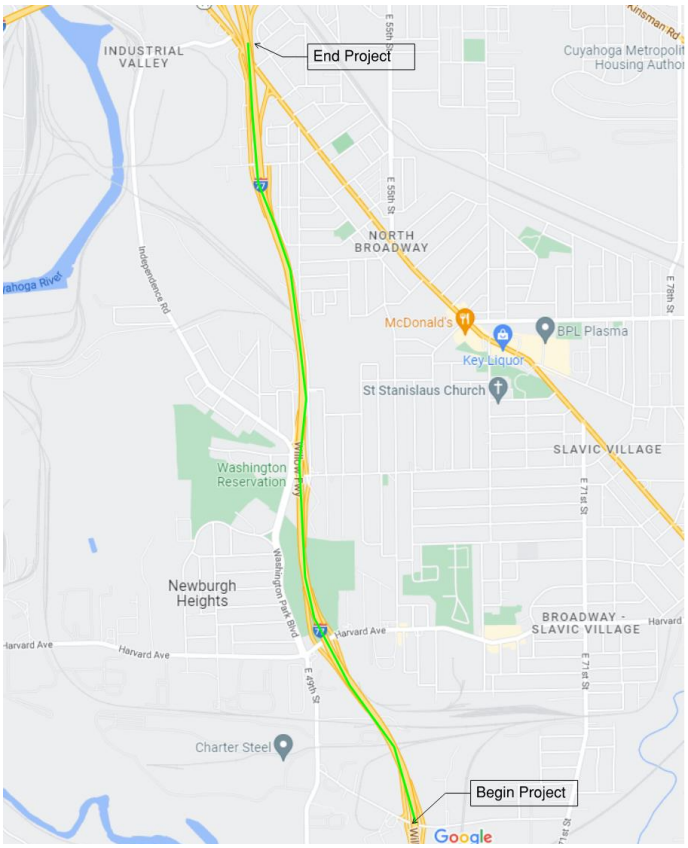
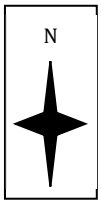
# CUY-77-11.41 – PART 1
# DRAINAGE REPORT

PID 105743

City of Cleveland
Villages of Cuyahoga Heights and Newburgh Heights
Cuyahoga County, Ohio




**Project Location Map**

Prepared by:

AECOM

OHIO DEPARTMENT OF TRANSPORTATION

*Prepared for: ODOT District 12*
*May 2026*

## Table of Contents


1. Project Overview ..... 3
   - 1.1 General ..... 3
   - 1.2 Burke Brook Outfall ..... 3
   - 1.3 Morgana Run Outfall ..... 4
   - 1.4 Dille Avenue System ..... 5
   - 1.5 Post-Construction Storm Water Best Management Practices ..... 6
   - 1.6 Temporary Erosion and Sediment Control Calculations ..... 6
2. Drainage Computations ..... 7
   - 2.1 Drainage Area Maps ..... 8
   - 2.2 Inlet Spacing Calculations ..... 9
   - 2.3 Storm Sewer Calculations – Burke Brook Outfall ..... 10
   - 2.4 Storm Sewer Calculations – Morgana Run Outfall ..... 11
   - 2.5 Storm Sewer Calculations – Dille Ave System ..... 12
   - 2.6 Ditch Calculations ..... 13
3. Post-Construction Storm Water BMP Calculations ..... 14
   - 3.1 PC-BMP Drainage Area Maps ..... 15
   - 3.2 PC-BMP Calculations ..... 16
4. Temporary Erosion and Sediment Control Calculations ..... 17
   - 4.1 Notice of Intent Acreage Calculation ..... 18
   - 4.2 Temporary Sediment Erosion Control Spreadsheet ..... 19

# 1. Project Overview

## 1.1 General

This corridor segment of IR-77 drains to three separate outfalls which are Burke Brook, Morgana Run and the existing storm system along Dille Avenue. These systems all drain west and then ultimately outlet to the Cuyahoga River. The proposed storm sewer design has been completed using StormCAD which is imbedded within OpenRoads Designer as part of the drainage and utilities workflow. StormCAD is pre-set with ODOT design standards.

## 1.2 Burke Brook Outfall

The southernmost drainage systems outlet is to Burke Brook. Burke Brook is currently enclosed within an 85.5" x 74.5" twin concrete box culvert (twin culvert) draining from east to west under IR-77. The northern barrel of the twin culvert is for storm sewer flow. The southern barrel of the twin culvert will capture some combined sewer overflow (CSO) and direct its flow to the Northeast Ohio Regional Sewer District (NEORSD) Southerly Wastewater Treatment Plant.

The existing storm system begins approximately 1,500 feet south of the Grant Avenue overpass near station 62+50. The existing system drains northerly past the low point near station 82+75, past the high point near station 91+00 to the next low point near station 131+50 where the system outlets to Burke Brooke. The runoff from the high point near station 154+00 drains south to Burke Brook.

The existing storm sewer system is located longitudinally along the median. At the south end the existing trunk sewer system begins as a 12" storm sewer. The 42" outlet storm sewer is directly connected to the northern barrel of the twin culvert. The system depth varies from approximately 5 feet to 20 feet. North of the Harvard Avenue overpass a portion of IR-77 does not drain to the trunk sewer and instead sheet flows to ditches which drain to the upstream end of the twin culvert. The final design for the NEORSD Burke Brook Open Channel Improvements (BOCI) in this area will continue coordination.

There is a section of existing storm sewer, near station 85+00 RT, which is connected to the existing 48" reinforced concrete CSO. This system continues north outside of the Limited Access right of way (LA ROW) and then eventually comes back into the LA ROW further north. According to existing plans this storm sewer system has been abandoned. Our assumption is no flow currently drains to this system so the connection to the CSO will be removed. Similarly, there is a section of existing storm sewer near station 109+00 RT which is connected to the existing 48" brick CSO which continues north. According to existing plans this storm sewer system has been abandoned. Our assumption is no flow currently drains to this system so the connection to the CSO will be removed. There is an existing inlet near station 112+00 RT which currently drains to an existing 48" reinforced concrete CSO. This connection to the CSO will be removed.

The storm sewer system from the north begins with a 12" storm sewer and the 30" outlets directly to the twin culvert at the same location as the system from the south. The system depth varies from approximately 6 to 15 feet at the outlet.

The Burke Brook system appears to include tie ins from off-site, non-interstate systems. The existing storm sewer system from the west, along Grant Avenue, appears to drain to the SB off-ramp system. Currently this system connects to the 60" reinforced concrete CSO system near station 85+00 RT. This is the system previously mentioned which drains outside the LA ROW and then eventually back into LA ROW further north. From conversations with NEORSD, their preference would be not to reconnect

any storm sewers because the system is very old and difficult to maintain. Based on coordination with the Village of Cuyahoga Heights, this existing 24" storm sewer from the west along Grant Avenue appears to begin approximately 250 feet west of IR-77. In addition to draining Grant Avenue, it also appears to capture runoff from commercial sites along Grant Avenue.

The four railroad overpasses near station 93+00 have drainage systems which, from existing plans, appear to drain to the IR-77 system. The most notable system outlets a 36" storm sewer on the NB side of IR-77 near station 95+25 RT. For this existing system, ODOT D12 provided calculations previously completed for the original design so AECOM was able to utilize this information in the proposed storm sewer design. At the same location on the west side is an existing 12" storm. Between the southern railroad overpasses there is an existing 15" storm sewer near station 90+00 LT and a 12" RT. In addition, there is an existing 15" near station 89+10 LT.

The proposed storm sewer was originally designed to accommodate the drainage from Grant Avenue south which was part of the CUY-77-10.08/11.11 project. The proposed trunk sewer was lowered to accommodate the southern drainage and a time of concentration used to upsize the proposed storm sewer within this project was included based on the CUY-77-10.08/11.11 calculations. However, the CUY-77-11.41 – PART 1 project will be constructed first and will connect the existing 24" sewer from the south along the median to the first barrier median inlet within the project limits. There still remains the ability to connect the CUY-77-10.08/11.11 project via a manhole outside the southbound shoulder in the future.

Since the southern project flow from Grant Avenue south will continue to drain north into this project, the proposed system has been sized accordingly. The new trunk sewer alignment is along the west side of IR-77 and can be built while maintaining the existing. The storm sewer is located outside the pavement where possible but due to existing railroad and Harvard Avenue bridge abutments is required to be within the shoulder or SB outside lane. The proposed trunk is within the old bridge abutments to minimize trunk sewer within the travelled lanes and allow maintenance access. The trunk sewer location requires a new outlet to the northern barrel of the twin culvert. The system from the south and the new one from the north will both connect to a new manhole placed atop the northern barrel of the twin culvert. The manhole will also connect the NEORSD Southerly Tunnel and Consolidation Project (SOTC) which will span over the twin culvert so we must maintain proper cover and are held to a set outlet at the new manhole. The proposed system from the south ranges in size from 15" to a 66" at the outlet and depth of 5 to 20 feet. This system is currently designed with minimum depths and slopes and includes the previously mentioned off-site drainage. The steep lateral slopes were flattened during the refinement of the design. The proposed outlet pipe size is larger than the existing 42". There has been historical flooding north of Grant Avenue, so the system was likely undersized. In addition, the system was not previously sized to include the off-site Grant Avenue system from the west and was not sized to include the offsite rail drainage.

The proposed system from the north range in size from 15" to a 27" at the outlet and depth of 5 to 20 feet. The proposed trunk sewer is within the old Fleet Avenue bridge abutment to minimize the placement of trunk sewer within the travelled lane and allow maintenance access.

## 1.3 Morgana Run Outfall

North of the Burke Brook outlet is the Morgana Run outlet. Morgana Run is currently enclosed within a 12' x 10.5' concrete box culvert draining from east to west under IR-77. At the south end, the existing

system begins at the high point near station 154+00 and drains north past the low point near station 164+00 then outlets to Morgana Run. At the north end, the system begins at the high point near station 206+00, includes the IR-77 NB off ramp to Broadway Avenue, and drains south to Morgana Run.

The existing storm sewer system is located longitudinally along the median. At the south end the existing trunk sewer system begins as a 12" storm sewer then the 18" storm sewer outlets to the 48" brick CSO. This CSO outlets north to the Morgana Run box culvert with a blind connection. The existing storm sewer system depth varies from approximately 6 to 8 feet.

The storm sewer system beginning at the north end begins with a 12" storm sewer then the 42" storm sewer outlets to the existing 60" brick CSO. This brick CSO drains directly to the Morgana Run culvert with a blind connection further west from where the southern system outlets. The existing storm sewer system depth varies from approximately 5 to 36 feet at the outlet.

The existing median inlet near station 192+00 currently drains directly to the brick combined sewer rather than to the IR-77 trunk sewer. This connection will be removed so the runoff will drain to the new trunk sewer system.

Near station 203+00 LT there is an existing system which ties into the existing storm sewer system beginning at the Broadway Avenue NB off-ramp. The system ties into the newly constructed ODOT maintenance facility storm sewer along the west side of IR-77 and this newer system will be connected to the proposed trunk sewer.

The proposed system from the south will connect to the existing outlet manhole constructed as part of the ODOT maintenance facility storm sewer. Through coordination with NEORSD it was determined not to continue to outlet to the existing 48" CSO as it does currently. The proposed system from the south ranges in size from 15" to a 30" at the outlet and depth of 5 to 7 feet. This proposed system has been designed with minimum slopes and depths. The steep lateral slopes were flattened during the refinement of the design.

The proposed trunk sewer is in a new location on the west side of IR-77 and connects to the existing outlet to Morgana Run. The northern portion near the Broadway Avenue ramp will be on the east side. The proposed system from the north ranges in size from 15" to a 48" and depth of 5 to 25 feet. The proposed trunk sewer is within the old Pershing Avenue bridge abutment to minimize trunk sewer within the travelled lane and allow maintenance access. A new 48" storm sewer was recently constructed as part of the ODOT maintenance facility project and outlets directly to the Morgana Run box culvert. It is our understanding that this system was designed to carry the IR-77 drainage in the future. The proposed trunk sewer from the north connects directly to this system. A portion of this previously installed system near the outlet will require replacement to allow for the slopes required coming from the IR-77 system.

## 1.4 Dille Avenue System

The northern most system drains north then west along Dille Avenue. The system begins at the high point near station 206+00 and continues north.

The existing storm sewer system is located along the west side of IR-77. At the south end the existing trunk sewer system begins as a 12" storm sewer then the 30" storm outlets to the Dille Avenue combined sewer system. The existing storm sewer system depth within our project varies from approximately 5 to 10 feet. This existing system is being maintained as part of this project except for the replacement of median inlets within the new median barrier. This existing system was analyzed during the CCG6A/B projects.

## 1.5 Post-Construction Storm Water Best Management Practices

The project is not considered routine maintenance, requires a notice of intent (NOI) and has an earth disturbed area (EDA) greater than 1 acre so PC-BMPs are required. The project will include minimal to new impervious area in new ROW and 20.97% treatment is required. 0.86 acres of new impervious area in new ROW has been included to account for the proposed multi-use path. The PC-BMPs are needed to address water quality only. Numerous PC-BMPs types and locations were investigated throughout the corridor. The corridor is very constrained due to its urban nature plus PC-BMPs are difficult to locate due to IR-77 being significantly lower than the surrounding area. Vegetated filter strips and vegetated biofilters were utilized at desirable locations throughout the corridor. Opportunities to gain treatment credit by removing outside curbing and flattening grading were identified.

The estimated earth disturbed area is 70.4 acres which results in a treatment requirement of approximately 14.8 acres. As currently designed, the proposed vegetated filter strips, vegetated biofilters, and existing manufactured system to remain (P2000048) capture approximately 20.4 acres of tributary area within existing ROW and 1.0 acre of tributary area outside of the ROW.

## 1.6 Temporary Erosion and Sediment Control Calculations

The Notice of Intent Earth Disturbing Activities (NOI EDA) area was calculated using Figure 1112-1 of the latest edition of the ODOT Location & Design Manual Volume II – Drainage Design.

# 2. Drainage Computations

## 2.1 Drainage Area Maps

| LABEL | OUTFLOW ELEMENT | AREA (ACRES) | RUNOFF COEFFICIENT (RATIONAL) | TIME OF CONCENTRATION (MIN) |
|---|---|---|---|---|
| DA-1A | D-1 | 1.71 | 0.60 | 10.00 |
| DA-1B | D-1 | 7.10 | 0.60 | 10.00 |
| DA-2 | D-2 | 0.38 | 0.85 | 10.00 |
| DA-3C | D-3C | 0.53 | 0.80 | 10.00 |
| DA-4 | D-4 | 0.48 | 0.71 | 10.00 |
| DA-4A | D-4A | 0.65 | 0.79 | 10.00 |
| DA-4B1 | D-4B | 0.30 | 0.90 | 10.00 |
| DA-4B2 | D-4B | 0.18 | 0.90 | 10.00 |
| DA-4C | D-4C | 0.61 | 0.79 | 10.00 |
| DA-4D | D-4D | 7.42 | 0.79 | 19.86 |
| DA-5a | D-5 | 0.44 | 0.90 | 10.00 |
| DA-5b | D-5 | 0.08 | 0.90 | 10.00 |
| DA-6 | D-6 | 0.32 | 0.80 | 10.00 |
| DA-8 | D-8 | 0.17 | 0.71 | 10.00 |
| DA-9a | D-9 | 0.34 | 0.90 | 10.00 |
| DA-9b | D-9 | 0.06 | 0.90 | 10.00 |
| DA-10 | D-10 | 0.23 | 0.82 | 10.00 |
| DA-10A | D-10A | 0.44 | 0.80 | 10.00 |
| DA-11 | D-11 | 0.48 | 0.78 | 10.00 |
| DA-13a | D-13 | 1.32 | 0.71 | 15.00 |
| DA-13b | D-13 | 1.72 | 0.71 | 15.00 |
| DA-13c | D-13 | 0.00 | 0.90 | 10.00 |
| DA-14a | D-14 | 0.16 | 0.90 | 10.00 |
| DA-14b | D-14 | 0.02 | 0.90 | 10.00 |
| DA-14c | D-14 | 0.16 | 0.90 | 10.00 |
| DA-14d | D-14 | 0.02 | 0.90 | 10.00 |
| DA-15C | D-15C | 0.14 | 0.83 | 10.00 |
| DA-15a | D-15 | 0.06 | 0.85 | 10.00 |
| DA-15b | D-15 | 0.06 | 0.85 | 10.00 |
| DA-16a | D-16 | 0.42 | 0.90 | 10.00 |
| DA-16b | D-16 | 0.05 | 0.90 | 10.00 |
| DA-17 | D-17 | 0.07 | 0.87 | 10.00 |
| DA-17A | D-17A | 0.10 | 0.86 | 10.00 |
| DA-18A1 | D-18A | 0.64 | 0.70 | 15.00 |
| DA-18a | D-18 | 0.05 | 0.78 | 10.00 |
| DA-18b | D-18 | 0.12 | 0.85 | 10.00 |
| DA-19 | D-19 | 0.44 | 0.78 | 10.00 |
| DA-21 | D-21 | 0.19 | 0.90 | 10.00 |
| DA-21A | D-21A | 0.10 | 0.90 | 10.00 |
| DA-23a | D-23 | 0.64 | 0.90 | 10.00 |
| DA-23b | D-23 | 0.09 | 0.90 | 10.00 |
| DA-24 | D-24 | 0.30 | 0.90 | 10.00 |
| DA-26a | D-26 | 0.16 | 0.90 | 10.00 |
| DA-26b | D-26 | 0.12 | 0.83 | 10.00 |
| DA-27 | D-27 | 2.85 | 0.60 | 10.00 |
| DA-28 | D-28 | 1.94 | 0.60 | 10.00 |
| DA-29A | D-30 | 0.46 | 0.50 | 15.00 |
| DA-31B | D-31B | 0.32 | 0.71 | 10.00 |
| DA-31C1 | D-31C | 0.12 | 0.83 | 10.00 |
| DA-31C2 | D-31C | 0.31 | 0.83 | 10.00 |
| DA-33 | D-33 | 29.80 | 0.50 | 29.20 |
| DA-33A | D-33 | 1.10 | 0.50 | 15.00 |
| DA-33B | D-33 | 0.39 | 0.60 | 10.00 |
| DA-33C | D-33 | 0.39 | 0.60 | 10.00 |
| DA-34a | D-34 | 0.15 | 0.72 | 10.00 |
| DA-34b | D-34 | 0.06 | 0.90 | 10.00 |
| DA-35 | D-36 | 2.00 | 0.60 | 15.00 |
| DA-36a | D-36 | 0.43 | 0.83 | 10.00 |

