
| 9257+47 - 9258+16 | 0.04 | 0.29 | 2.26 | 3.26 | V | 8.0 | 2.00 | 0.72 | SC150 |
| 9262+67 - 9265+58 | 0.02 | 0.28 | 1.45 | 2.25 | V | 8.0 | 2.00 | 0.35 | SC150 |
| 9275+08 - 9276+97 | 0.01 | 0.46 | 3.61 | 2.18 | V | 8.0 | 2.00 | 0.29 | SC150 |
| 9276+97 - 9278+55 | 0.04 | 0.35 | 3.61 | 3.66 | V | 8.0 | 2.00 | 0.87 | SC150 |
| 9280+23 - 9281+18 | 0.04 | 0.27 | 1.19 | 3.02 | V | 8.0 | 2.00 | 0.67 | SC150 |
| 9289+26 - 9291+74 | 0.04 | 0.32 | 1.96 | 3.43 | V | 8.0 | 2.00 | 0.80 | SC150 |
| 9291+74 - 9293+62 | 0.01 | 0.38 | 1.53 | 1.92 | V | 8.0 | 2.00 | 0.24 | SC150 |
| 9313+70 - 9314+83 | 0.19 | 0.11 | 0.73 | 3.78 | S | 8.0 | 2.00 | 1.30 | SC150 |
| 9314+83 - 9315+86 | 0.05 | 0.2 | 1.03 | 2.79 | V | 8.0 | 2.00 | 0.62 | SC150 |
| 9316+65 - 9318+53 | 0.004 | 0.66 | 8.25 | 1.78 | V | 8.0 | 2.00 | 0.16 | SC150 |
| 9318+53 - 9320+10 | 0.01 | 0.45 | 3.5 | 2.16 | V | 8.0 | 2.00 | 0.28 | SC150 |
| 9320+10 - 9322+48 | 0.05 | 0.43 | 5.26 | 4.67 | V | 8.0 | 2.00 | 1.34 | SC150 |
| 9324+51 - 9325+25 | 0.06 | 0.23 | 1.11 | 3.4 | V | 8.0 | 2.00 | 0.86 | SC150 |
| 9326+36 - 9327+33 | 0.2 | 0.14 | 0.71 | 4.53 | S | 8.0 | 2.00 | 1.75 | SC150 |
| 9332+04 - 9334+92 | 0.08 | 0.24 | 1.8 | 3.99 | V | 8.0 | 2.00 | 1.20 | SC150 |
| 9334+92 - 9337+80 | 0.06 | 0.22 | 2.08 | 3.3 | V | 8.0 | 2.00 | 0.82 | SC150 |
| 9341+33 - 9342+53 | 0.09 | 0.17 | 1.67 | 3.36 | V | 8.0 | 2.00 | 0.95 | SC150 |
| 9342+53 - 9344+79 | 0.06 | 0.29 | 2.55 | 3.91 | V | 8.0 | 2.00 | 1.09 | SC150 |
| 9359+80 - 9360+94 | 0.04 | 0.61 | 15.63 | 5.28 | V | 8.0 | 2.00 | 1.52 | SC150 |
| 9363+08 - 9363+68 | 0.01 | 0.38 | 0.64 | 1.82 | V | 8.0 | 2.00 | 0.24 | SC150 |
| 9363+68 - 9365+13 | 0.02 | 0.52 | 2.17 | 3.2 | V | 8.0 | 2.00 | 0.65 | SC150 |
| 9365+13 - 9366+56 | 0.06 | 0.33 | 0.86 | 3.99 | V | 8.0 | 2.00 | 1.24 | SC150 |
| 9384+13 - 9386+80 | 0.04 | 0.54 | 1.91 | 4.36 | V | 8.0 | 2.00 | 1.35 | SC150 |
| 9388+20 - 9388+88 | 0.06 | 0.76 | 10.2 | 7.11 | V | 9.5 | 3.00 | 2.85 | SC250 |
| 9410+16 - 9411+91 | 0.18 | 0.62 | 10.49 | 10.82 | S | 12.5 | 12.00 | 6.96 | P550 |
| 9413+12 - 9417+05 | 0.03 | 0.47 | 2.49 | 3.72 | V | 8.0 | 2.00 | 0.88 | SC150 |
| 9417+05 - 9418+11 | 0.04 | 0.22 | 1.07 | 2.7 | V | 8.0 | 2.00 | 0.55 | SC150 |
| 9418+11 - 9419+77 | 0.1 | 0.21 | 1.02 | 4.02 | S | 8.0 | 2.00 | 1.31 | SC150 |
| 9447+71 - 9448+63 | 0.01 | 1.08 | 13.2 | 3.74 | V | 8.0 | 2.00 | 0.67 | SC150 |
| 960035-960075 BERM | 0.167 | 0.32 | 1.56 | 6.3 | S | 12.5 | 12.00 | 3.33 | P550 |
| 960265-960390 BERM | 0.25 | 0.3 | 2.13 | 7.66 | S | 12.5 | 12.00 | 4.68 | P550 |

Cumberland County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|---------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 960390-960725 BERM | 0.19 | 0.27 | 1.78 | 6.3 | S | 12.5 | 12.00 | 3.20 | P550 |
| 961170-961250 BERM | 0.105 | 0.37 | 3.75 | 5.88 | S | 9.5 | 3.00 | 2.42 | SC250 |
| 968935-969040 BERM | 0.137 | 0.34 | 1.94 | 6.08 | S | 9.5 | 3.00 | 2.91 | SC250 |
| 969140-969165 BERM | 0.3 | 0.13 | 0.09 | 4.15 | S | 9.5 | 3.00 | 2.43 | SC250 |
| 970230-970300 BERM | 0.036 | 0.2 | 0.44 | 2.3 | V | 8.0 | 2.00 | 0.45 | SC150 |
| 970300-970505 BERM | 0.073 | 0.32 | 2.12 | 4.45 | V | 8.0 | 2.00 | 1.46 | SC150 |
| 970660-970740 BERM | 0.19 | 0.14 | 0.36 | 4.1 | S | 8.0 | 2.00 | 1.66 | SC150 |
| 975315-975505 BERM | 0.011 | 0.36 | 1.33 | 1.87 | V | 8.0 | 2.00 | 0.25 | SC150 |
| 975505-976015 BERM | 0.06 | 0.43 | 2.96 | 4.76 | V | 8.0 | 2.00 | 1.61 | SC150 |
| 976830-977055 BERM | 0.022 | 0.3 | 1.16 | 2.34 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 977150-977280 BERM | 0.024 | 0.23 | 0.55 | 2.06 | V | 8.0 | 2.00 | 0.34 | SC150 |
| 977280-977370 BERM | 0.059 | 0.14 | 0.22 | 2.29 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 977820-977900 BERM | 0.114 | 0.3 | 2.73 | 5.38 | S | 9.5 | 3.00 | 2.13 | SC250 |
| 977900-978095 BERM | 0.058 | 0.2 | 0.52 | 2.87 | V | 8.0 | 2.00 | 0.72 | SC150 |
| 978270-978425 BERM | 0.035 | 0.34 | 1.2 | 3.11 | V | 8.0 | 2.00 | 0.74 | SC150 |
| 978425-978675 BERM | 0.059 | 0.33 | 1.42 | 3.94 | V | 8.0 | 2.00 | 1.21 | SC150 |
| 980290-980460 BERM | 0.128 | 0.16 | 0.59 | 3.73 | S | 8.0 | 2.00 | 1.28 | SC150 |
| 980875-981150 BERM | 0.024 | 0.39 | 1.74 | 2.88 | V | 8.0 | 2.00 | 0.58 | SC150 |
| 982670-983000 BERM | 0.01 | 0.29 | 3.55 | 1.64 | V | 8.0 | 2.00 | 0.18 | SC150 |
| 986450-986540 BERM | 0.024 | 0.43 | 2.89 | 3.11 | V | 8.0 | 2.00 | 0.64 | SC150 |
| 986720-986855 BERM | 0.127 | 0.23 | 0.79 | 4.59 | S | 8.0 | 2.00 | 1.82 | SC150 |
| 986855-987205 BERM | 0.118 | 0.33 | 1.86 | 5.59 | S | 9.5 | 3.00 | 2.43 | SC250 |
| 987205-987405 BERM | 0.031 | 0.26 | 0.58 | 2.44 | V | 8.0 | 2.00 | 0.50 | SC150 |
| 987725-987885 BERM | 0.185 | 0.17 | 0.49 | 4.57 | S | 8.0 | 2.00 | 1.96 | SC150 |
| 983000-983300 BERM | 0.014 | 0.2 | 1.04 | 1.5 | V | 8.0 | 2.00 | 0.17 | SC150 |
| 9931+73 - 9933+63 | 0.03 | 0.34 | 1.19 | 2.9 | V | 8.0 | 2.00 | 0.64 | SC150 |
| 10324+20 - 10325+50 | 0.02 | 0.24 | 3.69 | 2.05 | V | 8.0 | 2.00 | 0.30 | SC150 |
| 10325+50 - 10322+15 | 0.01 | 0.33 | 5.97 | 1.78 | V | 8.0 | 2.00 | 0.21 | SC150 |
| 10328+15 - 10332+20 | 0.01 | 0.24 | 2.42 | 1.42 | V | 8.0 | 2.00 | 0.15 | SC150 |
| 10351+20 - 10351+20 | 0.15 | 0.28 | 1.38 | 5.66 | S | 9.5 | 3.00 | 2.62 | SC250 |
| 10406+15 - 10407+70 | 0.03 | 0.64 | 21.54 | 4.7 | V | 8.0 | 2.00 | 1.20 | SC150 |
| 10420+70 - 10427+00 | 0.02 | 0.51 | 21.28 | 3.32 | V | 8.0 | 2.00 | 0.64 | SC150 |
| 10432+90 - 10434+15 | 0.03 | 0.5 | 10.21 | 3.94 | V | 8.0 | 2.00 | 0.94 | SC150 |
| 10470+50 - 10477+25 | 0.02 | 0.48 | 11.06 | 3.18 | V | 8.0 | 2.00 | 0.60 | SC150 |
| 10493+55 - 10497+20 | 0.06 | 0.99 | 29.34 | 8.37 | V | 12.5 | 12.00 | 3.71 | P550 |
| 10579+50 - 10588+70 | 0.01 | 0.56 | 12.73 | 2.5 | V | 8.0 | 2.00 | 0.35 | SC150 |
| 10630+25 - 10634+90 | 0.02 | 0.32 | 5.45 | 2.44 | V | 8.0 | 2.00 | 0.40 | SC150 |
| 10634+90 - 10635+90 | 0.02 | 0.22 | 1.44 | 1.91 | V | 8.0 | 2.00 | 0.27 | SC150 |
| 10638+50 - 10639+62 | 0.01 | 0.25 | 1.67 | 1.47 | V | 8.0 | 2.00 | 0.16 | SC150 |

**Cumberland County
Temporary Diversion Berm
Erosion Control Blanket Calculations**

| STATION | Channel Slope (ft./ft) | Normal Depth (ft) | Discharge (ft³/s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft²) | Shear Stress (lb/ft²) | Blanket Specification |
|---------------------|-------------------------------|--------------------------|-------------------------------------|------------------------|--|---|--|---|------------------------------|
| 10661+40 - 10664+60 | 0.01 | 0.33 | 0.89 | 1.67 | V | 8.0 | 2.00 | 0.21 | SC150 |
| 10676+50 - 10681+10 | 0.11 | 0.31 | 1.72 | 5.17 | S | 9.5 | 3.00 | 2.13 | SC250 |
| 10702+45 - 10739+20 | 0.01 | 0.2 | 0.71 | 1.25 | V | 8.0 | 2.00 | 0.12 | SC150 |
| 10716+70 - 10717+80 | 0.06 | 0.69 | 6.11 | 6.19 | V | 9.5 | 3.00 | 2.58 | SC250 |
| 10735+45 - 10739+20 | 0.01 | 0.59 | 32.27 | 2.62 | V | 8.0 | 2.00 | 0.37 | SC150 |
| 10739+20 - 10742+50 | 0.01 | 0.62 | 17.19 | 2.66 | V | 8.0 | 2.00 | 0.39 | SC150 |
| 10746+50 - 10747+90 | 0.02 | 0.31 | 6.45 | 2.4 | V | 8.0 | 2.00 | 0.39 | SC150 |
| 10664+60 - 10674+50 | 0.02 | 0.68 | 2.45 | 3.38 | V | 8.0 | 2.00 | 0.85 | SC150 |

Cumberland County
Temporary Perforated Pipe Level Spreader Calculations

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|--------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 9172+32 - 9174+18 | 3.22 | 11 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.462 | 6.97 | 10 | 4.62 |
| 9189+39 -9190+16 | 0.61 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 1.55 | 5 | 1.97 |
| 9194+86 -9197+80 | 16.96 | 11 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.462 | 36.69 | 40 | 18.49 |
| 9199+12 -9201+20 | 1.17 | 9 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.418 | 2.80 | 5 | 2.09 |
| 9210+32 - 9211+52 | 1.3 | 11 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.462 | 2.81 | 5 | 2.31 |
| 9212+93 - 9214+96 | 4.39 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 15.75 | 20 | 5.58 |
| 9237+83 - 9241+27 | 5.13 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 18.40 | 20 | 5.58 |
| 9262+67 - 9265+58 | 1.45 | 15 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.540 | 2.69 | 5 | 2.70 |
| 9289+26 - 9291+74 | 4.28 | 7 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.369 | 11.61 | 15 | 5.53 |
| 9291+74 - 9293+62 | 1.53 | 9 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.418 | 3.66 | 5 | 2.09 |
| 9316+65 - 9318+53 | 8.25 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 20.93 | 25 | 9.86 |
| 9318+53 - 9320+10 | 3.5 | 12.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.493 | 7.10 | 10 | 4.93 |
| 9320+10 - 9322+48 | 5.26 | 9.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.430 | 12.24 | 15 | 6.44 |
| 9324+51 - 9325+25 | 1.11 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 2.52 | 5 | 2.20 |
| 9332+04 - 9334+92 | 1.8 | 18.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.599 | 3.00 | 5 | 3.00 |
| 9334+92 - 9337+80 | 2.08 | 28 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.738 | 2.82 | 5 | 3.69 |
| 9341+33 - 9342+53 | 1.67 | 24.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.690 | 2.42 | 5 | 3.45 |
| 9342+53 - 9344+79 | 2.55 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 5.28 | 10 | 4.83 |
| 9359+80 - 9360+94 | 15.63 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 45.78 | 50 | 17.07 |
| 9363+08 - 9363+68 | 0.64 | 5.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.327 | 1.96 | 5 | 1.63 |
| 9363+68 - 9365+13 | 2.17 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 6.96 | 10 | 3.12 |
| 9384+13 - 9386+80 | 1.91 | 7.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.382 | 5.00 | 10 | 3.82 |
| 9388+20 - 9388+88 | 10.2 | 5.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.327 | 31.21 | 35 | 11.44 |
| 9410+16 - 9411+91 | 10.49 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.355 | 29.52 | 30 | 10.66 |
| 9413+12 - 9417+05 | 2.49 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.355 | 7.01 | 10 | 3.55 |
| 9417+05 - 9418+11 | 1.07 | 18 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.591 | 1.81 | 5 | 2.96 |
| 9418+11 - 9419+77 | 1.02 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.355 | 2.87 | 5 | 1.78 |
| 9447+71 - 9448+63 | 13.2 | 1.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.171 | 77.33 | 80 | 13.66 |
| 960035-960075 PIPE | 2.57 | 9.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.430 | 5.98 | 10 | 4.30 |
| 960265-960390 PIPE | 2.96 | 14.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.531 | 5.58 | 10 | 5.31 |
| 960390-960725 PIPE | 1.83 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 5.87 | 10 | 3.12 |
| 961170-961250 PIPE | 6.37 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 18.66 | 20 | 6.83 |
| 970230-970300 PIPE | 1.18 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 2.35 | 5 | 2.51 |
| 970300-970505 PIPE | 2.15 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 5.45 | 10 | 3.94 |
| 976830-977055 PIPE | 1.11 | 5.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.327 | 3.40 | 5 | 1.63 |
| 977150-977280 PIPE | 1.26 | 15.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.549 | 2.30 | 5 | 2.74 |
| 977820-977900 PIPE | 6.43 | 9 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.418 | 15.38 | 20 | 8.36 |
| 977900-978095 PIPE | 1.32 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 2.63 | 5 | 2.51 |
| 978270-978425 PIPE | 1.75 | 24 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.683 | 2.56 | 5 | 3.41 |
| 978425-978675 PIPE | 1.66 | 26 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.711 | 2.34 | 5 | 3.55 |
| 980875-981150 PIPE | 4.14 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.355 | 11.65 | 15 | 5.33 |
| 982670-983000 PIPE | 3.56 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 14.75 | 15 | 3.62 |
| 986450-986540 PIPE | 4.32 | 5.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.327 | 13.22 | 15 | 4.90 |

Cumberland County
Temporary Perforated Pipe Level Spreader Calculations

| | | | | | | | | | | | | |
|--------------------------|-------|------|----|-------|---|------|------|------|-------|--------|-----|-------|
| 986855-987205 PIPE | 1.32 | 28.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.744 | 1.77 | 5 | 3.72 |
| 987205-987405 PIPE | 1.58 | 24 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.683 | 2.31 | 5 | 3.41 |
| 987725-987885 PIPE | 1.1 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 2.28 | 5 | 2.41 |
| 983000-983300 PIPE | 1.47 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 3.73 | 5 | 1.97 |
| 9931+73 - 9933+63 | 2.4 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 4.97 | 5 | 2.41 |
| 10324+20 - 10325+50 | 8.4 | 0.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.099 | 85.23 | 90 | 8.87 |
| 10325+50 - 10322+15 | 8.4 | 0.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.099 | 85.23 | 90 | 8.87 |
| 10328+15 - 10322+20 | 2.85 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 14.46 | 15 | 2.96 |
| 10351+20 - 10351+20 | 2.85 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 14.46 | 15 | 2.96 |
| 10406+15 - 10407+70 | 18.08 | 0.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.099 | 183.45 | 185 | 18.23 |
| 10420+70 - 10427+00 | 18.08 | 1 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 129.72 | 130 | 18.12 |
| 10432+90 - 10434+15 | 8.4 | 1 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 60.27 | 65 | 9.06 |
| 10470+50 - 10477+25 | 18.08 | 1 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 129.72 | 130 | 18.12 |
| 10493+55 - 10497+20 | 18.08 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 91.73 | 95 | 18.73 |
| 10579+50 - 15588+70 | 12.79 | 0.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.099 | 129.78 | 130 | 12.81 |
| 10630+25 - 10634+90 | 8.4 | 0.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.099 | 85.23 | 90 | 8.87 |
| 10634+90 - 10635+90 | 1.56 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 5.01 | 10 | 3.12 |
| 10638+50 - 10639+62 | 2.01 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 10.20 | 15 | 2.96 |
| 10661+40 - 10664+60 (rem | 1.83 | 9 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.418 | 4.38 | 5 | 2.09 |
| 10676+50 - 10681+10 | 3.25 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 6.73 | 10 | 4.83 |
| 10702+45 - 10739+20 | 0.84 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 2.13 | 5 | 1.97 |
| 10716+70 - 10717+80 | 9 | 7 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.369 | 24.41 | 25 | 9.22 |
| 10735+45 - 10739+20 | 53.31 | 0.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.099 | 540.92 | 545 | 53.71 |
| 10739+20 - 10742+50 | 18.08 | 0.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.099 | 183.45 | 185 | 18.23 |
| 10746+50 - 10747+90 | 12.79 | 1.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.171 | 74.93 | 75 | 12.80 |
| 10664+60 - 10674+50 | 5.33 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 27.04 | 30 | 5.91 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity* (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|--|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 9172+32 | 9174+18 | 135,464 | 100 | 0.01 | Type D | 0.300 | 11.89 | 1838 | 0.39 | 2.55 | 12.01 | 23.91 | 2.59 | 0.40 | 0.18 | 10:1 | 3.22 | 12 | 0.13 | 8 |
| 9189+39 | 9190+16 | 32,060 | 100 | 0.01 | Type D | 0.300 | 11.89 | 3510 | 0.27 | 2.65 | 22.08 | 33.97 | 2.08 | 0.40 | 0.10 | 5:1 | 0.61 | 12 | 0.14 | 6 |
| 9191+23 | 9193+38 | 49,540 | 100 | 0.01 | Type D | 0.300 | 11.89 | 3836 | 0.26 | 2.65 | 24.13 | 36.02 | 2.00 | 0.40 | 0.14 | 20:1 | 0.91 | 12 | - | - |
| 9194+86 | 9197+80 | 855,561 | 100 | 0.12 | Type D | 0.300 | 6.65 | 4076 | 0.24 | 2.65 | 25.64 | 32.29 | 2.15 | 0.40 | 0.01 | 10:1 | 16.90 | 18 | 0.14 | 18 |
| 9199+12 | 9201+20 | 60,619 | 100 | 0.15 | Type D | 0.300 | 6.32 | 4291 | 0.23 | 2.65 | 26.99 | 33.30 | 2.11 | 0.40 | 0.04 | 12:1 | 1.17 | 12 | 0.10 | 6 |
| 9210+32 | 9211+52 | 45,006 | 100 | 0.02 | Type D | 0.800 | 16.00 | 1438 | 0.09 | 2.65 | 9.04 | 25.04 | 2.52 | 0.50 | 0.02 | 4:1 | 1.30 | 12 | 0.15 | 6 |
| 9212+93 | 9214+96 | 157,350 | 100 | 0.02 | Type D | 0.800 | 16.00 | 1683 | 0.08 | 2.65 | 10.58 | 26.58 | 2.43 | 0.50 | 0.04 | 10:1 | 4.39 | 12 | 0.16 | 12 |
| 9237+83 | 9241+27 | 238,987 | 100 | 0.07 | Type D | 0.800 | 11.94 | 3991 | 0.11 | 2.40 | 27.72 | 39.65 | 1.87 | 0.50 | 0.01 | 3:1 | 5.13 | 18 | 0.05 | 12 |
| 9257+47 | 9258+16 | 87,594 | 100 | 0.07 | Type D | 0.800 | 11.94 | 2616 | 0.12 | 2.40 | 18.17 | 30.10 | 2.25 | 0.50 | 0.04 | 15:1 | 2.26 | 12 | - | - |
| 9262+67 | 9265+58 | 124,981 | 100 | 0.07 | Type D | 0.400 | 8.63 | 2247 | 0.13 | 1.00 | 37.45 | 46.08 | 1.68 | 0.30 | 0.02 | 15:1 | 1.45 | 12 | 0.19 | 6 |
| 9275+08 | 9276+97 | 205,912 | 100 | 0.04 | Type D | 0.300 | 8.60 | 4038 | 0.27 | 2.25 | 29.91 | 38.51 | 1.91 | 0.40 | 0.01 | 15:1 | 3.61 | 12 | 0.09 | - |
| 9276+97 | 9278+55 | 241,570 | 100 | 0.04 | Type D | 0.300 | 8.60 | 3964 | 0.27 | 2.25 | 29.36 | 37.96 | 1.93 | 0.40 | 0.04 | 10:1 | 4.28 | 18 | 0.10 | - |
| 9280+23 | 9281+18 | 63,029 | 100 | 0.04 | Type D | 0.300 | 8.60 | 3887 | 0.28 | 2.50 | 25.91 | 34.52 | 2.06 | 0.40 | 0.03 | 10:1 | 1.19 | 12 | - | - |
| 9289+26 | 9291+74 | 131,314 | 100 | 0.04 | Type D | 0.300 | 8.60 | 3565 | 0.28 | 2.55 | 23.30 | 31.90 | 2.17 | 0.30 | 0.04 | 10:1 | 1.96 | 12 | 0.10 | 12 |
| 9291+74 | 9293+62 | 100,764 | 100 | 0.04 | Type D | 0.300 | 8.60 | 3461 | 0.29 | 2.55 | 22.62 | 31.22 | 2.20 | 0.30 | 0.01 | 10:1 | 1.53 | 12 | 0.13 | 8 |
| 9313+70 | 9314+83 | 45,920 | 100 | 0.06 | Type D | 0.300 | 7.82 | 3573 | 0.30 | 1.65 | 36.09 | 43.92 | 1.74 | 0.40 | 0.19 | 29:1 | 0.73 | 12 | - | - |
| 9314+83 | 9315+86 | 66,239 | 100 | 0.06 | Type D | 0.300 | 7.82 | 3533 | 0.30 | 1.50 | 39.26 | 47.08 | 1.70 | 0.40 | 0.05 | 18:1 | 1.03 | 12 | - | - |
| 9316+65 | 9318+53 | 528,762 | 100 | 0.04 | Type D | 0.300 | 8.60 | 3533 | 0.30 | 1.50 | 39.26 | 47.86 | 1.70 | 0.40 | 0.004 | 20:1 | 8.25 | 18 | 0.08 | 12 |
| 9318+53 | 9320+10 | 224,327 | 100 | 0.03 | Type D | 0.300 | 9.20 | 3476 | 0.31 | 1.50 | 38.62 | 47.82 | 1.70 | 0.40 | 0.01 | 15:1 | 3.50 | 12 | 0.09 | 12 |
| 9320+10 | 9322+48 | 336,644 | 100 | 0.03 | Type D | 0.300 | 9.20 | 3450 | 0.31 | 1.50 | 38.33 | 47.53 | 1.70 | 0.40 | 0.05 | 11:1 | 5.26 | 12 | 0.09 | 12 |
| 9324+51 | 9325+25 | 70,869 | 100 | 0.05 | Type D | 0.300 | 8.17 | 3503 | 0.31 | 1.50 | 38.92 | 47.09 | 1.70 | 0.40 | 0.06 | 11:1 | 1.11 | 12 | 0.12 | 6 |
| 9326+36 | 9327+33 | 45,416 | 100 | 0.04 | Type D | 0.300 | 8.60 | 3604 | 0.29 | 1.50 | 40.04 | 48.65 | 1.70 | 0.40 | 0.20 | 14:1 | 0.71 | 12 | - | - |
| 9332+04 | 9334+92 | 55,021 | 100 | 0.07 | Type D | 0.300 | 7.55 | 471 | 0.11 | 1.50 | 5.23 | 12.78 | 3.56 | 0.40 | 0.08 | 15:1 | 1.80 | 12 | 0.17 | 6 |
| 9334+92 | 9337+80 | 60,936 | 100 | 0.07 | Type D | 0.300 | 7.55 | 361 | 0.19 | 1.50 | 4.01 | 11.56 | 3.71 | 0.40 | 0.06 | 25:1 | 2.08 | 12 | 0.29 | 8 |
| 9341+33 | 9342+53 | 54,743 | 100 | 0.07 | Type D | 0.300 | 7.55 | 662 | 0.21 | 1.50 | 7.36 | 14.90 | 3.32 | 0.40 | 0.09 | 35:1 | 1.67 | 12 | 0.23 | 6 |
| 9342+53 | 9344+79 | 91,063 | 100 | 0.07 | Type D | 0.300 | 7.55 | 925 | 0.16 | 1.50 | 10.28 | 17.83 | 3.04 | 0.40 | 0.06 | 15:1 | 2.55 | 12 | 0.12 | 8 |
| 9359+80 | 9360+94 | 1,001,407 | 100 | 0.02 | Type D | 0.300 | 10.11 | 4648 | 0.04 | 1.50 | 51.64 | 61.76 | 1.70 | 0.40 | 0.04 | 15:1 | 15.63 | 18 | 0.08 | 12 |
| 9363+08 | 9363+68 | 54,915 | 100 | 0.02 | Type D | 0.300 | 10.11 | 4745 | 0.04 | 1.50 | 52.72 | 62.84 | 1.70 | 0.30 | 0.01 | 4:1 | 0.64 | 12 | 0.09 | 6 |
| 9363+68 | 9365+13 | 185,203 | 100 | 0.02 | Type D | 0.300 | 10.11 | 4730 | 0.04 | 1.50 | 52.56 | 62.67 | 1.70 | 0.30 | 0.02 | 4:1 | 2.17 | 18 | 0.08 | 8 |
| 9365+13 | 9366+56 | 73,285 | 100 | 0.02 | Type D | 0.300 | 10.11 | 4764 | 0.04 | 1.50 | 52.93 | 63.05 | 1.70 | 0.30 | 0.06 | 3:1 | 0.86 | 12 | - | - |
| 9384+13 | 9386+80 | 163,362 | 100 | 0.02 | Type D | 0.300 | 10.11 | 5957 | 0.04 | 1.50 | 66.19 | 76.30 | 1.70 | 0.30 | 0.04 | 2:1 | 1.91 | 18 | 0.09 | 6 |
| 9388+20 | 9388+88 | 871,018 | 100 | 0.04 | Type D | 0.300 | 8.60 | 6528 | 0.03 | 1.50 | 72.53 | 81.14 | 1.70 | 0.30 | 0.06 | 4:1 | 10.20 | 18 | 0.07 | 12 |
| 9410+16 | 9411+91 | 460,663 | 100 | 0.02 | Type D | 0.400 | 11.57 | 1275 | 0.06 | 1.50 | 14.17 | 25.74 | 2.48 | 0.40 | 0.02 | 4:1 | 10.49 | 18 | 0.07 | 18 |
| 9413+12 | 9417+05 | 74,287 | 100 | 0.08 | Type D | 0.300 | 7.32 | 426 | 0.08 | 1.50 | 4.73 | 12.05 | 3.65 | 0.40 | 0.03 | 5:1 | 2.49 | 12 | 0.08 | 8 |
| 9417+05 | 9418+11 | 31,540 | 100 | 0.07 | Type D | 0.300 | 7.55 | 377 | 0.08 | 1.50 | 4.19 | 11.74 | 3.69 | 0.40 | 0.04 | 15:1 | 1.07 | 12 | 0.17 | 6 |
| 9418+11 | 9419+77 | 31,246 | 100 | 0.07 | Type D | 0.300 | 7.55 | 486 | 0.10 | 1.50 | 5.40 | 12.95 | 3.54 | 0.40 | 0.10 | 11:1 | 1.02 | 12 | 0.06 | 6 |
| 9447+71 | 9448+63 | 845,687 | 100 | 0.02 | Type D | 0.800 | 16.00 | 2994 | 0.03 | 1.50 | 33.27 | 49.26 | 1.70 | 0.40 | 0.01 | 5:1 | 13.20 | 24 | 0.01 | 18 |

* Intensity calculated as 2-year return period with TC as duration OR 5-year/1-hr storm, whichever is greater

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Class | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Peak Runoff Rate (CFS) | Size of Diversion Berm (in) | CWD Pipe Slope (ft/ft) | CWD Pipe Size (in) |
|----------------|----------|-----------------------------|------------------------------|--|------------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------|--------------------------------|---------------------------|-----------------------|
| 9600+35 | 9600+75 | 44,460 | 100 | 0.04 | D | 0.40 | 9.84 | 177 | 0.21 | 3.10 | 0.95 | 10.79 | 3.81 | 0.40 | 1.56 | 12 | 0.150 | 8 |
| 9602+65 | 9603+90 | 60,163 | 100 | 0.02 | D | 0.80 | 16.00 | 243 | 0.17 | 2.80 | 1.45 | 17.44 | 3.08 | 0.50 | 2.13 | 12 | 0.199 | 8 |
| 9603+90 | 9607+25 | 118,763 | 100 | 0.05 | D | 0.80 | 12.91 | 375 | 0.13 | 2.50 | 2.50 | 15.41 | 3.27 | 0.20 | 1.78 | 12 | 0.076 | 8 |
| 9611+70 | 9612+50 | 91,711 | 100 | 0.04 | D | 0.40 | 9.84 | 259 | 0.11 | 1.50 | 2.88 | 12.72 | 3.57 | 0.50 | 3.75 | 12 | 0.109 | 12 |
| 9689+35 | 9690+40 | 46,491 | 100 | 0.04 | D | 0.30 | 8.60 | 428 | 0.19 | 2.00 | 3.57 | 12.17 | 3.63 | 0.50 | 1.94 | 12 | N/A | N/A |
| 9691+40 | 9691+65 | 2,021 | 100 | 0.24 | D | 0.30 | 5.66 | 19 | 0.42 | 1.60 | 0.20 | 5.86 | 4.64 | 0.40 | 0.09 | 12 | N/A | N/A |
| 9702+30 | 9703+00 | 18,244 | 100 | 0.04 | D | 0.40 | 9.84 | 392 | 0.11 | 1.50 | 4.36 | 14.20 | 3.40 | 0.31 | 0.44 | 12 | 0.152 | 6 |
| 9703+00 | 9705+05 | 87,221 | 100 | 0.05 | D | 0.40 | 9.34 | 421 | 0.11 | 1.50 | 4.68 | 14.02 | 3.42 | 0.31 | 2.12 | 12 | 0.105 | 8 |
| 9706+60 | 9707+40 | 14,192 | 100 | 0.07 | D | 0.40 | 8.63 | 346 | 0.11 | 1.50 | 3.84 | 12.48 | 3.60 | 0.31 | 0.36 | 12 | N/A | N/A |
| 9753+15 | 9755+05 | 52,886 | 100 | 0.06 | D | 0.40 | 8.95 | 336 | 0.09 | 1.40 | 4.00 | 12.95 | 3.54 | 0.31 | 1.33 | 12 | N/A | N/A |
| 9755+05 | 9760+15 | 119,850 | 100 | 0.03 | D | 0.40 | 10.52 | 312 | 0.15 | 1.75 | 2.97 | 13.50 | 3.48 | 0.31 | 2.96 | 12 | N/A | N/A |
| 9768+30 | 9770+55 | 53,110 | 100 | 0.02 | D | 0.40 | 11.57 | 489 | 0.09 | 1.40 | 5.82 | 17.39 | 3.08 | 0.31 | 1.16 | 12 | 0.134 | 6 |
| 9771+50 | 9772+80 | 20,444 | 100 | 0.08 | D | 0.40 | 8.37 | 221 | 0.10 | 1.40 | 2.63 | 11.00 | 3.79 | 0.31 | 0.55 | 12 | 0.171 | 6 |
| 9772+80 | 9773+70 | 8,301 | 100 | 0.08 | D | 0.40 | 8.37 | 222 | 0.10 | 1.40 | 2.64 | 11.01 | 3.78 | 0.31 | 0.22 | 12 | N/A | N/A |
| 9778+20 | 9779+00 | 134,901 | 100 | 0.04 | D | 0.80 | 13.60 | 518 | 0.09 | 1.30 | 6.64 | 20.24 | 2.85 | 0.31 | 2.73 | 12 | 0.111 | 12 |
| 9779+00 | 9780+95 | 12,909 | 100 | 0.05 | D | 0.80 | 12.91 | 87 | 0.11 | 3.20 | 0.45 | 13.37 | 3.49 | 0.50 | 0.52 | 12 | 0.188 | 6 |
| 9782+70 | 9784+25 | 45,851 | 100 | 0.05 | D | 0.40 | 9.34 | 264 | 0.15 | 1.75 | 2.51 | 11.85 | 3.67 | 0.31 | 1.20 | 12 | 0.332 | 6 |
| 9784+25 | 9786+75 | 54,686 | 100 | 0.05 | D | 0.40 | 9.34 | 293 | 0.15 | 1.75 | 2.79 | 12.13 | 3.64 | 0.31 | 1.42 | 12 | 0.300 | 6 |
| 9802+90 | 9804+60 | 19,423 | 100 | 0.05 | D | 0.80 | 12.91 | 224 | 0.08 | 1.90 | 1.96 | 14.88 | 3.33 | 0.40 | 0.59 | 12 | N/A | N/A |
| 9808+75 | 9811+50 | 73,416 | 100 | 0.06 | D | 0.80 | 12.37 | 235 | 0.13 | 1.60 | 2.45 | 14.82 | 3.33 | 0.31 | 1.74 | 12 | 0.046 | 12 |
| 9826+70 | 9830+00 | 200,444 | 100 | 0.02 | D | 0.40 | 11.57 | 549 | 0.02 | 0.65 | 14.08 | 25.65 | 2.49 | 0.31 | 3.55 | 12 | 0.034 | 12 |
| 9830+00 | 9833+00 | 47,413 | 100 | 0.02 | D | 0.40 | 11.57 | 287 | 0.03 | 0.80 | 5.98 | 17.55 | 3.07 | 0.31 | 1.04 | 12 | 0.049 | 8 |
| 9864+50 | 9865+40 | 276,335 | 100 | 0.08 | D | 0.30 | 7.32 | 817 | 0.10 | 0.76 | 17.92 | 25.23 | 2.51 | 0.20 | 3.18 | 12 | 0.050 | 12 |
| 9867+20 | 9868+55 | 53,568 | 100 | 0.06 | D | 0.30 | 7.82 | 483 | 0.16 | 0.96 | 8.39 | 16.21 | 3.19 | 0.20 | 0.79 | 12 | N/A | N/A |
| 9868+55 | 9872+05 | 116,840 | 100 | 0.04 | D | 0.30 | 8.60 | 301 | 0.17 | 1.00 | 5.02 | 13.62 | 3.46 | 0.20 | 1.86 | 12 | 0.188 | 6 |
| 9872+05 | 9874+05 | 35,276 | 100 | 0.05 | D | 0.30 | 8.17 | 250 | 0.14 | 0.92 | 4.53 | 12.69 | 3.57 | 0.20 | 0.58 | 12 | 0.271 | 6 |
| 9877+25 | 9878+85 | 28,910 | 100 | 0.87 | D | 0.30 | 4.19 | 426 | 0.14 | 0.92 | 7.72 | 11.91 | 3.67 | 0.20 | 0.49 | 12 | 0.131 | 6 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity * (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|---|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 9931+73 | 9933+63 | 69,475 | 100 | 0.06 | Type D | 0.300 | 7.82 | 508 | 0.11 | 2.30 | 3.68 | 11.51 | 3.72 | 0.20 | 0.03 | 7:1 | 1.19 | 12 | 0.12 | 8 |
| 10324+20 | 10325+50 | 276,772 | 100 | 0.02 | Type D | 0.300 | 10.11 | 785 | 0.04 | 1.40 | 9.35 | 19.46 | 2.91 | 0.20 | 0.01 | 60:1 | 3.69 | 12 | 0.02 | 12(2) |
| 10325+50 | 10328+15 | 621,280 | 100 | 0.02 | Type D | 0.300 | 10.11 | 987 | 0.01 | 0.70 | 23.50 | 33.61 | 2.09 | 0.20 | 0.01 | 60:1 | 5.97 | 12 | 0.02 | 12(2) |
| 10328+15 | 10332+20 | 170,193 | 100 | 0.02 | Type D | 0.300 | 10.11 | 516 | 0.03 | 1.20 | 7.17 | 17.28 | 3.09 | 0.20 | 0.01 | 60:1 | 2.42 | 12 | 0.02 | 12 |
| 10351+20 | 10351+20 | 151,016 | 100 | 0.03 | Type D | 0.300 | 9.20 | 1632 | 0.02 | 1.00 | 27.20 | 36.40 | 1.99 | 0.20 | 0.15 | 6:1 | 1.38 | 12 | 0.02 | 12 |
| 10406+15 | 10407+70 | 2,760,080 | 100 | 0.03 | Type D | 0.300 | 9.20 | 2730 | 0.01 | 0.70 | 65.00 | 74.20 | 1.70 | 0.20 | 0.03 | 22:1 | 21.54 | 18 | 0.02 | 24(2) |
| 10420+70 | 10427+00 | 2,725,944 | 100 | 0.02 | Type D | 0.300 | 10.11 | 1871 | 0.01 | 0.70 | 44.55 | 54.66 | 1.70 | 0.20 | 0.02 | 50:1 | 21.28 | 18 | 0.02 | 24(2) |
| 10432+90 | 10434+15 | 1,308,310 | 100 | 0.02 | Type D | 0.300 | 10.11 | 1886 | 0.01 | 0.70 | 44.90 | 55.02 | 1.70 | 0.20 | 0.03 | 21:1 | 10.21 | 12 | 0.02 | 18(2) |
| 10470+50 | 10477+25 | 1,178,257 | 100 | 0.02 | Type D | 0.300 | 10.11 | 1485 | 0.02 | 1.00 | 24.75 | 34.86 | 2.04 | 0.20 | 0.02 | 30:1 | 11.06 | 12 | 0.02 | 12(2) |
| 10493+55 | 10497+20 | 3,758,618 | 100 | 0.06 | Type D | 0.300 | 7.82 | 3389 | 0.02 | 1.00 | 56.48 | 64.31 | 1.70 | 0.20 | 0.06 | 7:1 | 29.34 | 18 | 0.02 | 24(2) |
| 10579+50 | 10588+70 | 1,659,716 | 100 | 0.11 | Type D | 0.300 | 6.79 | 2379 | 0.02 | 1.00 | 39.65 | 46.44 | 1.67 | 0.20 | 0.01 | 32:1 | 12.73 | 18 | 0.01 | 12(2) |
| 10630+25 | 10634+90 | 397,005 | 100 | 0.02 | Type D | 0.300 | 10.11 | 600 | 0.03 | 1.20 | 8.33 | 18.45 | 2.99 | 0.20 | 0.02 | 44:1 | 5.45 | 12 | 0.02 | 12(2) |
| 10634+90 | 10635+90 | 103,746 | 100 | 0.02 | Type D | 0.300 | 10.11 | 571 | 0.03 | 1.20 | 7.93 | 18.04 | 3.02 | 0.20 | 0.02 | 30:1 | 1.44 | 12 | 0.06 | 8 |
| 10638+50 | 10639+62 | 157,939 | 100 | 0.02 | Type D | 0.300 | 10.11 | 1128 | 0.02 | 1.00 | 18.80 | 28.91 | 2.31 | 0.20 | 0.01 | 36:1 | 1.67 | 12 | 0.01 | 12 |
| 10661+40 | 10664+60 | 40,361 | 100 | 0.16 | Type D | 0.030 | 2.12 | 123 | 0.11 | 2.20 | 0.93 | 5.00 | 4.82 | 0.20 | 0.01 | 10:1 | 0.89 | 12 | N/A | N/A |
| 10664+60 | 10674+50 | 120,564 | 100 | 0.12 | Type D | 0.300 | 6.65 | 57 | 0.28 | 3.60 | 0.26 | 6.92 | 4.43 | 0.20 | 0.02 | 3:1 | 2.45 | 18 | 0.07 | 12 |
| 10676+50 | 10681+10 | 179,302 | 100 | 0.04 | Type D | 0.300 | 8.60 | 1809 | 0.03 | 1.20 | 25.13 | 33.73 | 2.09 | 0.20 | 0.11 | 7:1 | 1.72 | 12 | 0.22 | 8 |
| 10702+10 | 10703+20 | 47,186 | 100 | 0.01 | Type D | 0.300 | 11.89 | 240 | 0.03 | 1.20 | 3.33 | 15.23 | 3.29 | 0.20 | 0.01 | 29:1 | 0.71 | 12 | 0.07 | 6 |
| 10716+70 | 10717+80 | 487,908 | 100 | 0.03 | Type D | 0.300 | 9.20 | 1137 | 0.05 | 1.50 | 12.63 | 21.83 | 2.73 | 0.20 | 0.06 | 4:1 | 6.11 | 18 | 0.10 | 12(2) |
| 10735+45 | 10739+20 | 4,277,586 | 100 | 0.04 | Type D | 0.300 | 8.60 | 3269 | 0.04 | 1.40 | 38.92 | 47.52 | 1.64 | 0.20 | 0.01 | 70:1 | 32.27 | 18 | 0.02 | 12(3) |
| 10739+20 | 10742+50 | 1,974,457 | 100 | 0.05 | Type D | 0.300 | 8.17 | 2581 | 0.04 | 1.40 | 30.73 | 38.89 | 1.90 | 0.20 | 0.01 | 34:1 | 17.19 | 18 | 0.02 | 12(2) |
| 10746+50 | 10747+90 | 611,088 | 100 | 0.04 | Type D | 0.300 | 8.60 | 1848 | 0.05 | 1.50 | 20.53 | 29.14 | 2.30 | 0.20 | 0.02 | 56:1 | 6.45 | 12 | 0.01 | 12(2) |