| LABEL | OUTFLOW ELEMENT | AREA (ACRES) | RUNOFF COEFFICIENT (RATIONAL) | TIME OF CONCENTRATION (MIN) |
|---|---|---|---|---|
| DA-36b | D-36 | 0.04 | 0.90 | 10.00 |
| DA-37A1 | D-37A | 0.10 | 0.90 | 10.00 |
| DA-37A2 | D-37A | 0.23 | 0.90 | 10.00 |
| DA-38A1 | D-38A | 0.02 | 0.75 | 10.00 |
| DA-38A2 | D-38A | 0.30 | 0.75 | 10.00 |
| DA-38a | D-38 | 1.03 | 0.90 | 10.00 |
| DA-38b | D-38 | 0.21 | 0.90 | 10.00 |
| DA-40 | D-40 | 0.28 | 0.90 | 10.00 |
| DA-42 | D-42 | 0.68 | 0.70 | 10.00 |
| DA-44a | D-44 | 0.01 | 0.90 | 10.00 |
| DA-44b | D-44 | 0.96 | 0.84 | 10.00 |
| DA-45 | D-45 | 0.37 | 0.90 | 10.00 |
| DA-46A1 | D-46A | 0.27 | 0.70 | 15.00 |
| DA-47C | D-47C | 0.17 | 0.70 | 15.00 |
| DA-46a | D-46 | 0.05 | 0.90 | 10.00 |
| DA-46b | D-46 | 0.03 | 0.90 | 10.00 |
| DA-47 | D-47 | 0.23 | 0.75 | 10.00 |
| DA-47A | D-47A | 0.12 | 0.90 | 10.00 |
| DA-47B | D-47B | 0.18 | 0.85 | 10.00 |
| DA-48a | D-48 | 0.35 | 0.90 | 10.00 |
| DA-48b | D-48 | 1.52 | 0.90 | 10.00 |
| DA-49 | D-49 | 0.56 | 0.80 | 10.00 |
| DA-50a | D-50 | 0.13 | 0.78 | 10.00 |
| DA-50b | D-50 | 0.07 | 0.78 | 10.00 |
| DA-51 | D-51 | 0.30 | 0.75 | 10.00 |
| DA-53 | D-53 | 1.41 | 0.80 | 15.00 |
| DA-54 | D-54 | 0.25 | 0.71 | 10.00 |
| DA-56a | D-56 | 0.07 | 0.90 | 10.00 |
| DA-56b | D-56 | 0.86 | 0.80 | 10.00 |
| DA-57 | D-57 | 0.22 | 0.85 | 10.00 |
| DA-58a | D-58 | 0.14 | 0.90 | 10.00 |
| DA-58b | D-58 | 0.78 | 0.90 | 10.00 |
| DA-60a | D-60 | 0.16 | 0.72 | 10.00 |
| DA-60b | D-60 | 1.54 | 0.73 | 15.00 |
| DA-63a | D-63 | 0.17 | 0.90 | 10.00 |
| DA-63b | D-63 | 1.17 | 0.90 | 10.00 |
| DA-65a | D-65 | 0.07 | 0.90 | 10.00 |
| DA-65b | D-65 | 0.41 | 0.90 | 10.00 |
| DA-66a | D-66 | 0.02 | 0.90 | 10.00 |
| DA-66b | D-66 | 0.09 | 0.90 | 10.00 |
| DA-66c | D-66 | 0.02 | 0.90 | 10.00 |
| DA-66d | D-66 | 0.10 | 0.90 | 10.00 |
| DA-67a | D-67 | 0.22 | 0.90 | 10.00 |
| DA-67b | D-67 | 0.43 | 0.90 | 10.00 |
| DA-68 | D-68 | 0.02 | 0.90 | 10.00 |
| DA-69 | D-69 | 0.00 | 0.90 | 10.00 |
| DA-70a | D-70 | 0.02 | 0.90 | 10.00 |
| DA-70b | D-70 | 0.02 | 0.90 | 10.00 |
| DA-71B | D-71B | 4.59 | 0.75 | 15.00 |
| DA-71C | D-71C | 9.50 | 0.90 | 10.00 |
| DA-73 | D-73 | 0.08 | 0.80 | 10.00 |
| DA-74 | D-74 | 0.09 | 0.90 | 10.00 |
| DA-75 | D-75 | 0.35 | 0.83 | 10.00 |
| DA-76 | D-76 | 0.06 | 0.90 | 10.00 |
| DA-76A | D-76A | 0.20 | 0.71 | 10.00 |
| DA-77 | D-77 | 0.07 | 0.90 | 10.00 |
| DA-78 | D-78 | 1.23 | 0.71 | 10.00 |
| DA-79 | D-79 | 0.18 | 0.90 | 10.00 |

| LABEL | OUTFLOW ELEMENT | AREA (ACRES) | RUNOFF COEFFICIENT (RATIONAL) | TIME OF CONCENTRATION (MIN) |
|---|---|---|---|---|
| DA-80 | D-80 | 0.10 | 0.90 | 10.00 |
| DA-81 | D-81 | 0.55 | 0.82 | 10.00 |
| DA-81A | D-81A | 0.75 | 0.79 | 10.00 |
| DA-82a | D-82 | 0.41 | 0.90 | 10.00 |
| DA-82b | D-82 | 0.87 | 0.90 | 10.00 |
| DA-84A | D-84A | 0.17 | 0.82 | 10.00 |
| DA-85 | D-85 | 0.30 | 0.80 | 10.00 |
| DA-86A | D-86A | 0.07 | 0.80 | 10.00 |
| DA-87 | D-87 | 0.36 | 0.81 | 10.00 |
| DA-87A | D-87 | 0.26 | 0.60 | 10.00 |
| DA-89 | D-89 | 0.98 | 0.75 | 10.00 |
| DA-90 | D-90 | 0.22 | 0.80 | 10.00 |
| DA-91 | D-91 | 0.45 | 0.81 | 10.00 |
| DA-92a | D-92 | 0.05 | 0.75 | 10.00 |
| DA-92b | D-92 | 0.06 | 0.75 | 10.00 |
| DA-93 | D-93 | 0.50 | 0.77 | 10.00 |
| DA-94 | D-94 | 0.03 | 0.90 | 10.00 |
| DA-94A | D-94A | 0.35 | 0.85 | 10.00 |
| DA-95A1 | D-95A | 0.75 | 0.80 | 10.00 |
| DA-95a | D-95 | 0.37 | 0.90 | 10.00 |
| DA-95b | D-95 | 0.52 | 0.90 | 10.00 |
| DA-98 | D-98 | 0.06 | 0.90 | 10.00 |
| DA-100A | D-100A | 0.11 | 0.80 | 10.00 |
| DA-100b | D-100 | 0.01 | 0.90 | 10.00 |
| DA-100c | D-100 | 0.01 | 0.90 | 10.00 |
| DA-101 | D-101 | 0.02 | 0.90 | 10.00 |
| DA-102 | D-102 | 0.10 | 0.90 | 10.00 |
| DA-103 | D-103 | 0.11 | 0.90 | 10.00 |
| DA-150 | D-150 | 0.19 | 0.88 | 10.00 |
| DA-152 | D-152 | 0.27 | 0.80 | 10.00 |
| DA-154a | D-154 | 0.05 | 0.80 | 10.00 |
| DA-154b | D-154 | 0.08 | 0.80 | 10.00 |
| DA-155 | D-155 | 0.71 | 0.88 | 10.00 |
| DA-157a | D-157 | 1.12 | 0.90 | 10.00 |
| DA-157b | D-157 | 0.23 | 0.90 | 10.00 |
| DA-158a | D-158 | 0.12 | 0.90 | 10.00 |
| DA-158b | D-158 | 0.03 | 0.90 | 10.00 |
| DA-159a | D-159 | 0.15 | 0.90 | 10.00 |
| DA-159b | D-159 | 0.04 | 0.90 | 10.00 |
| DA-159c | D-159 | 0.11 | 0.90 | 10.00 |
| DA-159d | D-159 | 0.03 | 0.90 | 10.00 |
| DA-160a | D-160 | 0.20 | 0.90 | 10.00 |
| DA-160b | D-160 | 0.08 | 0.90 | 10.00 |
| DA-161a | D-161 | 0.61 | 0.90 | 10.00 |
| DA-161b | D-161 | 0.43 | 0.90 | 10.00 |
| DA-163 | D-163 | 0.26 | 0.90 | 10.00 |
| DA-163A | D-163A | 0.59 | 0.85 | 10.00 |
| DA-164 | D-164 | 0.38 | 0.90 | 10.00 |
| DA-165a | D-165 | 0.13 | 0.90 | 10.00 |
| DA-165b | D-165 | 0.08 | 0.90 | 10.00 |
| DA-166 | D-166 | 0.06 | 0.90 | 10.00 |
| DA-166A | D-166A | 0.20 | 0.90 | 10.00 |
| DA-167 | D-167 | 0.78 | 0.90 | 10.00 |
| DA-168A | D-168A | 1.25 | 0.80 | 15.00 |
| DA-170 | D-170 | 0.56 | 0.80 | 15.00 |
| DA-177A | D-177C | 1.07 | 0.60 | 10.00 |
| DA-177B | D-177C | 0.12 | 0.70 | 10.00 |
| DA-177C | D-177C | 0.08 | 0.70 | 10.00 |

| LABEL | OUTFLOW ELEMENT | AREA (ACRES) | RUNOFF COEFFICIENT (RATIONAL) | TIME OF CONCENTRATION (MIN) |
|---|---|---|---|---|
| DA-180 | D-180 | 1.03 | 0.79 | 15.00 |
| DA-181 | D-181 | 1.05 | 0.80 | 15.00 |
| DA-182 | D-182 | 0.68 | 0.81 | 15.00 |
| DA-183a | D-183 | 0.80 | 0.90 | 10.00 |
| DA-183b | D-183 | 0.15 | 0.90 | 10.00 |
| DA-184 | D-184 | 0.19 | 0.86 | 10.00 |
| DA-185 | D-185 | 0.45 | 0.75 | 15.00 |
| DA-186 | D-186 | 0.42 | 0.75 | 15.00 |
| DA-187a | D-187 | 0.29 | 0.90 | 10.00 |
| DA-187b | D-187 | 0.63 | 0.90 | 10.00 |
| DA-188 | D-188 | 0.69 | 0.85 | 10.00 |
| DA-189 | D-189 | 0.37 | 0.85 | 10.00 |
| DA-189A | D-189A | 0.33 | 0.85 | 10.00 |
| DA-190a | D-190 | 0.04 | 0.78 | 10.00 |
| DA-190b | D-190 | 0.06 | 0.78 | 10.00 |
| DA-191 | D-191 | 0.35 | 0.78 | 10.00 |
| DA-192 | D-192 | 0.92 | 0.78 | 15.00 |
| DA-194a | D-194 | 0.10 | 0.90 | 10.00 |
| DA-194b | D-194 | 0.76 | 0.90 | 10.00 |
| DA-197 | D-197 | 1.66 | 0.78 | 15.00 |
| DA-198 | D-198 | 4.45 | 0.60 | 10.00 |
| DA-199 | D-199 | 0.77 | 0.71 | 15.00 |
| DA-200B | D-200 | 0.04 | 0.90 | 10.00 |
| DA-202a | D-202 | 0.16 | 0.90 | 10.00 |
| DA-202b | D-202 | 0.52 | 0.90 | 10.00 |
| DA-203a | D-203 | 0.05 | 0.90 | 10.00 |
| DA-203b | D-203 | 0.05 | 0.90 | 10.00 |
| DA-203c | D-203 | 0.05 | 0.90 | 10.00 |
| DA-203d | D-203 | 0.05 | 0.90 | 10.00 |
| DA-204a | D-204 | 0.25 | 0.90 | 10.00 |
| DA-204b | D-204 | 0.25 | 0.90 | 10.00 |
| DA-206a | D-206 | 0.75 | 0.78 | 15.00 |
| DA-206b | D-206 | 0.54 | 0.80 | 15.00 |
| DA-208 | D-208 | 1.75 | 0.76 | 15.00 |
| DA-208A | D-208A | 0.24 | 0.80 | 15.00 |
| DA-209 | D-209 | 0.21 | 0.82 | 10.00 |
| DA-210 | D-210 | 0.40 | 0.78 | 10.00 |
| DA-212D | D-212D | 0.19 | 0.79 | 10.00 |
| DA-212a | D-212 | 0.25 | 0.79 | 10.00 |
| DA-212b | D-212 | 0.05 | 0.79 | 10.00 |
| DA-212c | D-212 | 0.18 | 0.60 | 10.00 |
| DA-212D | D-212D | 0.19 | 0.79 | 10.00 |
| DA-214 | D-214 | 0.40 | 0.83 | 10.00 |
| DA-215A | D-215 | 4.98 | 0.60 | 10.00 |
| DA-215B | D-215 | 0.19 | 0.70 | 10.00 |
| DA-215C | D-215C | 0.37 | 0.85 | 10.00 |
| DA-218 | D-207 | 0.66 | 0.80 | 15.00 |
| DA-400a | D-400 | 0.61 | 0.90 | 10.00 |
| DA-400b | D-400 | 0.40 | 0.90 | 10.00 |
| DA-401a | D-401 | 0.10 | 0.90 | 10.00 |
| DA-401c | D-401 | 0.24 | 0.90 | 10.00 |
| DA-403a | D-403 | 0.25 | 0.90 | 10.00 |
| DA-403b | D-403 | 0.07 | 0.90 | 10.00 |
| DA-404b | D-404 | 0.02 | 0.90 | 10.00 |
| DA-404d | D-404 | 0.04 | 0.90 | 10.00 |
| DA-405 | D-405 | 0.72 | 0.90 | 10.00 |

# STORM SEWER DRAINAGE MAP NOTES

CUY-77-11.41 - PART 1

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 9:32:49 AM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_Pen.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\Storm Sewer Drainage Maps\Stage 1 & 2\105743_DN500.dgn

DESIGN AGENCY

AECOM

DESIGNER SMS

REVIEWER AKM 05/01/26

PROJECT ID 105743

SHEET P.1 | TOTAL P.8

LEGEND

DRAINAGE AREA FOR STORM SEWERS

PROP. STORM SEWER




HORIZONTAL SCALE IN FEET

0 50 100 200

# STORM SEWER DRAINAGE MAP

CUY-77-11.41 - PART 1

DESIGN AGENCY

AECOM

DESIGNER SMS

REVIEWER AKM 05/01/26

PROJECT ID 105743

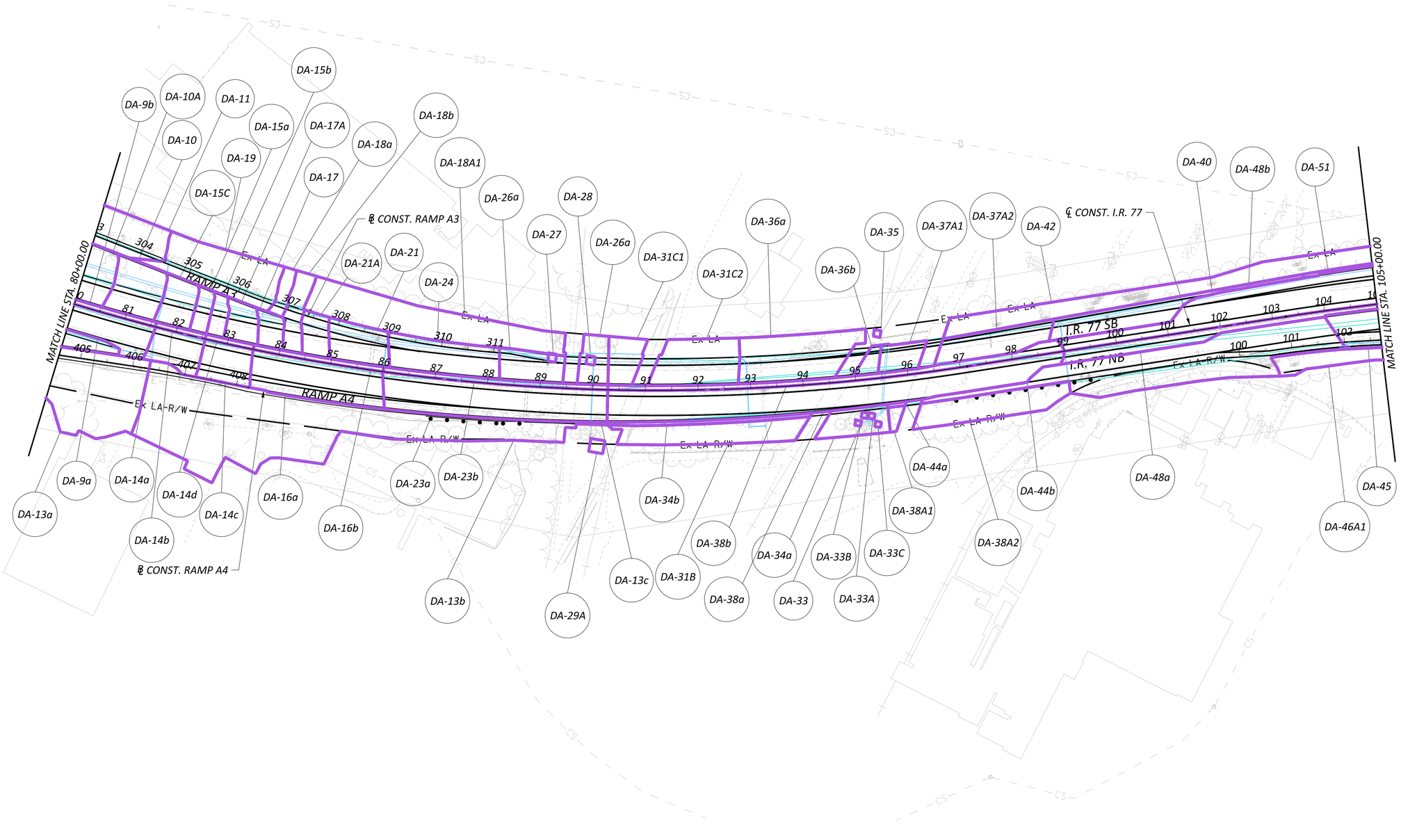
SHEET P.2 TOTAL P.8

MODEL: CLP_I077 - Plan 1 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 9:40:21 AM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\Eng Data\Storm Sewer Drainage Maps\Stage 1 & 2\105743_DP002.dgn

LEGEND

DRAINAGE AREA FOR STORM SEWERS

PROP. STORM SEWER




HORIZONTAL SCALE IN FEET

0 50 100 200

# STORM SEWER DRAINAGE MAP

CUY-77-11.41 - PART 1

DESIGN AGENCY

AECOM

DESIGNER SMS

REVIEWER AKM 05/01/26

PROJECT ID 105743

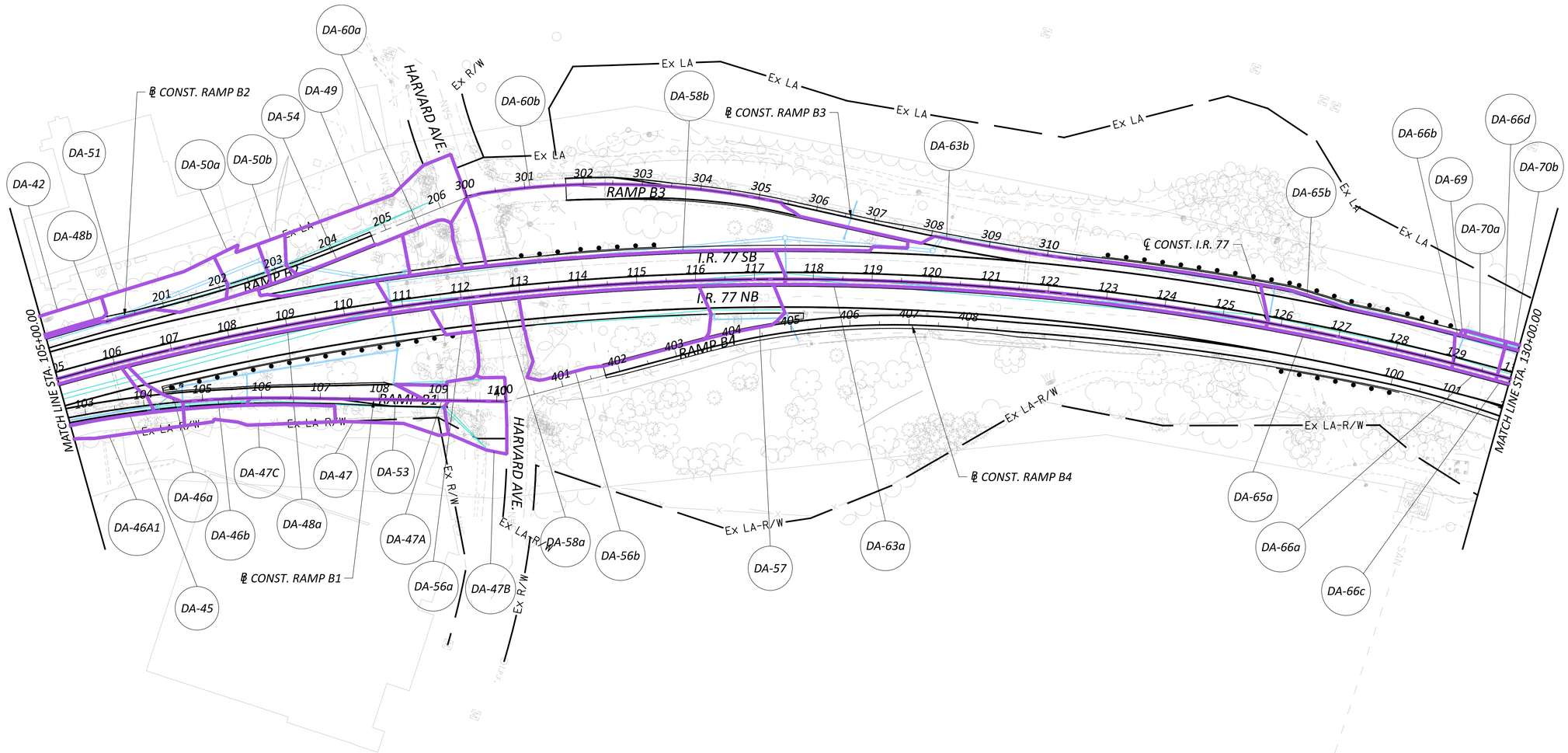
SHEET P.3 | TOTAL P.8

MODEL: CLP_I077 - Plan 2 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 9:57:32 AM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\v00-Engineering\Drainage\Drainage\EngData\Storm Sewer Drainage Maps\Stage 1 & 2\105743_DP002.dgn

LEGEND

DRAINAGE AREA FOR STORM SEWERS

PROP. STORM SEWER




HORIZONTAL SCALE IN FEET

0 50 100 200

# STORM SEWER DRAINAGE MAP

CUY-77-11.41 - PART 1

MODEL: CLP_I077 - Plan 3 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 9:58:26 AM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\Storm Sewer Drainage Maps\Stage 1 & 2\105743_DP002.dgn

DESIGN AGENCY

AECOM

| | |
|---|---|
| DESIGNER | SMS |
| REVIEWER | AKM 05/01/26 |
| PROJECT ID | 105743 |
| SHEET | P.4 |
| TOTAL | P.8 |

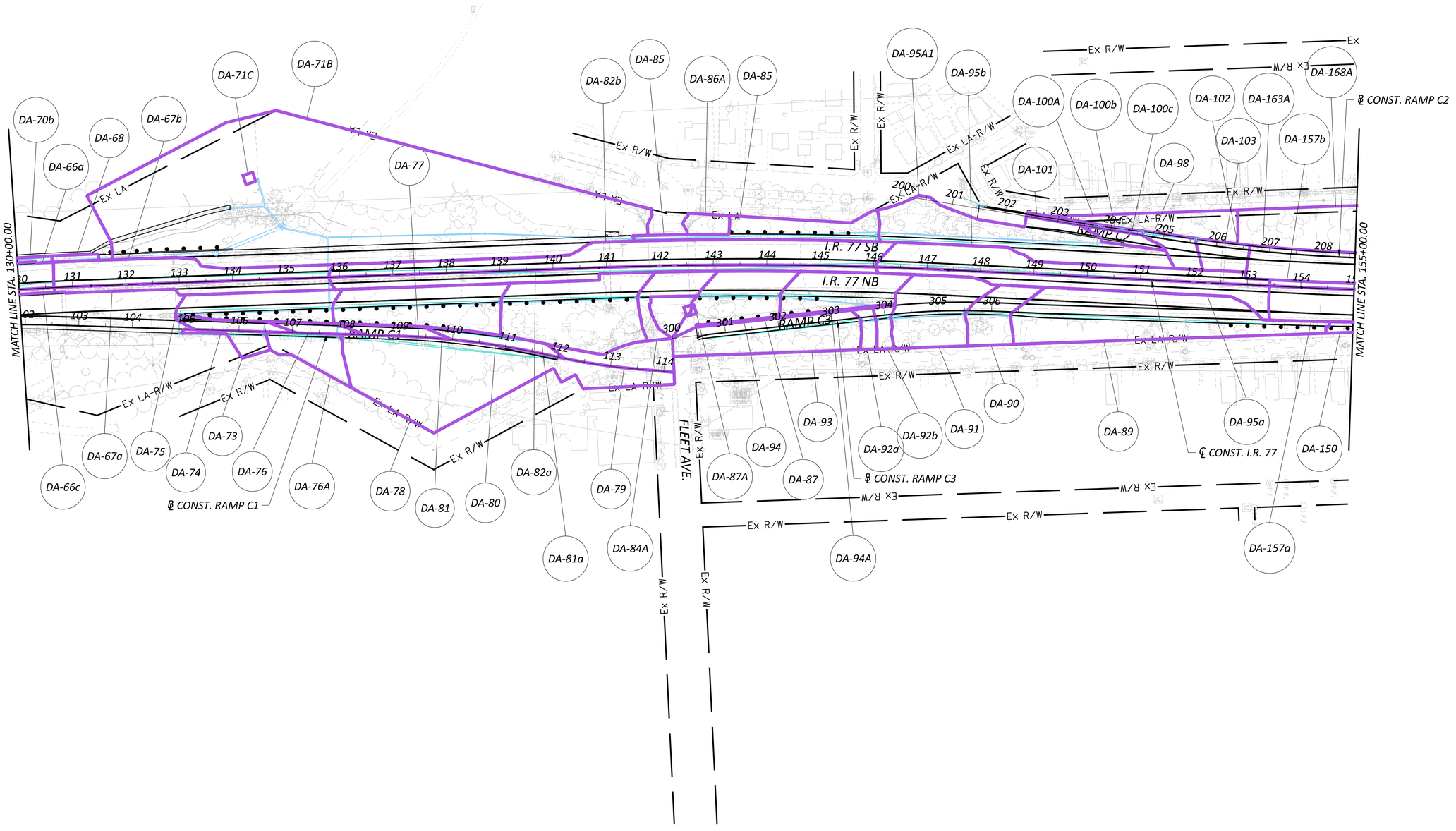
LEGEND

DRAINAGE AREA FOR STORM SEWERS

PROP. STORM SEWER

HORIZONTAL SCALE IN FEET
0 50 100 200

# STORM SEWER DRAINAGE MAP




CUY-77-11.41 - PART 1


MODEL: CLP_I077 - Plan 4 |Sheet| PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 10:42:43 AM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\Engineering\Drainage\EngData\Storm Sewer Drainage Maps\Stage 1 & 2\105743_DP002.dgn

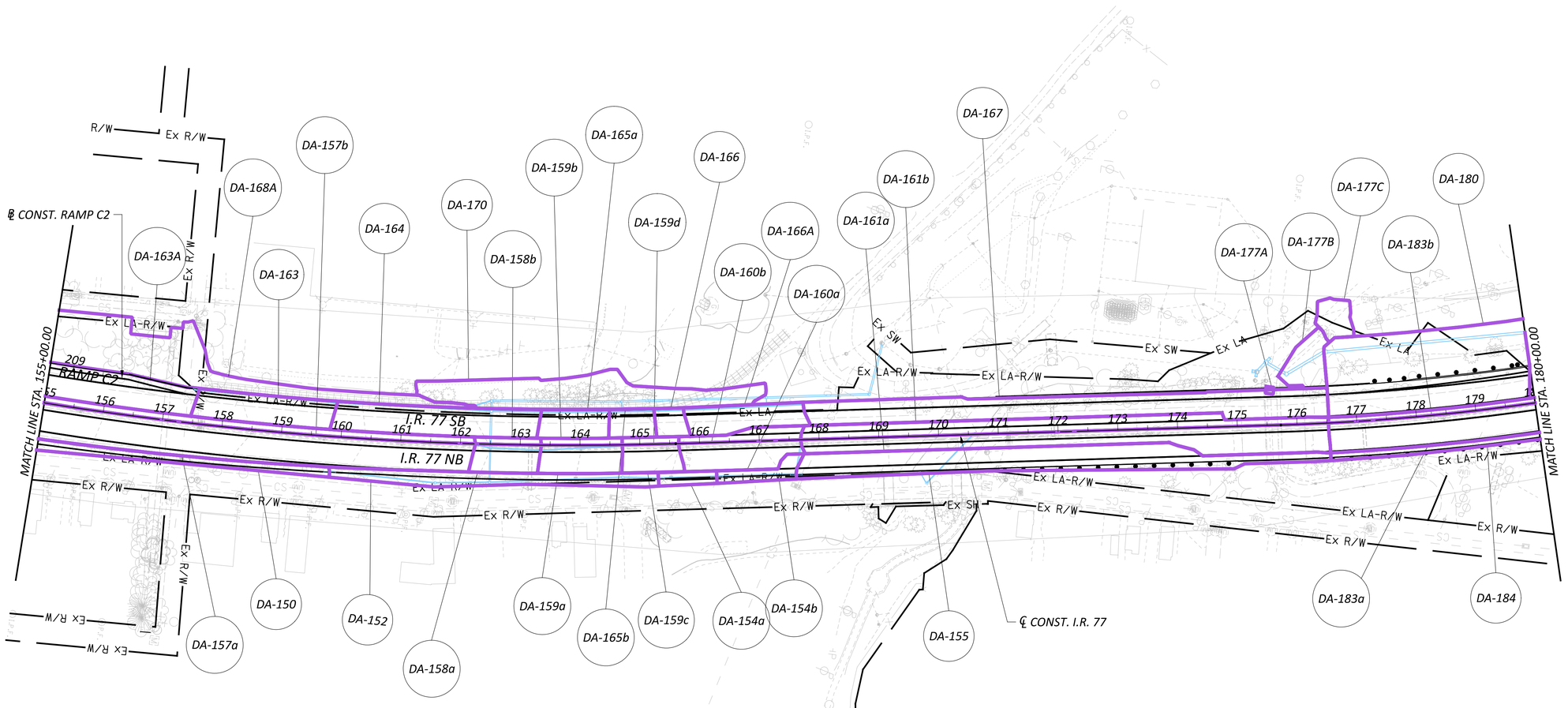

DESIGN AGENCY
AECOM

| | |
|---|---|
| DESIGNER | SMS |
| REVIEWER | AKM 05/01/26 |
| PROJECT ID | 105743 |
| SHEET | P.5 |
| TOTAL | P.8 |

LEGEND

DRAINAGE AREA FOR STORM SEWERS

PROP. STORM SEWER




HORIZONTAL SCALE IN FEET

0 50 100 200

# STORM SEWER DRAINAGE MAP

CUY-77-11.41 - PART 1

DESIGN AGENCY

AECOM

DESIGNER SMS

REVIEWER AKM 05/01/26

PROJECT ID 105743

SHEET P.6 TOTAL P.8

MODEL: CLP_I077 - Plan S [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 10:44:53 AM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\Storm Sewer Drainage Maps\Stage 1 & 2\105743_DP002.dgn

# STORM SEWER DRAINAGE MAP

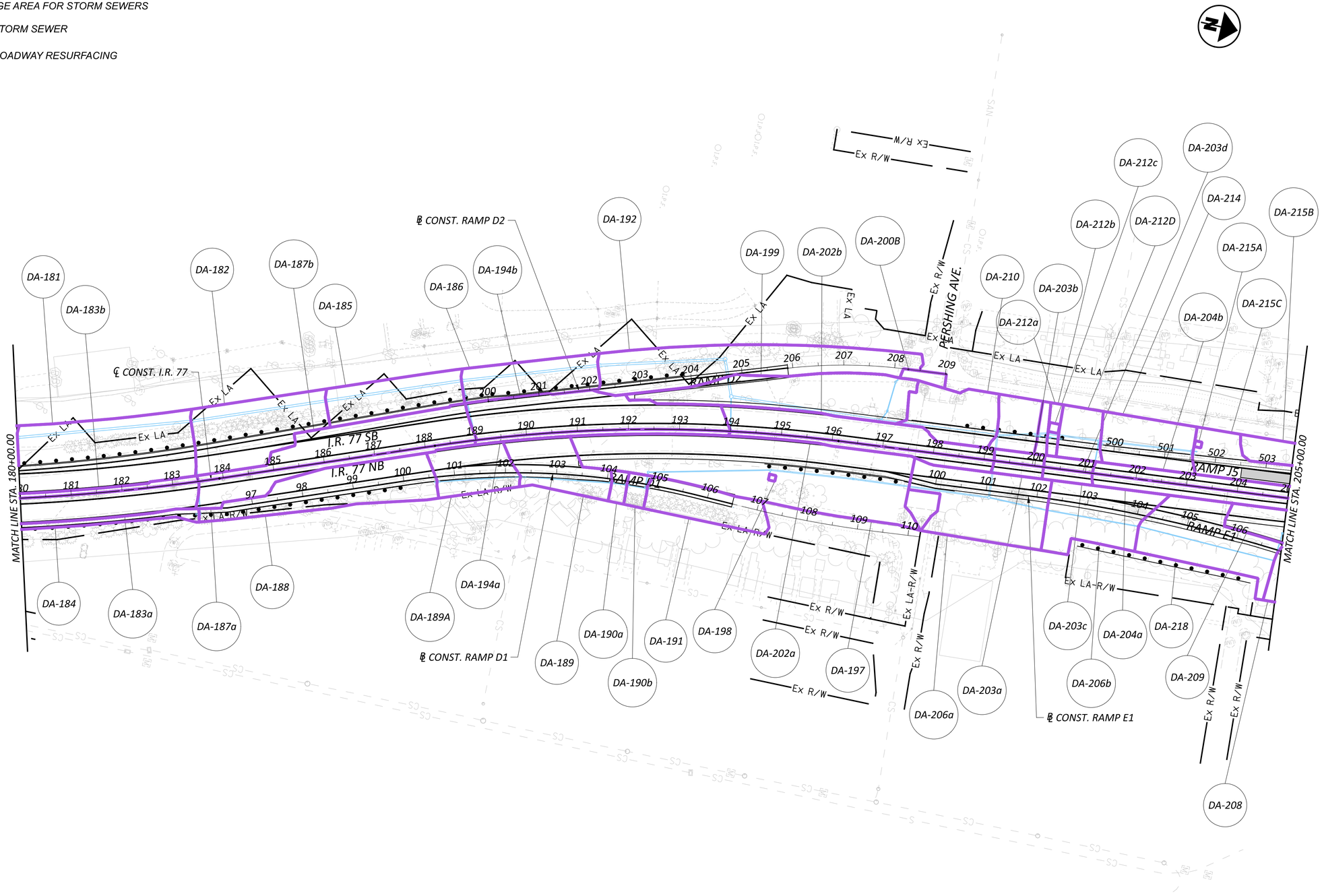
LEGEND

DRAINAGE AREA FOR STORM SEWERS

PROP. STORM SEWER

PROP. ROADWAY RESURFACING

HORIZONTAL SCALE IN FEET
0 50 100 200




CUY-77-11.41 - PART 1


MODEL: CLP_I077 - Plan 6 (Sheet) PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 10:45:34 AM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\Storm Sewer Drainage Maps\Stage 1 & 2\105743_DP002.dgn


DESIGN AGENCY
AECOM

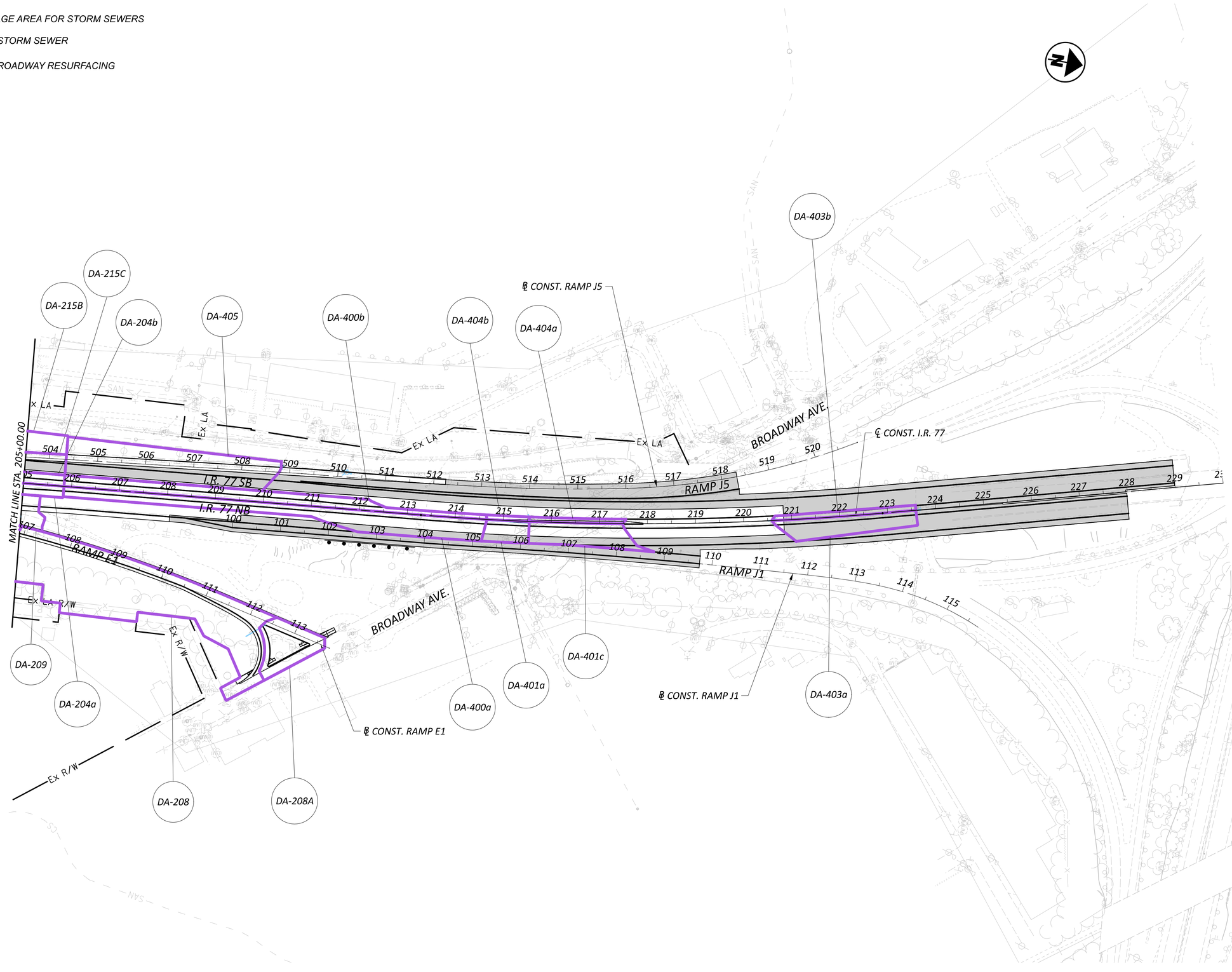
DESIGNER SMS
REVIEWER AKM 05/01/26
PROJECT ID 105743
SHEET P.7 TOTAL P.8

# STORM SEWER DRAINAGE MAP

## LEGEND

- DRAINAGE AREA FOR STORM SEWERS
- PROP. STORM SEWER
- PROP. ROADWAY RESURFACING

HORIZONTAL SCALE IN FEET
0 50 100 200




CUY-77-11.41 - PART 1

MODEL: CLP_I077 - Plan 7 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 10:48:12 AM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\Storm Sewer Drainage Maps\Stage 1 & 2\105743_DP002.dgn

DESIGN AGENCY
AECOM

| | |
|---|---|
| DESIGNER | SMS |
| REVIEWER | AKM 05/01/26 |
| PROJECT ID | 105743 |
| SHEET | P.8 |
| TOTAL | P.8 |

## 2.2 Inlet Spacing Calculations

Includes the 10-year and 50-year storm for inlets along the northbound and southbound median as well as the northbound and southbound outside shoulder.