* Intensity calculated as 2-year return period with TC as duration OR 5-year/1-hr storm, whichever is greater

York County

**York County
Temporary Diversion Berm Calculations**

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Left Side Slope (ft/ft (H:V)) | Right Side Slope (ft/ft (H:V)) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Flow Type |
|-------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------------|-----------------|--------------------|----------------------|---------------|---------------|
| 10861+75-10863+50 | 0.025 | 0.06 | 0.25 | 0.1 | 7 | 0.75 | 0.22 | 2.03 | 0.11 | 1.78 | 0.31 | 0.0202 | 3.35 | 0.17 | 0.43 | 1.67 | Supercritical |
| 10869+60-10872+00 | 0.025 | 0.06 | 0.33 | 0.1 | 5 | 1.09 | 0.28 | 2.02 | 0.14 | 1.69 | 0.41 | 0.0197 | 3.9 | 0.24 | 0.57 | 1.69 | Supercritical |
| 10872+25-10872+90 | 0.025 | 0.04 | 0.78 | 0.1 | 5 | 8.65 | 1.54 | 4.74 | 0.32 | 3.96 | 0.94 | 0.0149 | 5.62 | 0.49 | 1.27 | 1.59 | Supercritical |
| 10917+10-10917+75 | 0.025 | 0.05 | 0.46 | 0.1 | 15 | 7.81 | 1.62 | 7.43 | 0.22 | 7 | 0.58 | 0.0149 | 4.82 | 0.36 | 0.82 | 1.76 | Supercritical |
| 10934+34-10938+95 | 0.025 | 0.04 | 0.72 | 0.1 | 5 | 7.04 | 1.32 | 4.39 | 0.3 | 3.67 | 0.86 | 0.0153 | 5.33 | 0.44 | 1.16 | 1.57 | Supercritical |
| 10948+90-10948+90 | 0.025 | 0.04 | 0.21 | 0.1 | 6 | 0.31 | 0.13 | 1.47 | 0.09 | 1.26 | 0.23 | 0.0229 | 2.37 | 0.09 | 0.29 | 1.3 | Supercritical |
| 10950+25-10951+15 | 0.025 | 0.09 | 0.59 | 0.1 | 5 | 6.19 | 0.88 | 3.59 | 0.25 | 3 | 0.82 | 0.0156 | 7 | 0.76 | 1.35 | 2.27 | Supercritical |
| 10953+20-10956+55 | 0.025 | 0.06 | 0.53 | 0.1 | 3 | 2.15 | 0.44 | 2.21 | 0.2 | 1.64 | 0.65 | 0.0196 | 4.93 | 0.38 | 0.91 | 1.69 | Supercritical |
| 10967+80-10969+90 | 0.025 | 0.01 | 0.64 | 0.1 | 2 | 0.89 | 0.43 | 2.07 | 0.21 | 1.34 | 0.54 | 0.0252 | 2.08 | 0.07 | 0.71 | 0.65 | Subcritical |
| 10969+90-10973+45 | 0.025 | 0.1 | 0.56 | 0.1 | 2 | 2 | 0.33 | 1.82 | 0.18 | 1.18 | 0.74 | 0.0226 | 6.04 | 0.57 | 1.13 | 2.01 | Supercritical |
| 10980+20-10982+40 | 0.025 | 0.06 | 0.52 | 0.1 | 3 | 2.04 | 0.42 | 2.17 | 0.19 | 1.61 | 0.64 | 0.0198 | 4.87 | 0.37 | 0.89 | 1.68 | Supercritical |
| 10984+15-10984+90 | 0.025 | 0.05 | 0.39 | 0.1 | 5 | 1.53 | 0.39 | 2.38 | 0.16 | 1.99 | 0.47 | 0.0188 | 3.96 | 0.24 | 0.63 | 1.58 | Supercritical |
| 10990+20-10994+65 | 0.025 | 0.04 | 0.5 | 0.1 | 5 | 2.7 | 0.64 | 3.06 | 0.21 | 2.56 | 0.59 | 0.0174 | 4.2 | 0.27 | 0.78 | 1.48 | Supercritical |
| 11024+45-11026+40 | 0.025 | 0.02 | 0.54 | 0.1 | 12 | 5.98 | 1.78 | 7.08 | 0.25 | 6.57 | 0.57 | 0.0153 | 3.35 | 0.17 | 0.72 | 1.13 | Supercritical |
| 11048+50-11049+30 | 0.025 | 0.07 | 0.47 | 0.1 | 8 | 4.89 | 0.88 | 4.24 | 0.21 | 3.78 | 0.62 | 0.0157 | 5.53 | 0.48 | 0.94 | 2.02 | Supercritical |
| 11048+50-11049+30 | 0.025 | 0.07 | 0.47 | 0.1 | 8 | 4.89 | 0.88 | 4.24 | 0.21 | 3.78 | 0.62 | 0.0157 | 5.53 | 0.48 | 0.94 | 2.02 | Supercritical |
| 11049+30-11049+80 | 0.025 | 0.09 | 0.31 | 0.1 | 8 | 1.9 | 0.4 | 2.83 | 0.14 | 2.53 | 0.42 | 0.0178 | 4.8 | 0.36 | 0.67 | 2.14 | Supercritical |
| 11056+30-11059+80 | 0.025 | 0.02 | 0.56 | 0.1 | 5 | 2.5 | 0.79 | 3.39 | 0.23 | 2.83 | 0.57 | 0.0176 | 3.17 | 0.16 | 0.71 | 1.06 | Supercritical |
| 11059+80-11062+90 | 0.025 | 0.05 | 0.34 | 0.1 | 11 | 2.54 | 0.65 | 4.14 | 0.16 | 3.81 | 0.42 | 0.0171 | 3.89 | 0.23 | 0.58 | 1.65 | Supercritical |
| 11062+90-11065+50 | 0.025 | 0.01 | 0.77 | 0.1 | 3 | 2.35 | 0.91 | 3.2 | 0.29 | 2.38 | 0.68 | 0.0194 | 2.58 | 0.1 | 0.87 | 0.73 | Subcritical |
| 11068+30-11071+00 | 0.025 | 0.07 | 0.46 | 0.1 | 7 | 4.01 | 0.74 | 3.69 | 0.2 | 3.25 | 0.6 | 0.0161 | 5.4 | 0.45 | 0.91 | 1.99 | Supercritical |
| 11072+60-11073+85 | 0.025 | 0.02 | 0.33 | 0.1 | 3 | 0.36 | 0.17 | 1.39 | 0.12 | 1.03 | 0.32 | 0.0249 | 2.09 | 0.07 | 0.4 | 0.9 | Subcritical |
| 11073+85-11074+60 | 0.025 | 0.03 | 0.3 | 0.1 | 3 | 0.33 | 0.14 | 1.25 | 0.11 | 0.93 | 0.31 | 0.0252 | 2.38 | 0.09 | 0.39 | 1.09 | Supercritical |
| 11080+90-11085+15 | 0.025 | 0.03 | 0.43 | 0.1 | 14 | 4.58 | 1.3 | 6.45 | 0.2 | 6.05 | 0.48 | 0.0159 | 3.53 | 0.19 | 0.62 | 1.35 | Supercritical |
| 11085+15-11086+30 | 0.025 | 0.06 | 0.12 | 0.1 | 14 | 0.2 | 0.1 | 1.75 | 0.05 | 1.64 | 0.14 | 0.0242 | 2.09 | 0.07 | 0.18 | 1.53 | Supercritical |
| 11086+50-11088+75 | 0.025 | 0.05 | 0.54 | 0.1 | 3 | 2.06 | 0.45 | 2.25 | 0.2 | 1.67 | 0.64 | 0.0197 | 4.56 | 0.32 | 0.86 | 1.55 | Supercritical |
| 11089+90-11095+10 | 0.025 | 0.05 | 0.48 | 0.1 | 5 | 2.74 | 0.6 | 2.96 | 0.2 | 2.47 | 0.59 | 0.0174 | 4.58 | 0.33 | 0.81 | 1.64 | Supercritical |
| 11096+70-11098+50 | 0.025 | 0.02 | 0.2 | 0.1 | 10 | 0.35 | 0.2 | 2.22 | 0.09 | 2.03 | 0.2 | 0.0222 | 1.72 | 0.05 | 0.25 | 0.95 | Subcritical |
| 11102+10-11104+10 | 0.025 | 0.01 | 0.32 | 0.1 | 18 | 1.53 | 0.91 | 6.03 | 0.15 | 5.74 | 0.28 | 0.0187 | 1.68 | 0.04 | 0.36 | 0.75 | Subcritical |
| 11106+00-11107+00 | 0.025 | 0.01 | 0.22 | 0.1 | 13 | 0.43 | 0.33 | 3.14 | 0.1 | 2.93 | 0.19 | 0.0218 | 1.32 | 0.03 | 0.25 | 0.69 | Subcritical |
| 11107+45-11111+55 | 0.025 | 0.01 | 0.54 | 0.1 | 9 | 3.01 | 1.3 | 5.39 | 0.24 | 4.87 | 0.49 | 0.0167 | 2.31 | 0.08 | 0.62 | 0.79 | Subcritical |
| 11111+70-11115+60 | 0.025 | 0.01 | 0.31 | 0.1 | 18 | 1.46 | 0.88 | 5.93 | 0.15 | 5.64 | 0.28 | 0.0188 | 1.66 | 0.04 | 0.35 | 0.74 | Subcritical |
| 11116+90-11117+95 | 0.025 | 0.02 | 0.17 | 0.1 | 18 | 0.42 | 0.27 | 3.26 | 0.08 | 3.1 | 0.17 | 0.0222 | 1.58 | 0.04 | 0.21 | 0.95 | Subcritical |
| 11117+95-11118+80 | 0.025 | 0.02 | 0.15 | 0.1 | 16 | 0.25 | 0.18 | 2.52 | 0.07 | 2.38 | 0.14 | 0.0237 | 1.42 | 0.03 | 0.18 | 0.92 | Subcritical |
| 11118+80-11119+60 | 0.025 | 0.01 | 0.29 | 0.1 | 25 | 1.76 | 1.09 | 7.66 | 0.14 | 7.39 | 0.26 | 0.0188 | 1.62 | 0.04 | 0.34 | 0.74 | Subcritical |
| 11128+18-11130+25 | 0.025 | 0.01 | 0.33 | 0.1 | 7 | 0.63 | 0.38 | 2.66 | 0.14 | 2.34 | 0.29 | 0.0207 | 1.64 | 0.04 | 0.37 | 0.71 | Subcritical |
| 11140+20-11142+20 | 0.025 | 0.04 | 0.25 | 0.1 | 8 | 0.72 | 0.25 | 2.27 | 0.11 | 2.03 | 0.29 | 0.0194 | 2.82 | 0.12 | 0.37 | 1.41 | Supercritical |
| 11142+20-11144+00 | 0.025 | 0.09 | 0.21 | 0.1 | 8 | 0.64 | 0.18 | 1.89 | 0.09 | 1.68 | 0.27 | 0.0205 | 3.66 | 0.21 | 0.42 | 2 | Supercritical |
| 11144+90-11145+80 | 0.025 | 0.03 | 0.35 | 0.1 | 6 | 1.1 | 0.38 | 2.49 | 0.15 | 2.14 | 0.38 | 0.0193 | 2.92 | 0.13 | 0.48 | 1.23 | Supercritical |
| 11156+00-11145+55 | 0.025 | 0.07 | 0.31 | 0.21 | 8 | 1.67 | 0.39 | 2.81 | 0.14 | 2.54 | 0.4 | 0.0178 | 4.24 | 0.28 | 0.59 | 1.9 | Supercritical |
| 11157+45-11160+50 | 0.025 | 0.03 | 0.3 | 0.1 | 18 | 2.34 | 0.83 | 5.76 | 0.14 | 5.48 | 0.33 | 0.0177 | 2.82 | 0.12 | 0.43 | 1.28 | Supercritical |
| 11168+40-11170+41 | 0.025 | 0.11 | 0.36 | 0.1 | 3 | 1.05 | 0.2 | 1.51 | 0.13 | 1.12 | 0.49 | 0.0216 | 5.18 | 0.42 | 0.78 | 2.15 | Supercritical |
| 11170+41-11171+07 | 0.025 | 0.18 | 0.09 | 0.1 | 4 | 0.04 | 0.02 | 0.44 | 0.03 | 0.35 | 0.12 | 0.0315 | 2.66 | 0.11 | 0.2 | 2.26 | Supercritical |

**York County
Temporary Slope Pipe Calculations**

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Diameter (ft) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Percent Full (%) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Maximum Discharge (ft ³ /s) | Discharge Full (ft ³ /s) | Slope Full (ft/ft) | Flow Type |
|-------------------|-----------------------|-----------------------|-------------------|---------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------|------------------------|-----------------|--------------------|----------------------|---------------|--|-------------------------------------|--------------------|---------------|
| 10861+75-10863+50 | 0.023 | 0.25 | 0.24 | 0.5 | 0.75 | 0.09 | 0.77 | 0.12 | 0.5 | 0.43 | 48.4 | 0.0512 | 7.97 | 0.99 | 1.23 | 3.24 | 1.71 | 1.59 | 0.05593 | SuperCritical |
| 10872+25-10872+90 | 0.023 | 0.13 | 0.66 | 1.5 | 8.65 | 0.75 | 2.18 | 0.35 | 1.49 | 1.14 | 44.2 | 0.0248 | 11.47 | 2.04 | 2.71 | 2.84 | 23.03 | 21.41 | 0.02123 | SuperCritical |
| 10917+10-10917+75 | 0.023 | 0.07 | 0.75 | 1.5 | 7.81 | 0.88 | 2.35 | 0.37 | 1.5 | 1.08 | 49.8 | 0.0228 | 8.88 | 1.23 | 1.97 | 2.04 | 16.9 | 15.71 | 0.01731 | SuperCritical |
| 10934+34-10938+95 | 0.023 | 0.07 | 0.7 | 1.5 | 7.04 | 0.81 | 2.26 | 0.36 | 1.5 | 1.03 | 46.9 | 0.0212 | 8.64 | 1.16 | 1.86 | 2.07 | 16.9 | 15.71 | 0.01406 | SuperCritical |
| 10948+90-10948+90 | 0.023 | 0.07 | 0.21 | 0.5 | 0.31 | 0.08 | 0.71 | 0.11 | 0.49 | 0.28 | 42.1 | 0.0258 | 3.95 | 0.24 | 0.45 | 1.75 | 0.9 | 0.84 | 0.00956 | SuperCritical |
| 10953+20-10956+55 | 0.023 | 0.18 | 0.43 | 0.67 | 2.15 | 0.24 | 1.24 | 0.19 | 0.64 | 0.64 | 63.6 | 0.0836 | 9.09 | 1.28 | 1.71 | 2.65 | 3.16 | 2.94 | 0.0965 | SuperCritical |
| 10967+80-10969+90 | 0.023 | 0.38 | 0.24 | 0.5 | 0.89 | 0.09 | 0.76 | 0.12 | 0.5 | 0.46 | 47.3 | 0.0684 | 9.72 | 1.47 | 1.71 | 4 | 2.1 | 1.95 | 0.07876 | SuperCritical |
| 10969+90-10973+45 | 0.023 | 0.44 | 0.39 | 0.5 | 2 | 0.16 | 1.08 | 0.15 | 0.42 | 0.5 | 77.8 | 0.3786 | 12.19 | 2.31 | 2.7 | 3.42 | 2.26 | 2.1 | 0.39773 | SuperCritical |
| 10980+20-10982+40 | 0.023 | 0.25 | 0.37 | 0.67 | 2.04 | 0.2 | 1.12 | 0.18 | 0.67 | 0.63 | 55.2 | 0.0751 | 10.22 | 1.62 | 1.99 | 3.29 | 3.72 | 3.46 | 0.08687 | SuperCritical |
| 10984+15-10984+90 | 0.023 | 0.24 | 0.4 | 0.5 | 1.53 | 0.17 | 1.11 | 0.15 | 0.4 | 0.49 | 80.6 | 0.2139 | 9.02 | 1.26 | 1.67 | 2.43 | 1.67 | 1.55 | 0.23276 | SuperCritical |
| 10990+20-10994+65 | 0.023 | 0.22 | 0.47 | 0.67 | 2.7 | 0.26 | 1.32 | 0.2 | 0.62 | 0.66 | 69.7 | 0.1362 | 10.3 | 1.65 | 2.11 | 2.78 | 3.49 | 3.25 | 0.15218 | SuperCritical |
| 11024+45-11026+40 | 0.023 | 0.14 | 0.67 | 1 | 5.98 | 0.56 | 1.92 | 0.29 | 0.94 | 0.95 | 67.3 | 0.0766 | 10.65 | 1.76 | 2.43 | 8.1 | 7.53 | 0.08819 | SuperCritical | |
| 11049+30-11049+80 | 0.023 | 0.07 | 0.58 | 0.67 | 1.9 | 0.32 | 1.59 | 0.2 | 0.47 | 0.62 | 85.8 | 0.0653 | 5.9 | 0.54 | 1.12 | 1.25 | 1.97 | 1.83 | 0.07536 | SuperCritical |
| 11056+30-11059+80 | 0.023 | 0.11 | 0.42 | 1 | 2.5 | 0.32 | 1.42 | 0.22 | 0.99 | 0.68 | 42.4 | 0.024 | 7.89 | 0.97 | 1.39 | 2.46 | 7.18 | 6.68 | 0.01541 | SuperCritical |
| 11029+80-11062+90 | 0.023 | 0.19 | 0.47 | 0.67 | 2.54 | 0.26 | 1.33 | 0.2 | 0.61 | 0.65 | 70.3 | 0.1193 | 9.59 | 1.43 | 1.9 | 2.57 | 3.25 | 3.02 | 0.13468 | SuperCritical |
| 11062+90-11065+50 | 0.023 | 0.21 | 0.43 | 0.67 | 2.35 | 0.24 | 1.24 | 0.19 | 0.64 | 0.65 | 64.1 | 0.1009 | 9.85 | 1.51 | 1.94 | 2.85 | 3.41 | 3.17 | 0.11528 | SuperCritical |
| 11068+30-11071+00 | 0.023 | 0.22 | 0.45 | 1 | 4.01 | 0.35 | 1.48 | 0.23 | 1 | 0.85 | 45.5 | 0.0375 | 11.54 | 2.07 | 2.52 | 3.44 | 10.16 | 9.44 | 0.03966 | SuperCritical |
| 11072+60-11073+65 | 0.023 | 0.22 | 0.17 | 0.5 | 0.36 | 0.06 | 0.62 | 0.09 | 0.47 | 0.3 | 33.5 | 0.0272 | 6.25 | 0.61 | 0.77 | 3.15 | 1.6 | 1.49 | 0.01289 | SuperCritical |
| 11073+85-11074+60 | 0.023 | 0.3 | 0.15 | 0.5 | 0.33 | 0.05 | 0.57 | 0.08 | 0.46 | 0.29 | 29.6 | 0.0263 | 6.79 | 0.72 | 0.87 | 3.67 | 1.87 | 1.74 | 0.01083 | SuperCritical |
| 11080+90-11085+15 | 0.023 | 0.11 | 0.61 | 1 | 4.58 | 0.5 | 1.79 | 0.28 | 0.98 | 0.89 | 60.8 | 0.0459 | 9.16 | 1.3 | 1.91 | 2.26 | 7.18 | 6.68 | 0.05173 | SuperCritical |
| 11085+15-11086+30 | 0.023 | 0.17 | 0.13 | 0.5 | 0.2 | 0.04 | 0.54 | 0.08 | 0.44 | 0.22 | 26.5 | 0.0233 | 4.81 | 0.36 | 0.49 | 2.76 | 1.41 | 1.31 | 0.00398 | SuperCritical |
| 11086+50-11088+75 | 0.023 | 0.15 | 0.44 | 0.67 | 2.06 | 0.25 | 1.27 | 0.19 | 0.64 | 0.63 | 65.7 | 0.0766 | 8.38 | 1.09 | 1.53 | 2.38 | 2.88 | 2.68 | 0.08859 | SuperCritical |
| 11089+90-11095+10 | 0.023 | 0.14 | 0.59 | 0.67 | 2.74 | 0.33 | 1.64 | 0.2 | 0.43 | 0.66 | 88.6 | 0.1405 | 8.3 | 1.07 | 1.66 | 1.66 | 2.79 | 2.59 | 0.15672 | SuperCritical |
| 11096+70-11098+50 | 0.023 | 0.1 | 0.2 | 0.5 | 0.35 | 0.08 | 0.69 | 0.11 | 0.49 | 0.3 | 40.7 | 0.0269 | 4.66 | 0.34 | 0.54 | 2.1 | 1.08 | 1 | 0.01218 | SuperCritical |
| 11102+10-11104+10 | 0.023 | 0.03 | 0.46 | 1 | 1.53 | 0.36 | 1.5 | 0.24 | 1 | 0.52 | 46.3 | 0.0197 | 4.3 | 0.29 | 0.75 | 1.27 | 3.75 | 3.49 | 0.00577 | SuperCritical |
| 11106+00-11107+00 | 0.023 | 0.03 | 0.33 | 0.5 | 0.43 | 0.14 | 0.95 | 0.15 | 0.47 | 0.33 | 66.6 | 0.0298 | 3.09 | 0.15 | 0.48 | 1 | 0.59 | 0.55 | 0.01838 | SuperCritical |
| 11107+45-11111+55 | 0.023 | 0.09 | 0.5 | 1 | 3.01 | 0.39 | 1.57 | 0.25 | 1 | 0.74 | 49.9 | 0.0274 | 7.69 | 0.92 | 1.42 | 2.17 | 6.5 | 6.04 | 0.02234 | SuperCritical |
| 11111+70-11115+60 | 0.023 | 0.1 | 0.4 | 0.67 | 1.46 | 0.22 | 1.18 | 0.19 | 0.66 | 0.57 | 59.7 | 0.0423 | 6.65 | 0.69 | 1.09 | 2.03 | 2.35 | 2.19 | 0.0445 | SuperCritical |
| 11116+90-11117+95 | 0.023 | 0.08 | 0.24 | 0.5 | 0.42 | 0.09 | 0.77 | 0.12 | 0.5 | 0.33 | 48.1 | 0.0294 | 4.49 | 0.31 | 0.55 | 1.83 | 0.96 | 0.9 | 0.01754 | SuperCritical |
| 11117+95-11118+80 | 0.023 | 0.05 | 0.2 | 0.5 | 0.25 | 0.08 | 0.69 | 0.11 | 0.49 | 0.25 | 41 | 0.0243 | 3.3 | 0.17 | 0.37 | 1.48 | 0.76 | 0.71 | 0.00621 | SuperCritical |
| 11118+80-11119+60 | 0.023 | 0.06 | 0.58 | 0.67 | 1.76 | 0.32 | 1.59 | 0.2 | 0.47 | 0.61 | 85.9 | 0.0567 | 5.46 | 0.46 | 1.04 | 1.16 | 1.82 | 1.7 | 0.06466 | SuperCritical |
| 11128+18-11130+25 | 0.023 | 0.13 | 0.26 | 0.5 | 0.63 | 0.11 | 0.82 | 0.13 | 0.5 | 0.4 | 53 | 0.0407 | 5.97 | 0.55 | 0.82 | 2.29 | 1.23 | 1.14 | 0.03946 | SuperCritical |
| 11140+20-11142+20 | 0.023 | 0.22 | 0.25 | 0.5 | 0.72 | 0.1 | 0.78 | 0.12 | 0.5 | 0.43 | 49 | 0.0482 | 7.52 | 0.88 | 1.12 | 3.03 | 1.6 | 1.49 | 0.05155 | SuperCritical |
| 11142+20-11144+00 | 0.023 | 0.2 | 0.24 | 0.5 | 0.64 | 0.09 | 0.76 | 0.12 | 0.5 | 0.41 | 47.1 | 0.0414 | 7.04 | 0.77 | 1.01 | 2.91 | 1.53 | 1.42 | 0.04073 | SuperCritical |
| 11144+90-11145+80 | 0.023 | 0.06 | 0.39 | 0.67 | 1.1 | 0.21 | 1.17 | 0.18 | 0.66 | 0.5 | 58.7 | 0.0312 | 5.12 | 0.41 | 0.8 | 1.58 | 1.82 | 1.7 | 0.02526 | SuperCritical |
| 11156+00-11145+55 | 0.023 | 0.1 | 0.44 | 0.67 | 1.67 | 0.24 | 1.26 | 0.19 | 0.64 | 0.6 | 65.4 | 0.0518 | 6.84 | 0.73 | 1.16 | 1.95 | 2.35 | 2.19 | 0.05822 | SuperCritical |
| 11157+45-11160+50 | 0.023 | 0.03 | 0.6 | 1 | 2.34 | 0.49 | 1.77 | 0.28 | 0.98 | 0.65 | 60 | 0.0231 | 4.76 | 0.35 | 0.95 | 1.19 | 3.75 | 3.49 | 0.0135 | SuperCritical |
| 11168+40-11170+41 | 0.023 | 0.16 | 0.35 | 0.5 | 1.05 | 0.15 | 0.98 | 0.15 | 0.46 | 0.48 | 69.4 | 0.0951 | 7.22 | 0.81 | 1.16 | 2.26 | 1.36 | 1.27 | 0.10962 | SuperCritical |
| 11170+41-11171+07 | 0.023 | 0.35 | 0.05 | 0.5 | 0.04 | 0.01 | 0.32 | 0.03 | 0.3 | 0.1 | 10.1 | 0.0228 | 3.86 | 0.23 | 0.28 | 3.66 | 2.02 | 1.88 | 0.00016 | SuperCritical |

York County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|-------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 10861+75-10863+50 | 0.06 | 0.25 | 0.75 | 3.35 | V | 8.0 | 2.00 | 0.94 | SC150 |
| 10869+60-10872+00 | 0.06 | 0.33 | 1.09 | 3.9 | V | 8.0 | 2.00 | 1.24 | SC150 |
| 10872+25-10872+90 | 0.04 | 0.78 | 8.65 | 5.62 | V | 8.0 | 2.00 | 1.95 | SC150 |
| 10917+10-10917+75 | 0.05 | 0.46 | 7.81 | 4.82 | V | 8.0 | 2.00 | 1.44 | SC150 |
| 10934+34-10938+95 | 0.04 | 0.72 | 7.04 | 5.33 | V | 8.0 | 2.00 | 1.80 | SC150 |
| 10948+90-10948+90 | 0.04 | 0.21 | 0.31 | 2.37 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 10950+25-10951+15 | 0.09 | 0.59 | 6.19 | 7 | V | 12.5 | 12.00 | 3.31 | P550 |
| 10953+20-10956+55 | 0.06 | 0.53 | 2.15 | 4.93 | V | 8.0 | 2.00 | 1.98 | SC150 |
| 10967+80-10969+90 | 0.01 | 0.64 | 0.89 | 2.08 | V | 8.0 | 2.00 | 0.40 | SC150 |
| 10969+90-10973+45 | 0.1 | 0.56 | 2 | 6.04 | S | 12.5 | 12.00 | 3.49 | P550 |
| 10980+20-10982+40 | 0.06 | 0.52 | 2.04 | 4.87 | V | 8.0 | 2.00 | 1.95 | SC150 |
| 10984+15-10984+90 | 0.05 | 0.39 | 1.53 | 3.96 | V | 8.0 | 2.00 | 1.22 | SC150 |
| 10990+20-10994+65 | 0.04 | 0.5 | 2.7 | 4.2 | V | 8.0 | 2.00 | 1.25 | SC150 |
| 11024+45-11026+40 | 0.02 | 0.54 | 5.98 | 3.35 | V | 8.0 | 2.00 | 0.67 | SC150 |
| 11048+50-11049+30 | 0.07 | 0.47 | 4.89 | 5.53 | V | 9.5 | 3.00 | 2.05 | SC250 |
| 11048+50-11049+30 | 0.07 | 0.47 | 4.89 | 5.53 | V | 9.5 | 3.00 | 2.05 | SC250 |
| 11049+30-11049+80 | 0.09 | 0.31 | 1.9 | 4.8 | V | 8.0 | 2.00 | 1.74 | SC150 |
| 11056+30-11059+80 | 0.02 | 0.56 | 2.5 | 3.17 | V | 8.0 | 2.00 | 0.70 | SC150 |
| 11059+80-11062+90 | 0.05 | 0.34 | 2.54 | 3.89 | V | 8.0 | 2.00 | 1.06 | SC150 |
| 11062+90-11065+50 | 0.01 | 0.77 | 2.35 | 2.58 | V | 8.0 | 2.00 | 0.48 | SC150 |
| 11068+30-11071+00 | 0.07 | 0.46 | 4.01 | 5.4 | V | 9.5 | 3.00 | 2.01 | SC250 |
| 11072+60-11073+85 | 0.02 | 0.33 | 0.36 | 2.09 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 11073+85-11074+60 | 0.03 | 0.3 | 0.33 | 2.38 | V | 8.0 | 2.00 | 0.56 | SC150 |
| 11080+90-11085+15 | 0.03 | 0.43 | 4.58 | 3.53 | V | 8.0 | 2.00 | 0.80 | SC150 |
| 11085+15-11086+30 | 0.06 | 0.12 | 0.2 | 2.09 | V | 8.0 | 2.00 | 0.45 | SC150 |
| 11086+50-11088+75 | 0.05 | 0.54 | 2.06 | 4.56 | V | 8.0 | 2.00 | 1.68 | SC150 |
| 11089+90-11095+10 | 0.05 | 0.48 | 2.74 | 4.58 | V | 8.0 | 2.00 | 1.50 | SC150 |
| 11096+70-11098+50 | 0.02 | 0.2 | 0.35 | 1.72 | V | 8.0 | 2.00 | 0.25 | SC150 |
| 11102+10-11104+10 | 0.01 | 0.32 | 1.53 | 1.68 | V | 8.0 | 2.00 | 0.20 | SC150 |
| 11106+00-11107+00 | 0.01 | 0.22 | 0.43 | 1.32 | V | 8.0 | 2.00 | 0.14 | SC150 |
| 11107+45-11111+55 | 0.01 | 0.54 | 3.01 | 2.31 | V | 8.0 | 2.00 | 0.34 | SC150 |
| 11111+70-11115+60 | 0.01 | 0.31 | 1.46 | 1.66 | V | 8.0 | 2.00 | 0.19 | SC150 |
| 11116+90-11117+95 | 0.02 | 0.17 | 0.42 | 1.58 | V | 8.0 | 2.00 | 0.21 | SC150 |
| 11117+95-11118+80 | 0.02 | 0.15 | 0.25 | 1.42 | V | 8.0 | 2.00 | 0.19 | SC150 |
| 11118+80-11119+60 | 0.01 | 0.29 | 1.76 | 1.62 | V | 8.0 | 2.00 | 0.18 | SC150 |
| 11128+18-11130+25 | 0.01 | 0.33 | 0.63 | 1.64 | V | 8.0 | 2.00 | 0.21 | SC150 |
| 11140+20-11142+20 | 0.04 | 0.25 | 0.72 | 2.82 | V | 8.0 | 2.00 | 0.62 | SC150 |
| 11142+20-11144+00 | 0.09 | 0.21 | 0.64 | 3.66 | V | 8.0 | 2.00 | 1.18 | SC150 |
| 11144+90-11145+80 | 0.03 | 0.35 | 1.1 | 2.92 | V | 8.0 | 2.00 | 0.66 | SC150 |

York County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft³/s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft²) | Shear Stress (lb/ft²) | Blanket Specification |
|-------------------|------------------------------|--------------------------|-------------------------------------|------------------------|--|---|--|---|------------------------------|
| 11156+00-11145+55 | 0.07 | 0.31 | 1.67 | 4.24 | V | 8.0 | 2.00 | 1.35 | SC150 |
| 11157+45-11160+50 | 0.03 | 0.3 | 2.34 | 2.82 | V | 8.0 | 2.00 | 0.56 | SC150 |
| 11168+40-11170+41 | 0.11 | 0.36 | 1.05 | 5.18 | S | 9.5 | 3.00 | 2.47 | SC250 |
| 11170+41-11171+07 | 0.18 | 0.09 | 0.04 | 2.66 | S | 8.0 | 2.00 | 1.01 | SC150 |