***Spread Calculations for Proposed Inlets Sta. 75+00 to Sta. 146+03 NB Median Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-4B | 75+10 | Center | CLP_I077 | I-3B1 | On Grade | 0.0120 | 0.024 | 0.040 | 4.21 | 0.90 | 0.30 | 10.00 | 4.94 | 1.36 | 0.02 | 1.34 | 5.01 | 4.21 | 2.26 | 6.00 |
| D-5 | 78+90 | Center | CLP_I077 | I-3C1 | On Grade | 0.0099 | 0.041 | 0.041 | 10.00 | 0.90 | 0.44 | 10.00 | 4.94 | 1.97 | 0.08 | 1.89 | 5.49 | 10.00 | 2.70 | 6.00 |
| D-9 | 81+60 | Center | CLP_I077 | I-3C1 | On Grade | 0.0036 | 0.041 | 0.041 | 10.00 | 0.90 | 0.34 | 10.00 | 4.94 | 1.61 | 0.00 | 1.61 | 6.16 | 10.00 | 3.03 | 6.00 |
| D-14 | 82+57 | Center | CLP_I077 | I-3C1 | In Sag | 0.0001 | 0.041 | 0.041 | 10.00 | 0.90 | 0.32 | 10.00 | 4.94 | 1.44 | 0.00 | 1.44 | 3.23 | 10.00 | 3.20 | 6.00 |
| D-16 | 83+50 | Center | CLP_I077 | I-3C1 | On Grade | 0.0032 | 0.041 | 0.041 | 10.00 | 0.90 | 0.42 | 10.00 | 4.94 | 2.13 | 0.00 | 2.13 | 6.98 | 10.00 | 3.44 | 6.00 |
| D-23 | 86+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0080 | 0.041 | 0.041 | 10.00 | 0.90 | 0.64 | 10.00 | 4.94 | 2.89 | 0.23 | 2.65 | 6.61 | 10.00 | 3.25 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-38 | 99+00 | Center | CLP_I077 | I-3B1 | On Grade | 0.0107 | 0.016 | 0.040 | 10.00 | 0.90 | 1.03 | 10.00 | 4.94 | 4.62 | 1.57 | 3.05 | 7.59 | 10.00 | 3.65 | 6.00 |
| D-48 | 110+80 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.040 | 0.040 | 10.00 | 0.90 | 0.35 | 10.00 | 4.94 | 3.14 | 0.60 | 2.55 | 6.20 | 10.00 | 2.98 | 6.00 |
| D-58 | 117+54 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.90 | 0.14 | 10.00 | 4.94 | 1.22 | 0.12 | 1.10 | 4.35 | 10.00 | 2.09 | 6.00 |
| D-63 | 125+78 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.90 | 0.17 | 10.00 | 4.94 | 0.88 | 0.04 | 0.85 | 3.86 | 10.00 | 1.85 | 6.00 |
| D-65 | 129+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0046 | 0.036 | 0.040 | 10.00 | 0.90 | 0.07 | 10.00 | 4.94 | 0.34 | 0.00 | 0.34 | 3.33 | 10.00 | 1.60 | 6.00 |
| D-66 | 129+77 | Center | CLP_I077 | I-3C1 | In Sag | 0.0002 | 0.036 | 0.040 | 10.00 | 0.90 | 0.03 | 10.00 | 4.94 | 0.16 | 0.00 | 0.16 | 1.26 | 10.00 | 1.23 | 6.00 |
| D-67 | 130+65 | Center | CLP_I077 | I-3C1 | On Grade | 0.0051 | 0.032 | 0.040 | 10.00 | 0.90 | 0.22 | 10.00 | 4.94 | 1.38 | 0.01 | 1.37 | 5.54 | 10.00 | 2.66 | 6.00 |
| D-82 | 135+80 | Center | CLP_I077 | I-3B1 | On Grade | 0.0113 | 0.016 | 0.040 | 10.00 | 0.90 | 0.41 | 10.00 | 4.94 | 2.21 | 0.42 | 1.79 | 5.70 | 10.00 | 2.74 | 6.00 |
| D-95 | 146+03 | Center | CLP_I077 | I-3C1 | On Grade | 0.0216 | 0.024 | 0.040 | 10.00 | 0.90 | 0.37 | 10.00 | 4.94 | 1.68 | 0.38 | 1.30 | 4.56 | 10.00 | 2.19 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 162+25 to Sta. 201+15 NB Median Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-157 | 162+25 | Center | CLP_I077 | I-3C1 | On Grade | 0.0065 | 0.031 | 0.040 | 10.00 | 0.90 | 1.12 | 10.00 | 4.94 | 5.01 | 1.40 | 3.61 | 8.60 | 10.00 | 4.13 | 6.00 |
| D-158 | 163+35 | Center | CLP_I077 | I-3C1 | On Grade | 0.0036 | 0.031 | 0.040 | 10.00 | 0.90 | 0.12 | 10.00 | 4.94 | 1.96 | 0.03 | 1.92 | 6.75 | 10.00 | 3.24 | 6.00 |
| D-159 | 164+71 | Center | CLP_I077 | I-3C1 | In Sag | 0.0001 | 0.031 | 0.040 | 10.00 | 0.90 | 0.26 | 10.00 | 4.94 | 1.19 | 0.00 | 1.19 | 3.09 | 10.00 | 3.03 | 6.00 |
| D-160 | 165+65 | Center | CLP_I077 | I-3B1 | On Grade | 0.0026 | 0.020 | 0.040 | 10.00 | 0.90 | 0.20 | 10.00 | 4.94 | 1.33 | 0.00 | 1.33 | 6.22 | 10.00 | 2.98 | 6.00 |
| D-161 | 167+70 | Center | CLP_I077 | I-3B1 | On Grade | 0.0070 | 0.016 | 0.040 | 10.00 | 0.90 | 0.61 | 10.00 | 4.94 | 2.72 | 0.43 | 2.29 | 6.74 | 10.00 | 3.24 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-183 | 183+50 | Center | CLP_I077 | I-3C1 | On Grade | 0.0055 | 0.026 | 0.040 | 10.00 | 0.90 | 0.80 | 10.00 | 4.94 | 3.59 | 0.65 | 2.94 | 7.82 | 10.00 | 3.75 | 6.00 |
| D-187 | 189+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0106 | 0.040 | 0.040 | 10.00 | 0.90 | 0.29 | 10.00 | 4.94 | 1.93 | 0.09 | 1.84 | 5.44 | 10.00 | 2.63 | 6.00 |
| D-194 | 194+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0218 | 0.050 | 0.050 | 10.00 | 0.90 | 0.10 | 10.00 | 4.94 | 0.55 | 0.00 | 0.55 | 2.60 | 10.00 | 1.56 | 6.00 |
| D-202 | 199+20 | Center | CLP_I077 | I-3B1 | On Grade | 0.0039 | 0.016 | 0.040 | 10.00 | 0.90 | 0.16 | 10.00 | 4.94 | 0.74 | 0.00 | 0.74 | 4.62 | 10.00 | 2.22 | 6.00 |
| D-203 | 200+18 | Center | CLP_I077 | I-3B1 | In Sag | 0.0001 | 0.016 | 0.040 | 10.00 | 0.90 | 0.11 | 10.00 | 4.94 | 0.48 | 0.00 | 0.48 | 2.46 | 10.00 | 2.41 | 6.00 |
| D-204 | 201+15 | Center | CLP_I077 | I-3B1 | On Grade | 0.0038 | 0.016 | 0.040 | 10.00 | 0.90 | 0.25 | 10.00 | 4.94 | 1.13 | 0.00 | 1.13 | 5.44 | 10.00 | 2.61 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 214+66 to Sta. 220+60 NB Median Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-400 | 214+66 | Center | CLP_I077 | I-3C1 | On Grade | 0.0070 | 0.027 | 0.040 | 8.00 | 0.90 | 0.61 | 10.00 | 4.94 | 2.72 | 0.37 | 2.35 | 6.74 | 8.00 | 3.24 | 6.00 |
| D-401 | 215+55 | Center | CLP_I077 | I-3D | In Sag | 0.0004 | 0.027 | 0.040 | 7.15 | 0.90 | 0.33 | 10.00 | 4.94 | 1.96 | 0.00 | 1.96 | 5.12 | 7.15 | 4.46 | 6.00 |
| D-403 | 220+60 | Center | CLP_I077 | I-3C1 | On Grade | 0.0304 | 0.027 | 0.040 | 8.00 | 0.90 | 0.25 | 10.00 | 4.94 | 1.11 | 0.19 | 0.92 | 3.66 | 8.00 | 1.76 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 75+00 to Sta. 146+03 NB Median Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-4B | 75+10 | Center | CLP_I077 | I-3B1 | On Grade | 0.0120 | 0.024 | 0.040 | 4.21 | 0.90 | 0.30 | 10.00 | 6.13 | 1.69 | 0.08 | 1.61 | 5.67 | 4.21 | 2.45 | 6.00 |
| D-5 | 78+90 | Center | CLP_I077 | I-3C1 | On Grade | 0.0099 | 0.041 | 0.041 | 10.00 | 0.90 | 0.44 | 10.00 | 6.13 | 2.44 | 0.19 | 2.25 | 5.96 | 10.00 | 2.93 | 6.00 |
| D-9 | 81+60 | Center | CLP_I077 | I-3C1 | On Grade | 0.0036 | 0.041 | 0.041 | 10.00 | 0.90 | 0.34 | 10.00 | 6.13 | 2.08 | 0.00 | 2.08 | 6.79 | 10.00 | 3.34 | 6.00 |
| D-14 | 82+57 | Center | CLP_I077 | I-3C1 | In Sag | 0.0001 | 0.041 | 0.041 | 10.00 | 0.90 | 0.32 | 10.00 | 6.13 | 1.78 | 0.00 | 1.78 | 3.43 | 10.00 | 3.40 | 6.00 |
| D-16 | 83+50 | Center | CLP_I077 | I-3C1 | On Grade | 0.0032 | 0.041 | 0.041 | 10.00 | 0.90 | 0.42 | 10.00 | 6.13 | 2.79 | 0.00 | 2.79 | 7.73 | 10.00 | 3.81 | 6.00 |
| D-23 | 86+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0080 | 0.041 | 0.041 | 10.00 | 0.90 | 0.64 | 10.00 | 6.13 | 3.58 | 0.44 | 3.14 | 7.17 | 10.00 | 3.53 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-38 | 99+00 | Center | CLP_I077 | I-3B1 | On Grade | 0.0107 | 0.016 | 0.040 | 10.00 | 0.90 | 1.03 | 10.00 | 6.13 | 5.73 | 2.20 | 3.53 | 8.23 | 10.00 | 3.95 | 6.00 |
| D-48 | 110+80 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.040 | 0.040 | 10.00 | 0.90 | 0.35 | 10.00 | 6.13 | 4.16 | 1.04 | 3.11 | 6.88 | 10.00 | 3.30 | 6.00 |
| D-58 | 117+54 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.90 | 0.14 | 10.00 | 6.13 | 1.82 | 0.33 | 1.48 | 5.06 | 10.00 | 2.43 | 6.00 |
| D-63 | 125+78 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.90 | 0.17 | 10.00 | 6.13 | 1.28 | 0.14 | 1.14 | 4.43 | 10.00 | 2.13 | 6.00 |
| D-65 | 129+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0046 | 0.036 | 0.040 | 10.00 | 0.90 | 0.07 | 10.00 | 6.13 | 0.51 | 0.00 | 0.51 | 3.89 | 10.00 | 1.87 | 6.00 |
| D-66 | 129+77 | Center | CLP_I077 | I-3C1 | In Sag | 0.0002 | 0.036 | 0.040 | 10.00 | 0.90 | 0.03 | 10.00 | 6.13 | 0.28 | 0.00 | 0.28 | 1.72 | 10.00 | 1.69 | 6.00 |
| D-67 | 130+65 | Center | CLP_I077 | I-3C1 | On Grade | 0.0051 | 0.032 | 0.040 | 10.00 | 0.90 | 0.22 | 10.00 | 6.13 | 1.89 | 0.09 | 1.80 | 6.23 | 10.00 | 2.99 | 6.00 |
| D-82 | 135+80 | Center | CLP_I077 | I-3B1 | On Grade | 0.0113 | 0.016 | 0.040 | 10.00 | 0.90 | 0.41 | 10.00 | 6.13 | 2.84 | 0.69 | 2.15 | 6.26 | 10.00 | 3.01 | 6.00 |
| D-95 | 146+03 | Center | CLP_I077 | I-3C1 | On Grade | 0.0216 | 0.024 | 0.040 | 10.00 | 0.90 | 0.37 | 10.00 | 6.13 | 2.09 | 0.58 | 1.51 | 4.94 | 10.00 | 2.37 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 162+25 to Sta. 201+15 NB Median Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-157 | 162+25 | Center | CLP_I077 | I-3C1 | On Grade | 0.0065 | 0.031 | 0.040 | 10.00 | 0.90 | 1.12 | 10.00 | 6.13 | 6.22 | 2.03 | 4.19 | 9.33 | 10.00 | 4.48 | 6.00 |
| D-158 | 163+35 | Center | CLP_I077 | I-3C1 | On Grade | 0.0036 | 0.031 | 0.040 | 10.00 | 0.90 | 0.12 | 10.00 | 6.13 | 2.72 | 0.17 | 2.54 | 7.63 | 10.00 | 3.66 | 6.00 |
| D-159 | 164+71 | Center | CLP_I077 | I-3C1 | In Sag | 0.0001 | 0.031 | 0.040 | 10.00 | 0.90 | 0.26 | 10.00 | 6.13 | 1.61 | 0.00 | 1.61 | 3.35 | 10.00 | 3.28 | 6.00 |
| D-160 | 165+65 | Center | CLP_I077 | I-3B1 | On Grade | 0.0026 | 0.020 | 0.040 | 10.00 | 0.90 | 0.20 | 10.00 | 6.13 | 1.81 | 0.00 | 1.81 | 6.97 | 10.00 | 3.35 | 6.00 |
| D-161 | 167+70 | Center | CLP_I077 | I-3B1 | On Grade | 0.0070 | 0.016 | 0.040 | 10.00 | 0.90 | 0.61 | 10.00 | 6.13 | 3.37 | 0.69 | 2.68 | 7.31 | 10.00 | 3.51 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-183 | 183+50 | Center | CLP_I077 | I-3C1 | On Grade | 0.0055 | 0.026 | 0.040 | 10.00 | 0.90 | 0.80 | 10.00 | 6.13 | 4.45 | 1.02 | 3.43 | 8.48 | 10.00 | 4.07 | 6.00 |
| D-187 | 189+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0106 | 0.040 | 0.040 | 10.00 | 0.90 | 0.29 | 10.00 | 6.13 | 2.60 | 0.27 | 2.34 | 6.09 | 10.00 | 2.95 | 6.00 |
| D-194 | 194+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0218 | 0.050 | 0.050 | 10.00 | 0.90 | 0.10 | 10.00 | 6.13 | 0.84 | 0.00 | 0.84 | 3.04 | 10.00 | 1.83 | 6.00 |
| D-202 | 199+20 | Center | CLP_I077 | I-3B1 | On Grade | 0.0039 | 0.016 | 0.040 | 10.00 | 0.90 | 0.16 | 10.00 | 6.13 | 0.92 | 0.00 | 0.92 | 5.01 | 10.00 | 2.40 | 6.00 |
| D-203 | 200+18 | Center | CLP_I077 | I-3B1 | In Sag | 0.0001 | 0.016 | 0.040 | 10.00 | 0.90 | 0.11 | 10.00 | 6.13 | 0.59 | 0.00 | 0.59 | 2.62 | 10.00 | 2.57 | 6.00 |
| D-204 | 201+15 | Center | CLP_I077 | I-3B1 | On Grade | 0.0038 | 0.016 | 0.040 | 10.00 | 0.90 | 0.25 | 10.00 | 6.13 | 1.41 | 0.00 | 1.41 | 5.90 | 10.00 | 2.83 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 214+66 to Sta. 220+60 NB Median Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-400 | 214+66 | Center | CLP_I077 | I-3C1 | On Grade | 0.0070 | 0.027 | 0.040 | 8.00 | 0.90 | 0.61 | 10.00 | 6.13 | 3.37 | 0.62 | 2.76 | 7.31 | 8.00 | 3.51 | 6.00 |
| D-401 | 215+55 | Center | CLP_I077 | I-3D | In Sag | 0.0004 | 0.027 | 0.040 | 7.15 | 0.90 | 0.33 | 10.00 | 6.13 | 2.70 | 0.00 | 2.70 | 5.78 | 7.15 | 4.77 | 6.00 |
| D-403 | 220+60 | Center | CLP_I077 | I-3C1 | On Grade | 0.0304 | 0.027 | 0.040 | 8.00 | 0.90 | 0.25 | 10.00 | 6.13 | 1.38 | 0.30 | 1.08 | 3.97 | 8.00 | 1.91 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 75+00 to Sta. 146+03 SB Median Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-4B | 75+10 | Center | CLP_I077 | I-3B1 | On Grade | 0.0120 | 0.024 | 0.040 | 4.21 | 0.90 | 0.18 | 10.00 | 4.94 | 0.82 | 0.00 | 0.82 | 3.88 | 4.21 | 1.88 | 6.00 |
| D-5 | 78+90 | Center | CLP_I077 | I-3C1 | On Grade | 0.0099 | 0.041 | 0.041 | 10.00 | 0.90 | 0.08 | 10.00 | 4.94 | 0.38 | 0.00 | 0.38 | 2.96 | 10.00 | 1.46 | 6.00 |
| D-9 | 81+60 | Center | CLP_I077 | I-3C1 | On Grade | 0.0036 | 0.041 | 0.041 | 10.00 | 0.90 | 0.06 | 10.00 | 4.94 | 0.25 | 0.00 | 0.25 | 3.07 | 10.00 | 1.51 | 6.00 |
| D-14 | 82+57 | Center | CLP_I077 | I-3C1 | In Sag | 0.0001 | 0.041 | 0.041 | 10.00 | 0.90 | 0.04 | 10.00 | 4.94 | 0.18 | 0.00 | 0.18 | 1.25 | 10.00 | 1.25 | 6.00 |
| D-16 | 83+50 | Center | CLP_I077 | I-3C1 | On Grade | 0.0032 | 0.041 | 0.041 | 10.00 | 0.90 | 0.05 | 10.00 | 4.94 | 0.23 | 0.00 | 0.23 | 3.04 | 10.00 | 1.50 | 6.00 |
| D-23 | 86+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0080 | 0.041 | 0.041 | 10.00 | 0.90 | 0.09 | 10.00 | 4.94 | 0.40 | 0.00 | 0.40 | 3.13 | 10.00 | 1.54 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-38 | 99+00 | Center | CLP_I077 | I-3B1 | On Grade | 0.0107 | 0.016 | 0.040 | 10.00 | 0.90 | 0.21 | 10.00 | 4.94 | 0.94 | 0.02 | 0.92 | 4.19 | 10.00 | 2.01 | 6.00 |
| D-48 | 110+80 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.040 | 0.040 | 10.00 | 0.90 | 1.52 | 10.00 | 4.94 | 6.85 | 2.45 | 4.40 | 8.30 | 10.00 | 3.98 | 6.00 |
| D-58 | 117+54 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.90 | 0.78 | 10.00 | 4.94 | 5.94 | 2.58 | 3.36 | 7.88 | 10.00 | 3.78 | 6.00 |
| D-63 | 125+78 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.90 | 1.17 | 10.00 | 4.94 | 7.82 | 3.80 | 4.02 | 8.73 | 10.00 | 4.19 | 6.00 |
| D-65 | 129+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0046 | 0.036 | 0.040 | 10.00 | 0.90 | 0.41 | 10.00 | 4.94 | 5.62 | 1.42 | 4.20 | 9.56 | 10.00 | 4.59 | 6.00 |
| D-66 | 129+77 | Center | CLP_I077 | I-3C1 | In Sag | 0.0002 | 0.036 | 0.040 | 10.00 | 0.90 | 0.20 | 10.00 | 4.94 | 2.89 | 0.00 | 2.89 | 4.01 | 10.00 | 3.92 | 6.00 |
| D-67 | 130+65 | Center | CLP_I077 | I-3C1 | On Grade | 0.0051 | 0.032 | 0.040 | 10.00 | 0.90 | 0.43 | 10.00 | 4.94 | 3.54 | 0.59 | 2.95 | 7.88 | 10.00 | 3.78 | 6.00 |
| D-82 | 135+80 | Center | CLP_I077 | I-3B1 | On Grade | 0.0113 | 0.016 | 0.040 | 10.00 | 0.90 | 0.87 | 10.00 | 4.94 | 4.62 | 1.61 | 3.01 | 7.51 | 10.00 | 3.60 | 6.00 |
| D-95 | 146+03 | Center | CLP_I077 | I-3C1 | On Grade | 0.0216 | 0.024 | 0.040 | 10.00 | 0.90 | 0.52 | 10.00 | 4.94 | 2.33 | 0.70 | 1.63 | 5.15 | 10.00 | 2.47 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 162+25 to Sta. 201+15 SB Median Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-157 | 162+25 | Center | CLP_I077 | I-3C1 | On Grade | 0.0065 | 0.031 | 0.040 | 10.00 | 0.90 | 0.23 | 10.00 | 4.94 | 1.04 | 0.00 | 1.04 | 4.77 | 10.00 | 2.29 | 6.00 |
| D-158 | 163+35 | Center | CLP_I077 | I-3C1 | On Grade | 0.0036 | 0.031 | 0.040 | 10.00 | 0.90 | 0.03 | 10.00 | 4.94 | 0.13 | 0.00 | 0.13 | 2.46 | 10.00 | 1.18 | 6.00 |
| D-159 | 164+71 | Center | CLP_I077 | I-3C1 | In Sag | 0.0001 | 0.031 | 0.040 | 10.00 | 0.90 | 0.06 | 10.00 | 4.94 | 0.28 | 0.00 | 0.28 | 1.71 | 10.00 | 1.68 | 6.00 |
| D-160 | 165+65 | Center | CLP_I077 | I-3B1 | On Grade | 0.0026 | 0.020 | 0.040 | 10.00 | 0.90 | 0.08 | 10.00 | 4.94 | 0.54 | 0.00 | 0.54 | 4.43 | 10.00 | 2.13 | 6.00 |
| D-161 | 167+70 | Center | CLP_I077 | I-3B1 | On Grade | 0.0070 | 0.016 | 0.040 | 10.00 | 0.90 | 0.43 | 10.00 | 4.94 | 1.91 | 0.17 | 1.75 | 5.91 | 10.00 | 2.84 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-183 | 183+50 | Center | CLP_I077 | I-3C1 | On Grade | 0.0055 | 0.026 | 0.040 | 10.00 | 0.90 | 0.15 | 10.00 | 4.94 | 0.67 | 0.00 | 0.67 | 4.17 | 10.00 | 2.00 | 6.00 |
| D-187 | 189+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0106 | 0.040 | 0.040 | 10.00 | 0.90 | 0.63 | 10.00 | 4.94 | 2.82 | 0.34 | 2.49 | 6.28 | 10.00 | 3.04 | 6.00 |
| D-194 | 194+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0218 | 0.050 | 0.050 | 10.00 | 0.90 | 0.76 | 10.00 | 4.94 | 3.75 | 0.96 | 2.79 | 5.33 | 10.00 | 3.20 | 6.00 |
| D-202 | 199+20 | Center | CLP_I077 | I-3B1 | On Grade | 0.0039 | 0.016 | 0.040 | 10.00 | 0.90 | 0.52 | 10.00 | 4.94 | 3.29 | 0.37 | 2.93 | 8.08 | 10.00 | 3.88 | 6.00 |
| D-203 | 200+18 | Center | CLP_I077 | I-3B1 | In Sag | 0.0001 | 0.016 | 0.040 | 10.00 | 0.90 | 0.11 | 10.00 | 4.94 | 0.84 | 0.00 | 0.84 | 2.84 | 10.00 | 2.79 | 6.00 |
| D-204 | 201+15 | Center | CLP_I077 | I-3B1 | On Grade | 0.0038 | 0.016 | 0.040 | 10.00 | 0.90 | 0.25 | 10.00 | 4.94 | 1.13 | 0.00 | 1.13 | 5.44 | 10.00 | 2.61 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 214+66 to Sta. 220+60 SB Median Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-400 | 214+66 | Center | CLP_I077 | I-3C1 | On Grade | 0.0070 | 0.027 | 0.040 | 8.00 | 0.90 | 0.40 | 10.00 | 4.94 | 1.80 | 0.10 | 1.70 | 5.78 | 8.00 | 2.78 | 6.00 |
| D-404 | 215+55 | Center | CLP_I077 | I-3D | In Sag | 0.0004 | 0.027 | 0.065 | 6.24 | 0.90 | 0.06 | 10.00 | 4.94 | 0.28 | 0.00 | 0.28 | 4.28 | 6.24 | 5.26 | 6.00 |
| D-403 | 220+60 | Center | CLP_I077 | I-3C1 | On Grade | 0.0304 | 0.027 | 0.040 | 8.00 | 0.90 | 0.07 | 10.00 | 4.94 | 0.33 | 0.00 | 0.33 | 2.33 | 8.00 | 1.12 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 75+00 to Sta. 146+03 SB Median Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-4B | 75+10 | Center | CLP_I077 | I-3B1 | On Grade | 0.0120 | 0.024 | 0.040 | 4.21 | 0.90 | 0.18 | 10.00 | 6.13 | 1.02 | 0.00 | 1.02 | 4.20 | 4.21 | 2.03 | 6.00 |
| D-5 | 78+90 | Center | CLP_I077 | I-3C1 | On Grade | 0.0099 | 0.041 | 0.041 | 10.00 | 0.90 | 0.08 | 10.00 | 6.13 | 0.47 | 0.00 | 0.47 | 3.21 | 10.00 | 1.58 | 6.00 |
| D-9 | 81+60 | Center | CLP_I077 | I-3C1 | On Grade | 0.0036 | 0.041 | 0.041 | 10.00 | 0.90 | 0.06 | 10.00 | 6.13 | 0.31 | 0.00 | 0.31 | 3.33 | 10.00 | 1.64 | 6.00 |
| D-14 | 82+57 | Center | CLP_I077 | I-3C1 | In Sag | 0.0001 | 0.041 | 0.041 | 10.00 | 0.90 | 0.04 | 10.00 | 6.13 | 0.22 | 0.00 | 0.22 | 1.45 | 10.00 | 1.43 | 6.00 |
| D-16 | 83+50 | Center | CLP_I077 | I-3C1 | On Grade | 0.0032 | 0.041 | 0.041 | 10.00 | 0.90 | 0.05 | 10.00 | 6.13 | 0.29 | 0.00 | 0.29 | 3.30 | 10.00 | 1.62 | 6.00 |
| D-23 | 86+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0080 | 0.041 | 0.041 | 10.00 | 0.90 | 0.09 | 10.00 | 6.13 | 0.49 | 0.00 | 0.49 | 3.40 | 10.00 | 1.67 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-38 | 99+00 | Center | CLP_I077 | I-3B1 | On Grade | 0.0107 | 0.016 | 0.040 | 10.00 | 0.90 | 0.21 | 10.00 | 6.13 | 1.17 | 0.06 | 1.11 | 4.54 | 10.00 | 2.18 | 6.00 |
| D-48 | 110+80 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.040 | 0.040 | 10.00 | 0.90 | 1.52 | 10.00 | 6.13 | 8.54 | 3.44 | 5.10 | 9.01 | 10.00 | 4.33 | 6.00 |
| D-58 | 117+54 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.90 | 0.78 | 10.00 | 6.13 | 7.77 | 3.77 | 4.00 | 8.71 | 10.00 | 4.18 | 6.00 |
| D-63 | 125+78 | Center | CLP_I077 | I-3C1 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.90 | 1.17 | 10.00 | 6.13 | 10.27 | 5.48 | 4.79 | 9.67 | 10.00 | 4.64 | 6.00 |
| D-65 | 129+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0046 | 0.036 | 0.040 | 10.00 | 0.90 | 0.41 | 10.00 | 6.13 | 7.74 | 2.49 | 5.24 | 10.86 | 10.00 | 5.17 | 6.00 |
| D-66 | 129+77 | Center | CLP_I077 | I-3C1 | In Sag | 0.0002 | 0.036 | 0.040 | 10.00 | 0.90 | 0.20 | 10.00 | 6.13 | 4.67 | 0.00 | 4.67 | 5.54 | 10.00 | 4.66 | 6.00 |
| D-67 | 130+65 | Center | CLP_I077 | I-3C1 | On Grade | 0.0051 | 0.032 | 0.040 | 10.00 | 0.90 | 0.43 | 10.00 | 6.13 | 4.73 | 1.09 | 3.63 | 8.78 | 10.00 | 4.22 | 6.00 |
| D-82 | 135+80 | Center | CLP_I077 | I-3B1 | On Grade | 0.0113 | 0.016 | 0.040 | 10.00 | 0.90 | 0.87 | 10.00 | 6.13 | 5.86 | 2.33 | 3.53 | 8.21 | 10.00 | 3.94 | 6.00 |
| D-95 | 146+03 | Center | CLP_I077 | I-3C1 | On Grade | 0.0216 | 0.024 | 0.040 | 10.00 | 0.90 | 0.52 | 10.00 | 6.13 | 2.89 | 1.00 | 1.89 | 5.58 | 10.00 | 2.68 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 162+25 to Sta. 201+15 SB Median Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-157 | 162+25 | Center | CLP_I077 | I-3C1 | On Grade | 0.0065 | 0.031 | 0.040 | 10.00 | 0.90 | 0.23 | 10.00 | 6.13 | 1.29 | 0.02 | 1.27 | 5.17 | 10.00 | 2.48 | 6.00 |
| D-158 | 163+35 | Center | CLP_I077 | I-3C1 | On Grade | 0.0036 | 0.031 | 0.040 | 10.00 | 0.90 | 0.03 | 10.00 | 6.13 | 0.18 | 0.00 | 0.18 | 2.78 | 10.00 | 1.34 | 6.00 |
| D-159 | 164+71 | Center | CLP_I077 | I-3C1 | In Sag | 0.0001 | 0.031 | 0.040 | 10.00 | 0.90 | 0.06 | 10.00 | 6.13 | 0.34 | 0.00 | 0.34 | 1.97 | 10.00 | 1.93 | 6.00 |
| D-160 | 165+65 | Center | CLP_I077 | I-3B1 | On Grade | 0.0026 | 0.020 | 0.040 | 10.00 | 0.90 | 0.08 | 10.00 | 6.13 | 0.77 | 0.00 | 0.77 | 5.06 | 10.00 | 2.43 | 6.00 |
| D-161 | 167+70 | Center | CLP_I077 | I-3B1 | On Grade | 0.0070 | 0.016 | 0.040 | 10.00 | 0.90 | 0.43 | 10.00 | 6.13 | 2.37 | 0.31 | 2.06 | 6.41 | 10.00 | 3.08 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-183 | 183+50 | Center | CLP_I077 | I-3C1 | On Grade | 0.0055 | 0.026 | 0.040 | 10.00 | 0.90 | 0.15 | 10.00 | 6.13 | 0.83 | 0.00 | 0.83 | 4.52 | 10.00 | 2.17 | 6.00 |
| D-187 | 189+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0106 | 0.040 | 0.040 | 10.00 | 0.90 | 0.63 | 10.00 | 6.13 | 3.50 | 0.58 | 2.93 | 6.81 | 10.00 | 3.29 | 6.00 |
| D-194 | 194+00 | Center | CLP_I077 | I-3C1 | On Grade | 0.0218 | 0.050 | 0.050 | 10.00 | 0.90 | 0.76 | 10.00 | 6.13 | 4.81 | 1.50 | 3.32 | 5.86 | 10.00 | 3.51 | 6.00 |
| D-202 | 199+20 | Center | CLP_I077 | I-3B1 | On Grade | 0.0039 | 0.016 | 0.040 | 10.00 | 0.90 | 0.52 | 10.00 | 6.13 | 4.38 | 0.75 | 3.63 | 9.00 | 10.00 | 4.32 | 6.00 |
| D-203 | 200+18 | Center | CLP_I077 | I-3B1 | In Sag | 0.0001 | 0.016 | 0.040 | 10.00 | 0.90 | 0.11 | 10.00 | 6.13 | 1.34 | 0.00 | 1.34 | 3.19 | 10.00 | 3.12 | 6.00 |
| D-204 | 201+15 | Center | CLP_I077 | I-3B1 | On Grade | 0.0038 | 0.016 | 0.040 | 10.00 | 0.90 | 0.25 | 10.00 | 6.13 | 1.41 | 0.00 | 1.41 | 5.90 | 10.00 | 2.83 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 214+66 to Sta. 220+60 SB Median Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-400 | 214+66 | Center | CLP_I077 | I-3C1 | On Grade | 0.0070 | 0.027 | 0.040 | 8.00 | 0.90 | 0.40 | 10.00 | 6.13 | 2.23 | 0.22 | 2.02 | 6.27 | 8.00 | 3.01 | 6.00 |
| D-404 | 215+55 | Center | CLP_I077 | I-3D | In Sag | 0.0004 | 0.027 | 0.065 | 6.24 | 0.90 | 0.06 | 10.00 | 6.13 | 0.35 | 0.00 | 0.35 | 4.33 | 6.24 | 5.32 | 6.00 |
| D-403 | 220+60 | Center | CLP_I077 | I-3C1 | On Grade | 0.0304 | 0.027 | 0.040 | 8.00 | 0.90 | 0.07 | 10.00 | 6.13 | 0.41 | 0.00 | 0.41 | 2.52 | 8.00 | 1.21 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 74+98 to Ramp C3 NB Outside Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-4A | 75+07 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0120 | 0.020 | 0.040 | 16.10 | 0.79 | 0.65 | 10.00 | 4.94 | 2.57 | 0.69 | 1.88 | 5.98 | 16.10 | 2.86 | 4.00 |
| D-4 | 79+00 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0099 | 0.040 | 0.040 | 10.00 | 0.71 | 0.48 | 10.00 | 4.94 | 1.69 | 0.00 | 1.69 | 5.27 | 10.00 | 2.53 | 4.00 |
| D-8 | 80+96 | RT | CLP_I077 | I-2A-8 | On Grade | 0.0057 | 0.041 | 0.041 | 10.00 | 0.71 | 0.17 | 10.00 | 4.94 | 0.59 | 0.00 | 0.59 | 3.88 | 10.00 | 1.91 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-34 | 95+55 | RT | CLP_I077 | I-3D | On Grade | 0.0099 | 0.040 | 0.040 | 10.00 | 0.77 | 0.21 | 10.00 | 4.94 | 0.80 | 0.00 | 0.80 | 3.97 | 10.00 | 1.92 | 6.00 |
| D-44 | 104+29 | RT | CLP_I077 | I-3D | On Grade | 0.0114 | 0.040 | 0.040 | 8.00 | 0.84 | 0.97 | 10.00 | 4.94 | 4.05 | 0.91 | 3.14 | 7.13 | 8.00 | 3.42 | 6.00 |
| D-45 | 106+46 | RT | CLP_I077 | I-3D | On Grade | 0.0114 | 0.040 | 0.040 | 8.00 | 0.90 | 0.37 | 10.00 | 4.94 | 2.57 | 0.33 | 2.24 | 6.01 | 8.00 | 2.89 | 6.00 |
| D-46 | 106+98 | RT | CLP_I077 | I-3D | In Sag | 0.0011 | 0.040 | 0.040 | 8.00 | 0.90 | 0.08 | 10.00 | 4.94 | 0.78 | 0.00 | 0.78 | 2.91 | 8.00 | 2.69 | 6.00 |
| D-47 | 108+08 | RT | CLP_I077 | I-3D | On Grade | 0.0325 | 0.041 | 0.041 | 8.00 | 0.75 | 0.23 | 10.00 | 4.94 | 0.95 | 0.07 | 0.88 | 3.35 | 8.00 | 1.65 | 6.00 |
| D-47B | 111+47 | RT | CLP_I077 | I-2A-8 | On Grade | 0.0325 | 0.016 | - | - | 0.85 | 0.18 | 10.00 | 4.94 | 0.75 | 0.09 | 0.65 | 5.51 | 0.00 | 1.06 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-47A | 110+68 | RT | CLP_I077 | I-2A-8 | On Grade | 0.0325 | 0.016 | - | - | 0.90 | 0.12 | 10.00 | 4.94 | 0.56 | 0.03 | 0.53 | 4.94 | 6.00 | 0.95 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-56 | 116+25 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.81 | 0.92 | 10.00 | 4.94 | 3.70 | 0.91 | 2.80 | 6.60 | 10.00 | 3.17 | 4.00 |
| D-57 | 117+51 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.85 | 0.22 | 10.00 | 4.94 | 1.84 | 0.18 | 1.66 | 5.08 | 10.00 | 2.44 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-73 | 133+00 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0292 | 0.016 | 0.040 | 7.56 | 0.80 | 0.08 | 10.00 | 4.94 | 0.73 | 0.05 | 0.68 | 3.16 | 7.56 | 1.52 | 4.00 |
| D-76A | 134+58 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0491 | 0.016 | 0.040 | 6.00 | 0.71 | 0.20 | 10.00 | 4.94 | 1.85 | 0.42 | 1.43 | 4.05 | 6.00 | 1.94 | 4.00 |
| D-78 | 135+98 | RT | CLP_I077 | I-2A-16 | On Grade | 0.0491 | 0.016 | 0.040 | 6.00 | 0.71 | 1.23 | 10.00 | 4.94 | 4.36 | 1.16 | 3.20 | 5.58 | 6.00 | 2.68 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-74 | 132+99 | RT | CLP_I077 | I-2A-6 | On Grade | 0.0281 | 0.016 | 0.040 | 3.00 | 0.90 | 0.09 | 10.00 | 4.94 | 0.42 | 0.03 | 0.38 | 2.57 | 3.00 | 1.23 | 4.00 |
| D-76 | 134+60 | RT | CLP_I077 | I-2A-6 | On Grade | 0.0491 | 0.016 | 0.040 | 3.00 | 0.90 | 0.06 | 10.00 | 4.94 | 0.31 | 0.03 | 0.28 | 2.07 | 3.00 | 0.99 | 4.00 |
| D-77 | 135+95 | RT | CLP_I077 | I-2A-6 | On Grade | 0.0491 | 0.016 | 0.040 | 3.00 | 0.90 | 0.07 | 10.00 | 4.94 | 0.36 | 0.05 | 0.32 | 2.20 | 3.00 | 1.05 | 4.00 |
| D-80 | 137+60 | RT | CLP_I077 | I-2A-8 | On Grade | 0.0491 | 0.016 | 0.040 | 3.00 | 0.90 | 0.10 | 10.00 | 4.94 | 0.53 | 0.04 | 0.49 | 2.53 | 3.00 | 1.22 | 4.00 |
| D-79 | 139+83 | RT | CLP_I077 | I-2A-8 | On Grade | 0.0330 | 0.016 | 0.040 | 3.00 | 0.90 | 0.18 | 10.00 | 4.94 | 0.82 | 0.08 | 0.74 | 3.54 | 0.00 | 1.54 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-75 | 133+00 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0113 | 0.016 | 0.040 | 10.00 | 0.83 | 0.35 | 10.00 | 4.94 | 2.27 | 0.23 | 2.03 | 5.75 | 10.00 | 2.76 | 4.00 |
| D-81 | 135+83 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0113 | 0.016 | 0.040 | 10.00 | 0.82 | 0.55 | 10.00 | 4.94 | 3.07 | 0.80 | 2.27 | 6.44 | 10.00 | 3.09 | 4.00 |
| D-81A | 139+00 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0113 | 0.016 | 0.040 | 10.00 | 0.79 | 0.75 | 10.00 | 4.94 | 3.10 | 0.81 | 2.28 | 6.46 | 10.00 | 3.10 | 4.00 |
| D-84A | 141+56 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0184 | 0.024 | 0.039 | 10.00 | 0.82 | 0.17 | 10.00 | 4.94 | 1.12 | 0.14 | 0.98 | 4.12 | 10.00 | 1.91 | 4.00 |
| D-87 | 142+72 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0216 | 0.024 | 0.040 | 10.00 | 0.81 | 0.36 | 10.00 | 4.94 | 1.74 | 0.41 | 1.33 | 4.62 | 10.00 | 2.22 | 4.00 |
| D-94A | 144+25 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0216 | 0.024 | 0.040 | 10.00 | 0.85 | 0.35 | 10.00 | 4.94 | 1.47 | 0.29 | 1.17 | 4.33 | 10.00 | 2.08 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-94 | 146+04 | RT | CLP_I077 | I-2A-6 | In Sag | 0.0024 | 0.028 | 0.040 | 3.00 | 0.90 | 0.03 | 10.00 | 4.94 | 0.12 | 0.00 | 0.12 | 1.55 | 3.00 | 2.74 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-93 | 145+80 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0168 | 0.022 | 0.040 | 6.00 | 0.77 | 0.50 | 10.00 | 4.94 | 1.91 | 0.14 | 1.77 | 5.02 | 6.00 | 2.41 | 4.00 |
| D-92 | 146+07 | RT | CLP_I077 | I-2A-10 | In Sag | 0.0007 | 0.028 | 0.040 | 6.00 | 0.75 | 0.11 | 10.00 | 4.94 | 0.79 | 0.00 | 0.79 | 3.36 | 6.00 | 3.61 | 4.00 |
| D-91 | 146+35 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0176 | 0.035 | 0.040 | 6.00 | 0.81 | 0.45 | 10.00 | 4.94 | 2.19 | 0.24 | 1.96 | 5.23 | 6.00 | 2.51 | 4.00 |
| D-90 | 147+75 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0231 | 0.016 | 0.040 | 6.00 | 0.80 | 0.22 | 10.00 | 4.94 | 1.83 | 0.37 | 1.46 | 4.64 | 6.00 | 2.23 | 4.00 |
| D-89 | 148+50 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0231 | 0.016 | 0.040 | 6.00 | 0.75 | 0.98 | 10.00 | 4.94 | 3.65 | 0.94 | 2.70 | 6.03 | 6.00 | 2.89 | 4.00 |

***Spread Calculations for Proposed Inlets Sta. 159+85 to Ramp D1 NB Outside Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-150 | 159+85 | RT | CLP_I077 | I-3D | On Grade | 0.0065 | 0.031 | 0.040 | 8.00 | 0.88 | 0.19 | 10.00 | 4.94 | 0.82 | 0.00 | 0.82 | 4.36 | 8.00 | 2.09 | 6.00 |
| D-152 | 165+30 | RT | CLP_I077 | I-3D | On Grade | 0.0015 | 0.024 | 0.040 | 10.00 | 0.80 | 0.27 | 10.00 | 4.94 | 1.08 | 0.00 | 1.08 | 6.36 | 10.00 | 3.05 | 6.00 |
| D-154 | 166+27 | RT | CLP_I077 | I-3D | In Sag | 0.0042 | 0.016 | 0.040 | 10.00 | 0.80 | 0.13 | 10.00 | 4.94 | 1.09 | 0.00 | 1.09 | 7.64 | 10.00 | 5.67 | 6.00 |
| D-155 | 167+60 | RT | CLP_I077 | I-3D | On Grade | 0.0070 | 0.016 | 0.040 | 10.00 | 0.88 | 0.71 | 10.00 | 4.94 | 3.11 | 0.58 | 2.53 | 7.09 | 10.00 | 3.41 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-184 | 183+42 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0055 | 0.026 | 0.038 | 9.07 | 0.86 | 0.19 | 10.00 | 4.94 | 0.83 | 0.00 | 0.83 | 4.71 | 9.07 | 2.12 | 4.00 |
| D-188 | 188+13 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0249 | 0.026 | 0.040 | 8.00 | 0.85 | 0.69 | 10.00 | 4.94 | 2.92 | 1.03 | 1.90 | 5.50 | 8.00 | 2.61 | 4.00 |
| D-189A | 189+81 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0249 | 0.040 | 0.040 | 4.00 | 0.85 | 0.33 | 10.00 | 4.94 | 2.44 | 0.54 | 1.90 | 5.09 | 8.00 | 2.44 | 4.00 |
| D-189 | 191+65 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0084 | 0.035 | 0.040 | 6.00 | 0.85 | 0.37 | 10.00 | 4.94 | 2.11 | 0.17 | 1.94 | 5.93 | 6.00 | 2.85 | 4.00 |
| D-190 | 191+95 | RT | CLP_I077 | I-2A-8 | In Sag | 0.0004 | 0.035 | 0.040 | 6.00 | 0.78 | 0.11 | 10.00 | 4.94 | 0.62 | 0.00 | 0.62 | 2.25 | 6.00 | 3.08 | 4.00 |
| D-191 | 192+36 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0100 | 0.035 | 0.040 | 6.00 | 0.78 | 0.35 | 10.00 | 4.94 | 1.35 | 0.04 | 1.31 | 4.85 | 6.00 | 2.33 | 4.00 |