York County
Temporary Perforated Pipe Level Spreader Calculations

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|-------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 10861+75-10863+50 | 0.75 | 25 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.697 | 1.08 | 5 | 3.48 |
| 10872+25-10872+90 | 8.65 | 11 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.462 | 18.71 | 20 | 9.25 |
| 10917+10-10917+75 | 7.81 | 7 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.369 | 21.18 | 25 | 9.22 |
| 10934+34-10938+95 | 7.04 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 14.01 | 15 | 7.54 |
| 10948+90-10948+90 | 0.31 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 1.11 | 5 | 1.39 |
| 10953+20-10956+55 | 2.15 | 23 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.668 | 3.22 | 5 | 3.34 |
| 10967+80-10969+90 | 0.89 | 35 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.825 | 1.08 | 5 | 4.12 |
| 10969+90-10973+45 | 2 | 38 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.859 | 2.33 | 5 | 4.30 |
| 10980+20-10982+40 | 2.04 | 18 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.591 | 3.45 | 5 | 2.96 |
| 10984+15-10984+90 | 1.53 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 2.74 | 5 | 2.79 |
| 10990+20-10994+65 | 2.7 | 15 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.540 | 5.00 | 10 | 5.40 |
| 11024+45-11026+40 | 5.98 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 17.52 | 20 | 6.83 |
| 11049+30-11049+80 | 1.9 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 6.82 | 10 | 2.79 |
| 11056+30-11059+80 | 2.5 | 11 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.462 | 5.41 | 10 | 4.62 |
| 11059+80-11062+90 | 2.54 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 4.56 | 5 | 2.79 |
| 11062+90-11065+50 | 2.35 | 25 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.697 | 3.37 | 5 | 3.48 |
| 11068+30-11071+00 | 4.01 | 18 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.591 | 6.78 | 10 | 5.91 |
| 11072+60-11073+65 | 0.36 | 21 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.639 | 0.56 | 5 | 3.19 |
| 11073+85-11074+60 | 0.33 | 23 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.668 | 0.49 | 5 | 3.34 |
| 11080+90-11085+15 | 4.58 | 9 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.418 | 10.95 | 15 | 6.27 |
| 11085+15-11086+30 | 0.2 | 15 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.540 | 0.37 | 5 | 2.70 |
| 11086+50-11088+75 | 2.06 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 4.10 | 5 | 2.51 |
| 11089+90-11095+10 | 2.74 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 6.22 | 10 | 4.41 |
| 11096+70-11098+50 | 0.35 | 9 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.418 | 0.84 | 5 | 2.09 |
| 11102+10-11104+10 | 1.53 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 7.76 | 10 | 1.97 |
| 11106+00-11107+00 | 0.43 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 1.78 | 5 | 1.21 |
| 11107+45-11111+55 | 3.01 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 8.82 | 10 | 3.41 |
| 11111+70-11115+60 | 1.46 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 3.70 | 5 | 1.97 |
| 11116+90-11117+95 | 0.42 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 1.51 | 5 | 1.39 |
| 11117+95-11118+80 | 0.25 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 0.80 | 5 | 1.56 |
| 11118+80-11119+60 | 1.76 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 4.46 | 5 | 1.97 |
| 11128+18-11130+25 | 0.63 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.522 | 1.21 | 5 | 2.61 |
| 11140+20-11142+20 | 0.72 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 1.29 | 5 | 2.79 |
| 11142+20-11144+00 | 0.64 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.522 | 1.23 | 5 | 2.61 |
| 11144+90-11145+80 | 1.1 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 3.53 | 5 | 1.56 |
| 11145+80-11149+60 | 1.67 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 4.89 | 5 | 1.71 |
| 11157+45-11160+50 | 2.34 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 8.39 | 10 | 2.79 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------------------|-------------------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| 10861+75 | 10863+50 | 29,008 | 100 | 0.07 | Type D | 0.300 | 7.55 | 196 | 0.10 | 0.85 | 3.84 | 11.39 | 3.73 | 0.30 | 0.06 | 7:1 | 0.75 | 12 | 0.25 | 6 |
| 10869+60 | 10872+00 | 45,151 | 100 | 0.06 | Type D | 0.300 | 7.82 | 287 | 0.13 | 0.90 | 5.31 | 13.14 | 3.52 | 0.30 | 0.06 | 5:1 | 1.09 | 12 | n/a | n/a |
| 10872+25 | 10872+90 | 649,705 | 100 | 0.02 | Type D | 0.300 | 10.11 | 1165 | 0.07 | 0.70 | 27.74 | 37.85 | 1.93 | 0.30 | 0.04 | 5:1 | 8.65 | 18 | 0.13 | 12(2) |
| 10917+10 | 10917+75 | 292,330 | 100 | 0.18 | Type D | 0.300 | 6.05 | 1367 | 0.15 | 1.70 | 13.40 | 19.46 | 2.91 | 0.40 | 0.05 | 15:1 | 7.81 | 12 | 0.07 | 12(2) |
| 10934+34 | 10938+95 | 347,319 | 100 | 0.15 | Type D | 0.300 | 6.32 | 839 | 0.18 | 1.10 | 12.71 | 19.03 | 2.94 | 0.30 | 0.04 | 5:1 | 7.04 | 18 | 0.11 | 12(2) |
| 10948+90 | 10948+90 | 10,905 | 100 | 0.30 | Type D | 0.300 | 5.37 | 328 | 0.40 | 1.60 | 3.42 | 8.79 | 4.11 | 0.30 | 0.04 | 6:1 | 0.31 | 12 | 0.07 | 6 |
| 10950+25 | 10951+15 | 467,225 | 100 | 0.32 | Type D | 0.300 | 5.29 | 1770 | 0.13 | 0.90 | 32.78 | 38.07 | 1.92 | 0.30 | 0.09 | 5:1 | 6.19 | 18 | n/a | n/a |
| 10953+20 | 10956+55 | 72,634 | 100 | 0.38 | Type D | 0.300 | 5.08 | 252 | 0.41 | 1.60 | 2.63 | 7.71 | 4.29 | 0.30 | 0.06 | 3:1 | 2.15 | 18 | 0.18 | 8 |
| 10967+80 | 10969+90 | 28,080 | 100 | 0.36 | Type D | 0.300 | 5.15 | 88 | 0.38 | 1.50 | 0.98 | 6.13 | 4.58 | 0.30 | 0.01 | 2:1 | 0.89 | 18 | 0.38 | 6 |
| 10969+90 | 10973+45 | 63,164 | 100 | 0.34 | Type D | 0.300 | 5.22 | 91 | 0.44 | 1.70 | 0.89 | 6.11 | 4.59 | 0.30 | 0.10 | 2:1 | 2.00 | 18 | 0.44 | 6 |
| 10980+20 | 10982+40 | 78,927 | 100 | 0.12 | Type D | 0.300 | 6.65 | 300 | 0.20 | 1.10 | 4.55 | 11.20 | 3.76 | 0.30 | 0.06 | 3:1 | 2.04 | 18 | 0.25 | 8 |
| 10984+15 | 10984+90 | 62,378 | 100 | 0.03 | Type D | 0.300 | 9.20 | 241 | 0.19 | 1.10 | 3.65 | 12.85 | 3.55 | 0.30 | 0.05 | 5:1 | 1.53 | 12 | 0.24 | 6 |
| 10990+20 | 10994+65 | 101,798 | 100 | 0.05 | Type D | 0.300 | 8.17 | 182 | 0.28 | 1.30 | 2.33 | 10.50 | 3.85 | 0.30 | 0.04 | 5:1 | 2.70 | 12 | 0.22 | 8 |
| 11024+45 | 11026+40 | 84,860 | 100 | 0.08 | Type D | 0.300 | 7.32 | 435 | 0.12 | 2.20 | 3.30 | 10.61 | 3.84 | 0.80 | 0.02 | 12:1 | 5.98 | 18 | 0.14 | 12 |
| 11048+50 | 11049+30 | 72,919 | 100 | 0.10 | Type D | 0.300 | 6.94 | 608 | 0.11 | 2.00 | 5.07 | 12.01 | 3.65 | 0.80 | 0.07 | 8:1 | 4.89 | 12 | n/a | n/a |
| 11049+30 | 11049+80 | 26,816 | 100 | 0.12 | Type D | 0.300 | 6.65 | 498 | 0.12 | 2.20 | 3.77 | 10.43 | 3.86 | 0.80 | 0.09 | 8:1 | 1.90 | 12 | 0.07 | 8 |
| 11056+30 | 11059+80 | 112,474 | 100 | 0.15 | Type D | 0.300 | 6.32 | 515 | 0.14 | 0.90 | 9.54 | 15.85 | 3.23 | 0.30 | 0.02 | 5:1 | 2.50 | 18 | 0.11 | 12 |
| 11059+80 | 11062+90 | 103,005 | 100 | 0.20 | Type D | 0.300 | 5.91 | 385 | 0.16 | 0.95 | 6.75 | 12.66 | 3.57 | 0.30 | 0.05 | 11:1 | 2.54 | 12 | 0.19 | 8 |
| 11062+90 | 11065+50 | 95,533 | 100 | 0.08 | Type D | 0.300 | 7.32 | 353 | 0.20 | 1.10 | 5.35 | 12.66 | 3.57 | 0.30 | 0.01 | 3:1 | 2.35 | 18 | 0.21 | 8 |
| 11068+30 | 11071+00 | 145,394 | 100 | 0.34 | Type D | 0.300 | 5.22 | 358 | 0.35 | 1.40 | 4.26 | 9.48 | 4.00 | 0.30 | 0.07 | 7:1 | 4.01 | 12 | 0.22 | 12 |
| 11072+60 | 11073+85 | 11,952 | 100 | 0.17 | Type D | 0.300 | 6.13 | 88 | 0.18 | 1.05 | 1.40 | 7.53 | 4.32 | 0.30 | 0.02 | 3:1 | 0.36 | 12 | 0.22 | 6 |
| 11073+85 | 11074+60 | 11,506 | 100 | 0.12 | Type D | 0.300 | 6.65 | 123 | 0.20 | 1.10 | 1.86 | 8.52 | 4.15 | 0.30 | 0.03 | 3:1 | 0.33 | 12 | 0.30 | 6 |
| 11080+90 | 11085+15 | 211,488 | 100 | 0.13 | Type D | 0.300 | 6.53 | 643 | 0.18 | 1.05 | 10.21 | 16.74 | 3.14 | 0.30 | 0.03 | 14:1 | 4.58 | 12 | 0.11 | 12 |
| 11085+15 | 11086+30 | 6,872 | 100 | 0.16 | Type D | 0.300 | 6.22 | 131 | 0.28 | 1.30 | 1.68 | 7.90 | 4.26 | 0.30 | 0.06 | 14:1 | 0.20 | 12 | 0.17 | 6 |
| 11086+50 | 11088+75 | 78,394 | 100 | 0.22 | Type D | 0.300 | 5.78 | 213 | 0.08 | 0.70 | 5.07 | 10.85 | 3.81 | 0.30 | 0.05 | 3:1 | 2.06 | 12 | 0.15 | 8 |
| 11089+90 | 11095+10 | 114,566 | 100 | 0.14 | Type D | 0.300 | 6.42 | 382 | 0.12 | 0.90 | 7.07 | 13.49 | 3.48 | 0.30 | 0.05 | 5:1 | 2.74 | 12 | 0.14 | 8 |
| 11096+70 | 11098+50 | 13,189 | 100 | 0.08 | Type D | 0.300 | 7.32 | 115 | 0.05 | 0.55 | 3.48 | 10.80 | 3.81 | 0.30 | 0.02 | 10:1 | 0.35 | 12 | 0.10 | 6 |
| 11102+10 | 11104+10 | 66,309 | 100 | 0.12 | Type D | 0.300 | 6.65 | 287 | 0.06 | 0.60 | 7.97 | 14.63 | 3.35 | 0.30 | 0.01 | 18:1 | 1.53 | 12 | 0.03 | 12 |
| 11106+00 | 11107+00 | 16,159 | 100 | 0.14 | Type D | 0.300 | 6.42 | 200 | 0.12 | 0.90 | 3.70 | 10.12 | 3.91 | 0.30 | 0.01 | 13:1 | 0.43 | 12 | 0.03 | 6 |
| 11107+45 | 11111+55 | 125,107 | 100 | 0.07 | Type D | 0.300 | 7.55 | 312 | 0.14 | 0.90 | 5.78 | 13.33 | 3.50 | 0.30 | 0.01 | 9:1 | 3.01 | 18 | 0.09 | 12 |
| 11111+70 | 11115+60 | 54,876 | 100 | 0.10 | Type D | 0.300 | 6.94 | 192 | 0.12 | 0.90 | 3.56 | 10.50 | 3.85 | 0.30 | 0.01 | 18:1 | 1.46 | 12 | 0.10 | 8 |
| 11116+90 | 11117+95 | 17,803 | 100 | 0.04 | Type D | 0.300 | 8.60 | 185 | 0.05 | 0.55 | 5.61 | 14.21 | 3.40 | 0.30 | 0.02 | 18:1 | 0.42 | 12 | 0.08 | 6 |
| 11117+95 | 11118+80 | 10,259 | 100 | 0.03 | Type D | 0.300 | 9.20 | 121 | 0.06 | 0.60 | 3.36 | 12.56 | 3.59 | 0.30 | 0.02 | 16:1 | 0.25 | 12 | 0.05 | 6 |
| 11118+80 | 11119+60 | 96,172 | 100 | 0.17 | Type D | 0.300 | 6.13 | 854 | 0.10 | 0.85 | 16.75 | 22.88 | 2.66 | 0.30 | 0.01 | 25:1 | 1.76 | 12 | 0.06 | 8 |
| 11128+18 | 11130+25 | 26,027 | 100 | 0.06 | Type D | 0.300 | 7.82 | 188 | 0.06 | 0.60 | 5.22 | 13.05 | 3.53 | 0.30 | 0.01 | 7:1 | 0.63 | 12 | 0.13 | 6 |
| 11140+20 | 11142+20 | 30,790 | 100 | 0.04 | Type D | 0.300 | 8.60 | 240 | 0.70 | 0.70 | 5.71 | 14.32 | 3.38 | 0.30 | 0.04 | 8:1 | 0.72 | 12 | 0.22 | 6 |
| 11142+20 | 11144+00 | 28,668 | 100 | 0.05 | Type D | 0.300 | 8.17 | 274 | 0.06 | 0.60 | 7.61 | 15.78 | 3.23 | 0.30 | 0.09 | 8:1 | 0.64 | 12 | 0.20 | 6 |
| 11144+90 | 11145+80 | 44,337 | 100 | 0.07 | Type D | 0.300 | 7.55 | 314 | 0.18 | 1.05 | 4.98 | 12.53 | 3.59 | 0.30 | 0.03 | 6:1 | 1.10 | 12 | 0.06 | 8 |
| 11156+00 | 11145+55 | 74,641 | 100 | 0.04 | Type D | 0.300 | 8.60 | 379 | 0.15 | 0.90 | 7.02 | 15.62 | 3.25 | 0.30 | 0.07 | 8:1 | 1.67 | 12 | 0.10 | 8 |
| 11157+45 | 11160+50 | 122,354 | 100 | 0.02 | Type D | 0.300 | 10.11 | 397 | 0.06 | 0.60 | 11.03 | 21.14 | 2.78 | 0.30 | 0.03 | 18:1 | 2.34 | 12 | 0.03 | 12 |
| 11168+40 | 11170+41 | 32,581 | 100 | 0.25 | Type D | 0.300 | 5.61 | 25 | 0.24 | 3.45 | 0.12 | 5.73 | 4.66 | 0.30 | 0.11 | 3:1 | 1.05 | 12 | 0.16 | 6 |
| 11170+41 | 11171+07 | 1,130 | 67 | 0.27 | Type D | 0.300 | 4.57 | 0 | 0.00 | 0.00 | 0.00 | 5.00 | 4.82 | 0.30 | 0.18 | 4:1 | 0.04 | 12 | 0.35 | 6 |

Dauphin County

**Dauphin County
Temporary Diversion Berm Calculations**

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Left Side Slope (ft/ft (H:V)) | Right Side Slope (ft/ft (H:V)) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Flow Type |
|-------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------------|-----------------|--------------------|----------------------|---------------|---------------|
| 11278+00 to 11282+00 Ch | 0.025 | 0.03 | 0.16 | 0.1 | 36 | 0.86 | 0.46 | 5.9 | 0.08 | 5.76 | 0.17 | 0.0214 | 1.87 | 0.05 | 0.21 | 1.17 | Supercritical |
| 11291+00 to 11292+00 Ch | 0.025 | 0.06 | 0.29 | 0.1 | 24 | 4.01 | 1.02 | 7.28 | 0.14 | 7.01 | 0.37 | 0.0168 | 3.93 | 0.24 | 0.53 | 1.82 | Supercritical |
| 11320+50 to 11322+75 Ch | 0.025 | 0.01 | 0.3 | 0.1 | 20 | 1.43 | 0.88 | 6.24 | 0.14 | 5.96 | 0.26 | 0.019 | 1.62 | 0.04 | 0.34 | 0.74 | Subcritical |
| 11349+50 to 11352+00 Ch | 0.025 | 0.02 | 0.36 | 0.1 | 10 | 1.68 | 0.66 | 4.01 | 0.17 | 3.66 | 0.37 | 0.018 | 2.53 | 0.1 | 0.46 | 1.05 | Supercritical |
| 11371+25 to 11374+25 Ch | 0.025 | 0.06 | 0.47 | 0.1 | 9 | 5.13 | 0.99 | 4.7 | 0.21 | 4.25 | 0.6 | 0.0155 | 5.16 | 0.41 | 0.88 | 1.88 | Supercritical |
| 11472+00 to 11473+50 Ch | 0.025 | 0.06 | 0.24 | 0.1 | 9 | 0.83 | 0.25 | 2.37 | 0.11 | 2.15 | 0.29 | 0.0198 | 3.28 | 0.17 | 0.4 | 1.68 | Supercritical |
| 11473+50 to 11476+25 Ch | 0.025 | 0.07 | 0.49 | 0.1 | 3 | 1.9 | 0.37 | 2.05 | 0.18 | 1.52 | 0.62 | 0.0199 | 5.07 | 0.4 | 0.89 | 1.8 | Supercritical |
| 11478+00 to 11480+50 Ch | 0.025 | 0.05 | 0.19 | 0.1 | 26 | 1.22 | 0.46 | 5.05 | 0.09 | 4.88 | 0.22 | 0.0198 | 2.68 | 0.11 | 0.3 | 1.54 | Supercritical |
| 11481+75 to 11483+00 Ch | 0.025 | 0.09 | 0.05 | 0.1 | 18 | 0.04 | 0.03 | 1.02 | 0.03 | 0.97 | 0.07 | 0.0305 | 1.54 | 0.04 | 0.09 | 1.66 | Supercritical |
| 11489+75 to 11493+00 Ch | 0.025 | 0.18 | 0.17 | 0.1 | 8 | 0.52 | 0.12 | 1.53 | 0.08 | 1.37 | 0.25 | 0.0211 | 4.5 | 0.31 | 0.48 | 2.73 | Supercritical |
| 11497+80 to 11503+50 Ch | 0.025 | 0.08 | 0.63 | 0.1 | 2 | 2.38 | 0.41 | 2.03 | 0.2 | 1.31 | 0.8 | 0.0221 | 5.8 | 0.52 | 1.15 | 1.83 | Supercritical |
| 11803+00 to 11805+00 Ch | 0.025 | 0.01 | 0.34 | 0.1 | 9 | 0.89 | 0.52 | 3.41 | 0.15 | 3.08 | 0.3 | 0.0196 | 1.7 | 0.05 | 0.38 | 0.73 | Subcritical |

**Dauphin County
Temporary Slope Pipe Calculations**

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Diameter (ft) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Percent Full (%) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Maximum Discharge (ft ³ /s) | Discharge Full (ft ³ /s) | Slope Full (ft/ft) | Flow Type |
|------------------------|-----------------------|-----------------------|-------------------|---------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------|------------------------|-----------------|--------------------|----------------------|---------------|--|-------------------------------------|--------------------|---------------|
| 11278+00 to 11282+00 P | 0.012 | 0.02 | 0.41 | 0.5 | 0.86 | 0.17 | 1.13 | 0.15 | 0.38 | 0.45 | 82 | 0.0175 | 4.99 | 0.39 | 0.8 | 1.31 | 0.92 | 0.86 | 0.02002 | SuperCritical |
| 11291+00 to 11292+00 P | 0.012 | 0.04 | 0.51 | 1 | 4.01 | 0.4 | 1.59 | 0.25 | 1 | 0.85 | 51.1 | 0.0102 | 9.92 | 1.53 | 2.04 | 2.75 | 8.3 | 7.72 | 0.0108 | SuperCritical |
| 11320+50 to 11322+75 P | 0.012 | 0.04 | 0.35 | 0.67 | 1.43 | 0.19 | 1.08 | 0.17 | 0.67 | 0.56 | 52.3 | 0.0112 | 7.67 | 0.91 | 1.26 | 2.56 | 2.85 | 2.65 | 0.01162 | SuperCritical |
| 11349+50 to 11352+00 P | 0.012 | 0.06 | 0.34 | 0.67 | 1.68 | 0.18 | 1.07 | 0.17 | 0.67 | 0.6 | 51 | 0.0142 | 9.3 | 1.34 | 1.68 | 3.15 | 3.5 | 3.25 | 0.01604 | SuperCritical |
| 11371+25 to 11374+25 P | 0.012 | 0.04 | 0.6 | 1 | 5.13 | 0.49 | 1.76 | 0.28 | 0.98 | 0.92 | 59.6 | 0.0153 | 10.51 | 1.72 | 2.31 | 2.63 | 8.3 | 7.72 | 0.01767 | SuperCritical |
| 11472+00 to 11473+50 P | 0.012 | 0.2 | 0.19 | 0.5 | 0.83 | 0.07 | 0.66 | 0.1 | 0.49 | 0.45 | 37.9 | 0.0164 | 12.17 | 2.3 | 2.49 | 5.72 | 2.92 | 2.72 | 0.01865 | SuperCritical |
| 11473+50 to 11476+25 P | 0.012 | 0.12 | 0.37 | 0.5 | 1.9 | 0.16 | 1.04 | 0.15 | 0.44 | 0.5 | 74.4 | 0.0926 | 12.13 | 2.29 | 2.66 | 3.57 | 2.26 | 2.11 | 0.09771 | SuperCritical |
| 11478+00 to 11480+50 P | 0.012 | 0.19 | 0.24 | 0.5 | 1.22 | 0.09 | 0.76 | 0.12 | 0.5 | 0.49 | 47.6 | 0.0357 | 13.22 | 2.72 | 2.95 | 5.42 | 2.85 | 2.65 | 0.04029 | SuperCritical |
| 11489+75 to 11493+00 P | 0.012 | 0.11 | 0.17 | 0.5 | 0.52 | 0.06 | 0.63 | 0.1 | 0.48 | 0.37 | 34.7 | 0.0092 | 8.59 | 1.15 | 1.32 | 4.25 | 2.17 | 2.02 | 0.00732 | SuperCritical |
| 11497+80 to 11503+50 P | 0.012 | 0.34 | 0.3 | 0.5 | 2.38 | 0.12 | 0.89 | 0.14 | 0.49 | 0.5 | 60 | 0.1475 | 19.35 | 5.82 | 6.12 | 6.81 | 3.81 | 3.54 | 0.15332 | SuperCritical |

Dauphin County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|-------------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 11278+00 to 11282+00 CH | 0.03 | 0.16 | 0.86 | 1.87 | V | 8.0 | 2.00 | 0.30 | SC150 |
| 11291+00 to 11292+00 CH | 0.06 | 0.29 | 4.01 | 3.93 | V | 8.0 | 2.00 | 1.09 | SC150 |
| 11320+50 to 11322+75 CH | 0.01 | 0.3 | 1.43 | 1.62 | V | 8.0 | 2.00 | 0.19 | SC150 |
| 11349+50 to 11352+00 CH | 0.02 | 0.36 | 1.68 | 2.53 | V | 8.0 | 2.00 | 0.45 | SC150 |
| 11371+25 to 11374+25 CH | 0.06 | 0.47 | 5.13 | 5.16 | V | 8.0 | 2.00 | 1.76 | SC150 |
| 11472+00 to 11473+50 CH | 0.06 | 0.24 | 0.83 | 3.28 | V | 8.0 | 2.00 | 0.90 | SC150 |
| 11473+50 to 11476+25 CH | 0.07 | 0.49 | 1.9 | 5.07 | V | 9.5 | 3.00 | 2.14 | SC250 |
| 11478+00 to 11480+50 CH | 0.05 | 0.19 | 1.22 | 2.68 | V | 8.0 | 2.00 | 0.59 | SC150 |
| 11481+75 to 11483+00 CH | 0.09 | 0.05 | 0.04 | 1.54 | V | 8.0 | 2.00 | 0.28 | SC150 |
| 11489+75 to 11493+00 CH | 0.18 | 0.17 | 0.52 | 4.5 | S | 8.0 | 2.00 | 1.91 | SC150 |
| 11497+80 to 11503+50 CH | 0.08 | 0.63 | 2.38 | 5.8 | V | 8.0 | 2.00 | 3.14 | SC150 |
| 11803+00 to 11805+00 CH | 0.01 | 0.34 | 0.89 | 1.7 | V | 8.0 | 2.00 | 0.21 | SC150 |

Dauphin County
Temporary Slope Pipe Calculations

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|---------------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 11278+00 to 11282+00 PIPE | 0.86 | 1 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 6.17 | 10 | 1.39 |
| 11291+00 to 11292+00 PIPE | 4.01 | 4 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 14.39 | 15 | 4.18 |
| 11320+50 to 11322+75 PIPE | 1.43 | 5 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 4.59 | 5 | 1.56 |
| 11349+50 to 11352+00 PIPE | 1.68 | 4.5 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.296 | 5.68 | 10 | 2.96 |
| 11371+25 to 11374+25 PIPE | 5.13 | 2.5 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.220 | 23.28 | 25 | 5.51 |
| 11472+00 to 11473+50 PIPE | 0.83 | 16 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 1.49 | 5 | 2.79 |
| 11473+50 to 11476+25 PIPE | 1.9 | 1.5 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.171 | 11.13 | 15 | 2.56 |
| 11478+00 to 11480+50 PIPE | 1.22 | 20 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.623 | 1.96 | 5 | 3.12 |
| 11489+75 to 11493+00 PIPE | 0.52 | 11 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.462 | 1.12 | 5 | 2.31 |
| 11497+80 to 11503+50 PIPE | 2.38 | 27 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.724 | 3.29 | 5 | 3.62 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|-----------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------------------|-------------------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| 11278+00 | 11282+00 | 53,778 | 100 | 0.13 | HSG D | 0.800 | 10.33 | 195 | 0.18 | 1.00 | 3.25 | 13.58 | 3.47 | 0.20 | 0.03 | 36:1 | 0.86 | 12 | 0.02 | 6 |
| 11291+00 | 11292+00 | 164,180 | 100 | 0.03 | HSG D | 0.800 | 14.55 | 396 | 0.08 | 2.00 | 3.30 | 17.85 | 3.04 | 0.35 | 0.06 | 24:1 | 4.01 | 12 | 0.04 | 12 |
| 11320+50 | 11322+75 | 71,110 | 100 | 0.02 | HSG D | 0.400 | 11.57 | 426 | 0.03 | 0.80 | 8.88 | 20.44 | 2.83 | 0.31 | 0.01 | 20:1 | 1.43 | 12 | 0.04 | 8 |
| 11349+50 | 11352+00 | 77,255 | 100 | 0.09 | HSG D | 0.800 | 11.26 | 396 | 0.10 | 2.10 | 3.14 | 14.40 | 3.38 | 0.28 | 0.02 | 10:1 | 1.68 | 12 | 0.06 | 8 |
| 11371+25 | 11374+25 | 215,482 | 100 | 0.07 | HSG D | 0.400 | 8.63 | 470 | 0.09 | 1.30 | 6.03 | 14.66 | 3.35 | 0.31 | 0.06 | 9:1 | 5.13 | 12 | 0.04 | 12 |
| 11472+00 | 11473+50 | 32,011 | 100 | 0.02 | HSG D | 0.800 | 16.00 | 198 | 0.09 | 0.75 | 4.40 | 20.40 | 2.83 | 0.40 | 0.06 | 9:1 | 0.83 | 12 | 0.20 | 6 |
| 11473+50 | 11476+25 | 95,072 | 100 | 0.13 | HSG D | 0.800 | 10.33 | 465 | 0.12 | 0.85 | 9.12 | 19.45 | 2.91 | 0.30 | 0.07 | 3:1 | 1.90 | 12 | 0.12 | 6 |
| 11478+00 | 11480+50 | 47,588 | 100 | 0.05 | HSG D | 0.400 | 9.34 | 129 | 0.16 | 1.00 | 2.15 | 11.49 | 3.72 | 0.30 | 0.05 | 26:1 | 1.22 | 12 | 0.19 | 6 |
| 11481+75 | 11483+00 | 2,038 | 109 | 0.10 | HSG D | 0.300 | 7.23 | 0 | 0.10 | 0.80 | 0.00 | 7.23 | 4.37 | 0.20 | 0.09 | 18:1 | 0.04 | 12 | N/A | N/A |
| 11489+75 | 11493+00 | 28,481 | 100 | 0.48 | HSG D | 0.300 | 4.81 | 359 | 0.26 | 1.25 | 4.79 | 9.60 | 3.98 | 0.20 | 0.18 | 8:1 | 0.52 | 12 | 0.11 | 6 |
| 11497+80 | 11503+50 | 135,606 | 100 | 0.27 | HSG D | 0.300 | 5.51 | 315 | 0.16 | 1.00 | 5.25 | 10.76 | 3.82 | 0.20 | 0.08 | 2:1 | 2.38 | 18 | 0.34 | 6 |
| 11803+00 | 11805+00 | 55,401 | 100 | 0.09 | HSG D | 0.300 | 7.12 | 260 | 0.08 | 0.70 | 6.19 | 13.31 | 3.50 | 0.20 | 0.01 | 9:1 | 0.89 | 12 | N/A | N/A |

Lebanon County

**Lebanon County
Temporary Diversion Berm Calculations**

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Left Side Slope (ft/ft (H:V)) | Right Side Slope (ft/ft (H:V)) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Flow Type |
|----------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------------|-----------------|--------------------|----------------------|---------------|---------------|
| 1273510-1273665 BERM | 0.025 | 0.1 | 0.3 | 11.11 | 0.1 | 2.55 | 0.51 | 3.65 | 0.14 | 3.37 | 0.42 | 0.0171 | 5.04 | 0.39 | 0.69 | 2.29 | Supercritical |
| 1273665-1273785 BERM | 0.025 | 0.025 | 0.38 | 12.5 | 0.1 | 2.61 | 0.89 | 5.09 | 0.17 | 4.73 | 0.4 | 0.0171 | 2.94 | 0.13 | 0.51 | 1.19 | Supercritical |
| 1274875-1275140 BERM | 0.025 | 0.034 | 0.43 | 6.67 | 0.1 | 2.32 | 0.64 | 3.37 | 0.19 | 2.94 | 0.49 | 0.0174 | 3.62 | 0.2 | 0.64 | 1.37 | Supercritical |
| 1275140-1275310 BERM | 0.025 | 0.057 | 0.41 | 4.76 | 0.1 | 1.74 | 0.4 | 2.39 | 0.17 | 1.98 | 0.5 | 0.0186 | 4.33 | 0.29 | 0.7 | 1.69 | Supercritical |
| 1275310-1275515 BERM | 0.025 | 0.15 | 0.24 | 4.17 | 0.1 | 0.61 | 0.12 | 1.28 | 0.1 | 1.03 | 0.35 | 0.0217 | 4.88 | 0.37 | 0.61 | 2.47 | Supercritical |
| 1275515-1275975 BERM | 0.025 | 0.078 | 0.56 | 3.33 | 0.1 | 3.19 | 0.54 | 2.51 | 0.21 | 1.92 | 0.74 | 0.0182 | 5.94 | 0.55 | 1.11 | 1.98 | Supercritical |
| 1275975-1276330 BERM | 0.025 | 0.065 | 0.54 | 2.7 | 0.1 | 2.09 | 0.41 | 2.1 | 0.2 | 1.52 | 0.67 | 0.0203 | 5.1 | 0.4 | 0.94 | 1.73 | Supercritical |
| 1276330-1276655 BERM | 0.025 | 0.011 | 0.53 | 6.25 | 0.1 | 2.07 | 0.89 | 3.88 | 0.23 | 3.36 | 0.48 | 0.0177 | 2.33 | 0.08 | 0.61 | 0.8 | Subcritical |
| 1276655-1276830 BERM | 0.025 | 0.036 | 0.49 | 0.1 | 5.56 | 2.75 | 0.69 | 3.29 | 0.21 | 2.8 | 0.57 | 0.0172 | 3.98 | 0.25 | 0.74 | 1.41 | Supercritical |
| 1276830-1277050 BERM | 0.025 | 0.019 | 0.5 | 4.76 | 0.1 | 1.73 | 0.6 | 2.93 | 0.21 | 2.42 | 0.5 | 0.0186 | 2.86 | 0.13 | 0.63 | 1.01 | Supercritical |
| 1277050-1277195 BERM | 0.025 | 0.028 | 0.44 | 5 | 0.1 | 1.61 | 0.5 | 2.7 | 0.18 | 2.26 | 0.48 | 0.0187 | 3.23 | 0.16 | 0.6 | 1.21 | Supercritical |
| 1279955-1280570 BERM | 0.025 | 0.019 | 0.46 | 0.1 | 12.5 | 3.96 | 1.35 | 6.26 | 0.22 | 5.83 | 0.48 | 0.0162 | 2.94 | 0.13 | 0.6 | 1.08 | Supercritical |