***Spread Calculations for Proposed Inlets Sta. 74+98 to Ramp C3 NB Outside Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-4A | 75+07 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0120 | 0.020 | 0.040 | 16.10 | 0.79 | 0.65 | 10.00 | 6.13 | 3.19 | 1.01 | 2.18 | 6.49 | 16.10 | 3.10 | 4.00 |
| D-4 | 79+00 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0099 | 0.040 | 0.040 | 10.00 | 0.71 | 0.48 | 10.00 | 6.13 | 2.09 | 0.00 | 2.09 | 5.71 | 10.00 | 2.74 | 4.00 |
| D-8 | 80+96 | RT | CLP_I077 | I-2A-8 | On Grade | 0.0057 | 0.041 | 0.041 | 10.00 | 0.71 | 0.17 | 10.00 | 6.13 | 0.73 | 0.00 | 0.73 | 4.20 | 10.00 | 2.07 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-34 | 95+55 | RT | CLP_I077 | I-3D | On Grade | 0.0099 | 0.040 | 0.040 | 10.00 | 0.77 | 0.21 | 10.00 | 6.13 | 0.99 | 0.00 | 0.99 | 4.30 | 10.00 | 2.08 | 6.00 |
| D-44 | 104+29 | RT | CLP_I077 | I-3D | On Grade | 0.0114 | 0.040 | 0.040 | 8.00 | 0.84 | 0.97 | 10.00 | 6.13 | 5.02 | 1.37 | 3.65 | 7.73 | 8.00 | 3.71 | 6.00 |
| D-45 | 106+46 | RT | CLP_I077 | I-3D | On Grade | 0.0114 | 0.040 | 0.040 | 8.00 | 0.90 | 0.37 | 10.00 | 6.13 | 3.42 | 0.64 | 2.78 | 6.69 | 8.00 | 3.21 | 6.00 |
| D-46 | 106+98 | RT | CLP_I077 | I-3D | In Sag | 0.0011 | 0.040 | 0.040 | 8.00 | 0.90 | 0.08 | 10.00 | 6.13 | 1.27 | 0.00 | 1.27 | 3.20 | 8.00 | 2.96 | 6.00 |
| D-47 | 108+08 | RT | CLP_I077 | I-3D | On Grade | 0.0325 | 0.041 | 0.041 | 8.00 | 0.75 | 0.23 | 10.00 | 6.13 | 1.24 | 0.16 | 1.08 | 3.70 | 8.00 | 1.82 | 6.00 |
| D-47B | 111+47 | RT | CLP_I077 | I-2A-8 | On Grade | 0.0325 | 0.016 | - | - | 0.85 | 0.18 | 10.00 | 6.13 | 0.93 | 0.17 | 0.75 | 5.97 | 0.00 | 1.15 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-47A | 110+68 | RT | CLP_I077 | I-2A-8 | On Grade | 0.0325 | 0.016 | - | - | 0.90 | 0.12 | 10.00 | 6.13 | 0.69 | 0.07 | 0.62 | 5.35 | 6.00 | 1.03 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-56 | 116+25 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.81 | 0.92 | 10.00 | 6.13 | 4.60 | 1.34 | 3.25 | 7.16 | 10.00 | 3.44 | 4.00 |
| D-57 | 117+51 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0145 | 0.036 | 0.040 | 10.00 | 0.85 | 0.22 | 10.00 | 6.13 | 2.50 | 0.40 | 2.10 | 5.69 | 10.00 | 2.73 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-73 | 133+00 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0292 | 0.016 | 0.040 | 7.56 | 0.80 | 0.08 | 10.00 | 6.13 | 1.14 | 0.19 | 0.96 | 3.73 | 7.56 | 1.79 | 4.00 |
| D-76A | 134+58 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0491 | 0.016 | 0.040 | 6.00 | 0.71 | 0.20 | 10.00 | 6.13 | 2.54 | 0.76 | 1.79 | 4.56 | 6.00 | 2.19 | 4.00 |
| D-78 | 135+98 | RT | CLP_I077 | I-2A-16 | On Grade | 0.0491 | 0.016 | 0.040 | 6.00 | 0.71 | 1.23 | 10.00 | 6.13 | 5.40 | 1.69 | 3.72 | 6.13 | 6.00 | 2.90 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-74 | 132+99 | RT | CLP_I077 | I-2A-6 | On Grade | 0.0281 | 0.016 | 0.040 | 3.00 | 0.90 | 0.09 | 10.00 | 6.13 | 0.55 | 0.07 | 0.48 | 2.85 | 3.00 | 1.37 | 4.00 |
| D-76 | 134+60 | RT | CLP_I077 | I-2A-6 | On Grade | 0.0491 | 0.016 | 0.040 | 3.00 | 0.90 | 0.06 | 10.00 | 6.13 | 0.42 | 0.07 | 0.35 | 2.32 | 3.00 | 1.12 | 4.00 |
| D-77 | 135+95 | RT | CLP_I077 | I-2A-6 | On Grade | 0.0491 | 0.016 | 0.040 | 3.00 | 0.90 | 0.07 | 10.00 | 6.13 | 0.49 | 0.09 | 0.40 | 2.46 | 3.00 | 1.18 | 4.00 |
| D-80 | 137+60 | RT | CLP_I077 | I-2A-8 | On Grade | 0.0491 | 0.016 | 0.040 | 3.00 | 0.90 | 0.10 | 10.00 | 6.13 | 0.70 | 0.09 | 0.62 | 2.82 | 3.00 | 1.35 | 4.00 |
| D-79 | 139+83 | RT | CLP_I077 | I-2A-8 | On Grade | 0.0330 | 0.016 | 0.040 | 3.00 | 0.90 | 0.18 | 10.00 | 6.13 | 1.02 | 0.15 | 0.87 | 4.20 | 0.00 | 1.67 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-75 | 133+00 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0113 | 0.016 | 0.040 | 10.00 | 0.83 | 0.35 | 10.00 | 6.13 | 3.12 | 0.53 | 2.59 | 6.48 | 10.00 | 3.11 | 4.00 |
| D-81 | 135+83 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0113 | 0.016 | 0.040 | 10.00 | 0.82 | 0.55 | 10.00 | 6.13 | 4.05 | 1.30 | 2.75 | 7.14 | 10.00 | 3.43 | 4.00 |
| D-81A | 139+00 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0113 | 0.016 | 0.040 | 10.00 | 0.79 | 0.75 | 10.00 | 6.13 | 3.96 | 1.25 | 2.71 | 7.09 | 10.00 | 3.40 | 4.00 |
| D-84A | 141+56 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0184 | 0.024 | 0.039 | 10.00 | 0.82 | 0.17 | 10.00 | 6.13 | 1.53 | 0.29 | 1.24 | 4.64 | 10.00 | 2.15 | 4.00 |
| D-87 | 142+72 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0216 | 0.024 | 0.040 | 10.00 | 0.81 | 0.36 | 10.00 | 6.13 | 2.24 | 0.66 | 1.59 | 5.08 | 10.00 | 2.44 | 4.00 |
| D-94A | 144+25 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0216 | 0.024 | 0.040 | 10.00 | 0.85 | 0.35 | 10.00 | 6.13 | 1.82 | 0.45 | 1.37 | 4.69 | 10.00 | 2.25 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-94 | 146+04 | RT | CLP_I077 | I-2A-6 | In Sag | 0.0024 | 0.028 | 0.040 | 3.00 | 0.90 | 0.03 | 10.00 | 6.13 | 0.14 | 0.00 | 0.14 | 1.65 | 3.00 | 2.79 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-93 | 145+80 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0168 | 0.022 | 0.040 | 6.00 | 0.77 | 0.50 | 10.00 | 6.13 | 2.37 | 0.28 | 2.10 | 5.44 | 6.00 | 2.61 | 4.00 |
| D-92 | 146+07 | RT | CLP_I077 | I-2A-10 | In Sag | 0.0007 | 0.028 | 0.040 | 6.00 | 0.75 | 0.11 | 10.00 | 6.13 | 1.28 | 0.00 | 1.28 | 3.98 | 6.00 | 3.91 | 4.00 |
| D-91 | 146+35 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0176 | 0.035 | 0.040 | 6.00 | 0.81 | 0.45 | 10.00 | 6.13 | 2.93 | 0.49 | 2.44 | 5.83 | 6.00 | 2.80 | 4.00 |
| D-90 | 147+75 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0231 | 0.016 | 0.040 | 6.00 | 0.80 | 0.22 | 10.00 | 6.13 | 2.49 | 0.67 | 1.81 | 5.21 | 6.00 | 2.50 | 4.00 |
| D-89 | 148+50 | RT | CLP_I077 | I-2A-12 | On Grade | 0.0231 | 0.016 | 0.040 | 6.00 | 0.75 | 0.98 | 10.00 | 6.13 | 4.52 | 1.39 | 3.14 | 7.29 | 6.00 | 3.13 | 4.00 |

***Spread Calculations for Proposed Inlets Sta. 159+85 to Ramp D1 NB Outside Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-150 | 159+85 | RT | CLP_I077 | I-3D | On Grade | 0.0065 | 0.031 | 0.040 | 8.00 | 0.88 | 0.19 | 10.00 | 6.13 | 1.01 | 0.00 | 1.01 | 4.72 | 8.00 | 2.27 | 6.00 |
| D-152 | 165+30 | RT | CLP_I077 | I-3D | On Grade | 0.0015 | 0.024 | 0.040 | 10.00 | 0.80 | 0.27 | 10.00 | 6.13 | 1.34 | 0.00 | 1.34 | 6.89 | 10.00 | 3.31 | 6.00 |
| D-154 | 166+27 | RT | CLP_I077 | I-3D | In Sag | 0.0042 | 0.016 | 0.040 | 10.00 | 0.80 | 0.13 | 10.00 | 6.13 | 1.53 | 0.00 | 1.53 | 8.07 | 10.00 | 5.87 | 6.00 |
| D-155 | 167+60 | RT | CLP_I077 | I-3D | On Grade | 0.0070 | 0.016 | 0.040 | 10.00 | 0.88 | 0.71 | 10.00 | 6.13 | 3.86 | 0.91 | 2.96 | 7.69 | 10.00 | 3.69 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-184 | 183+42 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0055 | 0.026 | 0.038 | 9.07 | 0.86 | 0.19 | 10.00 | 6.13 | 1.03 | 0.00 | 1.03 | 5.10 | 9.07 | 2.30 | 4.00 |
| D-188 | 188+13 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0249 | 0.026 | 0.040 | 8.00 | 0.85 | 0.69 | 10.00 | 6.13 | 3.63 | 1.43 | 2.19 | 5.97 | 8.00 | 2.83 | 4.00 |
| D-189A | 189+81 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0249 | 0.040 | 0.040 | 4.00 | 0.85 | 0.33 | 10.00 | 6.13 | 3.19 | 0.90 | 2.28 | 5.63 | 8.00 | 2.70 | 4.00 |
| D-189 | 191+65 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0084 | 0.035 | 0.040 | 6.00 | 0.85 | 0.37 | 10.00 | 6.13 | 2.85 | 0.41 | 2.45 | 6.73 | 6.00 | 3.19 | 4.00 |
| D-190 | 191+95 | RT | CLP_I077 | I-2A-8 | In Sag | 0.0004 | 0.035 | 0.040 | 6.00 | 0.78 | 0.11 | 10.00 | 6.13 | 1.02 | 0.00 | 1.02 | 2.83 | 6.00 | 3.36 | 4.00 |
| D-191 | 192+36 | RT | CLP_I077 | I-2A-10 | On Grade | 0.0100 | 0.035 | 0.040 | 6.00 | 0.78 | 0.35 | 10.00 | 6.13 | 1.68 | 0.11 | 1.57 | 5.26 | 6.00 | 2.53 | 4.00 |