**Lebanon County
Temporary Slope Pipe Calculations**

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Diameter (ft) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Percent Full (%) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Maximum Discharge (ft ³ /s) | Discharge Full (ft ³ /s) | Slope Full (ft/ft) | Flow Type |
|-------------------------|-----------------------|-----------------------|-------------------|---------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------|------------------------|-----------------|--------------------|----------------------|---------------|--|-------------------------------------|--------------------|---------------|
| 1188180-1188460 PIPE | 0.024 | 0.13 | 0.37 | 0.67 | 1.38 | 0.2 | 1.11 | 0.18 | 0.67 | 0.55 | 54.5 | 0.0428 | 7.03 | 0.77 | 1.13 | 2.28 | 2.57 | 2.39 | 0.04329 | SuperCritical |
| 1188460-1189000 PIPE | 0.024 | 0.13 | 0.48 | 1 | 3.25 | 0.37 | 1.53 | 0.24 | 1 | 0.77 | 48 | 0.032 | 8.71 | 1.18 | 1.66 | 2.51 | 7.48 | 6.96 | 0.02836 | SuperCritical |
| 1189000-1189375 PIPE | 0.024 | 0.11 | 0.51 | 0.67 | 2.03 | 0.29 | 1.41 | 0.2 | 0.57 | 0.63 | 75.8 | 0.081 | 7.08 | 0.78 | 1.29 | 1.77 | 2.37 | 2.2 | 0.09367 | SuperCritical |
| 11901+50 to 11904+80 PI | 0.012 | 0.22 | 0.33 | 0.5 | 2.16 | 0.14 | 0.94 | 0.14 | 0.48 | 0.5 | 65.1 | 0.1204 | 15.96 | 3.96 | 4.29 | 5.28 | 3.07 | 2.85 | 0.12628 | SuperCritical |
| 11904+80 to 11906+90 PI | 0.012 | 0.21 | 0.27 | 0.5 | 1.57 | 0.11 | 0.82 | 0.13 | 0.5 | 0.5 | 53.7 | 0.0616 | 14.61 | 3.32 | 3.59 | 5.55 | 3 | 2.79 | 0.06672 | SuperCritical |
| 11906+90 to 11909+00 PI | 0.012 | 0.12 | 0.29 | 0.5 | 1.33 | 0.12 | 0.86 | 0.14 | 0.49 | 0.49 | 57.7 | 0.043 | 11.34 | 2 | 2.29 | 4.1 | 2.26 | 2.11 | 0.04788 | SuperCritical |
| 11911+00 to 11913+00 PI | 0.012 | 0.04 | 0.45 | 0.67 | 2.09 | 0.25 | 1.28 | 0.2 | 0.63 | 0.63 | 66.9 | 0.0215 | 8.33 | 1.08 | 1.53 | 2.33 | 2.85 | 2.65 | 0.02482 | SuperCritical |
| 11993+25 to 11994+75 PI | 0.012 | 0.05 | 0.17 | 0.5 | 0.35 | 0.06 | 0.63 | 0.1 | 0.48 | 0.3 | 34.7 | 0.0073 | 5.79 | 0.52 | 0.69 | 2.86 | 1.46 | 1.36 | 0.00332 | SuperCritical |
| 12002+50 to 12004+00 PI | 0.012 | 0.17 | 0.09 | 0.5 | 0.17 | 0.02 | 0.43 | 0.05 | 0.38 | 0.21 | 17.6 | 0.0062 | 7.28 | 0.82 | 0.91 | 5.19 | 2.7 | 2.51 | 0.00078 | SuperCritical |
| 12035+75 to 12037+00 PI | 0.012 | 0.05 | 0.87 | 1 | 9.02 | 0.72 | 2.4 | 0.3 | 0.68 | 0.99 | 86.7 | 0.0505 | 12.46 | 2.41 | 3.28 | 2.13 | 9.28 | 8.63 | 0.05462 | SuperCritical |
| 12095+30 to 12099+00 PI | 0.012 | 0.06 | 0.59 | 0.67 | 3.43 | 0.33 | 1.64 | 0.2 | 0.43 | 0.66 | 88.2 | 0.0622 | 10.42 | 1.69 | 2.28 | 2.1 | 3.5 | 3.25 | 0.06685 | SuperCritical |
| 12099+00 to 12101+00 PI | 0.012 | 0.04 | 0.57 | 0.67 | 2.72 | 0.32 | 1.56 | 0.2 | 0.49 | 0.66 | 84.4 | 0.0376 | 8.57 | 1.14 | 1.71 | 1.87 | 2.85 | 2.65 | 0.04204 | SuperCritical |
| 12101+00 to 12103+00 PI | 0.012 | 0.04 | 0.47 | 0.67 | 2.24 | 0.27 | 1.33 | 0.2 | 0.61 | 0.64 | 70.5 | 0.0248 | 8.44 | 1.11 | 1.58 | 2.26 | 2.85 | 2.65 | 0.02851 | SuperCritical |
| 12134+50 to 12137+50 PI | 0.012 | 0.23 | 0.37 | 0.5 | 2.6 | 0.16 | 1.03 | 0.15 | 0.44 | 0.5 | 73.7 | 0.1771 | 16.77 | 4.37 | 4.74 | 4.98 | 3.14 | 2.92 | 0.18297 | SuperCritical |
| 12209+80 to 12213+25 PI | 0.012 | 0.02 | 0.44 | 1 | 2.18 | 0.33 | 1.45 | 0.23 | 0.99 | 0.63 | 44 | 0.0061 | 6.56 | 0.67 | 1.11 | 2 | 5.87 | 5.46 | 0.00319 | SuperCritical |
| 12213+25 to 12215+75 PI | 0.012 | 0.03 | 0.53 | 1 | 3.71 | 0.42 | 1.64 | 0.26 | 1 | 0.82 | 53.2 | 0.0092 | 8.73 | 1.19 | 1.72 | 2.36 | 7.19 | 6.68 | 0.00924 | SuperCritical |
| 12215+75 to 12217+90 PI | 0.012 | 0.03 | 0.53 | 1 | 3.71 | 0.42 | 1.64 | 0.26 | 1 | 0.82 | 53.2 | 0.0092 | 8.73 | 1.19 | 1.72 | 2.36 | 7.19 | 6.68 | 0.00924 | SuperCritical |
| 12217+90 to 12217+90 C | 0.012 | 0.02 | 1 | 1 | 5.46 | 0.79 | 3.14 | 0.25 | 0 | 0.94 | 100 | 0.0173 | 6.95 | 0.75 | 1.75 | 0 | 5.87 | 5.46 | 0.02 | SubCritical |
| 12217+90 to 12217+90 PI | 0.012 | 0.02 | 0.59 | 1 | 3.59 | 0.48 | 1.76 | 0.28 | 0.98 | 0.81 | 59.2 | 0.0089 | 7.42 | 0.85 | 1.45 | 1.86 | 5.87 | 5.46 | 0.00865 | SuperCritical |
| 12220+80-12225+20 | 0.023 | 0.09 | 0.77 | 1 | 5.71 | 0.65 | 2.15 | 0.3 | 0.84 | 0.95 | 77.4 | 0.0696 | 8.75 | 1.19 | 1.96 | 1.75 | 6.5 | 6.04 | 0.08041 | SuperCritical |
| 12225+50-12226+40 | 0.023 | 0.07 | 0.94 | 1.5 | 11.32 | 1.17 | 2.75 | 0.43 | 1.45 | 1.29 | 62.9 | 0.0339 | 9.68 | 1.46 | 2.4 | 1.9 | 16.9 | 15.71 | 0.03636 | SuperCritical |
| 12237+50-12238+80 | 0.023 | 0.1 | 0.64 | 1 | 4.69 | 0.53 | 1.85 | 0.29 | 0.96 | 0.9 | 63.8 | 0.0478 | 8.86 | 1.22 | 1.86 | 2.11 | 6.85 | 6.37 | 0.05425 | SuperCritical |
| 12238+80-12240+60 | 0.023 | 0.12 | 0.69 | 1 | 5.71 | 0.58 | 1.96 | 0.29 | 0.93 | 0.95 | 68.8 | 0.0696 | 9.91 | 1.53 | 2.21 | 2.22 | 7.5 | 6.98 | 0.08041 | SuperCritical |
| 12240+60-12242+20 | 0.023 | 0.15 | 0.48 | 1 | 3.6 | 0.37 | 1.53 | 0.24 | 1 | 0.81 | 47.7 | 0.0327 | 9.73 | 1.47 | 1.95 | 2.82 | 8.39 | 7.8 | 0.03196 | SuperCritical |
| 12242+20-12244+30 | 0.023 | 0.02 | 0.82 | 1.5 | 4.86 | 0.99 | 2.49 | 0.4 | 1.49 | 0.85 | 54.6 | 0.0179 | 4.92 | 0.38 | 1.2 | 1.07 | 9.03 | 8.4 | 0.0067 | SuperCritical |
| 12244+30-12245+30 | 0.023 | 0.02 | 0.58 | 1.2 | 9.54 | 2 | 5.31 | 0.38 | 5.14 | 0.67 | 4.8 | 0.0106 | 4.77 | 0.35 | 0.93 | 1.35 | 2312 | 2149 | 0 | SuperCritical |
| 12250+25-12253+25 | 0.023 | 0.05 | 0.88 | 1 | 4.75 | 0.73 | 2.44 | 0.3 | 0.65 | 0.9 | 88.1 | 0.0489 | 6.48 | 0.65 | 1.53 | 1.07 | 4.84 | 4.5 | 0.05564 | SuperCritical |
| 12253+25-12255+85 | 0.023 | 0.16 | 0.49 | 1 | 3.85 | 0.38 | 1.54 | 0.25 | 1 | 0.83 | 48.9 | 0.0355 | 10.14 | 1.6 | 2.09 | 2.9 | 8.66 | 8.05 | 0.03656 | SuperCritical |
| 12270+00-12270+80 | 0.023 | 0.06 | 0.72 | 1.5 | 6.75 | 0.84 | 2.29 | 0.36 | 1.5 | 1.01 | 47.7 | 0.0207 | 8.08 | 1.01 | 1.73 | 1.91 | 16.64 | 14.54 | 0.01293 | SuperCritical |
| 12270+80-12271+95 | 0.023 | 0.03 | 1.12 | 1.5 | 9.37 | 1.42 | 3.14 | 0.45 | 1.3 | 1.18 | 75 | 0.0268 | 6.59 | 0.68 | 1.8 | 1.11 | 11.06 | 10.28 | 0.02491 | SuperCritical |
| 12271+95-12273+70 | 0.023 | 0.02 | 1.3 | 2 | 13.62 | 2.15 | 3.74 | 0.58 | 1.91 | 1.33 | 64.8 | 0.0186 | 6.32 | 0.62 | 1.92 | 1.05 | 19.45 | 18.08 | 0.01135 | SuperCritical |
| 12273+70-12275+10 | 0.023 | 0.06 | 0.34 | 12 | 5.16 | 0.89 | 4.03 | 0.22 | 3.96 | 0.49 | 2.8 | 0.0116 | 5.79 | 0.52 | 0.86 | 2.15 | 40.05 | 3723 | 0 | SuperCritical |
| 12273+70-12275+10 | 0.023 | 0.07 | 1.24 | 2 | 23.74 | 2.04 | 3.62 | 0.56 | 1.94 | 1.73 | 61.8 | 0.0317 | 11.65 | 2.11 | 3.35 | 2.01 | 36.39 | 33.83 | 0.03447 | SuperCritical |
| 12276+35-12279+95 | 0.023 | 0.12 | 0.73 | 1.5 | 9.79 | 0.85 | 2.31 | 0.37 | 1.5 | 1.21 | 48.6 | 0.0281 | 11.5 | 2.06 | 2.78 | 2.69 | 22.12 | 20.57 | 0.02719 | SuperCritical |
| 12279+75-12284+10 | 0.023 | 0.02 | 1.21 | 2 | 12.35 | 1.99 | 3.57 | 0.56 | 1.95 | 1.26 | 60.7 | 0.0177 | 6.19 | 0.6 | 1.81 | 1.08 | 19.45 | 18.08 | 0.00933 | SuperCritical |
| 12284+10-12286+60 | 0.023 | 0.05 | 1.41 | 2 | 24.26 | 2.38 | 4 | 0.59 | 1.82 | 1.74 | 70.7 | 0.0328 | 10.21 | 1.62 | 3.04 | 1.58 | 30.75 | 28.59 | 0.036 | SuperCritical |
| 12306+00-12307+90 | 0.023 | 0.02 | 1.14 | 1.5 | 7.8 | 1.45 | 3.18 | 0.45 | 1.28 | 1.08 | 76.2 | 0.0228 | 5.4 | 0.45 | 1.6 | 0.89 | 9.03 | 8.4 | 0.01726 | SubCritical |
| 12318+60-12320+10 | 0.023 | 0.08 | 0.49 | 1 | 2.76 | 0.38 | 1.55 | 0.25 | 1 | 0.71 | 49.1 | 0.0256 | 7.2 | 0.81 | 1.3 | 2.05 | 6.13 | 5.7 | 0.01879 | SuperCritical |
| 12329+40-12331+35 | 0.023 | 0.01 | 1.32 | 1.5 | 6.25 | 1.64 | 3.64 | 0.45 | 0.98 | 0.97 | 87.8 | 0.0199 | 3.8 | 0.22 | 1.54 | 0.52 | 6.39 | 5.94 | 0.01108 | SubCritical |
| 12363+10-12366+90 | 0.023 | 0.01 | 0.74 | 1.5 | 2.89 | 0.87 | 2.33 | 0.37 | 1.5 | 0.65 | 49.2 | 0.016 | 3.34 | 0.17 | 0.91 | 0.77 | 6.39 | 5.94 | 0.00237 | SubCritical |
| 12316+85-12419+70 | 0.023 | 0.01 | 1.11 | 1.5 | 5.33 | 1.4 | 3.11 | 0.45 | 1.32 | 0.89 | 74 | 0.0185 | 3.8 | 0.22 | 1.33 | 0.65 | 6.39 | 5.94 | 0.00806 | SubCritical |
| 12458+30-12460+20 | 0.023 | 0.01 | 0.73 | 1.5 | 2.81 | 0.85 | 2.31 | 0.37 | 1.5 | 0.64 | 48.4 | 0.0159 | 3.31 | 0.17 | 0.9 | 0.78 | 6.39 | 5.94 | 0.00224 | SubCritical |
| 12460+20-12462+65 | 0.023 | 0.01 | 1.07 | 2 | 7.17 | 1.71 | 3.28 | 0.52 | 1.99 | 0.95 | 53.5 | 0.015 | 4.19 | 0.27 | 1.34 | 0.8 | 13.75 | 12.79 | 0.00314 | SubCritical |
| 12478+95-12480+18 | 0.023 | 0.04 | 0.58 | 0.67 | 1.44 | 0.32 | 1.59 | 0.2 | 0.46 | 0.56 | 86.2 | 0.0415 | 4.46 | 0.31 | 0.89 | 0.94 | 1.49 | 1.38 | 0.04329 | SubCritical |
| 1252830-1252960 PIPE | 0.024 | 0.02 | 0.59 | 0.67 | 0.99 | 0.33 | 1.63 | 0.2 | 0.43 | 0.47 | 88.2 | 0.0314 | 3.01 | 0.14 | 0.73 | 0.61 | 1.01 | 0.94 | 0.02228 | SubCritical |
| 1253600-1253780 PIPE | 0.024 | 0.01 | 1.65 | 3 | 21.06 | 3.97 | 5 | 0.79 | 2.99 | 1.47 | 54.8 | 0.0144 | 5.31 | 0.44 | 2.08 | 0.81 | 38.86 | 36.13 | 0.0034 | SubCritical |
| 1253780-1254490 PIPE | 0.024 | 0.02 | 1.25 | 2 | 12.34 | 2.06 | 3.64 | 0.57 | 1.94 | 1.26 | 62.4 | 0.0193 | 5.99 | 0.56 | 1.8 | 1.02 | 18.64 | 17.33 | 0.01014 | SuperCritical |
| 1254960-1255185 PIPE | 0.024 | 0.08 | 0.6 | 1 | 3.65 | 0.49 | 1.77 | 0.28 | 0.98 | 0.81 | 59.8 | 0.0362 | 7.44 | 0.86 | 1.46 | 1.86 | 5.87 | 5.46 | 0.03578 | SuperCritical |
| 1255810-1256210 PIPE | 0.024 | 0.01 | 1.18 | 2 | 8.03 | 1.93 | 3.51 | 0.55 | 1.97 | 1.01 | 59 | 0.0167 | 4.16 | 0.27 | 1.45 | 0.74 | 13.18 | 12.25 | 0.00429 | SubCritical |
| 1257870-1258230 PIPE | 0.024 | 0.06 | 0.64 | 1 | 3.5 | 0.53 | 1.86 | 0.29 | 0.96 | 0.8 | 64.1 | 0.0345 | 6.59 | 0.67 | 1.31 | 1.56 | 5.08 | 4.73 | 0.0329 | SuperCritical |
| 1258650-1258850 PIPE | 0.024 | 0.04 | 1.34 | 3 | 29.7 | 3.06 | 4.39 | 0.7 | 2.98 | 1.77 | 44.7 | 0.0159 | 9.72 | 1.47 | 2.81 | 1.69 | 77.22 | 72.25 | 0.00676 | SuperCritical |
| 1259250-1259380 PIPE | 0.024 | 0.09 | 0.4 | 0.5 | 0.89 | 0.17 | 1.11 | 0.15 | 0.4 | 0.46 | 79.9 | 0.0745 | 5.29 | 0.44 | 0.83 | 1.44 | 0.98 | 0.91 | 0.08576 | SuperCritical |
| 1260135-1260405 PIPE | 0.024 | 0.1 | 0.6 | 1 | 4.06 | 0.49 | 1.76 | 0.28 | 0.98 | 0.85 | 59.6 | 0.0415 | 8.31 | 1.07 | 1.67 | 2.08 | 6.56 | 6.1 | 0.04426 | SuperCritical |
| 1260405-1260555 PIPE | 0.024 | 0.12 | 0.36 | 0.5 | 0.93 | 0.15 | 1.02 | 0.15 | 0.44 | 0.46 | 73 | 0.081 | 6.06 | 0.57 | 0.94 | 1.82 | 1.13 | 1.05 | 0.09364 | SuperCritical |
| 1260730-1260930 PIPE | 0.024 | 0.07 | 0.54 | 1 | 2.91 | 0.43 | 1.65 | 0.26 | 1 | 0.73 | 54.1 | 0.029 | 6.71 | 0.7 | 1.24 | 1.79 | 5.49 | 5.11 | 0.02274 | SuperCritical |
| 1260930-1261240 PIPE | 0.024 | 0.09 | 0.47 | 1 | 2.56 | 0.36 | 1.5 | 0.24 | 1 | 0.69 | 46.6 | 0.0265 | 7.15 | 0.79 | 1.26 | 2.1 | 6.23 | 5.79 | 0.0176 | SuperCritical |
| 1261240-1261365 PIPE | 0.024 | 0.14 | 0.22 | 0.5 | 0.46 | 0.08 | 0.73 | 0.12 | 0.5 | 0.35 | 44.2 | 0.0337 | 5.49 | 0.47 | 0.69 | 2.36 | 1.22 | 1.14 | 0.02291 | SuperCritical |
| 1263625-1263900 PIPE | 0.024 | 0.04 | 0.75 | 1 | 3.54 | 0.64 | 2.1 | 0.3 | 0.86 | 0.8 | 75.4 | 0.0349 | 5.57 | 0.48 | 1.24 | 1.14 | 4.15 | 3.86 | 0.03365 | SuperCritical |
| 1263900- | | | | | | | | | | | | | | | | | | | | |

**Lebanon County
Temporary Slope Pipe Calculations**

| | | | | | | | | | | | | | | | | | | | | |
|----------------------|-------|------|------|------|------|------|------|------|------|------|------|--------|------|------|------|------|------|------|---------|---------------|
| 1276330-1276655 PIPE | 0.024 | 0.11 | 0.52 | 0.67 | 2.07 | 0.29 | 1.44 | 0.2 | 0.56 | 0.63 | 77.1 | 0.0842 | 7.09 | 0.78 | 1.3 | 1.74 | 2.37 | 2.2 | 0.0974 | SuperCritical |
| 1276655-1276830 PIPE | 0.024 | 0.06 | 0.55 | 1 | 2.75 | 0.44 | 1.67 | 0.26 | 1 | 0.71 | 54.8 | 0.0278 | 6.25 | 0.61 | 1.15 | 1.66 | 5.08 | 4.73 | 0.02031 | SuperCritical |
| 1276830-1277050 PIPE | 0.024 | 0.1 | 0.46 | 0.67 | 1.73 | 0.26 | 1.32 | 0.2 | 0.62 | 0.6 | 69.2 | 0.0599 | 6.64 | 0.69 | 1.15 | 1.8 | 2.26 | 2.1 | 0.06803 | SuperCritical |
| 1277050-1277195 PIPE | 0.024 | 0.18 | 0.36 | 0.67 | 1.61 | 0.2 | 1.11 | 0.18 | 0.67 | 0.59 | 54.2 | 0.0531 | 8.25 | 1.06 | 1.42 | 2.69 | 3.03 | 2.81 | 0.05892 | SuperCritical |
| 1279955-1280570 PIPE | 0.024 | 0.07 | 0.66 | 1 | 3.96 | 0.55 | 1.9 | 0.29 | 0.95 | 0.84 | 66.2 | 0.0401 | 7.18 | 0.8 | 1.46 | 1.66 | 5.49 | 5.11 | 0.04211 | SuperCritical |

Lebanon County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|-------------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 1188180-1188460 BERM | 0.014 | 0.41 | 1.38 | 2.25 | V | 8.0 | 2.00 | 0.36 | SC150 |
| 1188460-1189000 BERM | 0.035 | 0.48 | 3.25 | 3.94 | V | 8.0 | 2.00 | 1.05 | SC150 |
| 1189000-1189375 BERM | 0.03 | 0.41 | 2.03 | 3.3 | V | 8.0 | 2.00 | 0.77 | SC150 |
| 11901+50 to 11904+80 CH | 0.05 | 0.49 | 2.16 | 4.46 | V | 8.0 | 2.00 | 1.53 | SC150 |
| 11904+80 to 11906+90 CH | 0.04 | 0.41 | 1.57 | 3.67 | V | 8.0 | 2.00 | 1.02 | SC150 |
| 11906+90 to 11909+00 CH | 0.06 | 0.36 | 1.33 | 4.09 | V | 8.0 | 2.00 | 1.35 | SC150 |
| 11911+00 to 11913+00 CH | 0.04 | 0.35 | 2.09 | 3.47 | V | 8.0 | 2.00 | 0.87 | SC150 |
| 11932+50 to 11933+25 CH | 0.25 | 0.12 | 0.12 | 3.95 | S | 8.0 | 2.00 | 1.87 | SC150 |
| 11954+75 to 11955+30 CH | 0.1 | 0.08 | 0.07 | 2.14 | S | 8.0 | 2.00 | 0.50 | SC150 |
| 11993+25 to 11994+75 CH | 0.03 | 0.19 | 0.35 | 2 | V | 8.0 | 2.00 | 0.36 | SC150 |
| 12002+50 to 12004+00 CH | 0.09 | 0.19 | 0.17 | 3.05 | V | 8.0 | 2.00 | 1.07 | SC150 |
| 12035+75 to 12037+00 CH | 0.02 | 0.42 | 9.02 | 2.92 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 12095+30 to 12099+00 CH | 0.04 | 0.39 | 3.43 | 3.78 | V | 8.0 | 2.00 | 0.97 | SC150 |
| 12099+00 to 12101+00 CH | 0.02 | 0.33 | 2.72 | 2.46 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 12101+00 to 12103+00 CH | 0.02 | 0.28 | 2.24 | 2.23 | V | 8.0 | 2.00 | 0.35 | SC150 |
| 12116+90 to 12117+85 CH | 0.02 | 0.21 | 1.26 | 1.85 | V | 8.0 | 2.00 | 0.26 | SC150 |
| 12134+50 to 12137+50 CH | 0.01 | 0.56 | 2.6 | 2.33 | V | 8.0 | 2.00 | 0.35 | SC150 |
| 12209+80 to 12213+25 CH | 0.01 | 0.32 | 2.18 | 1.71 | V | 8.0 | 2.00 | 0.20 | SC150 |
| 12213+25 to 12215+75 CH | 0.01 | 0.35 | 3.71 | 1.82 | V | 8.0 | 2.00 | 0.22 | SC150 |
| 12215+75 to 12217+90 CH | 0.01 | 0.57 | 7.17 | 2.48 | V | 8.0 | 2.00 | 0.36 | SC150 |
| 12220+80-12225+20 | 0.02 | 0.44 | 5.71 | 2.96 | V | 8.0 | 2.00 | 0.55 | SC150 |
| 12225+50-12226+40 | 0.02 | 0.57 | 11.32 | 3.52 | V | 8.0 | 2.00 | 0.71 | SC150 |
| 12237+50-12238+80 | 0.03 | 0.54 | 4.69 | 3.98 | V | 8.0 | 2.00 | 1.01 | SC150 |
| 12238+80-12240+60 | 0.02 | 0.76 | 5.71 | 3.9 | V | 8.0 | 2.00 | 0.95 | SC150 |
| 12240+60-12242+20 | 0.02 | 0.64 | 3.6 | 3.48 | V | 8.0 | 2.00 | 0.80 | SC150 |
| 12242+20-12244+30 | 0.03 | 0.61 | 4.86 | 4.24 | V | 8.0 | 2.00 | 1.14 | SC150 |
| 12244+30-12245+30 | 0.02 | 0.59 | 9.54 | 3.59 | V | 8.0 | 2.00 | 0.74 | SC150 |
| 12250+25-12253+25 | 0.05 | 0.55 | 4.75 | 5.1 | V | 8.0 | 2.00 | 1.72 | SC150 |
| 12253+25-12255+85 | 0.06 | 0.42 | 3.85 | 4.81 | V | 8.0 | 2.00 | 1.57 | SC150 |
| 12270+00-12270+80 | 0.03 | 0.57 | 6.75 | 4.18 | V | 8.0 | 2.00 | 1.07 | SC150 |
| 12270+80-12271+95 | 0.02 | 0.53 | 9.37 | 3.35 | V | 8.0 | 2.00 | 0.66 | SC150 |
| 12271+95-12273+70 | 0.01 | 0.56 | 13.62 | 2.51 | V | 8.0 | 2.00 | 0.35 | SC150 |
| 12273+70-12275+10 | 0.01 | 0.46 | 5.16 | 2.18 | V | 8.0 | 2.00 | 0.29 | SC150 |
| 12273+70-12275+10 | 0.03 | 0.69 | 23.74 | 4.92 | V | 8.0 | 2.00 | 1.29 | SC150 |
| 12276+35-12279+95 | 0.02 | 0.42 | 9.79 | 2.92 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 12279+75-12284+10 | 0.01 | 0.57 | 12.35 | 2.52 | V | 8.0 | 2.00 | 0.36 | SC150 |
| 12284+10-12286+60 | 0.01 | 0.63 | 24.26 | 2.71 | V | 8.0 | 2.00 | 0.39 | SC150 |
| 12306+00-12307+90 | 0.01 | 0.66 | 7.8 | 2.72 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 12318+60-12320+10 | 0.04 | 0.38 | 2.76 | 3.72 | V | 8.0 | 2.00 | 0.95 | SC150 |

Lebanon County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|----------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 12329+40-12331+35 | 0.03 | 0.6 | 6.25 | 4.28 | V | 8.0 | 2.00 | 1.12 | SC150 |
| 12363+10-12366+90 | 0.02 | 0.32 | 2.89 | 2.42 | V | 8.0 | 2.00 | 0.40 | SC150 |
| 12416+85-12419+70 | 0.01 | 0.31 | 5.33 | 1.7 | V | 8.0 | 2.00 | 0.19 | SC150 |
| 12458+30-12460+20 | 0.03 | 0.25 | 2.81 | 2.52 | V | 8.0 | 2.00 | 0.47 | SC150 |
| 12460+20-12462+65 | 0.01 | 0.47 | 7.17 | 2.2 | V | 8.0 | 2.00 | 0.29 | SC150 |
| 12478+95-12480+18 | 0.01 | 0.36 | 1.44 | 1.81 | V | 8.0 | 2.00 | 0.22 | SC150 |
| 1252830-1252960 BERM | 0.0125 | 0.25 | 0.99 | 1.6 | V | 8.0 | 2.00 | 0.20 | SC150 |
| 1253600-1253780 BERM | 0.00172 | 1.04 | 21.06 | 1.55 | V | 8.0 | 2.00 | 0.11 | SC150 |
| 1253780-1254490 BERM | 0.008 | 0.69 | 12.34 | 2.55 | V | 8.0 | 2.00 | 0.34 | SC150 |
| 1254960-1255185 BERM | 0.048 | 0.31 | 3.65 | 3.68 | V | 8.0 | 2.00 | 0.93 | SC150 |
| 1255810-1256210 BERM | 0.024 | 0.44 | 8.03 | 3.28 | V | 8.0 | 2.00 | 0.66 | SC150 |
| 1257870-1258230 BERM | 0.057 | 0.34 | 3.5 | 4.18 | V | 8.0 | 2.00 | 1.21 | SC150 |
| 1258650-1258850 BERM | 0.053 | 0.48 | 29.7 | 5.2 | V | 8.0 | 2.00 | 1.59 | SC150 |
| 1259250-1259380 BERM | 0.028 | 0.25 | 0.89 | 2.34 | V | 8.0 | 2.00 | 0.44 | SC150 |
| 1260135-1260405 BERM | 0.012 | 0.51 | 4.06 | 2.49 | V | 8.0 | 2.00 | 0.38 | SC150 |
| 1260405-1260555 BERM | 0.02 | 0.28 | 0.93 | 2.14 | V | 8.0 | 2.00 | 0.35 | SC150 |
| 1260730-1260930 BERM | 0.007 | 0.52 | 2.91 | 1.92 | V | 8.0 | 2.00 | 0.23 | SC150 |
| 1260930-1261240 BERM | 0.024 | 0.36 | 2.56 | 2.8 | V | 8.0 | 2.00 | 0.54 | SC150 |
| 1261240-1261365 BERM | 0.038 | 0.18 | 0.46 | 2.23 | V | 8.0 | 2.00 | 0.43 | SC150 |
| 1263625-1263900 BERM | 0.029 | 0.37 | 3.54 | 3.15 | V | 8.0 | 2.00 | 0.67 | SC150 |
| 1263900-1264085 BERM | 0.028 | 0.39 | 3.06 | 3.19 | V | 8.0 | 2.00 | 0.68 | SC150 |
| 1264085-1264460 BERM | 0.011 | 0.48 | 4.56 | 2.33 | V | 8.0 | 2.00 | 0.33 | SC150 |
| 1264460-1264530 BERM | 0.029 | 0.62 | 17.15 | 4.48 | V | 8.0 | 2.00 | 1.12 | SC150 |
| 1266975-1267300 BERM | 0.037 | 0.38 | 3.22 | 3.59 | V | 8.0 | 2.00 | 0.88 | SC150 |
| 1267300-1267645 BERM | 0.055 | 0.51 | 8.67 | 5.33 | V | 8.0 | 2.00 | 1.75 | SC150 |
| 1269450-1269315 BERM | 0.028 | 0.27 | 1.61 | 2.55 | V | 8.0 | 2.00 | 0.47 | SC150 |
| 1269375-1269465 BERM | 0.022 | 0.28 | 1.46 | 2.27 | V | 8.0 | 2.00 | 0.38 | SC150 |
| 1269485-1269635 BERM | 0.027 | 0.41 | 3.94 | 3.26 | V | 8.0 | 2.00 | 0.69 | SC150 |
| 1270535-1270730 BERM | 0.03 | 0.73 | 9.42 | 4.85 | V | 8.0 | 2.00 | 1.37 | SC150 |
| 1273295-1273310 BERM | 0.065 | 0.2 | 0.85 | 3.08 | V | 8.0 | 2.00 | 0.81 | SC150 |
| 1273510-1273665 BERM | 0.1 | 0.3 | 2.55 | 5.04 | S | 8.0 | 2.00 | 1.87 | SC150 |
| 1273665-1273785 BERM | 0.025 | 0.38 | 2.61 | 2.94 | V | 8.0 | 2.00 | 0.59 | SC150 |
| 1274875-1275140 BERM | 0.034 | 0.43 | 2.32 | 3.62 | V | 8.0 | 2.00 | 0.91 | SC150 |
| 1275140-1275310 BERM | 0.057 | 0.41 | 1.74 | 4.33 | V | 8.0 | 2.00 | 1.46 | SC150 |
| 1275310-1275515 BERM | 0.15 | 0.24 | 0.61 | 4.88 | S | 9.5 | 3.00 | 2.25 | SC250 |
| 1275515-1275975 BERM | 0.078 | 0.56 | 3.19 | 5.94 | V | 9.5 | 3.00 | 2.73 | SC250 |
| 1275975-1276330 BERM | 0.065 | 0.54 | 2.09 | 5.1 | V | 9.5 | 3.00 | 2.19 | SC250 |
| 1276330-1276655 BERM | 0.011 | 0.53 | 2.07 | 2.33 | V | 8.0 | 2.00 | 0.36 | SC150 |
| 1276655-1276830 BERM | 0.036 | 0.49 | 2.75 | 3.98 | V | 8.0 | 2.00 | 1.10 | SC150 |

**Lebanon County
Temporary Diversion Berm
Erosion Control Blanket Calculations**

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft³/s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft²) | Shear Stress (lb/ft²) | Blanket Specification |
|----------------------|------------------------------|--------------------------|-------------------------------------|------------------------|--|---|--|---|------------------------------|
| 1276830-1277050 BERM | 0.019 | 0.5 | 1.73 | 2.86 | V | 8.0 | 2.00 | 0.59 | SC150 |
| 1277050-1277195 BERM | 0.028 | 0.44 | 1.61 | 3.23 | V | 8.0 | 2.00 | 0.77 | SC150 |
| 1279955-1280570 BERM | 0.019 | 0.46 | 3.96 | 2.94 | V | 8.0 | 2.00 | 0.55 | SC150 |

**Lebanon County
Temporary Perforated Pipe Level Spreader Calculations**

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|---------------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 11881+80 to11884+60 PIPE | 1.38 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 2.86 | 5 | 2.41 |
| 11884+60 to11890+00 PIPE | 3.25 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 7.37 | 10 | 4.41 |
| 11890+00 to 11893+75 PIPE | 2.03 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 4.61 | 5 | 2.20 |
| 11901+50 to 11904+80 PIPE | 2.16 | 20 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.623 | 3.47 | 5 | 3.12 |
| 11904+80 to 11906+90 PIPE | 1.57 | 21 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.639 | 2.46 | 5 | 3.19 |
| 11906+90 to 11909+00 PIPE | 1.33 | 18 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.591 | 2.25 | 5 | 2.96 |
| 11911+00 to 11913+00 PIPE | 2.09 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 7.50 | 10 | 2.79 |
| 11993+25 to 11994+75 PIPE | 0.35 | 6.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.355 | 0.98 | 5 | 1.78 |
| 12002+50 to 12004+00 PIPE | 0.17 | 20 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.623 | 0.27 | 5 | 3.12 |
| 12035+75 to 12037+00 PIPE | 9.02 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 28.94 | 30 | 9.35 |
| 12095+30 to 12099+00 PIPE | 3.43 | 7 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.369 | 9.30 | 10 | 3.69 |
| 12099+00 to 12101+00 PIPE | 2.72 | 3.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.261 | 10.43 | 15 | 3.91 |
| 12101+00 to 12103+00 PIPE | 2.24 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 8.04 | 10 | 2.79 |
| 12134+50 to 12137+50 PIPE | 2.6 | 15 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.540 | 4.82 | 5 | 2.70 |
| 12209+80 to 12213+25 PIPE | 2.18 | 3.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.261 | 8.36 | 10 | 2.61 |
| 12213+25 to 12215+75 PIPE | 3.71 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 15.37 | 20 | 4.83 |
| 12215+75 to 12217+90 PIPE | 3.71 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 15.37 | 20 | 4.83 |
| 12217+90 to 12217+90 PIPE | 3.59 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 14.87 | 15 | 3.62 |
| 12220+80-12225+20 | 5.71 | 7.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.382 | 14.96 | 15 | 5.73 |
| 12240+60-12242+20 | 3.6 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 7.16 | 10 | 5.03 |
| 12242+20-12244+30 | 4.86 | 1.75 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.184 | 26.36 | 30 | 5.53 |
| 12244+30-12245+30 | 9.54 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 48.40 | 50 | 9.86 |
| 12250+25-12253+25 | 4.75 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 12.05 | 15 | 5.91 |
| 12253+25-12255+85 | 3.85 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 9.77 | 10 | 3.94 |
| 12270+00-12270+80 | 6.75 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 34.24 | 35 | 6.90 |
| 12270+80-12271+95 | 9.37 | 2.75 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.231 | 40.54 | 45 | 10.40 |
| 12271+95-12273+70 | 13.62 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 48.86 | 50 | 13.94 |
| 12273+70-12275+10 | 5.16 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 18.51 | 20 | 5.58 |
| 12273+70-12275+10 | 23.74 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 85.16 | 90 | 25.09 |
| 12276+35-12279+95 | 9.79 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 28.68 | 30 | 10.24 |
| 12279+75-12284+10 | 12.35 | 1.25 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.156 | 79.25 | 80 | 12.47 |
| 12284+10-12286+60 | 24.26 | 5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 77.84 | 80 | 24.93 |
| 12306+00-12307+90 | 7.8 | 2 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 39.57 | 40 | 7.88 |
| 12318+60-12320+10 | 2.76 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 7.00 | 10 | 3.94 |
| 12329+40-12331+35 | 6.25 | 1.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.171 | 36.61 | 40 | 6.83 |
| 12363+10-12366+90 | 2.89 | 0.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.099 | 29.32 | 30 | 2.96 |
| 12316+85-12419+70 | 5.33 | 0.35 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.082 | 64.64 | 65 | 5.36 |
| 12458+30-12460+20 | 2.81 | 0.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.099 | 28.51 | 30 | 2.96 |
| 12460+20-12462+65 | 7.17 | 1 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 51.44 | 55 | 7.67 |
| 12478+95-12480+18 | 1.44 | 4.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.296 | 4.87 | 5 | 1.48 |
| 1252830-1252960 PIPE | 0.99 | 1.5 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.171 | 5.80 | 10 | 1.71 |
| 1253600-1253780 PIPE | 21.06 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 87.24 | 90 | 21.73 |
| 1253780-1254490 PIPE | 12.34 | 1.75 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.184 | 66.93 | 70 | 12.91 |
| 1254960-1255185 PIPE | 3.65 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 9.26 | 10 | 3.94 |
| 1255810-1256210 PIPE | 8.03 | 0.75 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.121 | 66.53 | 70 | 8.45 |

Lebanon County
Temporary Perforated Pipe Level Spreader Calculations

| | | | | | | | | | | | | |
|----------------------|------|-----|----|-------|---|------|------|------|-------|--------|-----|-------|
| 1257870-1258230 PIPE | 3.5 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 14.50 | 15 | 3.62 |
| 1258650-1258850 PIPE | 29.7 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 123.03 | 125 | 30.18 |
| 1259250-1259380 PIPE | 0.89 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 2.26 | 5 | 1.97 |
| 1260135-1260405 PIPE | 4.06 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 9.21 | 10 | 4.41 |
| 1260405-1260555 PIPE | 0.93 | 11 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.462 | 2.01 | 5 | 2.31 |
| 1260730-1260930 PIPE | 2.91 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 7.38 | 10 | 3.94 |
| 1260930-1261240 PIPE | 2.56 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 5.81 | 10 | 4.41 |
| 1261240-1261365 PIPE | 0.46 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 1.17 | 5 | 1.97 |
| 1263625-1263900 PIPE | 3.54 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 12.70 | 15 | 4.18 |
| 1263900-1264085 PIPE | 3.06 | 3.1 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.245 | 12.47 | 15 | 3.68 |
| 1264085-1264460 PIPE | 4.56 | 4 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 16.36 | 20 | 5.58 |
| 1266975-1267300 PIPE | 3.22 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 6.41 | 10 | 5.03 |
| 1267300-1267645 PIPE | 8.67 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 35.91 | 40 | 9.66 |
| 1269450-1269315 PIPE | 1.61 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 4.08 | 5 | 1.97 |
| 1269375-1269465 PIPE | 1.46 | 3 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 6.05 | 10 | 2.41 |
| 1270535-1270730 PIPE | 9.42 | 6 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 27.59 | 30 | 10.24 |
| 1273295-1273310 PIPE | 0.85 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 1.76 | 5 | 2.41 |
| 1273510-1273665 PIPE | 2.55 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.522 | 4.89 | 5 | 2.61 |
| 1273665-1273785 PIPE | 2.61 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 5.41 | 10 | 4.83 |
| 1274875-1275140 PIPE | 2.32 | 8 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.394 | 5.89 | 10 | 3.94 |
| 1275140-1275310 PIPE | 1.74 | 20 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.623 | 2.79 | 5 | 3.12 |
| 1275310-1275515 PIPE | 0.61 | 14 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.522 | 1.17 | 5 | 2.61 |
| 1275515-1275975 PIPE | 3.19 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 5.72 | 10 | 5.58 |
| 1275975-1276330 PIPE | 2.09 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 3.75 | 5 | 2.79 |
| 1276330-1276655 PIPE | 2.07 | 12 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.483 | 4.29 | 5 | 2.41 |
| 1276655-1276830 PIPE | 2.75 | 10 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.441 | 6.24 | 10 | 4.41 |
| 1276830-1277050 PIPE | 1.73 | 7 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.369 | 4.69 | 5 | 1.84 |
| 1277050-1277195 PIPE | 1.61 | 16 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.558 | 2.89 | 5 | 2.79 |
| 1279955-1280570 PIPE | 3.96 | 13 | 12 | 0.375 | 6 | 4.10 | 1.94 | 0.61 | 0.503 | 7.88 | 10 | 5.03 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|-----------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------|--------------------------------|-----------------------|----------------------------|
| 11881+80 | 11884+60 | 89,889 | 100 | 0.05 | Type D | 0.30 | 8.17 | 353 | 0.14 | 0.90 | 6.54 | 14.70 | 3.34 | 0.20 | 1.38 | 12 | 0.13 | 8 |
| 11884+60 | 11890+00 | 209,406 | 100 | 0.05 | Type D | 0.30 | 8.17 | 336 | 0.14 | 0.90 | 6.22 | 14.39 | 3.38 | 0.20 | 3.25 | 12 | 0.13 | 12 |
| 11890+00 | 11893+75 | 134,970 | 100 | 0.06 | Type D | 0.30 | 7.82 | 406 | 0.14 | 0.90 | 7.52 | 15.34 | 3.28 | 0.20 | 2.03 | 12 | 0.11 | 8 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------------|-----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------------------|-------------------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| 11901+50 | 11904+80 | 167,002 | 100 | 0.10 | HSG D | 0.300 | 6.94 | 697 | 0.13 | 0.85 | 13.67 | 20.61 | 2.82 | 0.20 | 0.05 | 4:1 | 2.16 | 12 | 0.22 | 6 |
| 11904+80 | 11906+90 | 180,791 | 100 | 0.03 | HSG D | 0.300 | 9.20 | 1166 | 0.09 | 0.65 | 29.90 | 39.10 | 1.89 | 0.20 | 0.04 | 5:1 | 1.57 | 12 | 0.21 | 6 |
| 11906+90 | 11909+00 | 102,677 | 100 | 0.09 | HSG D | 0.300 | 7.12 | 728 | 0.12 | 0.90 | 13.48 | 20.60 | 2.82 | 0.20 | 0.06 | 5:1 | 1.33 | 12 | 0.12 | 6 |
| 11911+00 | 11913+00 | 182,698 | 100 | 0.08 | HSG D | 0.300 | 7.32 | 874 | 0.11 | 0.80 | 18.21 | 25.52 | 2.49 | 0.20 | 0.04 | 10:1 | 2.09 | 12 | 0.04 | 8 |
| 11932+50 | 11933+25 | 6,842 | 100 | 0.03 | HSG D | 0.300 | 9.20 | 77 | 0.27 | 1.20 | 1.07 | 10.27 | 3.89 | 0.20 | 0.25 | 4:1 | 0.12 | 12 | N/A | N/A |
| 11954+75 | 11955+30 | 3,710 | 100 | 0.37 | HSG D | 0.400 | 5.85 | 72 | 0.14 | 0.95 | 1.26 | 7.11 | 4.40 | 0.20 | 0.10 | 9:1 | 0.07 | 12 | N/A | N/A |
| 11993+25 | 11994+75 | 20,508 | 100 | 0.08 | HSG D | 0.300 | 7.32 | 195 | 0.12 | 0.80 | 4.06 | 11.38 | 3.74 | 0.20 | 0.03 | 10:1 | 0.35 | 12 | 0.05 | 6 |
| 12002+50 | 12004+00 | 9,107 | 100 | 0.17 | HSG D | 0.300 | 6.13 | 212 | 0.21 | 1.10 | 3.21 | 9.35 | 4.02 | 0.20 | 0.09 | 3:1 | 0.17 | 12 | 0.17 | 6 |
| 12035+75* | 12037+00* | 517,673 | 100 | 0.01 | HSG D | 0.400 | 13.60 | 722 | 0.04 | 0.95 | 12.67 | 26.27 | 2.45 | 0.31 | 0.02 | 35:1 | 9.02 | 12 | 0.05 | 12 |
| 12095+30 | 12099+00 | 146,663 | 100 | 0.03 | HSG D | 0.400 | 10.52 | 354 | 0.07 | 1.25 | 4.72 | 15.24 | 3.29 | 0.31 | 0.04 | 12:1 | 3.43 | 12 | 0.06 | 8 |
| 12099+00 | 12101+00 | 121,919 | 74 | 0.05 | HSG D | 0.800 | 11.22 | 436 | 0.08 | 1.30 | 5.59 | 16.81 | 3.14 | 0.31 | 0.02 | 20:1 | 2.72 | 12 | 0.04 | 8 |
| 12101+00 | 12103+00 | 256,988 | 100 | 0.03 | HSG D | 0.800 | 14.55 | 402 | 0.09 | 1.40 | 4.79 | 19.34 | 2.92 | 0.13 | 0.02 | 25:1 | 2.24 | 12 | 0.04 | 8 |
| 12116+90 | 12117+85 | 54,740 | 100 | 0.07 | HSG D | 0.400 | 8.63 | 544 | 0.07 | 1.25 | 7.25 | 15.89 | 3.22 | 0.31 | 0.02 | 30:1 | 1.26 | 12 | N/A | N/A |
| 12134+50 | 12137+50 | 107,552 | 100 | 0.04 | HSG D | 0.400 | 9.84 | 286 | 0.06 | 1.10 | 4.33 | 14.17 | 3.40 | 0.31 | 0.01 | 7:1 | 2.60 | 18 | 0.23 | 6 |
| 12209+80 | 12213+25 | 111,663 | 100 | 0.03 | HSG D | 0.400 | 10.52 | 668 | 0.05 | 1.00 | 11.13 | 21.66 | 2.74 | 0.31 | 0.01 | 25:1 | 2.18 | 12 | 0.02 | 12 |
| 12213+25 | 12215+75 | 184,687 | 100 | 0.03 | HSG D | 0.400 | 10.52 | 604 | 0.05 | 1.00 | 10.07 | 20.59 | 2.82 | 0.31 | 0.01 | 33:1 | 3.71 | 12 | 0.03 | 12 |
| 12215+75 | 12217+90 | 458,036 | 100 | 0.03 | HSG D | 0.800 | 14.55 | 897 | 0.04 | 0.90 | 16.61 | 31.16 | 2.20 | 0.31 | 0.01 | 18:1 | 7.17 | 18 | 0.02 | 2 x 12 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------------------|-------------------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| 12220+80 | 12225+20 | 189,011 | 100 | 0.04 | Type D | 0.300 | 8.60 | 617 | 0.05 | 1.55 | 6.63 | 15.24 | 3.29 | 0.40 | 0.02 | 20:1 | 5.71 | 12 | 0.09 | 12 |
| 12225+50 | 12226+40 | 470,726 | 100 | 0.02 | Type D | 0.300 | 10.11 | 1122 | 0.04 | 1.40 | 13.36 | 23.47 | 2.62 | 0.40 | 0.02 | 20:1 | 11.32 | 18 | 0.07 | 12(2) |
| 12237+50 | 12238+80 | 151,511 | 100 | 0.03 | Type D | 0.300 | 9.20 | 598 | 0.08 | 1.90 | 5.25 | 14.45 | 3.37 | 0.40 | 0.03 | 8:1 | 4.69 | 18 | 0.10 | 12 |
| 12238+80 | 12240+60 | 195,348 | 100 | 0.04 | Type D | 0.300 | 8.60 | 829 | 0.07 | 1.80 | 7.68 | 16.28 | 3.19 | 0.40 | 0.02 | 5:1 | 5.71 | 18 | 0.12 | 12 |
| 12240+60 | 12242+20 | 128,314 | 100 | 0.02 | Type D | 0.300 | 10.11 | 820 | 0.07 | 1.80 | 7.59 | 17.71 | 3.05 | 0.40 | 0.02 | 5:1 | 3.60 | 18 | 0.15 | 12 |
| 12242+20 | 12244+30 | 164,384 | 100 | 0.03 | Type D | 0.300 | 9.20 | 768 | 0.08 | 1.90 | 6.74 | 15.94 | 3.22 | 0.40 | 0.03 | 6:1 | 4.86 | 18 | 0.02 | 12(2) |
| 12244+30 | 12245+30 | 341,470 | 100 | 0.02 | Type D | 0.300 | 10.11 | 835 | 0.07 | 1.80 | 7.73 | 17.85 | 3.04 | 0.40 | 0.02 | 15:1 | 9.54 | 18 | 0.02 | 12 |
| 12250+25 | 12253+25 | 145,456 | 100 | 0.07 | Type D | 0.300 | 7.55 | 534 | 0.06 | 1.70 | 5.24 | 12.78 | 3.56 | 0.40 | 0.05 | 6:1 | 4.75 | 18 | 0.05 | 12 |
| 12253+25 | 12255+85 | 115,127 | 100 | 0.04 | Type D | 0.300 | 8.60 | 359 | 0.06 | 1.70 | 3.52 | 12.12 | 3.64 | 0.40 | 0.06 | 9:1 | 3.85 | 12 | 0.16 | 12 |
| 12270+00 | 12270+80 | 106,547 | 100 | 0.06 | Type D | 0.300 | 7.82 | 707 | 0.08 | 2.00 | 5.89 | 13.72 | 3.45 | 0.80 | 0.03 | 10:1 | 6.75 | 18 | 0.06 | 12(2) |
| 12270+80 | 12271+95 | 155,492 | 100 | 0.07 | Type D | 0.300 | 7.55 | 883 | 0.08 | 1.90 | 7.75 | 15.29 | 3.28 | 0.80 | 0.02 | 20:1 | 9.37 | 18 | 0.03 | 12(2) |
| 12271+95 | 12273+70 | 206,071 | 100 | 0.11 | Type D | 0.300 | 6.79 | 679 | 0.09 | 2.00 | 5.66 | 12.45 | 3.60 | 0.80 | 0.01 | 34:1 | 13.62 | 18 | 0.02 | 12(2) |
| 12273+70 | 12275+10 | 79,033 | 100 | 0.10 | Type D | 0.300 | 6.94 | 707 | 0.09 | 2.00 | 5.89 | 12.84 | 3.55 | 0.80 | 0.01 | 22:1 | 5.16 | 12 | 0.06 | 12 |
| 12275+10 | 12276+35 | 360,343 | 100 | 0.12 | Type D | 0.300 | 6.65 | 707 | 0.09 | 2.00 | 5.89 | 12.55 | 3.59 | 0.80 | 0.03 | 20:1 | 23.74 | 18 | 0.07 | 12(2) |
| 12276+35 | 12279+95 | 183,675 | 100 | 0.08 | Type D | 0.300 | 7.32 | 1025 | 0.04 | 1.40 | 12.20 | 19.52 | 2.90 | 0.80 | 0.02 | 38:1 | 9.79 | 12 | 0.12 | 12(2) |
| 12279+75 | 12284+10 | 231,799 | 100 | 0.04 | Type D | 0.300 | 8.60 | 918 | 0.04 | 1.40 | 10.93 | 19.53 | 2.90 | 0.80 | 0.01 | 30:1 | 12.35 | 18 | 0.02 | 12(2) |
| 12284+10 | 12286+60 | 437,219 | 100 | 0.04 | Type D | 0.300 | 8.60 | 796 | 0.04 | 1.40 | 9.48 | 18.08 | 3.02 | 0.80 | 0.01 | 45:1 | 24.26 | 18 | 0.05 | 12(2) |
| 12306+00 | 12307+90 | 569,571 | 100 | 0.06 | Type D | 0.300 | 7.82 | 1025 | 0.06 | 0.60 | 28.47 | 36.30 | 1.99 | 0.30 | 0.01 | 13:1 | 7.80 | 18 | 0.02 | 12(2) |
| 12318+60 | 12320+10 | 83,571 | 100 | 0.06 | Type D | 0.300 | 7.82 | 442 | 0.13 | 1.60 | 4.60 | 12.43 | 3.60 | 0.40 | 0.04 | 10:1 | 2.76 | 12 | 0.08 | 12 |
| 12329+40 | 12331+35 | 216,697 | 100 | 0.10 | Type D | 0.300 | 6.94 | 559 | 0.04 | 0.95 | 9.81 | 16.75 | 3.14 | 0.40 | 0.03 | 8:1 | 6.25 | 18 | 0.01 | 12(2) |
| 12363+10 | 12366+90 | 296,547 | 100 | 0.02 | Type D | 0.300 | 10.11 | 1965 | 0.01 | 0.45 | 72.78 | 82.89 | 1.06 | 0.40 | 0.02 | 23:1 | 2.89 | 12 | 0.01 | 12(2) |
| 12416+85 | 12419+70 | 561,642 | 100 | 0.02 | Type D | 0.300 | 10.11 | 3621 | 0.03 | 0.80 | 75.44 | 85.55 | 1.03 | 0.40 | 0.01 | 65:1 | 5.33 | 12 | 0.01 | 12(2) |
| 12458+30 | 12460+20 | 116,531 | 100 | 0.04 | Type D | 0.300 | 8.60 | 574 | 0.02 | 0.65 | 14.72 | 23.32 | 2.63 | 0.40 | 0.03 | 36:1 | 2.81 | 12 | 0.01 | 12(2) |
| 12460+20 | 12462+65 | 329,790 | 100 | 0.04 | Type D | 0.300 | 8.60 | 747 | 0.02 | 0.65 | 19.15 | 27.76 | 2.37 | 0.40 | 0.01 | 30:1 | 7.17 | 12 | 0.01 | 12(2) |
| 12478+95 | 12480+18 | 36,179 | 100 | 0.21 | Type D | 0.300 | 5.84 | 129 | 0.08 | 1.30 | 1.65 | 7.49 | 4.33 | 0.40 | 0.01 | 12:1 | 1.44 | 12 | 0.04 | 8 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------|--------------------------------|-----------------------|----------------------------|
| 12528+30 | 12529+60 | 49,971 | 100 | 0.04 | Type D | 0.40 | 9.84 | 738 | 0.05 | 1.10 | 11.18 | 21.02 | 2.79 | 0.31 | 0.99 | 12 | 0.02 | 8 |
| 12536+00 | 12537+80 | 2,046,260 | 100 | 0.09 | Type D | 0.40 | 8.14 | 2672 | 0.04 | 0.93 | 48.14 | 56.29 | 1.45 | 0.31 | 21.06 | 24 | 0.01 | 12 (3) |
| 12537+80 | 12544+90 | 793,321 | 100 | 0.03 | Type D | 0.40 | 10.52 | 1385 | 0.05 | 1.10 | 20.98 | 31.51 | 2.19 | 0.31 | 12.34 | 18 | 0.02 | 12 (2) |
| 12549+60 | 12551+85 | 157,972 | 100 | 0.09 | Type D | 0.40 | 8.14 | 494 | 0.05 | 1.10 | 7.48 | 15.63 | 3.25 | 0.31 | 3.65 | 12 | 0.08 | 12 |
| 12558+10 | 12562+10 | 559,625 | 100 | 0.04 | Type D | 0.40 | 9.84 | 1427 | 0.04 | 0.93 | 25.71 | 35.55 | 2.02 | 0.31 | 8.03 | 12 | 0.01 | 12 (2) |
| 12578+70 | 12582+30 | 171,635 | 100 | 0.02 | Type D | 0.40 | 11.57 | 630 | 0.07 | 1.25 | 8.40 | 19.97 | 2.87 | 0.31 | 3.50 | 12 | 0.06 | 12 |
| 12586+50 | 12588+50 | 4,933,456 | 100 | 0.04 | Type D | 0.40 | 9.84 | 3840 | 0.02 | 0.65 | 98.46 | 108.30 | 0.85 | 0.31 | 29.70 | 12 | 0.04 | 12 (3) |
| 12592+50 | 12593+80 | 36,259 | 100 | 0.06 | Type D | 0.40 | 8.95 | 382 | 0.08 | 1.30 | 4.90 | 13.85 | 3.44 | 0.31 | 0.89 | 12 | 0.09 | 6 |
| 12601+35 | 12604+05 | 176,165 | 100 | 0.04 | Type D | 0.40 | 9.84 | 462 | 0.08 | 1.30 | 5.92 | 15.76 | 3.24 | 0.31 | 4.06 | 18 | 0.10 | 12 |
| 12604+05 | 12605+55 | 37,725 | 100 | 0.04 | Type D | 0.40 | 9.84 | 319 | 0.09 | 1.40 | 3.80 | 13.64 | 3.46 | 0.31 | 0.93 | 12 | 0.12 | 6 |
| 12607+30 | 12609+30 | 128,152 | 100 | 0.03 | Type D | 0.40 | 10.52 | 482 | 0.09 | 1.40 | 5.74 | 16.26 | 3.19 | 0.31 | 2.91 | 18 | 0.07 | 12 |
| 12609+30 | 12612+40 | 115,650 | 100 | 0.03 | Type D | 0.40 | 10.52 | 487 | 0.07 | 1.25 | 6.49 | 17.02 | 3.12 | 0.31 | 2.56 | 12 | 0.09 | 12 |
| 12612+40 | 12613+65 | 18,705 | 100 | 0.04 | Type D | 0.40 | 9.84 | 289 | 0.08 | 1.30 | 3.71 | 13.54 | 3.47 | 0.31 | 0.46 | 12 | 0.14 | 6 |
| 12636+25 | 12639+00 | 87,319 | 100 | 0.10 | Type D | 0.40 | 7.94 | 734 | 0.06 | 2.40 | 5.10 | 13.04 | 3.53 | 0.50 | 3.54 | 12 | 0.04 | 12 |
| 12639+00 | 12640+85 | 140,387 | 100 | 0.08 | Type D | 0.40 | 8.37 | 722 | 0.08 | 1.30 | 9.26 | 17.62 | 3.06 | 0.31 | 3.06 | 12 | 0.03 | 12 |
| 12640+85 | 12644+60 | 262,540 | 100 | 0.03 | Type D | 0.40 | 10.52 | 1147 | 0.06 | 1.20 | 15.93 | 26.45 | 2.44 | 0.31 | 4.56 | 12 | 0.03 | 8 (2) |
| 12644+60 | 12645+30 | 1,155,593 | 100 | 0.05 | Type D | 0.40 | 9.34 | 1617 | 0.05 | 1.10 | 24.50 | 33.84 | 2.08 | 0.31 | 17.15 | 18 | 0.02 | 12 (3) |
| 12669+75 | 12673+00 | 141,876 | 100 | 0.04 | Type D | 0.40 | 9.84 | 502 | 0.08 | 1.30 | 6.44 | 16.28 | 3.19 | 0.31 | 3.22 | 12 | 0.08 | 12 |
| 12673+00 | 12676+45 | 385,222 | 100 | 0.05 | Type D | 0.40 | 9.34 | 560 | 0.08 | 1.30 | 7.18 | 16.52 | 3.16 | 0.31 | 8.67 | 18 | 0.03 | 12 (2) |
| 12694+50 | 12693+15 | 64,289 | 100 | 0.05 | Type D | 0.40 | 9.34 | 270 | 0.06 | 1.20 | 3.75 | 13.09 | 3.52 | 0.31 | 1.61 | 12 | 0.07 | 8 |
| 12693+75 | 12694+65 | 64,138 | 100 | 0.07 | Type D | 0.40 | 8.63 | 536 | 0.06 | 1.20 | 7.44 | 16.08 | 3.20 | 0.31 | 1.46 | 12 | 0.04 | 12 |
| 12694+85 | 12696+35 | 210,512 | 100 | 0.02 | Type D | 0.40 | 11.57 | 877 | 0.07 | 1.25 | 11.69 | 23.26 | 2.63 | 0.31 | 3.94 | 12 | 0.04 | 12 |
| 12705+35 | 12707+30 | 491,444 | 100 | 0.18 | Type D | 0.80 | 9.57 | 1302 | 0.14 | 1.70 | 12.76 | 22.34 | 2.69 | 0.31 | 9.42 | 18 | 0.06 | 8 (2) |
| 12732+95 | 12733+10 | 27,797 | 100 | 0.10 | Type D | 0.80 | 10.98 | 396 | 0.07 | 1.80 | 3.67 | 14.65 | 3.35 | 0.40 | 0.85 | 12 | 0.11 | 6 |
| 12735+10 | 12736+65 | 84,153 | 100 | 0.11 | Type D | 0.40 | 7.77 | 615 | 0.09 | 1.40 | 7.32 | 15.09 | 3.30 | 0.40 | 2.55 | 12 | 0.15 | 8 |
| 12736+65 | 12737+85 | 96,176 | 100 | 0.08 | Type D | 0.40 | 8.37 | 822 | 0.08 | 1.30 | 10.54 | 18.91 | 2.95 | 0.40 | 2.61 | 12 | 0.12 | 12 |
| 12748+75 | 12751+40 | 208,936 | 100 | 0.13 | Type D | 0.30 | 6.53 | 1155 | 0.15 | 0.95 | 20.26 | 26.79 | 2.42 | 0.20 | 2.32 | 12 | 0.10 | 12 |
| 12751+40 | 12753+10 | 121,562 | 100 | 0.11 | Type D | 0.30 | 6.79 | 734 | 0.21 | 1.20 | 10.19 | 16.99 | 3.12 | 0.20 | 1.74 | 12 | 0.15 | 8 |
| 12753+10 | 12755+15 | 32,693 | 100 | 0.21 | Type D | 0.30 | 5.84 | 230 | 0.24 | 1.25 | 3.07 | 8.91 | 4.09 | 0.20 | 0.61 | 12 | 0.16 | 6 |
| 12755+15 | 12759+75 | 184,101 | 100 | 0.15 | Type D | 0.30 | 6.32 | 390 | 0.30 | 1.35 | 4.81 | 11.13 | 3.77 | 0.20 | 3.19 | 18 | 0.19 | 12 |
| 12759+75 | 12763+30 | 111,558 | 100 | 0.20 | Type D | 0.30 | 5.91 | 274 | 0.36 | 1.50 | 3.04 | 8.95 | 4.08 | 0.20 | 2.09 | 18 | 0.18 | 8 |
| 12763+30 | 12766+55 | 152,686 | 100 | 0.09 | Type D | 0.30 | 7.12 | 707 | 0.16 | 1.00 | 11.78 | 18.90 | 2.95 | 0.20 | 2.07 | 18 | 0.11 | 8 |
| 12766+55 | 12768+30 | 184,813 | 100 | 0.07 | Type D | 0.30 | 7.55 | 542 | 0.18 | 1.10 | 8.21 | 15.76 | 3.24 | 0.20 | 2.75 | 12 | 0.06 | 12 |
| 12768+30 | 12770+50 | 113,817 | 100 | 0.05 | Type D | 0.30 | 8.17 | 496 | 0.21 | 1.20 | 6.89 | 15.05 | 3.31 | 0.20 | 1.73 | 12 | 0.10 | 8 |
| 12770+50 | 12771+95 | 102,550 | 100 | 0.08 | Type D | 0.30 | 7.32 | 486 | 0.20 | 1.20 | 6.75 | 14.07 | 3.41 | 0.20 | 1.61 | 12 | 0.18 | 8 |
| 12799+55 | 12805+70 | 137,515 | 100 | 0.09 | Type D | 0.30 | 7.12 | 158 | 0.08 | 1.25 | 2.11 | 9.22 | 4.04 | 0.31 | 3.96 | 12 | 0.07 | 12 |

Lancaster County

**Lancaster County
Temporary Diversion Berm Calculations**

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Left Side Slope (ft/ft (H:V)) | Right Side Slope (ft/ft (H:V)) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Flow Type |
|---------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------------|-----------------|--------------------|----------------------|---------------|---------------|
| 12881+50-12887+00 | 0.025 | 0.02 | 0.57 | 0.1 | 13 | 7.23 | 2.09 | 7.94 | 0.26 | 7.4 | 0.6 | 0.015 | 3.46 | 0.19 | 0.75 | 1.15 | Supercritical |
| 12889+10-12892+15 | 0.025 | 0.01 | 0.45 | 0.1 | 17 | 3.59 | 1.7 | 8.05 | 0.21 | 7.63 | 0.41 | 0.0166 | 2.11 | 0.07 | 0.52 | 0.79 | Subcritical |
| 12947+15-12951+40 | 0.025 | 0.01 | 0.41 | 0.1 | 80 | 13.77 | 6.72 | 33.18 | 0.2 | 32.81 | 0.37 | 0.0162 | 2.05 | 0.07 | 0.47 | 0.8 | Subcritical |
| 12947+60-12949+70 | 0.025 | 0.02 | 0.33 | 0.1 | 30 | 3.91 | 1.59 | 10.09 | 0.16 | 9.79 | 0.33 | 0.0172 | 2.45 | 0.09 | 0.42 | 1.07 | Supercritical |
| 12951+40-12955+10 | 0.025 | 0.01 | 0.57 | 0.1 | 80 | 33.24 | 13.01 | 46.18 | 0.28 | 45.66 | 0.53 | 0.0144 | 2.55 | 0.1 | 0.67 | 0.84 | Subcritical |
| 13025+75-13029+00 | 0.025 | 0.02 | 0.35 | 0.1 | 25 | 3.85 | 1.51 | 9.03 | 0.17 | 8.71 | 0.36 | 0.017 | 2.55 | 0.1 | 0.45 | 1.08 | Supercritical |
| 13049+10-13052+20 | 0.025 | 0.05 | 0.2 | 0.1 | 50 | 3.02 | 1.05 | 10.45 | 0.1 | 10.26 | 0.25 | 0.0188 | 2.87 | 0.13 | 0.33 | 1.58 | Supercritical |
| 13052+20-13056+20 | 0.025 | 0.01 | 0.33 | 0.1 | 50 | 4.97 | 2.79 | 17.03 | 0.16 | 16.72 | 0.3 | 0.0176 | 1.78 | 0.05 | 0.38 | 0.77 | Subcritical |
| 13057+30-13058+30 | 0.025 | 0.03 | 0.22 | 0.1 | 35 | 1.88 | 0.82 | 7.78 | 0.11 | 7.58 | 0.23 | 0.0193 | 2.29 | 0.08 | 0.3 | 1.23 | Supercritical |
| 13071+30-13074+90 | 0.025 | 0.03 | 0.29 | 0.1 | 48 | 5.9 | 2.08 | 14.42 | 0.14 | 14.15 | 0.33 | 0.0171 | 2.83 | 0.12 | 0.42 | 1.3 | Supercritical |
| 13074+90-13076+50 | 0.025 | 0.01 | 0.23 | 0.1 | 32 | 1.12 | 0.82 | 7.47 | 0.11 | 7.26 | 0.2 | 0.0205 | 1.36 | 0.03 | 0.26 | 0.71 | Subcritical |
| 13121+10-13123+60 | 0.025 | 0.04 | 0.38 | 0.1 | 9 | 2.38 | 0.65 | 3.8 | 0.17 | 3.44 | 0.44 | 0.0172 | 3.66 | 0.21 | 0.59 | 1.49 | Supercritical |
| 13137+00-13138+70 | 0.025 | 0.02 | 0.8 | 0.1 | 23 | 32.77 | 7.38 | 19.2 | 0.38 | 18.46 | 0.87 | 0.0127 | 4.44 | 0.31 | 1.11 | 1.24 | Supercritical |
| 13152+15 - 13153+70 | 0.025 | 0.03 | 0.22 | 0.1 | 42 | 2.29 | 0.99 | 9.34 | 0.11 | 9.14 | 0.24 | 0.0191 | 2.31 | 0.08 | 0.3 | 1.24 | Supercritical |
| 13153+70 - 13155+35 | 0.025 | 0.02 | 0.29 | 0.1 | 38 | 3.56 | 1.57 | 11.2 | 0.14 | 10.93 | 0.29 | 0.0178 | 2.27 | 0.08 | 0.37 | 1.06 | Supercritical |
| 13157+70 - 13158+00 | 0.025 | 0.02 | 0.26 | 0.1 | 57 | 4.07 | 1.91 | 15.02 | 0.13 | 14.78 | 0.26 | 0.0183 | 2.13 | 0.07 | 0.33 | 1.04 | Supercritical |
| 13158+00 - 13158+10 | 0.025 | 0.001 | 0.39 | 0.1 | 56 | 2.73 | 4.34 | 22.43 | 0.19 | 22.07 | 0.23 | 0.0193 | 0.63 | 0.01 | 0.4 | 0.25 | Subcritical |
| 13176+65 - 13177+90 | 0.025 | 0.008 | 0.11 | 0.1 | 42 | 0.2 | 0.26 | 4.8 | 0.05 | 4.7 | 0.09 | 0.0264 | 0.76 | 0.01 | 0.12 | 0.57 | Subcritical |
| 13177+90 - 13180+85 | 0.025 | 0.005 | 0.27 | 0.1 | 46 | 1.9 | 1.73 | 12.86 | 0.13 | 12.61 | 0.21 | 0.0198 | 1.1 | 0.02 | 0.29 | 0.52 | Subcritical |
| 13182+20 - 13182+80 | 0.025 | 0.03 | 0.31 | 0.1 | 18 | 2.47 | 0.86 | 5.87 | 0.15 | 5.59 | 0.34 | 0.0176 | 2.86 | 0.13 | 0.44 | 1.29 | Supercritical |
| 13182+80 - 13185+70 | 0.025 | 0.01 | 0.42 | 0.1 | 15 | 2.66 | 1.32 | 6.71 | 0.2 | 6.32 | 0.38 | 0.0172 | 2.01 | 0.06 | 0.48 | 0.78 | Subcritical |
| 13188+90 - 13193+80 | 0.025 | 0.01 | 0.4 | 0.1 | 26 | 4.23 | 2.12 | 10.9 | 0.19 | 10.52 | 0.37 | 0.0168 | 1.99 | 0.06 | 0.46 | 0.78 | Subcritical |
| 13193+80 - 13197+30 | 0.025 | 0.01 | 0.41 | 0.1 | 25 | 4.32 | 2.13 | 10.73 | 0.2 | 10.35 | 0.37 | 0.0167 | 2.02 | 0.06 | 0.48 | 0.79 | Subcritical |
| 13197+30 - 13200+75 | 0.025 | 0.008 | 0.37 | 0.1 | 21 | 2.5 | 1.48 | 8.25 | 0.18 | 7.9 | 0.32 | 0.0177 | 1.69 | 0.04 | 0.42 | 0.69 | Subcritical |
| 13200+75 - 13201+55 | 0.025 | 0.02 | 0.2 | 0.1 | 42 | 1.57 | 0.87 | 8.75 | 0.1 | 8.56 | 0.2 | 0.0201 | 1.8 | 0.05 | 0.25 | 1 | Subcritical |
| 13206+45 - 13210+80 | 0.025 | 0.03 | 0.2 | 0.1 | 53 | 2.21 | 1.02 | 10.59 | 0.1 | 10.41 | 0.21 | 0.0197 | 2.16 | 0.07 | 0.27 | 1.22 | Supercritical |
| 13210+80 - 13215+25 | 0.025 | 0.02 | 0.4 | 0.1 | 15 | 3.42 | 1.23 | 6.48 | 0.19 | 6.1 | 0.42 | 0.0166 | 2.78 | 0.12 | 0.52 | 1.09 | Supercritical |
| 13215+25 - 13217+75 | 0.025 | 0.02 | 0.43 | 0.1 | 18 | 4.77 | 1.64 | 8.11 | 0.2 | 7.71 | 0.44 | 0.0161 | 2.9 | 0.13 | 0.56 | 1.11 | Supercritical |
| 13217+75 - 13219+15 | 0.025 | 0.007 | 0.42 | 0.1 | 23 | 3.44 | 2.02 | 10.04 | 0.2 | 9.65 | 0.35 | 0.0171 | 1.71 | 0.05 | 0.46 | 0.66 | Subcritical |
| 13219+15 - 13221+10 | 0.025 | 0.02 | 0.41 | 0.1 | 15 | 3.57 | 1.27 | 6.58 | 0.19 | 6.2 | 0.43 | 0.0165 | 2.81 | 0.12 | 0.53 | 1.09 | Supercritical |
| 13221+10 - 13225+30 | 0.025 | 0.06 | 0.32 | 0.1 | 16 | 3.46 | 0.83 | 5.48 | 0.15 | 5.18 | 0.41 | 0.0167 | 4.15 | 0.27 | 0.59 | 1.82 | Supercritical |

Lancaster County
Temporary Slope Pipe Calculations

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Diameter (ft) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Percent Full (%) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Maximum Discharge (ft ³ /s) | Discharge Full (ft ³ /s) | Slope Full (ft/ft) | Flow Type |
|---------------------|-----------------------|-----------------------|-------------------|---------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------|------------------------|-----------------|--------------------|----------------------|---------------|--|-------------------------------------|--------------------|---------------|
| 12881+50-12887+00 | 0.023 | 0.06 | 0.75 | 1.5 | 7.23 | 0.88 | 2.35 | 0.37 | 1.5 | 1.04 | 49.8 | 0.0216 | 8.22 | 1.05 | 1.8 | 1.89 | 15.64 | 14.54 | 0.01483 | SuperCritical |
| 12889+10-12882+15 | 0.023 | 0.09 | 0.55 | 1 | 3.59 | 0.45 | 1.68 | 0.27 | 0.99 | 0.81 | 55.5 | 0.0326 | 8.02 | 1 | 1.55 | 2.11 | 6.5 | 6.04 | 0.03178 | SuperCritical |
| 12947+15-12951+40 | 0.023 | 0.01 | 1.39 | 2.5 | 13.77 | 2.8 | 4.2 | 0.67 | 2.48 | 1.25 | 55.5 | 0.0142 | 4.92 | 0.38 | 1.76 | 0.82 | 24.94 | 23.18 | 0.00353 | SubCritical |
| 12951+40-12955+10 | 0.023 | 0.02 | 1.13 | 2 | 11.08 | 1.83 | 3.41 | 0.54 | 1.98 | 1.19 | 56.6 | 0.0169 | 6.05 | 0.57 | 1.7 | 1.11 | 19.45 | 18.08 | 0.00751 | SuperCritical |
| 13025+75-13029+00 | 0.023 | 0.03 | 0.64 | 1.5 | 3.85 | 0.71 | 2.13 | 0.34 | 1.48 | 0.75 | 42.4 | 0.0168 | 5.4 | 0.45 | 1.09 | 1.37 | 11.06 | 10.28 | 0.00421 | SuperCritical |
| 13049+10-13052+20 | 0.023 | 0.03 | 0.72 | 1 | 3.02 | 0.6 | 2.02 | 0.3 | 0.9 | 0.75 | 71.9 | 0.0275 | 5 | 0.39 | 1.11 | 1.08 | 3.75 | 3.49 | 0.02249 | SuperCritical |
| 13052+20-13056+20 | 0.023 | 0.03 | 0.73 | 1.5 | 4.97 | 0.86 | 2.33 | 0.37 | 1.5 | 0.86 | 49 | 0.018 | 5.77 | 0.52 | 1.25 | 1.34 | 11.06 | 10.28 | 0.00701 | SuperCritical |
| 13071+30-13074+90 | 0.023 | 0.02 | 0.93 | 1.5 | 5.9 | 1.15 | 2.71 | 0.42 | 1.46 | 0.94 | 61.8 | 0.0193 | 5.14 | 0.41 | 1.34 | 1.02 | 9.03 | 8.4 | 0.00988 | SuperCritical |
| 13074+90-13076+50 | 0.023 | 0.02 | 0.44 | 1 | 1.12 | 0.33 | 1.44 | 0.23 | 0.99 | 0.45 | 43.5 | 0.0185 | 3.41 | 0.18 | 0.62 | 1.05 | 3.06 | 2.85 | 0.00309 | SuperCritical |
| 13137+00-13138+70 | 0.023 | 0.02 | 1.7 | 3 | 32.77 | 4.13 | 5.11 | 0.81 | 2.97 | 1.86 | 56.7 | 0.0152 | 7.93 | 0.98 | 2.68 | 1.19 | 57.35 | 53.31 | 0.00756 | SuperCritical |
| 13152+15 - 13153+70 | 0.024 | 0.016 | 0.7 | 1 | 2.04 | 0.59 | 1.98 | 0.3 | 0.92 | 0.61 | 69.9 | 0.0236 | 3.48 | 0.19 | 0.89 | 0.77 | 2.63 | 2.44 | 0.01118 | SubCritical |
| 13153+70 - 13155+35 | 0.024 | 0.022 | 0.57 | 1 | 1.78 | 0.46 | 1.71 | 0.27 | 0.99 | 0.57 | 57.1 | 0.0224 | 3.84 | 0.23 | 0.8 | 0.99 | 3.08 | 2.86 | 0.00851 | SubCritical |
| 13157+70 - 13158+00 | 0.024 | 0.023 | 0.67 | 1 | 2.29 | 0.56 | 1.91 | 0.29 | 0.94 | 0.65 | 66.6 | 0.0249 | 4.12 | 0.26 | 0.93 | 0.95 | 3.15 | 2.93 | 0.01408 | SubCritical |
| 13158+00 - 13158+10 | 0.024 | 0.015 | 0.55 | 1 | 1.37 | 0.44 | 1.66 | 0.26 | 1 | 0.5 | 54.6 | 0.0208 | 3.12 | 0.15 | 0.7 | 0.83 | 2.54 | 2.36 | 0.00504 | SubCritical |
| 13176+65 - 13177+90 | 0.024 | 0.021 | 0.24 | 0.5 | 0.2 | 0.09 | 0.76 | 0.12 | 0.5 | 0.22 | 47.3 | 0.0255 | 2.19 | 0.07 | 0.31 | 0.9 | 0.47 | 0.44 | 0.00433 | SubCritical |
| 13177+90 - 13180+85 | 0.024 | 0.023 | 0.59 | 1 | 1.9 | 0.48 | 1.75 | 0.27 | 0.98 | 0.59 | 58.7 | 0.0229 | 3.97 | 0.24 | 0.83 | 1 | 3.15 | 2.93 | 0.00969 | SuperCritical |
| 13182+20 - 13182+80 | 0.024 | 0.068 | 0.49 | 1 | 2.47 | 0.39 | 1.56 | 0.25 | 1 | 0.67 | 49.4 | 0.0259 | 6.38 | 0.63 | 1.13 | 1.81 | 5.41 | 5.03 | 0.01638 | SuperCritical |
| 13182+80 - 13185+70 | 0.024 | 0.06 | 0.25 | 1 | 2.66 | 0.58 | 3.49 | 0.17 | 3.44 | 0.35 | 2.1 | 0.0139 | 4.58 | 0.33 | 0.58 | 1.97 | 3838 | 3568 | 0 | SuperCritical |
| 13188+90 - 13193+80 | 0.024 | 0.035 | 0.55 | 1 | 2.12 | 0.44 | 1.67 | 0.27 | 0.99 | 0.62 | 55.1 | 0.024 | 4.78 | 0.36 | 0.91 | 1.26 | 3.88 | 3.61 | 0.01207 | SuperCritical |
| 13193+80 - 13197+30 | 0.024 | 0.038 | 0.54 | 1 | 2.16 | 0.44 | 1.66 | 0.26 | 1 | 0.63 | 54.3 | 0.0242 | 4.96 | 0.38 | 0.92 | 1.32 | 4.05 | 3.76 | 0.01253 | SuperCritical |
| 13197+30 - 13200+75 | 0.024 | 0.037 | 0.6 | 1 | 2.5 | 0.49 | 1.77 | 0.28 | 0.98 | 0.68 | 60.1 | 0.0261 | 5.07 | 0.4 | 1 | 1.26 | 3.99 | 3.71 | 0.01678 | SuperCritical |
| 13200+75 - 13201+55 | 0.024 | 0.033 | 0.58 | 1 | 2.21 | 0.47 | 1.72 | 0.27 | 0.99 | 0.64 | 57.6 | 0.0244 | 4.72 | 0.35 | 0.92 | 1.21 | 3.77 | 3.51 | 0.01312 | SuperCritical |
| 13206+45 - 13210+80 | 0.024 | 0.037 | 0.45 | 1 | 1.57 | 0.35 | 1.48 | 0.23 | 1 | 0.53 | 45.4 | 0.0215 | 4.53 | 0.32 | 0.77 | 1.35 | 3.99 | 3.71 | 0.00662 | SuperCritical |
| 13210+80 - 13215+25 | 0.024 | 0.055 | 0.65 | 1 | 3.42 | 0.54 | 1.87 | 0.29 | 0.95 | 0.79 | 65 | 0.0336 | 6.33 | 0.62 | 1.27 | 1.48 | 4.87 | 4.53 | 0.03141 | SuperCritical |
| 13215+25 - 13217+75 | 0.024 | 0.064 | 0.8 | 1 | 4.77 | 0.67 | 2.21 | 0.3 | 0.8 | 0.9 | 79.9 | 0.0536 | 7.09 | 0.78 | 1.58 | 1.36 | 5.25 | 4.88 | 0.0611 | SuperCritical |
| 13217+75 - 13219+15 | 0.024 | 0.086 | 0.56 | 1 | 3.44 | 0.46 | 1.7 | 0.27 | 0.99 | 0.79 | 56.3 | 0.0338 | 7.55 | 0.89 | 1.45 | 1.97 | 6.09 | 5.66 | 0.03178 | SuperCritical |
| 13219+15 - 13221+10 | 0.024 | 0.09 | 0.57 | 1 | 3.57 | 0.46 | 1.71 | 0.27 | 0.99 | 0.81 | 56.8 | 0.0353 | 7.75 | 0.93 | 1.5 | 2.01 | 6.23 | 5.79 | 0.03422 | SuperCritical |
| 13221+10 - 13225+30 | 0.024 | 0.093 | 0.55 | 1 | 3.46 | 0.44 | 1.67 | 0.27 | 0.99 | 0.8 | 55.1 | 0.0341 | 7.8 | 0.94 | 1.5 | 2.06 | 6.33 | 5.88 | 0.03215 | SuperCritical |