***Spread Calculations for Proposed Inlets Sta. 74+98 to Ramp C2 SB Outside Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-4C | 75+07 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0120 | 0.020 | 0.040 | 15.95 | 0.79 | 0.61 | 10.00 | 4.94 | 2.42 | 0.61 | 1.81 | 5.83 | 15.95 | 2.80 | 4.00 |
| D-3C | 77+70 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0099 | 0.036 | 0.040 | 11.92 | 0.80 | 0.53 | 10.00 | 4.94 | 2.09 | 0.36 | 1.73 | 5.76 | 11.92 | 2.74 | 4.00 |
| D-6 | 78+90 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0099 | 0.041 | 0.041 | 10.00 | 0.80 | 0.32 | 10.00 | 4.94 | 1.64 | 0.00 | 1.64 | 5.13 | 10.00 | 2.52 | 4.00 |
| D-10A | 80+62 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0068 | 0.041 | 0.041 | 10.00 | 0.80 | 0.44 | 10.00 | 4.94 | 1.75 | 0.00 | 1.75 | 5.64 | 10.00 | 2.78 | 4.00 |
| D-10 | 81+60 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0036 | 0.041 | 0.041 | 10.00 | 0.82 | 0.23 | 10.00 | 4.94 | 0.93 | 0.00 | 0.93 | 5.02 | 10.00 | 2.47 | 4.00 |
| D-15C | 82+25 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0011 | 0.041 | 0.041 | 10.00 | 0.83 | 0.14 | 10.00 | 4.94 | 0.57 | 0.00 | 0.57 | 5.24 | 10.00 | 2.58 | 4.00 |
| D-15 | 82+57 | LT | CLP_I077 | I-2A-6 | In Sag | 0.0001 | 0.041 | 0.041 | 10.00 | 0.85 | 0.12 | 10.00 | 4.94 | 0.51 | 0.00 | 0.51 | 1.39 | 10.00 | 2.53 | 4.00 |
| D-17A | 82+90 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0011 | 0.041 | 0.041 | 10.00 | 0.86 | 0.10 | 10.00 | 4.94 | 0.44 | 0.00 | 0.44 | 4.76 | 10.00 | 2.34 | 4.00 |
| D-17 | 83+49 | LT | CLP_I077 | I-2A-6 | On Grade | 0.0032 | 0.031 | 0.031 | 10.00 | 0.87 | 0.07 | 10.00 | 4.94 | 0.32 | 0.00 | 0.32 | 4.11 | 10.00 | 1.52 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-2 | 78+53 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0386 | 0.016 | 0.040 | 6.00 | 0.85 | 0.38 | 10.00 | 4.94 | 1.60 | 0.40 | 1.19 | 4.01 | 6.00 | 1.93 | 4.00 |
| D-11 | 81+47 | LT | CLP_I077 | I-2A-12 | On Grade | 0.0587 | 0.016 | 0.040 | 6.00 | 0.78 | 0.48 | 10.00 | 4.94 | 2.28 | 0.69 | 1.59 | 4.23 | 6.00 | 2.03 | 4.00 |
| D-19 | 83+72 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0097 | 0.037 | 0.040 | 6.74 | 0.78 | 0.44 | 10.00 | 4.94 | 2.38 | 0.33 | 2.05 | 6.03 | 6.74 | 2.89 | 4.00 |
| D-18 | 83+99 | LT | CLP_I077 | I-2A-6 | In Sag | 0.0016 | 0.037 | 0.040 | 7.79 | 0.83 | 0.18 | 10.00 | 4.94 | 1.07 | 0.00 | 1.07 | 2.72 | 7.79 | 3.30 | 4.00 |
| D-21A | 84+32 | LT | CLP_I077 | I-3D | On Grade | 0.0010 | 0.038 | 0.040 | 8.00 | 0.90 | 0.10 | 10.00 | 4.94 | 0.43 | 0.00 | 0.43 | 4.88 | 10.00 | 2.34 | 6.00 |
| D-21 | 84+83 | LT | CLP_I077 | I-3D | On Grade | 0.0010 | 0.040 | 0.040 | 8.00 | 0.90 | 0.19 | 10.00 | 4.94 | 0.85 | 0.00 | 0.85 | 6.24 | 8.00 | 3.03 | 6.00 |
| D-24 | 85+99 | LT | CLP_I077 | I-3D | On Grade | 0.0010 | 0.041 | 0.041 | 8.00 | 0.90 | 0.30 | 10.00 | 4.94 | 1.36 | 0.00 | 1.36 | 7.37 | 8.00 | 3.63 | 6.00 |
| D-26 | 88+17 | LT | CLP_I077 | I-3D | On Grade | 0.0040 | 0.041 | 0.041 | 8.00 | 0.87 | 0.28 | 10.00 | 4.94 | 1.20 | 0.00 | 1.20 | 5.42 | 8.00 | 2.67 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-31C | 92+82 | LT | CLP_I077 | I-3D | On Grade | 0.0048 | 0.041 | 0.041 | 12.00 | 0.83 | 0.44 | 10.00 | 4.94 | 1.81 | 0.00 | 1.81 | 6.10 | 12.00 | 3.00 | 6.00 |
| D-36 | 95+55 | LT | CLP_I077 | I-3D | On Grade | 0.0099 | 0.041 | 0.041 | 7.00 | 0.84 | 0.47 | 10.00 | 4.94 | 1.94 | 0.10 | 1.84 | 5.48 | 7.00 | 2.69 | 6.00 |
| D-37A | 98+90 | LT | CLP_I077 | I-3D | On Grade | 0.0107 | 0.016 | 0.038 | 5.18 | 0.90 | 0.33 | 10.00 | 4.94 | 1.58 | 0.08 | 1.49 | 5.18 | 5.18 | 2.41 | 6.00 |
| D-40 | 103+70 | LT | CLP_I077 | I-3D | On Grade | 0.0145 | 0.023 | 0.023 | 6.84 | 0.90 | 0.28 | 10.00 | 4.94 | 1.34 | 0.13 | 1.20 | 6.30 | 6.84 | 1.76 | 6.00 |
| D-51 | 108+16 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0120 | 0.030 | 0.040 | 6.00 | 0.75 | 0.30 | 10.00 | 4.94 | 1.25 | 0.17 | 1.08 | 4.55 | 6.00 | 2.18 | 4.00 |
| D-50 | 108+86 | LT | CLP_I077 | I-2A-10 | In Sag | 0.0010 | 0.030 | 0.040 | 6.00 | 0.78 | 0.19 | 10.00 | 4.94 | 0.93 | 0.00 | 0.93 | 3.31 | 6.00 | 3.59 | 4.00 |
| D-49 | 109+18 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0162 | 0.040 | 0.040 | 6.00 | 0.80 | 0.56 | 10.00 | 4.94 | 2.25 | 0.00 | 2.25 | 5.35 | 6.00 | 2.57 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-54 | 111+12 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0145 | 0.040 | 0.040 | 10.00 | 0.71 | 0.25 | 10.00 | 4.94 | 0.90 | 0.00 | 0.90 | 3.87 | 10.00 | 1.86 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-69 | 129+07 | LT | CLP_I077 | I-3D | On Grade | 0.0041 | 0.036 | 0.040 | 10.00 | 0.90 | 0.00 | 10.00 | 4.94 | 0.01 | 0.00 | 0.01 | 0.80 | 10.00 | 0.39 | 6.00 |
| D-70 | 129+77 | LT | CLP_I077 | I-3D | In Sag | 0.0001 | 0.036 | 0.040 | 10.00 | 0.90 | 0.04 | 10.00 | 4.94 | 0.16 | 0.00 | 0.16 | 2.92 | 10.00 | 2.70 | 6.00 |
| D-68 | 130+65 | LT | CLP_I077 | I-3D | On Grade | 0.0051 | 0.032 | 0.040 | 10.00 | 0.90 | 0.02 | 10.00 | 4.94 | 0.11 | 0.00 | 0.11 | 2.12 | 10.00 | 1.02 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-85 | 141+50 | LT | CLP_I077 | I-3D | On Grade | 0.0180 | 0.024 | 0.040 | 10.00 | 0.80 | 0.30 | 10.00 | 4.94 | 1.98 | 0.47 | 1.51 | 5.01 | 10.00 | 2.40 | 6.00 |
| D-95A | 146+07 | LT | CLP_I077 | I-2A-12 | On Grade | 0.0216 | 0.024 | 0.040 | 10.00 | 0.80 | 0.75 | 10.00 | 4.94 | 2.98 | 0.77 | 2.21 | 5.65 | 10.00 | 2.71 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-101 | 150+18 | LT | CLP_I077 | I-3D | On Grade | 0.0227 | 0.016 | 0.016 | 4.00 | 0.90 | 0.02 | 10.00 | 4.94 | 0.10 | 0.00 | 0.10 | 2.74 | 4.00 | 0.53 | 6.00 |
| D-100 | 150+61 | LT | CLP_I077 | I-3D | In Sag | 0.0017 | 0.016 | 0.039 | 5.27 | 0.90 | 0.01 | 10.00 | 4.94 | 0.06 | 0.00 | 0.06 | 3.94 | 5.27 | 3.58 | 6.00 |
| D-102 | 151+00 | LT | CLP_I077 | I-3D | On Grade | 0.0030 | 0.018 | 0.029 | 6.81 | 0.90 | 0.10 | 10.00 | 4.94 | 0.44 | 0.00 | 0.44 | 4.92 | 6.81 | 1.69 | 6.00 |
| D-103 | 151+99 | LT | CLP_I077 | I-3D | On Grade | 0.0030 | 0.016 | 0.040 | 8.00 | 0.90 | 0.11 | 10.00 | 4.94 | 0.51 | 0.00 | 0.51 | 4.23 | 8.00 | 2.03 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 157+55 to Sta. 203+04 SB Outside Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-163A | 157+55 | LT | CLP_I077 | I-3D | On Grade | 0.0065 | 0.031 | 0.040 | 10.00 | 0.85 | 0.59 | 10.00 | 4.94 | 2.48 | 0.32 | 2.16 | 6.61 | 10.00 | 3.17 | 6.00 |
| D-163 | 159+90 | LT | CLP_I077 | I-3D | On Grade | 0.0065 | 0.031 | 0.040 | 10.00 | 0.90 | 0.26 | 10.00 | 4.94 | 1.47 | 0.05 | 1.42 | 5.43 | 10.00 | 2.61 | 6.00 |
| D-164 | 163+35 | LT | CLP_I077 | CB-6 | On Grade | 0.0036 | 0.031 | 0.040 | 10.00 | 0.90 | 0.38 | 10.00 | 4.94 | 1.75 | 0.46 | 1.29 | 6.47 | 10.00 | 3.11 | 6.00 |
| D-165 | 164+50 | LT | CLP_I077 | CB-6 | In Sag | 0.0006 | 0.031 | 0.040 | 10.00 | 0.90 | 0.21 | 10.00 | 4.94 | 1.55 | 0.00 | 1.55 | 5.98 | 10.00 | 2.87 | 6.00 |
| D-166 | 165+25 | LT | CLP_I077 | CB-6 | On Grade | 0.0015 | 0.025 | 0.040 | 10.00 | 0.90 | 0.06 | 10.00 | 4.94 | 0.89 | 0.13 | 0.76 | 5.92 | 10.00 | 2.84 | 6.00 |
| D-166A | 165+75 | LT | CLP_I077 | CB-6 | On Grade | 0.0029 | 0.019 | 0.040 | 10.23 | 0.90 | 0.20 | 10.00 | 4.94 | 2.24 | 0.64 | 1.60 | 7.41 | 10.23 | 3.56 | 6.00 |
| D-167 | 167+75 | LT | CLP_I077 | CB-6 | On Grade | 0.0070 | 0.016 | 0.040 | 13.30 | 0.90 | 0.78 | 10.00 | 4.94 | 3.50 | 1.35 | 2.15 | 7.41 | 13.30 | 3.56 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-210 | 199+18 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0039 | 0.012 | 0.040 | 10.00 | 0.78 | 0.40 | 10.00 | 4.94 | 1.57 | 0.00 | 1.56 | 6.12 | 10.00 | 2.94 | 4.00 |
| D-212E | 199+98 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0008 | 0.016 | 0.040 | 10.00 | 0.79 | 0.20 | 10.00 | 4.94 | 0.80 | 0.00 | 0.80 | 6.39 | 10.00 | 3.07 | 4.00 |
| D-212 | 200+20 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0001 | 0.016 | 0.040 | 10.00 | 0.79 | 0.10 | 10.00 | 4.94 | 0.38 | 0.00 | 0.38 | 7.46 | 10.00 | 3.58 | 4.00 |
| D-212D | 200+42 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0011 | 0.016 | 0.040 | 10.00 | 0.79 | 0.19 | 10.00 | 4.94 | 0.80 | 0.00 | 0.80 | 6.00 | 10.00 | 2.88 | 4.00 |
| D-214 | 201+22 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0042 | 0.016 | 0.040 | 10.00 | 0.83 | 0.40 | 10.00 | 4.94 | 1.84 | 0.04 | 1.79 | 6.40 | 10.00 | 3.07 | 4.00 |
| D-215C | 203+04 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0051 | 0.016 | 0.040 | 10.00 | 0.85 | 0.37 | 10.00 | 4.94 | 1.55 | 0.16 | 1.39 | 5.79 | 10.00 | 2.78 | 4.00 |

***Spread Calculations for Proposed Inlets Sta. 210+32 to End SB Outside Using 10 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-405 | 210+32 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0143 | 0.016 | 0.040 | 10.00 | 0.90 | 0.72 | 10.00 | 4.94 | 3.22 | 1.00 | 2.23 | 6.31 | 10.00 | 3.01 | 4.00 |

***Spread Calculations for Proposed Inlets Sta. 74+98 to Ramp C2 SB Outside Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-4C | 75+07 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0120 | 0.020 | 0.040 | 15.95 | 0.79 | 0.61 | 10.00 | 6.13 | 3.00 | 0.90 | 2.10 | 6.32 | 15.95 | 3.03 | 4.00 |
| D-3C | 77+70 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0099 | 0.036 | 0.040 | 11.92 | 0.80 | 0.53 | 10.00 | 6.13 | 2.60 | 0.57 | 2.02 | 6.24 | 11.92 | 2.97 | 4.00 |
| D-6 | 78+90 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0099 | 0.041 | 0.041 | 10.00 | 0.80 | 0.32 | 10.00 | 6.13 | 2.15 | 0.02 | 2.13 | 5.68 | 10.00 | 2.80 | 4.00 |
| D-10A | 80+62 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0068 | 0.041 | 0.041 | 10.00 | 0.80 | 0.44 | 10.00 | 6.13 | 2.20 | 0.00 | 2.20 | 6.14 | 10.00 | 3.02 | 4.00 |
| D-10 | 81+60 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0036 | 0.041 | 0.041 | 10.00 | 0.82 | 0.23 | 10.00 | 6.13 | 1.15 | 0.00 | 1.15 | 5.44 | 10.00 | 2.68 | 4.00 |
| D-15C | 82+25 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0011 | 0.041 | 0.041 | 10.00 | 0.83 | 0.14 | 10.00 | 6.13 | 0.71 | 0.00 | 0.71 | 5.68 | 10.00 | 2.79 | 4.00 |
| D-15 | 82+57 | LT | CLP_I077 | I-2A-6 | In Sag | 0.0001 | 0.041 | 0.041 | 10.00 | 0.85 | 0.12 | 10.00 | 6.13 | 0.63 | 0.00 | 0.63 | 1.43 | 10.00 | 2.61 | 4.00 |
| D-17A | 82+90 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0011 | 0.041 | 0.041 | 10.00 | 0.86 | 0.10 | 10.00 | 6.13 | 0.55 | 0.00 | 0.55 | 5.16 | 10.00 | 2.54 | 4.00 |
| D-17 | 83+49 | LT | CLP_I077 | I-2A-6 | On Grade | 0.0032 | 0.031 | 0.031 | 10.00 | 0.87 | 0.07 | 10.00 | 6.13 | 0.40 | 0.00 | 0.40 | 4.46 | 10.00 | 1.65 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-2 | 78+53 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0386 | 0.016 | 0.040 | 6.00 | 0.85 | 0.38 | 10.00 | 6.13 | 1.98 | 0.60 | 1.39 | 4.35 | 6.00 | 2.09 | 4.00 |
| D-11 | 81+47 | LT | CLP_I077 | I-2A-12 | On Grade | 0.0587 | 0.016 | 0.040 | 6.00 | 0.78 | 0.48 | 10.00 | 6.13 | 2.92 | 1.03 | 1.89 | 4.65 | 6.00 | 2.23 | 4.00 |
| D-19 | 83+72 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0097 | 0.037 | 0.040 | 6.74 | 0.78 | 0.44 | 10.00 | 6.13 | 3.13 | 0.62 | 2.51 | 6.68 | 6.74 | 3.21 | 4.00 |
| D-18 | 83+99 | LT | CLP_I077 | I-2A-6 | In Sag | 0.0016 | 0.037 | 0.040 | 7.79 | 0.83 | 0.18 | 10.00 | 6.13 | 1.54 | 0.00 | 1.54 | 3.27 | 7.79 | 3.57 | 4.00 |
| D-21A | 84+32 | LT | CLP_I077 | I-3D | On Grade | 0.0010 | 0.038 | 0.040 | 8.00 | 0.90 | 0.10 | 10.00 | 6.13 | 0.54 | 0.00 | 0.54 | 5.29 | 10.00 | 2.54 | 6.00 |
| D-21 | 84+83 | LT | CLP_I077 | I-3D | On Grade | 0.0010 | 0.040 | 0.040 | 8.00 | 0.90 | 0.19 | 10.00 | 6.13 | 1.06 | 0.00 | 1.06 | 6.77 | 8.00 | 3.28 | 6.00 |
| D-24 | 85+99 | LT | CLP_I077 | I-3D | On Grade | 0.0010 | 0.041 | 0.041 | 8.00 | 0.90 | 0.30 | 10.00 | 6.13 | 1.69 | 0.00 | 1.69 | 8.00 | 8.00 | 3.93 | 6.00 |
| D-26 | 88+17 | LT | CLP_I077 | I-3D | On Grade | 0.0040 | 0.041 | 0.041 | 8.00 | 0.87 | 0.28 | 10.00 | 6.13 | 1.49 | 0.00 | 1.49 | 5.88 | 8.00 | 2.89 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-31C | 92+82 | LT | CLP_I077 | I-3D | On Grade | 0.0048 | 0.041 | 0.041 | 12.00 | 0.83 | 0.44 | 10.00 | 6.13 | 2.25 | 0.01 | 2.23 | 6.62 | 12.00 | 3.26 | 6.00 |
| D-36 | 95+55 | LT | CLP_I077 | I-3D | On Grade | 0.0099 | 0.041 | 0.041 | 7.00 | 0.84 | 0.47 | 10.00 | 6.13 | 2.43 | 0.22 | 2.20 | 5.95 | 7.00 | 2.93 | 6.00 |
| D-37A | 98+90 | LT | CLP_I077 | I-3D | On Grade | 0.0107 | 0.016 | 0.038 | 5.18 | 0.90 | 0.33 | 10.00 | 6.13 | 2.05 | 0.21 | 1.85 | 6.35 | 5.18 | 2.66 | 6.00 |
| D-40 | 103+70 | LT | CLP_I077 | I-3D | On Grade | 0.0145 | 0.023 | 0.023 | 6.84 | 0.90 | 0.28 | 10.00 | 6.13 | 1.76 | 0.28 | 1.48 | 6.99 | 6.84 | 1.96 | 6.00 |
| D-51 | 108+16 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0120 | 0.030 | 0.040 | 6.00 | 0.75 | 0.30 | 10.00 | 6.13 | 1.66 | 0.33 | 1.34 | 5.06 | 6.00 | 2.43 | 4.00 |
| D-50 | 108+86 | LT | CLP_I077 | I-2A-10 | In Sag | 0.0010 | 0.030 | 0.040 | 6.00 | 0.78 | 0.19 | 10.00 | 6.13 | 1.32 | 0.00 | 1.32 | 3.78 | 6.00 | 3.82 | 4.00 |
| D-49 | 109+18 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0162 | 0.040 | 0.040 | 6.00 | 0.80 | 0.56 | 10.00 | 6.13 | 2.79 | 0.06 | 2.74 | 5.81 | 6.00 | 2.79 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-54 | 111+12 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0145 | 0.040 | 0.040 | 10.00 | 0.71 | 0.25 | 10.00 | 6.13 | 1.11 | 0.00 | 1.11 | 4.20 | 10.00 | 2.02 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-69 | 129+07 | LT | CLP_I077 | I-3D | On Grade | 0.0041 | 0.036 | 0.040 | 10.00 | 0.90 | 0.00 | 10.00 | 6.13 | 0.01 | 0.00 | 0.01 | 0.87 | 10.00 | 0.42 | 6.00 |
| D-70 | 129+77 | LT | CLP_I077 | I-3D | In Sag | 0.0001 | 0.036 | 0.040 | 10.00 | 0.90 | 0.04 | 10.00 | 6.13 | 0.20 | 0.00 | 0.20 | 2.96 | 10.00 | 2.73 | 6.00 |
| D-68 | 130+65 | LT | CLP_I077 | I-3D | On Grade | 0.0051 | 0.032 | 0.040 | 10.00 | 0.90 | 0.02 | 10.00 | 6.13 | 0.13 | 0.00 | 0.13 | 2.29 | 10.00 | 1.10 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-85 | 141+50 | LT | CLP_I077 | I-3D | On Grade | 0.0180 | 0.024 | 0.040 | 10.00 | 0.80 | 0.30 | 10.00 | 6.13 | 2.62 | 0.78 | 1.84 | 5.57 | 10.00 | 2.67 | 6.00 |
| D-95A | 146+07 | LT | CLP_I077 | I-2A-12 | On Grade | 0.0216 | 0.024 | 0.040 | 10.00 | 0.80 | 0.75 | 10.00 | 6.13 | 3.70 | 1.13 | 2.56 | 6.12 | 10.00 | 2.94 | 4.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-101 | 150+18 | LT | CLP_I077 | I-3D | On Grade | 0.0227 | 0.016 | 0.016 | 4.00 | 0.90 | 0.02 | 10.00 | 6.13 | 0.12 | 0.00 | 0.12 | 2.97 | 4.00 | 0.57 | 6.00 |
| D-100 | 150+61 | LT | CLP_I077 | I-3D | In Sag | 0.0017 | 0.016 | 0.039 | 5.27 | 0.90 | 0.01 | 10.00 | 6.13 | 0.07 | 0.00 | 0.07 | 3.96 | 5.27 | 3.60 | 6.00 |
| D-102 | 151+00 | LT | CLP_I077 | I-3D | On Grade | 0.0030 | 0.018 | 0.029 | 6.81 | 0.90 | 0.10 | 10.00 | 6.13 | 0.54 | 0.00 | 0.54 | 5.33 | 6.81 | 1.83 | 6.00 |
| D-103 | 151+99 | LT | CLP_I077 | I-3D | On Grade | 0.0030 | 0.016 | 0.040 | 8.00 | 0.90 | 0.11 | 10.00 | 6.13 | 0.64 | 0.00 | 0.64 | 4.59 | 8.00 | 2.20 | 6.00 |