Lancaster County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|---------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 12881+50-12887+00 | 0.02 | 0.57 | 7.23 | 3.46 | V | 8.0 | 2.00 | 0.71 | SC150 |
| 12889+10-12892+15 | 0.01 | 0.45 | 3.59 | 2.11 | V | 8.0 | 2.00 | 0.28 | SC150 |
| 12947+15-12951+40 | 0.01 | 0.41 | 13.77 | 2.05 | V | 8.0 | 2.00 | 0.26 | SC150 |
| 12947+60-12949+70 | 0.02 | 0.33 | 3.91 | 2.45 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 12951+40-12955+10 | 0.01 | 0.57 | 33.24 | 2.55 | V | 8.0 | 2.00 | 0.36 | SC150 |
| 13025+75-13029+00 | 0.02 | 0.35 | 3.85 | 2.55 | V | 8.0 | 2.00 | 0.44 | SC150 |
| 13049+10-13052+20 | 0.05 | 0.2 | 3.02 | 2.87 | V | 8.0 | 2.00 | 0.62 | SC150 |
| 13052+20-13056+20 | 0.01 | 0.33 | 4.97 | 1.78 | V | 8.0 | 2.00 | 0.21 | SC150 |
| 13057+30-13058+30 | 0.03 | 0.22 | 1.88 | 2.29 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 13071+30-13074+90 | 0.03 | 0.29 | 5.9 | 2.83 | V | 8.0 | 2.00 | 0.54 | SC150 |
| 13074+90-13076+50 | 0.01 | 0.23 | 1.12 | 1.36 | V | 8.0 | 2.00 | 0.14 | SC150 |
| 13121+10-13123+60 | 0.04 | 0.38 | 2.38 | 3.66 | V | 8.0 | 2.00 | 0.95 | SC150 |
| 13137+00-13138+70 | 0.02 | 0.8 | 32.77 | 4.44 | V | 8.0 | 2.00 | 1.00 | SC150 |
| 13152+15 - 13153+70 | 0.03 | 0.22 | 2.29 | 2.31 | V | 8.0 | 2.00 | 0.41 | SC150 |
| 13153+70 - 13155+35 | 0.02 | 0.29 | 3.56 | 2.27 | V | 8.0 | 2.00 | 0.36 | SC150 |
| 13157+70 - 13158+00 | 0.02 | 0.26 | 4.07 | 2.13 | V | 8.0 | 2.00 | 0.32 | SC150 |
| 13158+00 - 13158+10 | 0.001 | 0.39 | 2.73 | 0.63 | V | 8.0 | 2.00 | 0.02 | SC150 |
| 13176+65 - 13177+90 | 0.008 | 0.11 | 0.2 | 0.76 | V | 8.0 | 2.00 | 0.05 | SC150 |
| 13177+90 - 13180+85 | 0.005 | 0.27 | 1.9 | 1.1 | V | 8.0 | 2.00 | 0.08 | SC150 |
| 13182+20 - 13182+80 | 0.03 | 0.31 | 2.47 | 2.86 | V | 8.0 | 2.00 | 0.58 | SC150 |
| 13182+80 - 13185+70 | 0.01 | 0.42 | 2.66 | 2.01 | V | 8.0 | 2.00 | 0.26 | SC150 |
| 13188+90 - 13193+80 | 0.01 | 0.4 | 4.23 | 1.99 | V | 8.0 | 2.00 | 0.25 | SC150 |
| 13193+80 - 13197+30 | 0.01 | 0.41 | 4.32 | 2.02 | V | 8.0 | 2.00 | 0.26 | SC150 |
| 13197+30 - 13200+75 | 0.008 | 0.37 | 2.5 | 1.69 | V | 8.0 | 2.00 | 0.18 | SC150 |
| 13200+75 - 13201+55 | 0.02 | 0.2 | 1.57 | 1.8 | V | 8.0 | 2.00 | 0.25 | SC150 |
| 13206+45 - 13210+80 | 0.03 | 0.2 | 2.21 | 2.16 | V | 8.0 | 2.00 | 0.37 | SC150 |
| 13210+80 - 13215+25 | 0.02 | 0.4 | 3.42 | 2.78 | V | 8.0 | 2.00 | 0.50 | SC150 |
| 13215+25 - 13217+75 | 0.02 | 0.43 | 4.77 | 2.9 | V | 8.0 | 2.00 | 0.54 | SC150 |
| 13217+75 - 13219+15 | 0.007 | 0.42 | 3.44 | 1.71 | V | 8.0 | 2.00 | 0.18 | SC150 |
| 13219+15 - 13221+10 | 0.02 | 0.41 | 3.57 | 2.81 | V | 8.0 | 2.00 | 0.51 | SC150 |
| 13221+10 - 13225+30 | 0.06 | 0.32 | 3.46 | 4.15 | V | 8.0 | 2.00 | 1.20 | SC150 |

Lancaster County
Temporary Slope Pipe Calculations

| STATION | Diversion Discharge (ft ³ /s) | Available Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Orifice Area per Foot (in ² /ft) | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s per ft) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity(ft ³ /s) |
|---------------------|--|----------------------------|------------------------------------|----------------------------|--------------------------------|---|-------------------|--------------------------|--|----------------------|---------------------|---|
| 12881+50-12887+00 | 7.23 | 4 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 25.94 | 30 | 8.36 |
| 12889+10-12892+15 | 3.59 | 7 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.369 | 9.74 | 10 | 3.69 |
| 12947+15-12951+40 | 13.77 | 2 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 69.86 | 70 | 13.80 |
| 12951+40-12955+10 | 33.24 | 1 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 238.49 | 240 | 33.45 |
| 13025+75-13029+00 | 3.85 | 2 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 19.53 | 20 | 3.94 |
| 13049+10-13052+20 | 3.02 | 1 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 21.67 | 25 | 3.48 |
| 13052+20-13056+20 | 4.97 | 1 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 35.66 | 40 | 5.58 |
| 13071+30-13074+90 | 5.9 | 2 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 29.93 | 30 | 5.91 |
| 13074+90-13076+50 | 1.12 | 2 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 5.68 | 10 | 1.97 |
| 13137+00-13138+70 | 32.77 | 3 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 135.74 | 140 | 33.80 |
| 13152+15 - 13153+70 | 2.04 | 1 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 14.64 | 15 | 2.09 |
| 13153+70 - 13155+35 | 1.78 | 1 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 12.77 | 15 | 2.09 |
| 13157+70 - 13158+00 | 2.29 | 1 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 16.43 | 20 | 2.79 |
| 13158+00 - 13158+10 | 1.37 | 1 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.139 | 9.83 | 10 | 1.39 |
| 13176+65 - 13177+90 | 0.2 | 2 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 1.01 | 5 | 0.99 |
| 13177+90 - 13180+85 | 1.9 | 2 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.197 | 9.64 | 10 | 1.97 |
| 13182+20 - 13182+80 | 2.47 | 3 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 10.23 | 15 | 3.62 |
| 13182+80 - 13185+70 | 2.66 | 3 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 11.02 | 15 | 3.62 |
| 13188+90 - 13193+80 | 2.12 | 5 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 6.80 | 10 | 3.12 |
| 13193+80 - 13197+30 | 2.16 | 5 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 6.93 | 10 | 3.12 |
| 13197+30 - 13200+75 | 2.5 | 4 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 8.97 | 10 | 2.79 |
| 13200+75 - 13201+55 | 2.21 | 4 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.279 | 7.93 | 10 | 2.79 |
| 13206+45 - 13210+80 | 1.57 | 3 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.241 | 6.50 | 10 | 2.41 |
| 13210+80 - 13215+25 | 3.42 | 5 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 10.97 | 15 | 4.67 |
| 13215+25 - 13217+75 | 4.77 | 5 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.312 | 15.31 | 20 | 6.23 |
| 13217+75 - 13219+15 | 3.44 | 6 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 10.08 | 15 | 5.12 |
| 13219+15 - 13221+10 | 3.57 | 6 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 10.46 | 15 | 5.12 |
| 13221+10 - 13225+30 | 3.46 | 6 | 12 | 0.38 | 6 | 4.10 | 1.94 | 0.61 | 0.341 | 10.13 | 15 | 5.12 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity* (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|--|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 12881+50 | 12887+00 | 267,867 | 100 | 0.02 | Type D | 0.300 | 10.11 | 832 | 0.05 | 1.55 | 8.95 | 19.06 | 2.94 | 0.40 | 0.02 | 13:1 | 7.23 | 18 | 0.06 | 12(2) |
| 12889+10 | 12892+15 | 111,689 | 100 | 0.02 | Type D | 0.300 | 10.11 | 359 | 0.08 | 1.90 | 3.15 | 13.26 | 3.50 | 0.40 | 0.01 | 17:1 | 3.59 | 12 | 0.09 | 12 |
| 12947+15 | 12951+40 | 626,064 | 100 | 0.02 | Type D | 0.300 | 10.11 | 1337 | 0.03 | 1.30 | 17.14 | 27.26 | 2.40 | 0.40 | 0.01 | 80:1 | 13.77 | 12 | 0.01 | 12(3) |
| 12951+40 | 12955+10 | 2,129,034 | 100 | 0.02 | Type D | 0.300 | 10.11 | 3157 | 0.02 | 1.00 | 52.62 | 62.73 | 1.70 | 0.40 | 0.01 | 80:1 | 33.24 | 18 | 0.02 | 24(3) |
| 12947+60 | 12949+70 | 137,679 | 100 | 0.02 | Type D | 0.300 | 10.11 | 604 | 0.04 | 1.40 | 7.19 | 17.30 | 3.09 | 0.40 | 0.02 | 30:1 | 3.91 | 12 | n/a | n/a |
| 13025+75 | 13029+00 | 139,714 | 100 | 0.02 | Type D | 0.300 | 10.11 | 693 | 0.04 | 1.40 | 8.25 | 18.36 | 3.00 | 0.40 | 0.02 | 25:1 | 3.85 | 12 | 0.03 | 12(2) |
| 13049+10 | 13052+20 | 99,004 | 100 | 0.02 | Type D | 0.300 | 10.11 | 400 | 0.04 | 1.40 | 4.76 | 14.88 | 3.33 | 0.40 | 0.05 | 50:1 | 3.02 | 12 | 0.03 | 12 |
| 13052+20 | 13056+20 | 169,322 | 100 | 0.05 | Type D | 0.300 | 8.17 | 674 | 0.04 | 1.40 | 8.02 | 16.19 | 3.19 | 0.40 | 0.01 | 50:1 | 4.97 | 12 | 0.03 | 12(2) |
| 13057+30 | 13058+30 | 55,721 | 100 | 0.13 | Type D | 0.300 | 6.53 | 495 | 0.05 | 1.55 | 5.32 | 11.85 | 3.67 | 0.40 | 0.03 | 35:1 | 1.88 | 12 | n/a | n/a |
| 13071+30 | 13074+90 | 246,529 | 100 | 0.02 | Type D | 0.300 | 10.11 | 815 | 0.02 | 1.00 | 13.58 | 23.70 | 2.60 | 0.40 | 0.03 | 48:1 | 5.90 | 12 | 0.02 | 12(2) |
| 13074+90 | 13076+50 | 39,134 | 100 | 0.02 | Type D | 0.300 | 10.11 | 414 | 0.02 | 1.00 | 6.90 | 17.01 | 3.12 | 0.40 | 0.01 | 32:1 | 1.12 | 12 | 0.02 | 12 |
| 13121+10 | 13123+60 | 77,270 | 100 | 0.04 | Type D | 0.300 | 8.60 | 571 | 0.06 | 1.60 | 5.95 | 14.55 | 3.36 | 0.40 | 0.04 | 9:1 | 2.38 | 12 | n/a | n/a |
| 13137+00 | 13138+70 | 1,346,787 | 100 | 0.32 | Type D | 0.300 | 5.29 | 2019 | 0.08 | 1.90 | 17.71 | 23.00 | 2.65 | 0.40 | 0.02 | 23:1 | 32.77 | 18 | 0.02 | 12(3) |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------------------|-------------------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| 13152+15 | 13153+70 | 107,032 | 100 | 0.12 | HSG D | 0.400 | 7.61 | 927 | 0.10 | 1.45 | 10.66 | 18.27 | 3.01 | 0.31 | 0.030 | 42:1 | 2.29 | 12 | 0.023 | 12 |
| 13153+70 | 13155+35 | 181,877 | 100 | 0.11 | HSG D | 0.400 | 7.77 | 1155 | 0.09 | 1.40 | 13.75 | 21.52 | 2.75 | 0.31 | 0.020 | 38:1 | 3.56 | 12 | 0.022 | 2x12 |
| 13157+70 | 13158+00 | 224,903 | 100 | 0.11 | HSG D | 0.400 | 7.77 | 1321 | 0.08 | 1.30 | 16.94 | 24.70 | 2.54 | 0.31 | 0.020 | 57:1 | 4.07 | 12 | 0.016 | 2x12 |
| 13158+00 | 13158+10 | 155,320 | 100 | 0.07 | HSG D | 0.400 | 8.63 | 1448 | 0.09 | 1.40 | 17.24 | 25.87 | 2.47 | 0.31 | 0.001 | 56:1 | 2.73 | 12 | 0.015 | 2x12 |
| 13176+65 | 13177+90 | 12,474 | 100 | 0.03 | HSG D | 0.400 | 10.52 | 339 | 0.03 | 0.80 | 7.06 | 17.59 | 3.06 | 0.23 | 0.008 | 42:1 | 0.20 | 12 | 0.021 | 6 |
| 13177+90 | 13180+85 | 180,812 | 100 | 0.05 | HSG D | 0.400 | 9.34 | 1497 | 0.04 | 0.93 | 26.97 | 36.31 | 1.99 | 0.23 | 0.005 | 46:1 | 1.90 | 12 | 0.023 | 12 |
| 13182+20 | 13182+80 | 219,946 | 100 | 0.04 | HSG D | 0.400 | 9.84 | 1445 | 0.05 | 1.05 | 22.94 | 32.78 | 2.13 | 0.23 | 0.030 | 18:1 | 2.47 | 12 | 0.068 | 12 |
| 13182+80 | 13185+70 | 203,849 | 100 | 0.06 | HSG D | 0.400 | 8.95 | 1070 | 0.05 | 1.05 | 16.98 | 25.93 | 2.47 | 0.23 | 0.010 | 15:1 | 2.66 | 12 | 0.060 | 12 |
| 13188+90 | 13193+80 | 203,848 | 100 | 0.07 | HSG D | 0.400 | 8.63 | 741 | 0.06 | 1.15 | 10.74 | 19.37 | 2.91 | 0.31 | 0.010 | 26:1 | 4.23 | 12 | 0.035 | 2x12 |
| 13193+80 | 13197+30 | 220,547 | 100 | 0.09 | HSG D | 0.400 | 8.14 | 924 | 0.06 | 1.15 | 13.39 | 21.53 | 2.75 | 0.31 | 0.010 | 25:1 | 4.32 | 12 | 0.038 | 2x12 |
| 13197+30 | 13200+75 | 209,499 | 100 | 0.26 | HSG D | 0.300 | 5.55 | 1918 | 0.15 | 1.76 | 18.16 | 23.72 | 2.60 | 0.20 | 0.008 | 21:1 | 2.50 | 12 | 0.037 | 12 |
| 13200+75 | 13201+55 | 126,166 | 100 | 0.25 | HSG D | 0.300 | 5.61 | 1788 | 0.16 | 1.80 | 16.56 | 22.16 | 2.71 | 0.20 | 0.020 | 42:1 | 1.57 | 12 | 0.037 | 12 |
| 13206+45 | 13210+80 | 98,205 | 100 | 0.35 | HSG D | 0.400 | 5.93 | 821 | 0.08 | 1.30 | 10.53 | 16.45 | 3.17 | 0.31 | 0.030 | 53:1 | 2.21 | 12 | 0.033 | 12 |
| 13210+80 | 13215+25 | 226,237 | 100 | 0.19 | HSG D | 0.300 | 5.98 | 1079 | 0.17 | 1.95 | 9.22 | 15.20 | 3.29 | 0.20 | 0.020 | 15:1 | 3.42 | 12 | 0.055 | 12 |
| 13215+25 | 13217+75 | 226,717 | 100 | 0.17 | HSG D | 0.300 | 6.13 | 1036 | 0.18 | 2.01 | 0.00 | 6.13 | 4.58 | 0.20 | 0.020 | 18:1 | 4.77 | 12 | 0.064 | 12 |
| 13217+75 | 13219+15 | 229,509 | 100 | 0.12 | HSG D | 0.300 | 6.65 | 1062 | 0.18 | 2.01 | 8.81 | 15.46 | 3.27 | 0.20 | 0.007 | 23:1 | 3.44 | 12 | 0.086 | 12 |
| 13219+15 | 13221+10 | 231,336 | 100 | 0.15 | HSG D | 0.300 | 6.32 | 1009 | 0.19 | 2.05 | 8.20 | 14.52 | 3.36 | 0.20 | 0.020 | 15:1 | 3.57 | 12 | 0.090 | 12 |
| 13221+10 | 13225+30 | 208,380 | 100 | 0.13 | HSG D | 0.300 | 6.53 | 733 | 0.20 | 2.10 | 5.82 | 12.35 | 3.61 | 0.20 | 0.060 | 16:1 | 3.46 | 12 | 0.093 | 12 |

Berks County

**Berks County
Temporary Diversion Berm Calculations**

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Left Side Slope (ft/ft (H:V)) | Right Side Slope (ft/ft (H:V)) | Discharge (ft³/s) | Flow Area (ft²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Flow Type |
|---------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------------------|-------------------|-----------------|-----------------------|-----------------------|----------------|---------------------|------------------------|-----------------|--------------------|----------------------|---------------|---------------|
| 13225+27-13229+30 | 0.025 | 0.16 | 0.52 | 0.1 | 3 | 3.27 | 0.41 | 2.15 | 0.19 | 1.6 | 0.77 | 0.0186 | 7.91 | 0.97 | 1.49 | 2.75 | Supercritical |
| 13231+00-13232+05 | 0.025 | 0.34 | 0.17 | 0.1 | 3 | 0.26 | 0.05 | 0.72 | 0.06 | 0.54 | 0.28 | 0.026 | 5.57 | 0.48 | 0.66 | 3.33 | Supercritical |
| 13248+30-13251+05 | 0.025 | 0.14 | 0.43 | 0.1 | 3 | 1.9 | 0.29 | 1.8 | 0.16 | 1.34 | 0.62 | 0.0199 | 6.57 | 0.67 | 1.1 | 2.49 | Supercritical |
| 13248+90-13251+10 | 0.025 | 0.15 | 0.43 | 0.1 | 2 | 1.19 | 0.19 | 1.39 | 0.14 | 0.9 | 0.6 | 0.0242 | 6.17 | 0.59 | 1.02 | 2.35 | Supercritical |
| 13251+00-13251+75 | 0.025 | 0.1 | 0.48 | 0.1 | 7 | 5.6 | 0.83 | 3.92 | 0.21 | 3.44 | 0.69 | 0.0154 | 6.71 | 0.7 | 1.18 | 2.4 | Supercritical |
| 13257+00-13258+50 | 0.025 | 0.05 | 0.28 | 0.1 | 5 | 0.66 | 0.21 | 1.73 | 0.12 | 1.45 | 0.33 | 0.021 | 3.21 | 0.16 | 0.44 | 1.5 | Supercritical |
| 13258+50-13259+90 | 0.025 | 0.2 | 0.23 | 0.1 | 3 | 0.42 | 0.08 | 0.96 | 0.09 | 0.71 | 0.34 | 0.0244 | 5.16 | 0.41 | 0.64 | 2.69 | Supercritical |
| 13259+90-13260+30 | 0.025 | 0.09 | 0.14 | 0.1 | 3 | 0.07 | 0.03 | 0.57 | 0.05 | 0.42 | 0.17 | 0.031 | 2.43 | 0.09 | 0.23 | 1.64 | Supercritical |
| 13260+30-13261+15 | 0.025 | 0.15 | 0.33 | 0.1 | 4 | 1.28 | 0.22 | 1.67 | 0.13 | 1.33 | 0.48 | 0.0198 | 5.91 | 0.54 | 0.87 | 2.58 | Supercritical |
| 13283+10-13284+75 | 0.025 | 0.02 | 0.25 | 0.1 | 11 | 0.67 | 0.34 | 2.98 | 0.11 | 2.74 | 0.25 | 0.0204 | 1.97 | 0.06 | 0.31 | 0.99 | Subcritical |
| 13284+75-13286+25 | 0.025 | 0.11 | 0.39 | 0.1 | 5 | 2.34 | 0.4 | 2.4 | 0.16 | 2.01 | 0.55 | 0.0178 | 5.92 | 0.54 | 0.94 | 2.35 | Supercritical |
| 13286+25-13288+35 | 0.025 | 0.03 | 0.48 | 0.1 | 5 | 2.05 | 0.58 | 2.92 | 0.2 | 2.44 | 0.53 | 0.0181 | 3.52 | 0.19 | 0.67 | 1.27 | Supercritical |
| 13288+35-13291+90 | 0.025 | 0.04 | 0.55 | 0.1 | 4 | 2.7 | 0.62 | 2.83 | 0.22 | 2.26 | 0.64 | 0.0179 | 4.34 | 0.29 | 0.84 | 1.46 | Subcritical |
| 13291+90-13294+85 | 0.025 | 0.01 | 0.63 | 0.1 | 8 | 4.04 | 1.59 | 5.68 | 0.28 | 5.07 | 0.57 | 0.0161 | 2.54 | 0.1 | 0.73 | 0.8 | Subcritical |
| 13294+85-13299+30 | 0.025 | 0.05 | 0.37 | 0.1 | 7 | 1.93 | 0.49 | 2.99 | 0.16 | 2.63 | 0.45 | 0.0178 | 3.96 | 0.24 | 0.61 | 1.62 | Supercritical |
| 13299+30-13300+50 | 0.025 | 0.05 | 0.26 | 0.1 | 6 | 0.64 | 0.21 | 1.85 | 0.11 | 1.59 | 0.31 | 0.0208 | 3.09 | 0.15 | 0.41 | 1.51 | Supercritical |
| 13302+45-13304+70 | 0.025 | 0.04 | 0.53 | 0.1 | 5 | 3.12 | 0.72 | 3.24 | 0.22 | 2.7 | 0.62 | 0.0171 | 4.35 | 0.29 | 0.82 | 1.49 | Supercritical |
| 13316+85-13321+80 | 0.025 | 0.02 | 0.64 | 0.1 | 5 | 3.61 | 1.04 | 3.89 | 0.27 | 3.25 | 0.66 | 0.0168 | 3.48 | 0.19 | 0.83 | 1.09 | Supercritical |
| 13321+80-13324+50 | 0.025 | 0.08 | 0.89 | 0.1 | 3 | 9.81 | 1.22 | 3.7 | 0.33 | 2.75 | 1.2 | 0.016 | 8.03 | 1 | 1.89 | 2.12 | Supercritical |
| 13328+60-13331+10 | 0.025 | 0.03 | 0.41 | 0.1 | 5 | 1.38 | 0.43 | 2.52 | 0.17 | 2.1 | 0.45 | 0.0191 | 3.19 | 0.16 | 0.57 | 1.24 | Supercritical |
| 13338+75-13339+60 | 0.025 | 0.12 | 0.16 | 0.1 | 8 | 0.38 | 0.11 | 1.47 | 0.07 | 1.31 | 0.22 | 0.022 | 3.57 | 0.2 | 0.36 | 2.21 | Supercritical |
| 13368+28-13370+95 | 0.025 | 0.01 | 0.3 | 0.1 | 70 | 5.38 | 3.22 | 21.52 | 0.15 | 21.24 | 0.27 | 0.018 | 1.67 | 0.04 | 0.35 | 0.76 | Subcritical |
| 13424+00-13427+95 | 0.025 | 0.01 | 0.42 | 0.1 | 21 | 3.89 | 1.9 | 9.34 | 0.2 | 8.94 | 0.38 | 0.0167 | 2.05 | 0.07 | 0.49 | 0.79 | Subcritical |
| 13457+70-13458+25 | 0.025 | 0.02 | 0.14 | 0.1 | 16 | 0.2 | 0.15 | 2.32 | 0.06 | 2.19 | 0.13 | 0.0244 | 1.34 | 0.03 | 0.16 | 0.91 | Subcritical |
| 13469+80-13470+70 | 0.025 | 0.03 | 0.38 | 0.1 | 7 | 1.55 | 0.5 | 3.03 | 0.17 | 2.67 | 0.41 | 0.0183 | 3.1 | 0.15 | 0.52 | 1.26 | Supercritical |
| 13469+80-13471+32 | 0.025 | 0.05 | 0.24 | 0.1 | 9 | 0.78 | 0.26 | 2.4 | 0.11 | 2.17 | 0.28 | 0.02 | 3.01 | 0.14 | 0.38 | 1.54 | Supercritical |
| 13473+70-13475+60 | 0.025 | 0.05 | 0.29 | 0.1 | 9 | 1.27 | 0.37 | 2.88 | 0.13 | 2.61 | 0.34 | 0.0187 | 3.4 | 0.18 | 0.47 | 1.59 | Supercritical |
| 13473+75-13476+25 | 0.025 | 0.025 | 0.35 | 0.1 | 9 | 1.51 | 0.55 | 3.5 | 0.16 | 3.16 | 0.37 | 0.0183 | 2.74 | 0.12 | 0.46 | 1.16 | Supercritical |
| 13475+60-13476+65 | 0.025 | 0.09 | 0.42 | 0.1 | 8 | 4.17 | 0.71 | 3.81 | 0.19 | 3.4 | 0.58 | 0.016 | 5.84 | 0.53 | 0.95 | 2.25 | Supercritical |
| 13476+25-13478+10 | 0.025 | 0.05 | 0.26 | 0.1 | 6 | 0.63 | 0.2 | 1.84 | 0.11 | 1.58 | 0.31 | 0.0208 | 3.08 | 0.15 | 0.41 | 1.51 | Supercritical |
| 13476+65-13478+28 | 0.025 | 0.05 | 0.37 | 0.1 | 6 | 1.68 | 0.43 | 2.65 | 0.16 | 2.28 | 0.45 | 0.0183 | 3.93 | 0.24 | 0.61 | 1.6 | Supercritical |
| 13478+10-13481+75 | 0.025 | 0.04 | 0.37 | 0.1 | 9 | 2.23 | 0.62 | 3.71 | 0.17 | 3.36 | 0.43 | 0.0174 | 3.6 | 0.2 | 0.57 | 1.48 | Supercritical |
| 13478+28-13481+62 | 0.025 | 0.05 | 0.42 | 0.1 | 13 | 5.25 | 1.17 | 5.93 | 0.2 | 5.53 | 0.53 | 0.0156 | 4.5 | 0.31 | 0.74 | 1.73 | Supercritical |
| 13481+62-13483+48 | 0.025 | 0.05 | 0.42 | 0.1 | 8 | 3.11 | 0.71 | 3.81 | 0.19 | 3.4 | 0.52 | 0.0166 | 4.35 | 0.29 | 0.71 | 1.68 | Supercritical |
| 13481+75-13483+45 | 0.025 | 0.05 | 0.35 | 0.1 | 9 | 2.11 | 0.55 | 3.49 | 0.16 | 3.15 | 0.42 | 0.0175 | 3.86 | 0.23 | 0.58 | 1.64 | Supercritical |
| 13520+85-13523+10 | 0.025 | 0.01 | 0.46 | 0.1 | 5 | 1.07 | 0.54 | 2.81 | 0.19 | 2.35 | 0.41 | 0.0197 | 1.98 | 0.06 | 0.52 | 0.73 | Subcritical |
| 13524+10-13524+60 | 0.025 | 0.03 | 0.16 | 0.1 | 13 | 0.31 | 0.17 | 2.26 | 0.08 | 2.11 | 0.17 | 0.0228 | 1.83 | 0.05 | 0.21 | 1.14 | Supercritical |
| 13541+20-13542+80 | 0.025 | 0.1 | 0.43 | 0.1 | 5 | 2.78 | 0.47 | 2.61 | 0.18 | 2.18 | 0.59 | 0.0174 | 5.96 | 0.55 | 0.98 | 2.27 | Supercritical |
| 13545+50-13546+10 | 0.025 | 0.1 | 0.27 | 0.1 | 6 | 1.01 | 0.22 | 1.92 | 0.12 | 1.66 | 0.37 | 0.0196 | 4.49 | 0.31 | 0.59 | 2.15 | Supercritical |
| 13546+10-13555+50 | 0.025 | 0.02 | 0.42 | 0.1 | 8 | 1.99 | 0.72 | 3.82 | 0.19 | 3.42 | 0.43 | 0.0177 | 2.76 | 0.12 | 0.54 | 1.06 | Supercritical |
| 13550+55-13552+20 | 0.025 | 0.04 | 0.21 | 0.1 | 13 | 0.76 | 0.3 | 2.99 | 0.1 | 2.79 | 0.24 | 0.0202 | 2.55 | 0.1 | 0.31 | 1.38 | Supercritical |
| 13557+90-13562+25 | 0.025 | 0.04 | 0.43 | 0.1 | 14 | 5.35 | 1.31 | 6.48 | 0.2 | 6.07 | 0.51 | 0.0156 | 4.09 | 0.26 | 0.69 | 1.55 | Supercritical |
| 13610+20-13611+85 | 0.025 | 0.02 | 0.54 | 0.1 | 9 | 4.46 | 1.35 | 5.48 | 0.25 | 4.96 | 0.57 | 0.0158 | 3.3 | 0.17 | 0.71 | 1.12 | Supercritical |
| 13613+50-13615+90 | 0.025 | 0.02 | 0.37 | 0.1 | 7 | 1.22 | 0.49 | 2.99 | 0.16 | 2.63 | 0.37 | 0.0189 | 2.51 | 0.1 | 0.47 | 1.03 | Supercritical |
| 13627+00A-13627+00A | 0.025 | 0.05 | 0.37 | 0.1 | 25 | 6.99 | 1.67 | 9.5 | 0.18 | 9.17 | 0.45 | 0.0157 | 4.18 | 0.27 | 0.64 | 1.72 | Supercritical |
| 13627+00B-13627+00B | 0.025 | 0.04 | 0.53 | 0.1 | 7 | 4.48 | 1 | 4.28 | 0.23 | 3.76 | 0.63 | 0.0159 | 4.5 | 0.31 | 0.84 | 1.54 | Supercritical |
| 13696+90-13670+30 | 0.025 | 0.03 | 0.18 | 0.1 | 11 | 0.37 | 0.19 | 2.21 | 0.08 | 2.03 | 0.19 | 0.0221 | 1.99 | 0.06 | 0.24 | 1.16 | Supercritical |
| 13696+90-13670+30 | 0.025 | 0.09 | 0.38 | 0.1 | 7 | 2.87 | 0.53 | 3.11 | 0.17 | 2.73 | 0.53 | 0.0169 | 5.46 | 0.46 | 0.85 | 2.19 | Supercritical |
| 13714+90-13715+70 | 0.025 | 0.17 | 0.28 | 0.1 | 7 | 1.75 | 0.29 | 2.29 | 0.12 | 2.01 | 0.43 | 0.018 | 6.12 | 0.58 | 0.87 | 2.87 | Supercritical |
| 13736+80-13737+30 | 0.025 | 0.13 | 0.31 | 0.1 | 13 | 3.7 | 0.63 | 4.35 | 0.14 | 4.05 | 0.46 | 0.0164 | 5.9 | 0.54 | 0.85 | 2.64 | Supercritical |
| 13740+15-13744+10 | 0.025 | 0.06 | 0.32 | 0.1 | 14 | 3.04 | 0.74 | 4.86 | 0.15 | 4.55 | 0.41 | 0.0168 | 4.13 | 0.27 | 0.59 | 1.81 | Supercritical |
| 13764+50-13765+56 | 0.025 | 0.03 | 0.39 | 0.1 | 12 | 3.12 | 0.94 | 5.14 | 0.18 | 4.77 | 0.44 | 0.0167 | 3.32 | 0.17 | 0.57 | 1.32 | Supercritical |
| 13772+22-13774+61 | 0.025 | 0.1 | 0.43 | 0.1 | 17 | 10.34 | 1.59 | 7.77 | 0.2 | 7.37 | 0.62 | 0.0145 | 6.52 | 0.66 | 1.09 | 2.48 | Supercritical |
| 13794+22-access | 0.025 | 0.05 | 0.33 | 0.1 | 13 | 2.8 | 0.73 | 4.68 | 0.16 | 4.37 | 0.41 | 0.017 | 3.85 | 0.23 | 0.56 | 1.66 | Supercritical |
| 13804+64-13805+71 | 0.025 | 0.04 | 0.49 | 0.1 | 6 | 3.02 | 0.72 | 3.45 | 0.21 | 2.97 | 0.57 | 0.0169 | 4.19 | 0.27 | 0.76 | 1.5 | Supercritical |
| 13807+86-13810+10 | 0.025 | 0.12 | 0.42 | 0.1 | 8.5 | 5.2 | 0.77 | 4.03 | 0.19 | 3.63 | 0.62 | 0.0155 | 6.8 | 0.72 | 1.14 | 2.61 | Supercritical |
| 13814+90-13816+50 | 0.025 | 0.14 | 0.59 | 0.1 | 4 | 5.98 | 0.71 | 3.01 | 0.23 | 2.41 | 0.88 | 0.0161 | 8.46 | 1.11 | 1.7 | 2.75 | Supercritical |
| 13817+45-13818+65 | 0.025 | 0.08 | 0.21 | 0.1 | 3 | 0.21 | 0.07 | 0.88 | 0.08 | 0.65 | 0.26 | 0.0267 | 3.07 | 0.15 | 0.36 | 1.67 | Supercritical |
| 13830+49-13831+64 | 0.025 | 0.08 | 0.6 | 0.1 | 3.5 | 4.11 | 0.65 | 2.78 | 0.23 | 2.16 | 0.8 | 0.0174 | 6.35 | 0.63 | 1.23 | 2.05 | Supercritical |
| 13856+25-13957+42 | 0.025 | 0.04 | 0.29 | 0.1 | 15 | 2.08 | 0.65 | 4.72 | 0.14 | 4.44 | 0.34 | 0.0178 | 3.18 | 0.16 | 0.45 | 1.46 | Supercritical |
| 13951+12-13952+62 | 0.025 | 0.09 | 0.73 | 0.1 | 10 | 22.97 | 2.68 | 8.06 | 0.33 | 7.36 | 1.05 | 0.0127 | 8.57 | 1.14 | 1.87 | 2.5 | Supercritical |
| 13952+90-13953+63 | 0.025 | 0.07 | 0.28 | 0.1 | 15 | 2.38 | 0.59 | 4.47 | 0.13 | 4.21 | 0.36 | 0.0175 | 4.06 | 0.26 | 0.54 | 1.92 | Supercritical |
| 13955+00-13956+18 | 0.025 | 0.09 | 0.27 | 0.1 | 6.5 | 1.05 | 0.24 | 2.06 | 0.12 | 1.8 | 0.36 | 0.0194 | 4.3 | 0.29 | 0.56 | 2.05 | Supercritical |
| 13998+37-13998+47 | 0.025 | 0.15 | 0.19 | 0.1 | 4.5 | 0.33 | 0.08 | 1.04 | 0.08 | 0.86 | 0.26 | 0.0233 | 4.15 | 0.27 | 0.45 | 2.4 | Supercritical |
| 14003+20-14008+51 | 0.025 | 0.01 | 0.6 | 0.1 | 6.5 | 2.92 | 1.2 | 4.57 | 0.26 | 3.98 | 0.55 | 0.0169 | 2.44 | 0.09 | 0.69 | 0.78 | Subcritical |
| 14015+00-14016+12 | 0.025 | 0.05 | 0.16 | 0.1 | 17.5 | 0.54 | 0.23 | 2.97 | 0.08 | 2.82 | 0.19 | 0.0215 | 2.39 | 0.09 | 0.25 | 1.49 | Supercritical |
| 14024+05-14025+21 | 0.025 | 0.05 | 0.29 | 0.1 | 8 | 1.15 | 0.34 | 2.62 | 0.13 | 2.34 | 0.35 | 0.019 | 3.4 | 0.18 | 0.47 | 1.58 | Supercritical |
| 14033+50-14035+75 | 0.025 | 0.02 | 0.27 | 0.1 | 7 | 0.55 | 0.27 | 2.22 | 0.12 | 1.95 | 0.27 | 0.021 | 2.05 | 0.07 | 0.34 | 0.98 | Subcritical |
| 14036+10-14040+00 | 0. | | | | | | | | | | | | | | | | |

Berks County
Temporary Diversion Berm Calculations

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Left Side Slope (ft/ft (H:V)) | Right Side Slope (ft/ft (H:V)) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Flow Type |
|-------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------------|-----------------|--------------------|----------------------|---------------|---------------|
| 14077+75-14078+42 | 0.025 | 0.02 | 0.18 | 0.1 | 7.5 | 0.2 | 0.13 | 1.57 | 0.08 | 1.39 | 0.18 | 0.024 | 1.58 | 0.04 | 0.22 | 0.92 | Subcritical |
| 14078+42-14081+20 | 0.025 | 0.01 | 0.37 | 0.1 | 7.5 | 0.95 | 0.53 | 3.2 | 0.17 | 2.84 | 0.33 | 0.0195 | 1.79 | 0.05 | 0.42 | 0.73 | Subcritical |
| 14086+34-14089+09 | 0.025 | 0.04 | 0.32 | 0.1 | 7.5 | 1.22 | 0.38 | 2.71 | 0.14 | 2.4 | 0.36 | 0.0189 | 3.21 | 0.16 | 0.48 | 1.42 | Supercritical |
| 14122+25-14123+70 | 0.025 | 0.06 | 0.36 | 0.1 | 4 | 1.08 | 0.27 | 1.86 | 0.14 | 1.49 | 0.44 | 0.0203 | 4.01 | 0.25 | 0.61 | 1.66 | Supercritical |
| 14126+25-14127+50 | 0.025 | 0.04 | 0.23 | 0.1 | 5 | 0.33 | 0.13 | 1.39 | 0.1 | 1.16 | 0.25 | 0.0231 | 2.49 | 0.1 | 0.32 | 1.3 | Supercritical |
| 14127+50-14129+00 | 0.025 | 0.01 | 0.26 | 0.1 | 10 | 0.5 | 0.35 | 2.9 | 0.12 | 2.65 | 0.23 | 0.0212 | 1.44 | 0.03 | 0.29 | 0.7 | Subcritical |
| 14137+95-14138+34 | 0.025 | 0.05 | 0.39 | 0.1 | 1.5 | 0.37 | 0.12 | 1.09 | 0.11 | 0.62 | 0.42 | 0.0324 | 3.06 | 0.15 | 0.53 | 1.23 | Supercritical |
| 14151+65-14159+09 | 0.025 | 0.05 | 0.57 | 0.1 | 4 | 3.26 | 0.66 | 2.91 | 0.23 | 2.33 | 0.69 | 0.0175 | 4.94 | 0.38 | 0.95 | 1.64 | Supercritical |
| 14165+75 to 14168+00 Ch | 0.025 | 0.04 | 0.34 | 0.1 | 14 | 2.92 | 0.83 | 5.16 | 0.16 | 4.84 | 0.4 | 0.0169 | 3.52 | 0.19 | 0.54 | 1.5 | Supercritical |
| 14182+50 to 14185+50 Ch | 0.025 | 0.02 | 0.22 | 0.1 | 20 | 0.9 | 0.48 | 4.61 | 0.1 | 4.4 | 0.22 | 0.0202 | 1.87 | 0.05 | 0.27 | 0.99 | Subcritical |
| 14189+25 to 14191+00 Ch | 0.025 | 0.06 | 0.43 | 0.1 | 2 | 0.76 | 0.19 | 1.39 | 0.14 | 0.9 | 0.5 | 0.0257 | 3.91 | 0.24 | 0.67 | 1.49 | Supercritical |
| 14199+90 to 14202+00 Ch | 0.025 | 0.01 | 0.24 | 0.1 | 70 | 3.04 | 2.09 | 17.36 | 0.12 | 17.14 | 0.22 | 0.0195 | 1.45 | 0.03 | 0.28 | 0.73 | Subcritical |
| 14202+90 to 14203+90 Ch | 0.025 | 0.03 | 0.12 | 0.1 | 57 | 0.69 | 0.44 | 7.17 | 0.06 | 7.05 | 0.13 | 0.0232 | 1.58 | 0.04 | 0.16 | 1.12 | Supercritical |
| 14214+50 to 14216+00 Ch | 0.025 | 0.01 | 0.31 | 0.1 | 23 | 1.84 | 1.1 | 7.43 | 0.15 | 7.14 | 0.28 | 0.0186 | 1.67 | 0.04 | 0.35 | 0.75 | Subcritical |
| 14216+00 to 14217+25 Ch | 0.025 | 0.01 | 0.26 | 0.1 | 20 | 1.01 | 0.68 | 5.48 | 0.12 | 5.23 | 0.23 | 0.0199 | 1.48 | 0.03 | 0.29 | 0.72 | Subcritical |
| 14220+25 to 14220+50 Ch | 0.025 | 0.06 | 0.13 | 0.1 | 15 | 0.31 | 0.13 | 2.14 | 0.06 | 2.02 | 0.16 | 0.0229 | 2.3 | 0.08 | 0.22 | 1.57 | Supercritical |
| 14220+50 to 14220+75 Ch | 0.025 | 0.05 | 0.08 | 0.1 | 14 | 0.07 | 0.05 | 1.22 | 0.04 | 1.14 | 0.09 | 0.0279 | 1.51 | 0.04 | 0.12 | 1.32 | Supercritical |
| 14280+15 to 14282+50 Ch | 0.025 | 0.06 | 0.34 | 0.1 | 7 | 1.66 | 0.41 | 2.73 | 0.15 | 2.4 | 0.42 | 0.0182 | 4.09 | 0.26 | 0.6 | 1.75 | Supercritical |
| 14282+50 to 14285+00 Ch | 0.025 | 0.06 | 0.29 | 0.1 | 29 | 4.99 | 1.26 | 8.82 | 0.14 | 8.55 | 0.37 | 0.0166 | 3.97 | 0.25 | 0.54 | 1.83 | Supercritical |
| 14285+00 to 14288+00 Ch | 0.025 | 0.04 | 0.58 | 0.1 | 4 | 3.1 | 0.69 | 2.98 | 0.23 | 2.38 | 0.68 | 0.0176 | 4.49 | 0.31 | 0.89 | 1.47 | Supercritical |
| 14288+00 to 14290+00 Ch | 0.025 | 0.01 | 0.4 | 0.1 | 5 | 0.75 | 0.41 | 2.46 | 0.17 | 2.06 | 0.35 | 0.0207 | 1.81 | 0.05 | 0.45 | 0.71 | Subcritical |
| 14292+00 to 14293+90 Ch | 0.025 | 0.01 | 0.68 | 0.1 | 10 | 6.41 | 2.35 | 7.54 | 0.31 | 6.89 | 0.63 | 0.0151 | 2.73 | 0.12 | 0.8 | 0.82 | Subcritical |
| 14300+00 to 14305+50 Ch | 0.025 | 0.02 | 0.6 | 0.1 | 12 | 7.68 | 2.15 | 7.78 | 0.28 | 7.21 | 0.63 | 0.0148 | 3.57 | 0.2 | 0.79 | 1.15 | Supercritical |
| 14326+00 to 14329+25 Ch | 0.025 | 0.02 | 0.52 | 0.1 | 48 | 21.86 | 6.47 | 25.43 | 0.25 | 24.96 | 0.55 | 0.0143 | 3.38 | 0.18 | 0.7 | 1.17 | Supercritical |
| 14329+25 to 14333+50 Ch | 0.025 | 0.03 | 0.43 | 0.1 | 25 | 8.26 | 2.3 | 11.13 | 0.21 | 10.74 | 0.49 | 0.0153 | 3.6 | 0.2 | 0.63 | 1.37 | Supercritical |

Berks County
Temporary Slope Pipe Calculations

| STATION | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (ft) | Diameter (ft) | Discharge (ft ³ /s) | Flow Area (ft ²) | Wetted Perimeter (ft) | Hydraulic Radius (ft) | Top Width (ft) | Critical Depth (ft) | Percent Full (%) | Critical Slope (ft/ft) | Velocity (ft/s) | Velocity Head (ft) | Specific Energy (ft) | Froude Number | Maximum Discharge (ft ³ /s) | Discharge Full (ft ³ /s) | Slope Full (ft/ft) | Flow Type |
|---------------------|-----------------------|-----------------------|-------------------|---------------|--------------------------------|------------------------------|-----------------------|-----------------------|----------------|---------------------|------------------|------------------------|-----------------|--------------------|----------------------|---------------|--|-------------------------------------|--------------------|---------------|
| 13225+27-13229+30 | 0.023 | 0.08 | 0.54 | 1 | 3.27 | 0.44 | 1.66 | 0.26 | 1 | 0.77 | 54.3 | 0.0295 | 7.5 | 0.87 | 1.42 | 2 | 6.13 | 5.7 | 0.02637 | SuperCritical |
| 13248+30-13251+05 | 0.023 | 0.2 | 0.38 | 0.67 | 1.9 | 0.21 | 1.14 | 0.18 | 0.66 | 0.62 | 56.6 | 0.0653 | 9.22 | 1.32 | 1.7 | 2.92 | 3.33 | 3.1 | 0.07536 | SuperCritical |
| 13251+00-13251+75 | 0.023 | 0.1 | 0.73 | 1 | 5.6 | 0.61 | 2.04 | 0.3 | 0.89 | 0.94 | 72.8 | 0.0669 | 9.15 | 1.3 | 2.03 | 1.94 | 6.85 | 6.37 | 0.07734 | SuperCritical |
| 13257+00-13258+50 | 0.023 | 0.28 | 0.22 | 0.5 | 0.66 | 0.08 | 0.72 | 0.11 | 0.5 | 0.41 | 43.5 | 0.043 | 8.04 | 1 | 1.22 | 3.48 | 1.81 | 1.68 | 0.04331 | SuperCritical |
| 13258+50-13259+90 | 0.023 | 0.28 | 0.17 | 0.5 | 0.42 | 0.06 | 0.62 | 0.09 | 0.47 | 0.33 | 34.1 | 0.0293 | 7.12 | 0.79 | 0.96 | 3.56 | 1.81 | 1.68 | 0.01754 | SuperCritical |
| 13259+90-13260+30 | 0.023 | 0.33 | 0.07 | 0.5 | 0.07 | 0.02 | 0.37 | 0.04 | 0.34 | 0.13 | 13.4 | 0.0222 | 4.47 | 0.31 | 0.38 | 3.68 | 1.96 | 1.82 | 0.00049 | SuperCritical |
| 13283+10-13284+75 | 0.023 | 0.05 | 0.39 | 0.5 | 0.67 | 0.16 | 1.08 | 0.15 | 0.42 | 0.41 | 77.4 | 0.0438 | 4.11 | 0.26 | 0.65 | 1.16 | 0.76 | 0.71 | 0.04463 | SuperCritical |
| 13284+75-13286+25 | 0.023 | 0.14 | 0.5 | 0.67 | 2.34 | 0.28 | 1.39 | 0.2 | 0.58 | 0.65 | 74.4 | 0.1 | 8.31 | 1.07 | 1.57 | 2.11 | 2.79 | 2.59 | 0.11443 | SuperCritical |
| 13286+25-13288+35 | 0.023 | 0.2 | 0.4 | 0.67 | 2.05 | 0.22 | 1.18 | 0.19 | 0.66 | 0.63 | 59.5 | 0.0758 | 9.38 | 1.37 | 1.77 | 2.87 | 3.33 | 3.1 | 0.08773 | SuperCritical |
| 13288+35-13291+90 | 0.023 | 0.18 | 0.51 | 0.67 | 2.7 | 0.29 | 1.41 | 0.2 | 0.58 | 0.66 | 75.6 | 0.1362 | 9.45 | 1.39 | 1.89 | 2.36 | 3.16 | 2.94 | 0.15218 | SuperCritical |
| 13291+90-13294+85 | 0.023 | 0.12 | 0.55 | 1 | 4.04 | 0.44 | 1.66 | 0.26 | 1 | 0.85 | 54.6 | 0.0378 | 9.21 | 1.32 | 1.86 | 2.45 | 7.5 | 6.98 | 0.04025 | SuperCritical |
| 13294+85-13299+30 | 0.023 | 0.13 | 0.44 | 0.67 | 1.93 | 0.25 | 1.27 | 0.19 | 0.63 | 0.62 | 66.0 | 0.0673 | 7.81 | 0.95 | 1.39 | 2.21 | 2.68 | 2.5 | 0.07776 | SuperCritical |
| 13299+30-13300+50 | 0.023 | 0.11 | 0.28 | 0.5 | 0.64 | 0.11 | 0.85 | 0.13 | 0.5 | 0.41 | 56.3 | 0.0414 | 5.62 | 0.49 | 0.77 | 2.07 | 1.13 | 1.05 | 0.04073 | SuperCritical |
| 13302+45-13304+70 | 0.023 | 0.03 | 0.74 | 1 | 3.12 | 0.62 | 2.07 | 0.3 | 0.88 | 0.76 | 73.8 | 0.0283 | 5.02 | 0.39 | 1.13 | 1.05 | 3.75 | 3.49 | 0.02401 | SuperCritical |
| 13316+85-13321+80 | 0.023 | 0.29 | 0.53 | 0.67 | 3.61 | 0.3 | 1.47 | 0.2 | 0.54 | 0.67 | 79.3 | 0.2545 | 12.04 | 2.25 | 2.78 | 2.86 | 4.01 | 3.73 | 0.27205 | SuperCritical |
| 13321+80-13324+50 | 0.023 | 0.23 | 0.83 | 1 | 9.81 | 0.7 | 2.3 | 0.3 | 0.74 | 0.99 | 83.5 | 0.2219 | 14.01 | 3.05 | 3.88 | 2.54 | 10.39 | 9.66 | 0.23734 | SuperCritical |
| 13328+60-13331+10 | 0.023 | 0.12 | 0.36 | 0.67 | 1.38 | 0.2 | 1.11 | 0.18 | 0.67 | 0.55 | 54.4 | 0.0393 | 7.04 | 0.77 | 1.13 | 2.29 | 2.58 | 2.4 | 0.03975 | SuperCritical |
| 13368+28-13370+95 | 0.023 | 0.02 | 1.08 | 1.25 | 5.38 | 1.13 | 2.98 | 0.38 | 0.86 | 0.94 | 86.3 | 0.0259 | 4.78 | 0.35 | 1.43 | 0.74 | 5.55 | 5.16 | 0.02171 | SubCritical |
| 13269+80-13470+70 | 0.023 | 0.1 | 0.42 | 0.67 | 1.55 | 0.23 | 1.22 | 0.19 | 0.65 | 0.58 | 62.1 | 0.046 | 6.73 | 0.7 | 1.12 | 1.99 | 2.35 | 2.19 | 0.05015 | SuperCritical |
| 13424+00-13427+95 | 0.023 | 0.01 | 1.12 | 1.25 | 3.89 | 1.16 | 3.12 | 0.37 | 0.75 | 0.8 | 89.9 | 0.0209 | 3.35 | 0.17 | 1.3 | 0.47 | 3.93 | 3.65 | 0.01135 | SubCritical |
| 13457+70-13458+25 | 0.023 | 0.06 | 0.17 | 0.5 | 0.2 | 0.06 | 0.63 | 0.1 | 0.48 | 0.22 | 34.7 | 0.0232 | 3.31 | 0.17 | 0.34 | 1.64 | 0.84 | 0.78 | 0.00398 | SuperCritical |
| 13469+80-13471+32 | 0.023 | 0.1 | 0.33 | 0.5 | 0.78 | 0.14 | 0.95 | 0.15 | 0.47 | 0.44 | 66.3 | 0.0544 | 5.64 | 0.49 | 0.83 | 1.84 | 1.08 | 1 | 0.06049 | SuperCritical |
| 13473+70-13475+60 | 0.023 | 0.11 | 0.36 | 0.67 | 1.27 | 0.19 | 1.09 | 0.17 | 0.67 | 0.53 | 53.1 | 0.0357 | 6.68 | 0.69 | 1.05 | 2.21 | 2.47 | 2.3 | 0.03367 | SuperCritical |
| 13473+75-13476+25 | 0.023 | 0.11 | 0.4 | 0.67 | 1.51 | 0.22 | 1.18 | 0.18 | 0.66 | 0.57 | 59.2 | 0.0443 | 6.95 | 0.75 | 1.15 | 2.13 | 2.47 | 2.3 | 0.0476 | SuperCritical |
| 13475+60-13476+65 | 0.023 | 0.08 | 0.64 | 1 | 4.17 | 0.53 | 1.85 | 0.29 | 0.96 | 0.86 | 63.6 | 0.0396 | 7.92 | 0.97 | 1.61 | 1.89 | 6.13 | 5.7 | 0.04288 | SuperCritical |
| 13476+25-13478+10 | 0.023 | 0.19 | 0.24 | 0.5 | 0.63 | 0.09 | 0.76 | 0.12 | 0.5 | 0.4 | 47.4 | 0.0407 | 6.88 | 0.74 | 0.97 | 2.83 | 1.49 | 1.38 | 0.03946 | SuperCritical |
| 13476+65-13478+28 | 0.023 | 0.18 | 0.36 | 0.67 | 1.68 | 0.2 | 1.11 | 0.18 | 0.67 | 0.6 | 54.2 | 0.0523 | 8.61 | 1.15 | 1.51 | 2.81 | 3.16 | 2.94 | 0.05892 | SuperCritical |
| 13478+10-13481+75 | 0.023 | 0.11 | 0.53 | 0.67 | 2.23 | 0.3 | 1.48 | 0.2 | 0.54 | 0.64 | 79.5 | 0.0903 | 7.42 | 0.86 | 1.39 | 1.75 | 2.47 | 2.3 | 0.10381 | SuperCritical |
| 13478+28-13481+62 | 0.023 | 0.11 | 0.67 | 1 | 5.25 | 0.56 | 1.91 | 0.29 | 0.94 | 0.93 | 66.8 | 0.0588 | 9.41 | 1.38 | 2.05 | 2.16 | 7.18 | 6.68 | 0.06798 | SuperCritical |
| 13481+62-13483+48 | 0.023 | 0.11 | 0.48 | 1 | 3.11 | 0.37 | 1.53 | 0.24 | 1 | 0.76 | 48 | 0.0282 | 8.35 | 1.08 | 1.56 | 2.41 | 7.18 | 6.68 | 0.02385 | SuperCritical |
| 13481+75-13483+45 | 0.023 | 0.11 | 0.51 | 0.67 | 2.11 | 0.29 | 1.41 | 0.2 | 0.58 | 0.63 | 75.6 | 0.0804 | 7.38 | 0.85 | 1.35 | 1.85 | 2.47 | 2.3 | 0.09294 | SuperCritical |
| 13520+85-13523+10 | 0.023 | 0.07 | 0.37 | 0.67 | 1.07 | 0.2 | 1.12 | 0.18 | 0.67 | 0.49 | 54.9 | 0.0305 | 5.4 | 0.45 | 0.82 | 1.74 | 1.97 | 1.83 | 0.0239 | SuperCritical |
| 13524+10-13524+60 | 0.023 | 0.07 | 0.19 | 0.6 | 0.31 | 0.08 | 0.73 | 0.11 | 0.56 | 0.27 | 32.4 | 0.0219 | 3.91 | 0.24 | 0.43 | 1.83 | 1.47 | 1.36 | 0.00361 | SuperCritical |
| 13541+50-13542+80 | 0.023 | 0.11 | 0.45 | 1 | 2.78 | 0.34 | 1.47 | 0.23 | 1 | 0.71 | 45 | 0.0258 | 8.11 | 1.02 | 1.47 | 2.44 | 7.18 | 6.68 | 0.01906 | SuperCritical |
| 13545+50-13546+10 | 0.023 | 0.035 | 0.45 | 0.67 | 1.01 | 0.25 | 1.28 | 0.19 | 0.63 | 0.48 | 66.4 | 0.0292 | 4.06 | 0.26 | 0.7 | 1.14 | 1.39 | 1.29 | 0.02129 | SuperCritical |
| 13546+10-13555+50 | 0.023 | 0.22 | 0.38 | 0.67 | 1.99 | 0.21 | 1.14 | 0.18 | 0.66 | 0.63 | 56.6 | 0.0715 | 9.67 | 1.45 | 1.83 | 3.06 | 3.49 | 3.25 | 0.08267 | SuperCritical |
| 13550+55-13552+20 | 0.023 | 0.13 | 0.3 | 0.5 | 0.76 | 0.12 | 0.88 | 0.14 | 0.49 | 0.44 | 59.6 | 0.0522 | 6.23 | 0.6 | 0.9 | 2.2 | 1.23 | 1.14 | 0.05743 | SuperCritical |
| 13557+90-13562+25 | 0.023 | 0.22 | 0.54 | 1 | 5.35 | 0.43 | 1.65 | 0.26 | 1 | 0.93 | 53.9 | 0.061 | 12.4 | 2.39 | 2.93 | 3.32 | 10.16 | 9.44 | 0.07059 | SuperCritical |
| 13610+20-13611+85 | 0.023 | 0.03 | 0.77 | 1.25 | 4.46 | 0.8 | 2.27 | 0.35 | 1.21 | 0.86 | 62 | 0.0226 | 5.58 | 0.48 | 1.26 | 1.21 | 6.8 | 6.32 | 0.01492 | SuperCritical |
| 13613+50-13615+90 | 0.023 | 0.06 | 0.42 | 0.67 | 1.22 | 0.23 | 1.23 | 0.19 | 0.65 | 0.52 | 62.8 | 0.0342 | 5.23 | 0.43 | 0.85 | 1.54 | 1.82 | 1.7 | 0.03107 | SuperCritical |
| 13627+00A-13627+00A | 0.023 | 0.04 | 0.83 | 1.5 | 6.99 | 1 | 2.51 | 0.4 | 1.49 | 1.02 | 55.2 | 0.0212 | 6.99 | 0.76 | 1.59 | 1.51 | 12.77 | 11.87 | 0.01386 | SuperCritical |
| 13627+00B-13627+00B | 0.023 | 0.15 | 0.54 | 1 | 4.48 | 0.44 | 1.66 | 0.26 | 1 | 0.89 | 54.3 | 0.0443 | 10.27 | 1.64 | 2.18 | 2.74 | 8.39 | 7.8 | 0.0495 | SuperCritical |
| 13696+90-13670+30 | 0.023 | 0.03 | 0.3 | 0.5 | 0.37 | 0.12 | 0.89 | 0.14 | 0.49 | 0.31 | 60.1 | 0.0276 | 3 | 0.14 | 0.44 | 1.05 | 0.59 | 0.55 | 0.01361 | SuperCritical |
| 13696+90-13670+30 | 0.023 | 0.11 | 0.46 | 1 | 2.87 | 0.35 | 1.49 | 0.24 | 1 | 0.73 | 45.8 | 0.0264 | 8.19 | 1.04 | 1.5 | 2.43 | 7.18 | 6.8 | 0.02031 | SuperCritical |
| 13714+90-13715+70 | 0.023 | 0.07 | 0.52 | 0.67 | 1.75 | 0.3 | 1.45 | 0.2 | 0.55 | 0.61 | 78.2 | 0.0561 | 5.91 | 0.54 | 1.07 | 1.42 | 1.97 | 1.83 | 0.06393 | SuperCritical |
| 13736+80-13737+30 | 0.023 | 0.05 | 0.69 | 1 | 3.7 | 0.58 | 1.96 | 0.29 | 0.93 | 0.82 | 69 | 0.0338 | 6.4 | 0.64 | 1.33 | 1.43 | 4.84 | 4.5 | 0.03376 | SuperCritical |
| 13740+15-13744+10 | 0.023 | 0.09 | 0.5 | 1 | 3.04 | 0.39 | 1.57 | 0.25 | 1 | 0.75 | 50.2 | 0.0276 | 7.71 | 0.92 | 1.42 | 2.16 | 6.5 | 6.04 | 0.02279 | SuperCritical |
| 13764+50-13765+56 | 0.012 | 0.11 | 0.42 | 0.67 | 3.12 | 0.23 | 1.22 | 0.19 | 0.65 | 0.66 | 62.2 | 0.0507 | 13.54 | 2.85 | 3.26 | 4.01 | 4.73 | 4.4 | 0.05532 | SuperCritical |
| 13772+22-13774+61 | 0.012 | 0.04 | 0.71 | 1.5 | 10.34 | 0.82 | 2.27 | 0.36 | 1.5 | 1.24 | 47.3 | 0.0082 | 12.57 | 2.46 | 3.17 | 2.99 | 24.48 | 22.76 | 0.00826 | SuperCritical |
| 13794+22-access | 0.012 | 0.12 | 0.38 | 0.67 | 2.8 | 0.2 | 1.14 | 0.18 | 0.66 | 0.66 | 56.4 | 0.0401 | 13.67 | 2.91 | 3.28 | 4.34 | 4.94 | 4.6 | 0.04455 | SuperCritical |
| 13804+64-13805+71 | 0.012 | 0.57 | 0.25 | 0.67 | 3.02 | 0.12 | 0.89 | 0.14 | 0.65 | 0.66 | 37.7 | 0.0472 | 24.87 | 9.61 | 9.86 | 10.14 | 10.77 | 10.02 | 0.05183 | SuperCritical |
| 13807+86-13810+10 | 0.012 | 0.06 | 0.53 | 1 | 5.2 | 0.42 | 1.63 | 0.26 | 1 | 0.93 | 52.9 | 0.0157 | 12.32 | 2.36 | 2.89 | 3.34 | 10.17 | 9.45 | 0.01815 | SuperCritical |
| 13814+90-13816+50 | 0.012 | 0.045 | 0.63 | 1 | 5.98 | 0.53 | 1.84 | 0.29 | 0.96 | 0.95 | 63.5 | 0.0208 | 11.38 | 2.01 | 2.65 | 2.71 | 8.81 | 8.19 | 0.02401 | SuperCritical |
| 13817+45-13818+65 | 0.012 | 0.22 | 0.09 | 0.5 | 0.21 | 0.02 | 0.44 | 0.06 | 0.39 | 0.23 | 18.4 | 0.0064 | 8.45 | 1.11 | 1.2 | 5.89 | 3.07 | 2.85 | 0.00119 | SuperCritical |
| 13830+49-13831+64 | 0.012 | 0.06 | 0.46 | 1 | 4.11 | 0.35 | 1.49 | 0.24 | 1 | 0.86 | 46.1 | 0.0106 | 11.62 | 2.1 | 2.56 | 3.44 | 10.17 | 9.45 | 0.01134 | SuperCritical |
| 13856+25-13957+42 | 0.012 | 0.04 | 0.45 | 0.67 | 2.08 | 0.25 | 1.28 | 0.2 | 0.63 | 0.63 | 66.7 | 0.0213 | 8.33 | 1.08 | 1.52 | 2.33 | 2.85 | 2.65 | 0.02458 | SuperCritical |
| 13952+90-13953+63 | 0.012 | 0.14 | 0.43 | 0.5 | 2.35 | 0.18 | 1.18 | 0.15 | 0.35 | 0.5 | 85.3 | 0.1443 | 13.17 | 2.69 | 3.12 | 3.27 | 2.45 | 2.27 | 0.014947 | SuperCritical |
| 13955+00-13956+18 | 0.012 | 0.16 | 0.23 | 0.5 | 1.05 | 0.09 | 0.74 | 0.12 | 0.5 | 0.48 | 45.9 | 0.0259 | 11.94 | 2.21 | 2.44 | 5.01 | 2.62 | 2. | | |

Berks County
Temporary Slope Pipe Calculations

| | | | | | | | | | | | | | | | | | | | | |
|------------------------|-------|------|------|------|------|------|------|------|------|------|------|--------|-------|------|------|------|-------|-------|---------|---------------|
| 14202+90 to 14203+90 P | 0.012 | 0.02 | 0.34 | 0.5 | 0.69 | 0.14 | 0.97 | 0.15 | 0.47 | 0.42 | 67.9 | 0.0124 | 4.86 | 0.37 | 0.71 | 1.56 | 0.92 | 0.86 | 0.01289 | SuperCritical |
| 14214+50 to 14216+00 P | 0.012 | 0.02 | 0.54 | 0.67 | 1.84 | 0.3 | 1.49 | 0.2 | 0.53 | 0.61 | 80.3 | 0.0167 | 6.07 | 0.57 | 1.11 | 1.42 | 2.02 | 1.88 | 0.01924 | SuperCritical |
| 14216+00 to 14217+25 P | 0.012 | 0.05 | 0.32 | 0.5 | 1.01 | 0.13 | 0.93 | 0.14 | 0.48 | 0.47 | 64.2 | 0.0239 | 7.58 | 0.89 | 1.21 | 2.53 | 1.46 | 1.36 | 0.02761 | SuperCritical |
| 14220+25 to 14220+50 P | 0.012 | 0.06 | 0.16 | 0.5 | 0.31 | 0.05 | 0.59 | 0.09 | 0.46 | 0.28 | 31 | 0.007 | 5.98 | 0.56 | 0.71 | 3.15 | 1.6 | 1.49 | 0.0026 | SuperCritical |
| 14220+50 to 14220+75 P | 0.012 | 0.07 | 0.07 | 0.5 | 0.07 | 0.02 | 0.39 | 0.04 | 0.35 | 0.13 | 14.2 | 0.006 | 4.1 | 0.26 | 0.33 | 3.27 | 1.73 | 1.61 | 0.00013 | SuperCritical |
| 14282+50 to 14285+00 P | 0.012 | 0.11 | 0.43 | 1 | 4.99 | 0.33 | 1.44 | 0.23 | 0.99 | 0.92 | 43.3 | 0.0145 | 15.3 | 3.64 | 4.07 | 4.7 | 13.77 | 12.8 | 0.01672 | SuperCritical |
| 14285+00 to 14288+00 P | 0.012 | 0.15 | 0.38 | 0.67 | 3.1 | 0.2 | 1.13 | 0.18 | 0.67 | 0.66 | 56 | 0.05 | 15.25 | 3.62 | 3.99 | 4.86 | 5.53 | 5.14 | 0.05461 | SuperCritical |
| 14288+00 to 14290+00 P | 0.012 | 0.15 | 0.19 | 0.5 | 0.75 | 0.07 | 0.67 | 0.1 | 0.49 | 0.43 | 38.8 | 0.0139 | 10.67 | 1.77 | 1.96 | 4.95 | 2.53 | 2.35 | 0.01522 | SuperCritical |
| 14292+00 to 14293+90 P | 0.012 | 0.14 | 0.47 | 1 | 6.41 | 0.36 | 1.5 | 0.24 | 1 | 0.97 | 46.7 | 0.0241 | 17.84 | 4.95 | 5.41 | 5.24 | 15.53 | 14.44 | 0.02758 | SuperCritical |
| 14300+00 to 14305+50 P | 0.012 | 0.06 | 0.68 | 1 | 7.68 | 0.57 | 1.95 | 0.29 | 0.93 | 0.98 | 68.4 | 0.0357 | 13.41 | 2.8 | 3.48 | 3.01 | 10.17 | 9.45 | 0.0396 | SuperCritical |
| 14326+00 to 14329+25 C | 0.012 | 0.03 | 1 | 1 | 6.68 | 0.79 | 3.14 | 0.25 | 0 | 0.97 | 100 | 0.0264 | 8.51 | 1.13 | 2.13 | 0 | 7.19 | 6.68 | 0.03 | SubCritical |
| 14326+00 to 14329+25 P | 0.012 | 0.03 | 0.69 | 1 | 5.47 | 0.58 | 1.96 | 0.29 | 0.93 | 0.94 | 68.8 | 0.0174 | 9.5 | 1.4 | 2.09 | 2.12 | 7.19 | 6.68 | 0.02009 | SuperCritical |
| 14329+25 to 14333+50 C | 0.012 | 0.03 | 1 | 1 | 6.68 | 0.79 | 3.14 | 0.25 | 0 | 0.97 | 100 | 0.0264 | 8.51 | 1.13 | 2.13 | 0 | 7.19 | 6.68 | 0.03 | SubCritical |
| 14329+25 to 14333+50 P | 0.012 | 0.03 | 0.57 | 1 | 4.13 | 0.46 | 1.71 | 0.27 | 0.99 | 0.86 | 56.9 | 0.0106 | 8.96 | 1.25 | 1.82 | 2.31 | 7.19 | 6.68 | 0.01145 | SuperCritical |

Berks County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|-------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 13225+27-13229+30 | 0.16 | 0.52 | 3.27 | 7.91 | S | 12.5 | 12.00 | 5.19 | P550 |
| 13231+00-13232+05 | 0.34 | 0.17 | 0.26 | 5.57 | S | 12.5 | 12.00 | 3.61 | P550 |
| 13248+30-13251+05 | 0.14 | 0.43 | 1.9 | 6.57 | S | 12.5 | 12.00 | 3.76 | P550 |
| 13248+90-13251+10 | 0.15 | 0.43 | 1.19 | 6.17 | S | 12.5 | 12.00 | 4.02 | P550 |
| 13251+00-13251+75 | 0.1 | 0.48 | 5.6 | 6.71 | S | 9.5 | 3.00 | 3.00 | SC250 |
| 13257+00-13258+50 | 0.05 | 0.28 | 0.66 | 3.21 | V | 8.0 | 2.00 | 0.87 | SC150 |
| 13258+50-13259+90 | 0.2 | 0.23 | 0.42 | 5.16 | S | 9.5 | 3.00 | 2.87 | SC250 |
| 13259+90-13260+30 | 0.09 | 0.14 | 0.07 | 2.43 | V | 8.0 | 2.00 | 0.79 | SC150 |
| 13260+30-13261+15 | 0.15 | 0.33 | 1.28 | 5.91 | S | 12.5 | 12.00 | 3.09 | P550 |
| 13283+10-13284+75 | 0.02 | 0.25 | 0.67 | 1.97 | V | 8.0 | 2.00 | 0.31 | SC150 |
| 13284+75-13286+25 | 0.11 | 0.39 | 2.34 | 5.92 | S | 9.5 | 3.00 | 2.68 | SC250 |
| 13286+25-13288+35 | 0.03 | 0.48 | 2.05 | 3.52 | V | 8.0 | 2.00 | 0.90 | SC150 |
| 13288+35-13291+90 | 0.04 | 0.55 | 2.7 | 4.34 | V | 8.0 | 2.00 | 1.37 | SC150 |
| 13291+90-13294+85 | 0.01 | 0.63 | 4.04 | 2.54 | V | 8.0 | 2.00 | 0.39 | SC150 |
| 13294+85-13299+30 | 0.05 | 0.37 | 1.93 | 3.96 | V | 8.0 | 2.00 | 1.15 | SC150 |
| 13299+30-13300+50 | 0.05 | 0.26 | 0.64 | 3.09 | V | 8.0 | 2.00 | 0.81 | SC150 |
| 13302+45-13304+70 | 0.04 | 0.53 | 3.12 | 4.35 | V | 8.0 | 2.00 | 1.32 | SC150 |
| 13316+85-13321+80 | 0.02 | 0.64 | 3.61 | 3.48 | V | 8.0 | 2.00 | 0.80 | SC150 |
| 13321+80-13324+50 | 0.08 | 0.89 | 9.81 | 8.03 | V | 12.5 | 12.00 | 4.44 | P550 |
| 13328+60-13331+10 | 0.03 | 0.41 | 1.38 | 3.19 | V | 8.0 | 2.00 | 0.77 | SC150 |
| 13338+75-13339+60 | 0.12 | 0.16 | 0.38 | 3.57 | S | 8.0 | 2.00 | 1.20 | SC150 |
| 13368+28-13370+95 | 0.01 | 0.3 | 5.38 | 1.67 | V | 8.0 | 2.00 | 0.19 | SC150 |
| 13424+00-13427+95 | 0.01 | 0.42 | 3.89 | 2.05 | V | 8.0 | 2.00 | 0.26 | SC150 |
| 13457+70-13458+25 | 0.02 | 0.14 | 0.2 | 1.34 | V | 8.0 | 2.00 | 0.17 | SC150 |
| 13469+80-13470+70 | 0.03 | 0.38 | 1.55 | 3.1 | V | 8.0 | 2.00 | 0.71 | SC150 |
| 13469+80-13471+32 | 0.05 | 0.24 | 0.78 | 3.01 | V | 8.0 | 2.00 | 0.75 | SC150 |
| 13473+70-13475+60 | 0.05 | 0.29 | 1.27 | 3.4 | V | 8.0 | 2.00 | 0.90 | SC150 |
| 13473+75-13476+25 | 0.025 | 0.35 | 1.51 | 2.74 | V | 8.0 | 2.00 | 0.55 | SC150 |
| 13475+60-13476+65 | 0.09 | 0.42 | 4.17 | 5.84 | V | 9.5 | 3.00 | 2.36 | SC250 |
| 13476+25-13478+10 | 0.05 | 0.26 | 0.63 | 3.08 | V | 8.0 | 2.00 | 0.81 | SC150 |
| 13476+65-13478+28 | 0.05 | 0.37 | 1.68 | 3.93 | V | 8.0 | 2.00 | 1.15 | SC150 |
| 13478+10-13481+75 | 0.04 | 0.37 | 2.23 | 3.6 | V | 8.0 | 2.00 | 0.92 | SC150 |
| 13478+28-13481+62 | 0.05 | 0.42 | 5.25 | 4.5 | V | 8.0 | 2.00 | 1.31 | SC150 |
| 13481+62-13483+48 | 0.05 | 0.42 | 3.11 | 4.35 | V | 8.0 | 2.00 | 1.31 | SC150 |
| 13481+75-13483+45 | 0.05 | 0.35 | 2.11 | 3.86 | V | 8.0 | 2.00 | 1.09 | SC150 |
| 13520+85-13523+10 | 0.01 | 0.46 | 1.07 | 1.98 | V | 8.0 | 2.00 | 0.29 | SC150 |
| 13524+10-13524+60 | 0.03 | 0.16 | 0.31 | 1.83 | V | 8.0 | 2.00 | 0.30 | SC150 |
| 13541+20-13542+80 | 0.1 | 0.43 | 2.78 | 5.96 | S | 9.5 | 3.00 | 2.68 | SC250 |
| 13545+50-13546+10 | 0.1 | 0.27 | 1.01 | 4.49 | S | 8.0 | 2.00 | 1.68 | SC150 |

Berks County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|-------------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 13546+10-13555+50 | 0.02 | 0.42 | 1.99 | 2.76 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 13550+55-13552+20 | 0.04 | 0.21 | 0.76 | 2.55 | V | 8.0 | 2.00 | 0.52 | SC150 |
| 13557+90-13562+25 | 0.04 | 0.43 | 5.35 | 4.09 | V | 8.0 | 2.00 | 1.07 | SC150 |
| 13610+20-13611+85 | 0.02 | 0.54 | 4.46 | 3.3 | V | 8.0 | 2.00 | 0.67 | SC150 |
| 13613+50-13615+90 | 0.02 | 0.37 | 1.22 | 2.51 | V | 8.0 | 2.00 | 0.46 | SC150 |
| 13627+00A-13627+00A | 0.05 | 0.37 | 6.99 | 4.18 | V | 8.0 | 2.00 | 1.15 | SC150 |
| 13627+00B-13627+00B | 0.04 | 0.53 | 4.48 | 4.5 | V | 8.0 | 2.00 | 1.32 | SC150 |
| 13696+90-13670+30 | 0.03 | 0.18 | 0.37 | 1.99 | V | 8.0 | 2.00 | 0.34 | SC150 |
| 13696+90-13670+30 | 0.09 | 0.38 | 2.87 | 5.46 | V | 9.5 | 3.00 | 2.13 | SC250 |
| 13714+90-13715+70 | 0.17 | 0.28 | 1.75 | 6.12 | S | 9.5 | 3.00 | 2.97 | SC250 |
| 13736+80-13737+30 | 0.13 | 0.31 | 3.7 | 5.9 | S | 9.5 | 3.00 | 2.51 | SC250 |
| 13740+15-13744+10 | 0.06 | 0.32 | 3.04 | 4.13 | V | 8.0 | 2.00 | 1.20 | SC150 |
| 13764+50-13765+56 | 0.03 | 0.39 | 3.12 | 3.32 | V | 8.0 | 2.00 | 0.73 | SC150 |
| 13772+22-13774+61 | 0.1 | 0.43 | 10.34 | 6.52 | S | 9.5 | 3.00 | 2.68 | SC250 |
| 13794+22-access | 0.05 | 0.33 | 2.8 | 3.85 | V | 8.0 | 2.00 | 1.03 | SC150 |
| 13804+64-13805+71 | 0.04 | 0.49 | 3.02 | 4.19 | V | 8.0 | 2.00 | 1.22 | SC150 |
| 13807+86-13810+10 | 0.12 | 0.42 | 5.2 | 6.8 | S | 12.5 | 12.00 | 3.14 | P550 |
| 13814+90-13816+50 | 0.14 | 0.59 | 5.98 | 8.46 | S | 12.5 | 12.00 | 5.15 | P550 |
| 13817+45-13818+65 | 0.08 | 0.21 | 0.21 | 3.07 | V | 8.0 | 2.00 | 1.05 | SC150 |
| 13830+49-13831+64 | 0.08 | 0.6 | 4.11 | 6.35 | V | 9.5 | 3.00 | 3.00 | SC250 |
| 13856+25-13957+42 | 0.04 | 0.29 | 2.08 | 3.18 | V | 8.0 | 2.00 | 0.72 | SC150 |
| 13951+12-13952+62 | 0.09 | 0.73 | 22.97 | 8.57 | V | 12.5 | 12.00 | 4.10 | P550 |
| 13952+90-13953+63 | 0.07 | 0.28 | 2.38 | 4.06 | V | 8.0 | 2.00 | 1.22 | SC150 |
| 13955+00-13956+18 | 0.09 | 0.27 | 1.05 | 4.3 | V | 8.0 | 2.00 | 1.52 | SC150 |
| 13998+37-13998+47 | 0.15 | 0.19 | 0.33 | 4.15 | S | 8.0 | 2.00 | 1.78 | SC150 |
| 14003+20-14008+51 | 0.01 | 0.6 | 2.92 | 2.44 | V | 8.0 | 2.00 | 0.37 | SC150 |
| 14015+00-14016+12 | 0.05 | 0.16 | 0.54 | 2.39 | V | 8.0 | 2.00 | 0.50 | SC150 |
| 14024+05-14025+21 | 0.05 | 0.29 | 1.15 | 3.4 | V | 8.0 | 2.00 | 0.90 | SC150 |
| 14033+50-14035+75 | 0.02 | 0.27 | 0.55 | 2.05 | V | 8.0 | 2.00 | 0.34 | SC150 |
| 14036+10-14040+00 | 0.03 | 0.53 | 2.65 | 3.75 | V | 8.0 | 2.00 | 0.99 | SC150 |
| 14077+75-14078+42 | 0.02 | 0.18 | 0.2 | 1.58 | V | 8.0 | 2.00 | 0.22 | SC150 |
| 14078+42-14081+20 | 0.01 | 0.37 | 0.95 | 1.79 | V | 8.0 | 2.00 | 0.23 | SC150 |
| 14086+34-14089+09 | 0.04 | 0.32 | 1.22 | 3.21 | V | 8.0 | 2.00 | 0.80 | SC150 |
| 14122+25-14123+70 | 0.06 | 0.36 | 1.08 | 4.01 | V | 8.0 | 2.00 | 1.35 | SC150 |
| 14126+25-14127+50 | 0.04 | 0.23 | 0.33 | 2.49 | V | 8.0 | 2.00 | 0.57 | SC150 |
| 14127+50-14129+00 | 0.01 | 0.26 | 0.5 | 1.44 | V | 8.0 | 2.00 | 0.16 | SC150 |
| 14137+95-14138+34 | 0.05 | 0.39 | 0.37 | 3.06 | V | 8.0 | 2.00 | 1.22 | SC150 |
| 14151+65-14159+09 | 0.05 | 0.57 | 3.26 | 4.94 | V | 8.0 | 2.00 | 1.78 | SC150 |
| 14165+75 to 14168+00 CH | 0.04 | 0.34 | 2.92 | 3.52 | V | 8.0 | 2.00 | 0.85 | SC150 |

Berks County
Temporary Diversion Berm
Erosion Control Blanket Calculations

| STATION | Channel Slope (ft/ft) | Normal Depth (ft) | Discharge (ft ³ /s) | Velocity (ft/s) | Shear or Velocity Method (S or V) | Max. Allowable Velocity (ft/s) | Max. Allowable Shear Stress (lb/ft ²) | Shear Stress (lb/ft ²) | Blanket Specification |
|-------------------------|-----------------------|-------------------|--------------------------------|-----------------|-----------------------------------|--------------------------------|---|------------------------------------|-----------------------|
| 14182+50 to 14185+50 CH | 0.02 | 0.22 | 0.9 | 1.87 | V | 8.0 | 2.00 | 0.27 | SC150 |
| 14189+25 to 14191+00 CH | 0.06 | 0.43 | 0.76 | 3.91 | V | 8.0 | 2.00 | 1.61 | SC150 |
| 14199+90 to 14202+00 CH | 0.01 | 0.24 | 3.04 | 1.45 | V | 8.0 | 2.00 | 0.15 | SC150 |
| 14202+90 to 14203+90 CH | 0.03 | 0.12 | 0.69 | 1.58 | V | 8.0 | 2.00 | 0.22 | SC150 |
| 14214+50 to 14216+00 CH | 0.01 | 0.31 | 1.84 | 1.67 | V | 8.0 | 2.00 | 0.19 | SC150 |
| 14216+00 to 14217+25 CH | 0.01 | 0.26 | 1.01 | 1.48 | V | 8.0 | 2.00 | 0.16 | SC150 |
| 14220+25 to 14220+50 CH | 0.06 | 0.13 | 0.31 | 2.3 | V | 8.0 | 2.00 | 0.49 | SC150 |
| 14220+50 to 14220+75 CH | 0.05 | 0.08 | 0.07 | 1.51 | V | 8.0 | 2.00 | 0.25 | SC150 |
| 14280+15 to 14282+50 CH | 0.06 | 0.34 | 1.66 | 4.09 | V | 8.0 | 2.00 | 1.27 | SC150 |
| 14282+50 to 14285+00 CH | 0.06 | 0.29 | 4.99 | 3.97 | V | 8.0 | 2.00 | 1.09 | SC150 |
| 14285+00 to 14288+00 CH | 0.04 | 0.58 | 3.1 | 4.49 | V | 8.0 | 2.00 | 1.45 | SC150 |
| 14288+00 to 14290+00 CH | 0.01 | 0.4 | 0.75 | 1.81 | V | 8.0 | 2.00 | 0.25 | SC150 |
| 14292+00 to 14293+90 CH | 0.01 | 0.68 | 6.41 | 2.73 | V | 8.0 | 2.00 | 0.42 | SC150 |
| 14300+00 to 14305+50 CH | 0.02 | 0.6 | 7.68 | 3.57 | V | 8.0 | 2.00 | 0.75 | SC150 |
| 14326+00 to 14329+25 CH | 0.02 | 0.52 | 21.86 | 3.38 | V | 8.0 | 2.00 | 0.65 | SC150 |
| 14329+25 to 14333+50 CH | 0.03 | 0.43 | 8.26 | 3.6 | V | 8.0 | 2.00 | 0.80 | SC150 |

Berks County
Temporary Perforated Pipe Level Spreader Calculations

| STATION | Diversion Discharge (ft ³ /s) | Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity (ft ³ /s) |
|-------------------|--|------------------|------------------------------------|----------------------------|--------------------------------|-------------------|--------------------------|---|----------------------|---------------------|--|
| 13225+27-13229+30 | 3.27 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 8.99 | 10 | 3.64 |
| 13248+30-13251+05 | 1.9 | 16 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.594 | 3.20 | 5 | 2.97 |
| 13251+00-13251+75 | 5.6 | 16 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.594 | 9.43 | 10 | 5.94 |
| 13257+00-13258+50 | 0.66 | 18 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.630 | 1.05 | 5 | 3.15 |
| 13258+50-13259+90 | 0.42 | 20 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.664 | 0.63 | 5 | 3.32 |
| 13259+90-13260+30 | 0.07 | 16 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.594 | 0.12 | 5 | 2.97 |
| 13283+10-13284+75 | 0.67 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 1.84 | 5 | 1.82 |
| 13284+75-13286+25 | 2.34 | 8 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.420 | 5.57 | 10 | 4.20 |
| 13286+25-13288+35 | 2.05 | 16 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.594 | 3.45 | 5 | 2.97 |
| 13288+35-13291+90 | 2.7 | 10 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.469 | 5.75 | 10 | 4.69 |
| 13291+90-13294+85 | 4.04 | 10 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.469 | 8.61 | 10 | 4.69 |
| 13294+85-13299+30 | 1.93 | 10 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.469 | 4.11 | 5 | 2.35 |
| 13299+30-13300+50 | 0.64 | 5 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.332 | 1.93 | 5 | 1.66 |
| 13302+45-13304+70 | 3.12 | 4 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.297 | 10.51 | 15 | 4.45 |
| 13316+85-13321+80 | 3.61 | 24 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.727 | 4.96 | 5 | 3.64 |
| 13321+80-13324+50 | 9.81 | 18 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.630 | 15.58 | 20 | 12.60 |
| 13328+60-13331+10 | 1.38 | 10 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.469 | 2.94 | 5 | 2.35 |
| 13368+28-13370+95 | 5.38 | 2 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.210 | 25.63 | 30 | 6.30 |
| 13269+80-13470+70 | 1.55 | 2 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.210 | 7.38 | 10 | 2.10 |
| 13424+00-13427+95 | 3.89 | 2 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.210 | 18.53 | 20 | 4.20 |
| 13457+70-13458+25 | 0.2 | 2 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.210 | 0.95 | 5 | 1.05 |
| 13469+80-13471+32 | 0.78 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 2.14 | 5 | 1.82 |
| 13473+70-13475+60 | 1.27 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 3.49 | 5 | 1.82 |
| 13473+75-13476+25 | 1.51 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 4.15 | 5 | 1.82 |
| 13475+60-13476+65 | 4.17 | 10 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.469 | 8.88 | 10 | 4.69 |
| 13476+25-13478+10 | 0.63 | 10 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.469 | 1.34 | 5 | 2.35 |
| 13476+65-13478+28 | 1.68 | 8 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.420 | 4.00 | 5 | 2.10 |
| 13478+10-13481+75 | 2.23 | 8 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.420 | 5.31 | 10 | 4.20 |
| 13478+28-13481+62 | 5.25 | 8 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.420 | 12.50 | 15 | 6.30 |
| 13481+62-13483+48 | 3.11 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 8.55 | 10 | 3.64 |
| 13481+75-13483+45 | 2.11 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 5.80 | 5 | 1.82 |
| 13520+85-13523+10 | 1.07 | 5 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.332 | 3.22 | 5 | 1.66 |
| 13524+10-13524+60 | 0.31 | 4 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.297 | 1.04 | 5 | 1.48 |
| 13541+50-13542+80 | 2.78 | 8 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.420 | 6.62 | 10 | 4.20 |
| 13545+50-13546+10 | 1.01 | 12 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.514 | 1.96 | 5 | 2.57 |
| 13546+10-13555+50 | 1.99 | 14 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.555 | 3.58 | 5 | 2.78 |

Berks County
Temporary Perforated Pipe Level Spreader Calculations

| STATION | Diversion Discharge (ft ³ /s) | Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity (ft ³ /s) |
|--------------------------|--|------------------|------------------------------------|----------------------------|--------------------------------|-------------------|--------------------------|---|----------------------|---------------------|--|
| 13550+55-13552+20 | 0.76 | 8 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.420 | 1.81 | 5 | 2.10 |
| 13557+90-13562+25 | 5.35 | 14 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.555 | 9.63 | 10 | 5.55 |
| 13610+20-13611+85 | 4.46 | 2 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.210 | 21.24 | 25 | 5.25 |
| 13613+50-13615+90 | 1.22 | 4 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.297 | 4.11 | 5 | 1.48 |
| 13696+90-13670+30 | 0.37 | 4 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.297 | 1.25 | 5 | 1.48 |
| 13696+90-13670+30 | 2.87 | 8.5 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.433 | 6.63 | 10 | 4.33 |
| 13714+90-13715+70 | 1.75 | 7 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.393 | 4.46 | 5 | 1.96 |
| 13736+80-13737+30 | 3.7 | 3.5 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.278 | 13.32 | 15 | 4.17 |
| 13740+15-13744+10 | 3.04 | 5 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.332 | 9.16 | 10 | 3.32 |
| 13764+50-13765+56 | 3.12 | 4 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.297 | 10.51 | 15 | 4.45 |
| 13772+22-13774+61 | 10.34 | 5 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.332 | 31.15 | 35 | 11.62 |
| 13794+22-access | 2.8 | 12 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.514 | 5.44 | 10 | 5.14 |
| 13804+64-13805+71 | 3.02 | 5 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.332 | 9.10 | 10 | 3.32 |
| 13807+86-13810+10 | 5.2 | 5 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.332 | 15.66 | 20 | 6.64 |
| 13814+90-13816+50 | 5.98 | 4 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.297 | 20.14 | 25 | 7.42 |
| 13817+45-13818+65 | 0.21 | 20 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.664 | 0.32 | 5 | 3.32 |
| 13830+49-13831+64 | 4.11 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 11.30 | 15 | 5.45 |
| 13856+25-13957+42 | 2.08 | 3 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.257 | 8.09 | 10 | 2.57 |
| 13952+90-13953+63 | 2.35 | 12 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.514 | 4.57 | 5 | 2.57 |
| 13955+00-13956+18 | 1.05 | 10 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.469 | 2.24 | 5 | 2.35 |
| 14003+20-14008+51 | 2.92 | 3 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.257 | 11.36 | 15 | 3.86 |
| 14015+00-14016+12 | 0.54 | 4 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.297 | 1.82 | 5 | 1.48 |
| 14024+05-14025+21 | 1.15 | 10 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.469 | 2.45 | 5 | 2.35 |
| 14033+50-14035+75 | 0.55 | 8.25 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.426 | 1.29 | 5 | 2.13 |
| 14036+10-14040+00 | 2.65 | 8 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.420 | 6.31 | 10 | 4.20 |
| 14077+75-14078+42 | 0.2 | 10 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.469 | 0.43 | 5 | 2.35 |
| 14078+42-14081+20 | 0.95 | 11 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.492 | 1.93 | 5 | 2.46 |
| 14086+34-14089+09 | 1.22 | 7 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.393 | 3.11 | 5 | 1.96 |
| 14122+25-14123+70 | 1.08 | 11 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.492 | 2.19 | 5 | 2.46 |
| 14126+25-14127+50 | 0.33 | 15 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.575 | 0.57 | 5 | 2.87 |
| 14127+50-14129+00 | 0.5 | 11 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.492 | 1.02 | 5 | 2.46 |
| 14137+95-14138+34 | 0.37 | 13 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.535 | 0.69 | 5 | 2.68 |
| 14151+65-14159+09 | 3.26 | 12 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.514 | 6.34 | 10 | 5.14 |
| 14165+75 to 14168+00 PIP | 2.92 | 11 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.492 | 5.93 | 10 | 4.92 |
| 14182+50 to 14185+50 PIP | 0.9 | 8 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.420 | 2.14 | 5 | 2.10 |
| 14189+25 to 14191+00 PIP | 0.76 | 14 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.555 | 1.37 | 5 | 2.78 |

Berks County
Temporary Perforated Pipe Level Spreader Calculations

| STATION | Diversion Discharge (ft ³ /s) | Static Head (ft) | Level Spreader Pipe Diameter (in.) | Perforation Diameter (in.) | Number of Perforations per Row | Row Spacing (in.) | Orifice Coefficient (Cd) | Level Spreader Capacity per foot of length (ft ³ /s) | Required Length (ft) | Nominal Length (ft) | Overall Level Spreader Capacity (ft ³ /s) |
|--------------------------|--|------------------|------------------------------------|----------------------------|--------------------------------|-------------------|--------------------------|---|----------------------|---------------------|--|
| 14199+90 to 14202+00 PIP | 3.04 | 0.8 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.133 | 22.89 | 25 | 3.32 |
| 14202+90 to 14203+90 PIP | 0.69 | 1.2 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.163 | 4.24 | 5 | 0.81 |
| 14214+50 to 14216+00 PIP | 1.84 | 5.2 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.339 | 5.44 | 10 | 3.39 |
| 14216+00 to 14217+25 PIP | 1.01 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 2.78 | 5 | 1.82 |
| 14220+25 to 14220+50 PIP | 0.31 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 0.85 | 5 | 1.82 |
| 14282+50 to 14285+00 PIP | 4.99 | 16 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.594 | 8.40 | 10 | 5.94 |
| 14285+00 to 14288+00 PIP | 3.1 | 14 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.555 | 5.58 | 10 | 5.55 |
| 14288+00 to 14290+00 PIP | 0.75 | 12 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.514 | 1.46 | 5 | 2.57 |
| 14300+00 to 14305+50 PIP | 7.68 | 6 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.364 | 21.12 | 25 | 9.09 |
| 14326+00 to 14329+25 CAP | 6.68 | 3 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.257 | 25.98 | 30 | 7.71 |
| 14326+00 to 14329+25 PIP | 5.47 | 4 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.297 | 18.42 | 20 | 5.94 |
| 14329+25 to 14333+50 CAP | 6.68 | 4 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.297 | 22.50 | 25 | 7.42 |
| 14329+25 to 14333+50 PIP | 4.13 | 4 | 12 | 0.375 | 6 | 1.822 | 0.61 | 0.297 | 13.91 | 15 | 4.45 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|-----------------|----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|---|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 13225+27 | 13229+30 | 135,482 | 100 | 0.14 | Type D | 0.300 | 6.42 | 450 | 0.21 | 1.10 | 6.82 | 13.24 | 3.51 | 0.30 | 0.16 | 3:1 | 3.27 | 18 | 0.08 | 12 |
| 13231+00 | 13232+05 | 8,349 | 100 | 0.36 | Type D | 0.300 | 5.15 | 111 | 0.41 | 1.60 | 1.16 | 6.30 | 4.55 | 0.30 | 0.34 | 3:1 | 0.26 | 12 | n/a | n/a |
| 13248+30 | 13251+05 | 71,089 | 100 | 0.13 | Type D | 0.300 | 6.53 | 290 | 0.30 | 1.30 | 3.72 | 10.25 | 3.89 | 0.30 | 0.14 | 3:1 | 1.90 | 12 | 0.20 | 8 |
| 13248+90 | 13251+10 | 40,640 | 100 | 0.14 | Type D | 0.300 | 6.42 | 110 | 0.26 | 1.30 | 1.41 | 7.83 | 4.27 | 0.30 | 0.15 | 2:1 | 1.19 | 12 | n/a | n/a |
| 13251+00 | 13251+75 | 230,696 | 100 | 0.24 | Type D | 0.300 | 5.66 | 491 | 0.20 | 1.10 | 7.44 | 13.10 | 3.52 | 0.30 | 0.10 | 7:1 | 5.60 | 12 | 0.10 | 12 |
| 13257+00 | 13258+50 | 21,060 | 100 | 0.32 | Type D | 0.300 | 5.29 | 57 | 0.18 | 1.00 | 0.95 | 6.24 | 4.56 | 0.30 | 0.05 | 5:1 | 0.66 | 12 | 0.28 | 6 |
| 13258+50 | 13259+90 | 13,800 | 100 | 0.20 | Type D | 0.300 | 5.91 | 92 | 0.35 | 1.40 | 1.10 | 7.00 | 4.42 | 0.30 | 0.20 | 3:1 | 0.42 | 12 | 0.35 | 6 |
| 13259+90 | 13260+30 | 2,300 | 100 | 0.22 | Type D | 0.300 | 5.78 | 16 | 0.25 | 1.30 | 0.21 | 5.98 | 4.61 | 0.30 | 0.09 | 3:1 | 0.07 | 12 | 0.33 | 6 |
| 13260+30 | 13261+15 | 49,325 | 100 | 0.07 | Type D | 0.300 | 7.55 | 238 | 0.21 | 1.10 | 3.61 | 11.15 | 3.77 | 0.30 | 0.15 | 4:1 | 1.28 | 12 | n/a | n/a |
| 13283+10 | 13284+75 | 30,467 | 100 | 0.07 | Type D | 0.300 | 7.55 | 371 | 0.08 | 0.70 | 8.83 | 16.38 | 3.18 | 0.30 | 0.02 | 11:1 | 0.67 | 12 | 0.05 | 6 |
| 13284+75 | 13286+25 | 113,928 | 100 | 0.10 | Type D | 0.300 | 6.94 | 486 | 0.09 | 0.70 | 11.57 | 18.52 | 2.98 | 0.30 | 0.11 | 5:1 | 2.34 | 12 | 0.14 | 8 |
| 13286+25 | 13288+35 | 85,123 | 100 | 0.12 | Type D | 0.300 | 6.65 | 362 | 0.11 | 0.90 | 6.70 | 13.36 | 3.49 | 0.30 | 0.03 | 5:1 | 2.05 | 12 | 0.20 | 8 |
| 13288+35 | 13291+90 | 120,938 | 100 | 0.04 | Type D | 0.300 | 8.60 | 383 | 0.12 | 0.90 | 7.09 | 15.69 | 3.24 | 0.30 | 0.04 | 4:1 | 2.70 | 18 | 0.18 | 8 |
| 13291+90 | 13294+85 | 166,918 | 100 | 0.12 | Type D | 0.300 | 6.65 | 330 | 0.13 | 0.85 | 6.47 | 13.13 | 3.52 | 0.30 | 0.01 | 8:1 | 4.04 | 18 | 0.12 | 12 |
| 13294+85 | 13299+30 | 77,805 | 100 | 0.06 | Type D | 0.300 | 7.82 | 231 | 0.13 | 0.85 | 4.53 | 12.35 | 3.61 | 0.30 | 0.05 | 7:1 | 1.93 | 12 | 0.13 | 8 |
| 13299+30 | 13300+50 | 22,330 | 100 | 0.14 | Type D | 0.300 | 6.42 | 95 | 0.13 | 0.85 | 1.86 | 8.28 | 4.19 | 0.30 | 0.05 | 6:1 | 0.64 | 12 | 0.11 | 6 |
| 13302+45 | 13304+70 | 141,871 | 100 | 0.12 | Type D | 0.300 | 6.65 | 748 | 0.28 | 1.30 | 9.59 | 16.24 | 3.19 | 0.30 | 0.04 | 5:1 | 3.12 | 18 | 0.03 | 12 |
| 13316+85 | 13321+80 | 174,103 | 100 | 0.12 | Type D | 0.300 | 6.65 | 656 | 0.17 | 0.95 | 11.51 | 18.16 | 3.01 | 0.30 | 0.02 | 5:1 | 3.61 | 18 | 0.29 | 8 |
| 13321+80 | 13324+50 | 510,501 | 100 | 0.14 | Type D | 0.300 | 6.42 | 1136 | 0.28 | 1.30 | 14.56 | 20.98 | 2.79 | 0.30 | 0.08 | 3:1 | 9.81 | 18 | 0.23 | 12 |
| 13328+60 | 13331+10 | 54,415 | 100 | 0.34 | Type D | 0.300 | 5.22 | 427 | 0.20 | 1.10 | 6.47 | 11.69 | 3.70 | 0.30 | 0.03 | 5:1 | 1.38 | 12 | 0.12 | 8 |
| 13338+75 | 13339+60 | 4,622 | 100 | 0.16 | Type D | 0.300 | 6.22 | 99 | 0.16 | 2.60 | 0.63 | 6.86 | 4.44 | 0.80 | 0.12 | 8:1 | 0.38 | 12 | n/a | n/a |
| 13368+28 | 13370+95 | 101,181 | 100 | 0.02 | Type D | 0.300 | 10.11 | 685 | 0.03 | 1.20 | 9.51 | 19.63 | 2.89 | 0.80 | 0.01 | 70:1 | 5.38 | 12 | 0.02 | 12(2) |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------|----------|-----------------------------|------------------------------|--|-----------|------------------------------|--|---|---|--|---|--------------------------------------|--|---|---------------------------------------|-------------------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| 13764+50 | 13765+56 | 135,977 | 100 | 0.07 | Type D | 0.800 | 11.94 | 671.2 | 0.08 | 2.00 | 5.59 | 17.53 | 3.07 | 0.33 | 0.03 | 12:1 | 3.12 | 12 | 0.11 | 8 |
| 13773+22 | 13774+61 | 492,445 | 100 | 0.06 | Type D | 0.800 | 12.37 | 1207.9 | 0.07 | 1.80 | 11.18 | 23.56 | 2.61 | 0.35 | 0.10 | 17:1 | 10.34 | 12 | 0.04 | 18 |
| 13794+22 | access | 136,936 | 100 | 0.02 | Type D | 0.400 | 11.57 | 783 | 0.08 | 2.00 | 6.53 | 18.09 | 3.02 | 0.29 | 0.05 | 13:1 | 2.80 | 12 | 0.12 | 8 |
| 13804+64 | 13805+71 | 359,142 | 100 | 0.02 | Type D | 0.600 | 13.98 | 1131 | 0.08 | 0.70 | 26.93 | 40.91 | 1.83 | 0.20 | 0.04 | 6:1 | 3.02 | 18 | 0.06 | 8 |
| 13807+86 | 13810+10 | 470,979 | 100 | 0.10 | Type D | 0.300 | 6.94 | 966.5 | 0.11 | 0.80 | 20.14 | 27.08 | 2.40 | 0.20 | 0.12 | 8.5:1 | 5.20 | 12 | 0.06 | 12 |
| 13814+90 | 13816+50 | 800,073 | 100 | 0.03 | Type D | 0.300 | 9.20 | 1635.7 | 0.08 | 0.70 | 38.95 | 48.15 | 1.63 | 0.20 | 0.14 | 4:1 | 5.98 | 18 | 0.05 | 12 |
| 13817+45 | 13818+65 | 10,463 | 100 | 0.14 | Type D | 0.300 | 6.42 | 60.3 | 0.36 | 1.50 | 0.67 | 7.09 | 4.40 | 0.20 | 0.08 | 3:1 | 0.21 | 12 | 0.22 | 6 |
| 13830+49 | 13831+64 | 260,446 | 100 | 0.05 | Type D | 0.300 | 8.17 | 1061.5 | 0.12 | 0.85 | 20.81 | 28.98 | 2.31 | 0.30 | 0.07 | 3.5:1 | 4.11 | 18 | 0.06 | 12 |
| 13856+25 | 13857+42 | 67,966 | 100 | 0.11 | Type D | 0.800 | 10.74 | 939.2 | 0.07 | 1.30 | 12.04 | 22.78 | 2.66 | 0.50 | 0.04 | 15:1 | 2.08 | 12 | 0.04 | 8 |
| 13951+12 | 13952+62 | 647,474 | 100 | 0.07 | Type D | 0.300 | 7.55 | 1048.2 | 0.13 | 0.90 | 19.41 | 26.96 | 2.41 | 0.64 | 0.09 | 10:1 | 22.97 | 18 | n/a | n/a |
| 13952+90 | 13953+63 | 181,814 | 100 | 0.10 | Type D | 0.300 | 6.94 | 714.9 | 0.13 | 0.90 | 13.24 | 20.18 | 2.85 | 0.20 | 0.07 | 15:1 | 2.38 | 12 | 0.14 | 6 |
| 13955+00 | 13956+18 | 64,477 | 100 | 0.09 | Type D | 0.300 | 7.12 | 419 | 0.22 | 1.20 | 5.82 | 12.94 | 3.54 | 0.20 | 0.09 | 6.5:1 | 1.05 | 12 | 0.16 | 6 |
| 13998+37 | 13999+47 | 20,862 | 100 | 0.08 | Type D | 0.300 | 7.32 | 339.6 | 0.14 | 0.85 | 6.66 | 13.97 | 3.42 | 0.20 | 0.15 | 4.5:1 | 0.33 | 12 | n/a | n/a |
| 14003+20 | 14008+51 | 286,734 | 100 | 0.07 | Type D | 0.300 | 7.55 | 1045.1 | 0.09 | 0.75 | 23.22 | 30.77 | 2.22 | 0.20 | 0.01 | 6.5:1 | 2.92 | 18 | 0.02 | 12 |
| 14015+00 | 14016+12 | 50,689 | 100 | 0.12 | Type D | 0.300 | 6.65 | 1022.8 | 0.10 | 0.77 | 22.14 | 28.79 | 2.31 | 0.20 | 0.05 | 17.5:1 | 0.54 | 12 | 0.05 | 6 |
| 14024+05 | 14025+21 | 122,763 | 100 | 0.06 | Type D | 0.300 | 7.82 | 1457.2 | 0.13 | 0.90 | 26.99 | 34.81 | 2.05 | 0.20 | 0.05 | 8:1 | 1.15 | 12 | 0.13 | 6 |
| 14033+50 | 14035+75 | 35,517 | 100 | 0.12 | Type D | 0.300 | 6.65 | 381.1 | 0.11 | 0.80 | 7.94 | 14.59 | 3.36 | 0.20 | 0.02 | 7:1 | 0.55 | 12 | 0.09 | 6 |
| 14036+10 | 14040+00 | 262,406 | 100 | 0.04 | Type D | 0.300 | 8.60 | 1156.3 | 0.12 | 0.85 | 22.67 | 31.27 | 2.20 | 0.20 | 0.03 | 5:1 | 2.65 | 18 | 0.09 | 8 |
| 14077+75 | 14078+42 | 12,133 | 100 | 0.08 | Type D | 0.300 | 7.32 | 231.5 | 0.11 | 0.81 | 4.76 | 12.08 | 3.65 | 0.20 | 0.02 | 7.5:1 | 0.20 | 12 | 0.12 | 6 |
| 14078+42 | 14081+20 | 59,442 | 100 | 0.07 | Type D | 0.300 | 7.55 | 313.4 | 0.12 | 0.90 | 5.80 | 13.35 | 3.49 | 0.20 | 0.01 | 7.5:1 | 0.95 | 12 | 0.09 | 6 |
| 14086+34 | 14089+09 | 115,071 | 100 | 0.06 | Type D | 0.300 | 7.82 | 890.5 | 0.08 | 0.70 | 21.20 | 29.03 | 2.30 | 0.20 | 0.04 | 7.5:1 | 1.22 | 12 | 0.08 | 6 |
| 14122+25 | 14123+70 | 107,730 | 100 | 0.10 | Type D | 0.300 | 6.94 | 1142 | 0.10 | 0.78 | 24.40 | 31.35 | 2.19 | 0.20 | 0.06 | 4:1 | 1.08 | 12 | 0.15 | 6 |
| 14126+25 | 14127+50 | 20,175 | 100 | 0.09 | Type D | 0.300 | 7.12 | 267.3 | 0.10 | 0.78 | 5.71 | 12.83 | 3.55 | 0.20 | 0.04 | 5:1 | 0.33 | 12 | 0.17 | 6 |
| 14127+50 | 14129+00 | 31,534 | 100 | 0.07 | Type D | 0.300 | 7.55 | 265.5 | 0.09 | 0.75 | 5.90 | 13.45 | 3.48 | 0.20 | 0.01 | 10:1 | 0.50 | 12 | 0.11 | 6 |
| 14137+95 | 14138+34 | 19,359 | 100 | 0.27 | Type D | 0.300 | 5.51 | 204.4 | 0.18 | 1.10 | 3.10 | 8.60 | 4.14 | 0.20 | 0.05 | 1.5:1 | 0.37 | 12 | 0.13 | 6 |
| 14151+65 | 14159+09 | 207,707 | 100 | 0.14 | Type D | 0.300 | 6.42 | 408.5 | 0.13 | 0.90 | 7.56 | 13.98 | 3.42 | 0.20 | 0.05 | 4:1 | 3.26 | 18 | 0.08 | 8 |

TABLE FOR CALCULATING THE PEAK RUNOFF RATE FOR DRAINAGE PIPES USED FOR CLEAN WATER DIVERSION

| Start Sta. | End Sta. | Area of Drainage (sq ft) | Length of Sheet Flow (ft) | Slope of Ground during Sheet Flow (ft/ft) | Soil Type | Roughness Coefficient (n) | Time of Concentration in Sheet Flow (min) | Length of Shallow Concentrated Flow (ft) | Slope of Ground during Shallow Concentrated Flow (ft/ft) | Shallow Concentrated Flow Velocity (ft/sec) | Time of Concentration in Shallow Concentrated Flow (min) | Total Time of Concentration (min) | 2-Year Storm Rainfall Intensity (in/hr) | Runoff Coefficients for the Rational Equation | Channel Longitudinal Slope (ft/ft) | Channel Side Slope (H:V) (ft/ft) | Peak Runoff Rate (CFS) | Size of Diversion Sock (in) | Pipe Slope (ft/ft) | Size of Slope Pipe (in) |
|------------------|-----------|--------------------------|---------------------------|---|-----------|---------------------------|---|--|--|---|--|-----------------------------------|---|---|------------------------------------|----------------------------------|------------------------|-----------------------------|--------------------|-------------------------|
| 14165+75 | 14168+00 | 265,704 | 100 | 0.02 | HSG D | 0.300 | 10.11 | 569 | 0.05 | 0.55 | 17.24 | 27.36 | 2.39 | 0.20 | 0.04 | 14:1 | 2.92 | 12 | 0.12 | 8 |
| 14182+50 | 14185+50 | 74,347 | 100 | 0.02 | HSG D | 0.800 | 16.00 | 263 | 0.06 | 0.60 | 7.31 | 23.30 | 2.63 | 0.20 | 0.02 | 20:1 | 0.90 | 12 | 0.07 | 6 |
| 14189+25 | 14191+00 | 42,193 | 100 | 0.07 | HSG D | 0.300 | 7.55 | 152 | 0.21 | 1.10 | 2.30 | 9.85 | 3.95 | 0.20 | 0.06 | 2:1 | 0.76 | 12 | 0.07 | 6 |
| 14199+90 | 14202+00 | 261,819 | 100 | 0.04 | HSG D | 0.300 | 8.60 | 994 | 0.04 | 0.50 | 33.13 | 41.74 | 1.80 | 0.28 | 0.01 | 70:1 | 3.04 | 12 | 0.02 | 12 |
| 14202+90 | 14203+90 | 36,133 | 100 | 0.05 | HSG D | 0.800 | 12.91 | 527 | 0.05 | 1.50 | 5.86 | 18.77 | 2.96 | 0.28 | 0.03 | 57:1 | 0.69 | 12 | 0.02 | 6 |
| 14214+50 | 14216+00 | 233,295 | 100 | 0.06 | HSG D | 0.300 | 7.82 | 1433 | 0.07 | 0.65 | 36.74 | 44.57 | 1.72 | 0.20 | 0.01 | 23:1 | 1.84 | 12 | 0.02 | 8 |
| 14216+00 | 14217+25 | 87,933 | 100 | 0.06 | HSG D | 0.300 | 7.82 | 733 | 0.08 | 0.70 | 17.45 | 25.28 | 2.51 | 0.20 | 0.01 | 20:1 | 1.01 | 12 | 0.05 | 6 |
| 14220+25 | 14220+50 | 20,652 | 100 | 0.06 | HSG D | 0.300 | 7.82 | 297 | 0.07 | 0.65 | 7.62 | 15.44 | 3.27 | 0.20 | 0.06 | 15:1 | 0.31 | 12 | 0.06 | 6 |
| 14220+50 | 14220+75 | 3,629 | 100 | 0.09 | HSG D | 0.300 | 7.12 | 102 | 0.10 | 0.75 | 2.27 | 9.38 | 4.02 | 0.20 | 0.05 | 14:1 | 0.07 | 12 | 0.07 | 6 |
| 14280+15 | 14282+50 | 138,735 | 100 | 0.02 | HSG D | 0.400 | 11.57 | 576 | 0.11 | 0.80 | 12.00 | 23.57 | 2.61 | 0.20 | 0.06 | 7:1 | 1.66 | 12 | N/A | N/A |
| 14282+50 | 14285+00 | 418,356 | 100 | 0.01 | HSG D | 0.800 | 18.81 | 870 | 0.07 | 1.10 | 13.18 | 31.99 | 2.16 | 0.24 | 0.06 | 29:1 | 4.99 | 12 | 0.11 | 12 |
| 14285+00 | 14288+00 | 238,343 | 100 | 0.01 | HSG D | 0.800 | 18.81 | 654 | 0.08 | 1.20 | 9.08 | 27.89 | 2.36 | 0.24 | 0.04 | 4:1 | 3.10 | 18 | 0.15 | 8 |
| 14288+00 | 14290+00 | 42,236 | 100 | 0.06 | HSG D | 0.300 | 7.82 | 156 | 0.17 | 1.00 | 2.60 | 10.42 | 3.87 | 0.20 | 0.01 | 5:1 | 0.75 | 12 | 0.15 | 6 |
| 14292+00 | 14293+90 | 339,750 | 100 | 0.03 | HSG D | 0.800 | 14.55 | 551 | 0.08 | 2.00 | 4.59 | 19.14 | 2.93 | 0.28 | 0.01 | 10:1 | 6.41 | 18 | 0.14 | 12 |
| 14300+00 | 14305+50 | 313,663 | 100 | 0.08 | HSG D | 0.400 | 8.37 | 458 | 0.09 | 1.40 | 5.45 | 13.82 | 3.44 | 0.31 | 0.02 | 12:1 | 7.68 | 18 | 0.06 | 12 |
| 14326+00* | 14329+25* | 1,311,251 | 100 | 0.01 | HSG D | 0.400 | 13.60 | 966 | 0.06 | 1.10 | 14.64 | 28.24 | 2.34 | 0.31 | 0.02 | 48:1 | 21.86 | 18 | 0.03 | 4 x 12 |
| 14329+25* | 14333+50* | 494,682 | 100 | 0.03 | HSG D | 0.800 | 14.55 | 898 | 0.06 | 1.10 | 13.61 | 28.16 | 2.35 | 0.31 | 0.03 | 25:1 | 8.26 | 12 | 0.03 | 2 x 12 |