***Spread Calculations for Proposed Inlets Sta. 157+55 to Sta. 203+04 SB Outside Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-163A | 157+55 | LT | CLP_I077 | I-3D | On Grade | 0.0065 | 0.031 | 0.040 | 10.00 | 0.85 | 0.59 | 10.00 | 6.13 | 3.07 | 0.53 | 2.54 | 7.16 | 10.00 | 3.44 | 6.00 |
| D-163 | 159+90 | LT | CLP_I077 | I-3D | On Grade | 0.0065 | 0.031 | 0.040 | 10.00 | 0.90 | 0.26 | 10.00 | 6.13 | 1.96 | 0.16 | 1.80 | 6.05 | 10.00 | 2.91 | 6.00 |
| D-164 | 163+35 | LT | CLP_I077 | CB-6 | On Grade | 0.0036 | 0.031 | 0.040 | 10.00 | 0.90 | 0.38 | 10.00 | 6.13 | 2.27 | 0.68 | 1.59 | 7.13 | 10.00 | 3.42 | 6.00 |
| D-165 | 164+50 | LT | CLP_I077 | CB-6 | In Sag | 0.0006 | 0.031 | 0.040 | 10.00 | 0.90 | 0.21 | 10.00 | 6.13 | 2.09 | 0.00 | 2.09 | 7.06 | 10.00 | 3.39 | 6.00 |
| D-166 | 165+25 | LT | CLP_I077 | CB-6 | On Grade | 0.0015 | 0.025 | 0.040 | 10.00 | 0.90 | 0.06 | 10.00 | 6.13 | 1.25 | 0.22 | 1.03 | 6.72 | 10.00 | 3.23 | 6.00 |
| D-166A | 165+75 | LT | CLP_I077 | CB-6 | On Grade | 0.0029 | 0.019 | 0.040 | 10.23 | 0.90 | 0.20 | 10.00 | 6.13 | 2.92 | 0.93 | 1.98 | 8.18 | 10.23 | 3.93 | 6.00 |
| D-167 | 167+75 | LT | CLP_I077 | CB-6 | On Grade | 0.0070 | 0.016 | 0.040 | 13.30 | 0.90 | 0.78 | 10.00 | 6.13 | 4.35 | 1.82 | 2.53 | 8.04 | 13.30 | 3.86 | 6.00 |
| | | | | | | | | | | | | | | | | | | | | |
| D-210 | 199+18 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0039 | 0.012 | 0.040 | 10.00 | 0.78 | 0.40 | 10.00 | 6.13 | 1.95 | 0.04 | 1.90 | 6.64 | 10.00 | 3.19 | 4.00 |
| D-212E | 199+98 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0008 | 0.016 | 0.040 | 10.00 | 0.79 | 0.20 | 10.00 | 6.13 | 1.03 | 0.00 | 1.03 | 7.03 | 10.00 | 3.37 | 4.00 |
| D-212 | 200+20 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0001 | 0.016 | 0.040 | 10.00 | 0.79 | 0.10 | 10.00 | 6.13 | 0.48 | 0.00 | 0.48 | 8.09 | 10.00 | 3.88 | 4.00 |
| D-212D | 200+42 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0011 | 0.016 | 0.040 | 10.00 | 0.79 | 0.19 | 10.00 | 6.13 | 1.08 | 0.00 | 1.08 | 6.73 | 10.00 | 3.23 | 4.00 |
| D-214 | 201+22 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0042 | 0.016 | 0.040 | 10.00 | 0.83 | 0.40 | 10.00 | 6.13 | 2.36 | 0.14 | 2.22 | 7.03 | 10.00 | 3.38 | 4.00 |
| D-215C | 203+04 | LT | CLP_I077 | I-2A-8 | On Grade | 0.0051 | 0.016 | 0.040 | 10.00 | 0.85 | 0.37 | 10.00 | 6.13 | 1.92 | 0.29 | 1.63 | 6.28 | 10.00 | 3.01 | 4.00 |

***Spread Calculations for Proposed Inlets Sta. 210+32 to End SB Outside Using 50 Year Storm***

| Label | Baseline Station (ft) | Side | Baseline Alignment | Inlet | Inlet Location | Longitudinal Slope (Inlet) (ft/ft) | Road Cross Slope (ft/ft) | Gutter Cross Slope (ft/ft) | Gutter Width (ft) | Inlet C | Inlet Drainage Area (acres) | Total Inlet Tc (min) | Total Inlet Intensity (in/h) | Flow (Local Surface) (cfs) | Flow (Total Bypassed) (cfs) | Flow (Captured) (cfs) | Spread / Top Width (ft) | Total Allowable Spread (ft) | Depth (Gutter) (in) | Allowable Depth (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-405 | 210+32 | LT | CLP_I077 | I-2A-10 | On Grade | 0.0143 | 0.016 | 0.040 | 10.00 | 0.90 | 0.72 | 10.00 | 6.13 | 4.00 | 1.42 | 2.58 | 6.84 | 10.00 | 3.26 | 4.00 |

## 2.3 Storm Sewer Calculations – Burke Brook Outfall

Includes flow assumptions (CDSS), 10-year storm sewer design (StormCAD), 25-year constant intensity check (StormCAD) and 50-year constant intensity check (StormCAD).

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 12" at STA. 78+32 LT

**Description :**Assumption to get a flow for 12" at STA. 78+32 LT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 12.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From | To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X81 | DU71 | 77+56 | | 1.71 | 1.03 | 10.00 | 4.94 | 5.59 | 5.1 | 5.7 | 15 | 79.7 | 0.0232 | 716.48 | 7.25 | 9.18 | 0.0105 | 717.23 | 0.00 | -717.23 | -717.73 | MH 3 |
| begin | | 78+43 | | 1.71 | 1.03 | | | | | | | | | 714.63 | | | | 715.74 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include:
DA = 1.71ac, C=0.6, Tc=10 min to get the just full capacity for the ex 12". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 24" at STA. 78+37 LT

**Description :**Assumption to get a flow for 24" at STA. 78+37 LT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 12.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X76 | DU72 | 78+04 | 7.10 | 4.26 | 10.00 | 4.94 | 5.60 | 21.1 | 23.9 | 27 | 63.0 | 0.0093 | 710.16 | 7.26 | 27.87 | 0.0079 | 712.05 | 0.00 | -712.05 | -712.41 | MH 3 |
| begin | | 78+37 | 7.10 | 4.26 | | | | | | | | | 709.57 | | | | 711.55 | 0.00 | | | 0.015 |

To account for existing system along Grant which will flow to the new 77 system include: DA = 7.1ac, C=0.6, Tc=10 min to get the just full capacity for the ex 24". This flow will be added to the existing manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 15" at STA. 89+10 LT

**Description :**Assumption to get a flow for 15" at STA. 89+10 LT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 12.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From | To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X101 | DU72 | 88+98 | | 2.85 | 1.71 | 10.00 | 4.94 | 5.61 | 8.5 | 9.6 | 15 | 48.0 | 0.0200 | 693.00 | 6.89 | 8.52 | 0.0293 | 694.66 | 0.00 | -694.66 | -694.25 | MH 3 |
| begin | | 89+10 | | 2.85 | 1.71 | | | | | | | | | 692.04 | | | | 693.25 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include: DA = 2.85ac, C=0.6, Tc=10 min to get the just full capacity for the ex 15". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 8" at STA. 90+00 RT

**Description :**Assumption to get a flow for 8" at STA. 90+00 RT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 8.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From | To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X53B | DU72 | 90+00 | | 0.40 | 0.24 | 10.00 | 4.94 | 5.59 | 1.2 | 1.3 | 8 | 38.0 | 0.0105 | 697.39 | 3.40 | 1.16 | 0.0164 | 698.22 | 0.00 | -698.22 | -698.06 | MH 3 |
| begin | | 90+00 | | 0.40 | 0.24 | | | | | | Warning | | | 696.99 | | | | 697.60 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include: DA = 0.40ac, C=0.6, Tc=10 min to get the just full capacity for the ex 8". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 15" at STA. 90+00 LT

**Description :**Assumption to get a flow for 15" at STA. 90+00 LT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 12.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From | To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X48 | D28 | 90+00 | | 1.94 | 1.16 | 10.00 | 4.94 | 5.60 | 5.8 | 6.5 | 15 | 46.0 | 0.0091 | 690.96 | 4.69 | 5.75 | 0.0135 | 692.30 | 0.00 | -692.30 | -692.21 | MH 3 |
| begin | | 90+00 | | 1.94 | 1.16 | | | | | | | | | 690.54 | | | | 691.68 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include:
DA = 1.94ac, C=0.6, Tc=10 min to get the just full capacity for the ex 15". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 8" at STA. 95+07 RT

**Description :**Assumption to get a flow for 8" at STA. 95+07 RT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 8.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X728 | DU72 | 94+32 | 0.39 | 0.23 | 10.00 | 4.94 | 5.54 | 1.2 | 1.3 | 8 | 84.0 | 0.0100 | 703.46 | 3.31 | 1.13 | 0.0153 | 704.51 | 0.00 | -704.51 | -704.12 | MH 3 |
| begin | | 95+07 | 0.39 | 0.23 | | | | | | Warning | | | 702.62 | | | | 703.22 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include: DA = 0.39ac, C=0.6, Tc=10 min to get the just full capacity for the ex 8". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 36" at STA. 95+17 RT

**Description :**Assumption to get a flow for 36" at STA. 95+17 RT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 12.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X127 | DU72 | 95+17 | 23.90 | 14.34 | 15.00 | 4.13 | 4.72 | 59.2 | 67.7 | 36 | 45.0 | 0.0091 | 700.42 | 8.38 | 59.35 | 0.0137 | 703.44 | 0.00 | -703.44 | -703.42 | MH 3 |
| begin | | 95+17 | 23.90 | 14.34 | | | | | | | | | 700.01 | | | | 702.82 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include: DA = 23.90ac, C=0.6, Tc=15 min to get the just full capacity for the ex 36". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 8" at STA. 95+27 RT

**Description :**Assumption to get a flow for 8" at STA. 95+27 RT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 8.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X729 | DU72 | 95+55 | 0.39 | 0.23 | 10.00 | 4.94 | 5.59 | 1.2 | 1.3 | 8 | 35.0 | 0.0100 | 702.97 | 3.31 | 1.13 | 0.0156 | 703.77 | 0.00 | -703.77 | -703.63 | MH 3 |
| begin | | 95+27 | 0.39 | 0.23 | | | | | | Warning | | | 702.62 | | | | 703.22 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include: DA = 0.39ac, C=0.6, Tc=10 min to get the just full capacity for the ex 8". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 15" at STA. 95+55 LT

**Description :**Assumption to get a flow for 15" at STA. 95+55 LT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 12.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X123 | DU35 | 95+55 | 2.00 | 1.20 | 10.00 | 4.94 | 5.60 | 5.9 | 6.7 | 15 | 51.0 | 0.0100 | 687.00 | 5.15 | 6.02 | 0.0144 | 688.37 | 0.00 | -688.37 | -688.25 | CB 2-2B |
| begin | | 95+55 | 2.00 | 1.20 | | | | | | | | | 686.49 | | | | 687.64 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include: DA = 2.00ac, C=0.6, Tc=10 min to get the just full capacity for the ex 15". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 18" at STA. 134+55 LT

**Description :**Assumption to get a flow for 18" at STA. 134+55 LT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 15.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From | To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X37 | DU73 | 134+52 | | 3.06 | 1.84 | 10.00 | 4.94 | 5.60 | 9.1 | 10.3 | 18 | 63.0 | 0.0110 | 670.95 | 6.14 | 10.25 | 0.0127 | 672.45 | 0.00 | -672.45 | -672.45 | MH 3 |
| begin | | 134+55 | | 3.06 | 1.84 | | | | | | | | | 670.26 | | | | 671.63 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include: DA = 3.06ac, C=0.6, Tc=10 min to get the just full capacity for the ex 18". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 24" at STA. 134+55 LT

**Description :**Assumption to get a flow for 24" at STA. 134+55 LT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 15.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From | To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X37 | DU73 | 134+52 | | 6.44 | 3.86 | 10.00 | 4.94 | 5.61 | 19.1 | 21.7 | 24 | 41.7 | 0.0105 | 678.68 | 7.29 | 21.66 | 0.0122 | 680.68 | 0.00 | -680.68 | -680.68 | MH 3 |
| begin | | 134+55 | | 6.44 | 3.86 | | | | | | | | | 678.24 | | | | 680.07 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include: DA = 6.44ac, C=0.6, Tc=10 min to get the just full capacity for the ex 24". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 6" at STA. 142+62 RT

**Description :**Assumption to get a flow for 6" at STA. 142+62 RT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 6.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From | To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X497 | DU87 | 142+58 | | 0.26 | 0.16 | 10.00 | 4.94 | 5.62 | 0.8 | 0.9 | 6 | 16.0 | 0.0194 | 662.00 | 3.93 | 0.73 | 0.0324 | 662.69 | 0.00 | -662.69 | -662.50 | I 2A |
| begin | | 142+62 | | 0.26 | 0.16 | | | | | | Warning | | | 661.69 | | | | 662.17 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include:
DA = 0.26ac, C=0.6, Tc=10 min to get the just full capacity for the ex 6". This flow will be added to the proposed manhole in StormCAD.

***Storm Sewer Calculations Burke Brook Outlet***

| Label | -Node- Upstream | Downstream | -Station- Start | Stop | Upstream Inlet Area (acres) | System Drainage Area (acres) | Upstream Inlet C | System CA (acres) | Upstream Inlet Tc (min) | System Flow Time (min) | | System Intensity (in/h) | | Flow (cfs) | | Diameter (in) | Length (Unified) (ft) | Slope (Calculated) (ft/ft) | -Invert- Upstream | Downstream (ft) | Manning's n | Friction Slope (ft/ft) | HGL Start | Stop (ft) | Velocity (ft/s) | Capacity (Design) (cfs) | -Ground- Upstream | Downstream (ft) | Ground Minus HGL (Start/Stop) (ft) | | Cover (Start/Stop) (ft) | Inlet Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | | | | | | | | 25 Yr. | 50 Yr. | | | | | 25 Yr. | 50 Yr. | | |
| P-4A | D-4A | | 75+11 | | 0.65 | 0.65 | 0.79 | 0.38 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.88 | 1.31 | 15.00 | 56.43 | 0.0124 | 695.20 | | 0.015 | 0.0120 | 695.65 | 695.67 | 4.45 | 6.71 | 700.74 | | 5.09 | 5.07 | 4.10 | I-2A-10 |
| | D-4B | | 75+10 | | | | | | | | | | | | | | | | 694.50 | | | | 694.89 | 694.91 | | | 700.01 | | 5.12 | 5.11 | 4.07 | I-3B1 |
| P-4B | D-4B | | 75+10 | | 0.49 | 1.14 | 0.90 | 0.77 | 10.00 | 10.21 | 10.23 | 4.90 | 3.00 | 3.82 | 2.63 | 24.00 | 61.92 | 0.0063 | 688.89 | | 0.015 | 0.0004 | 690.06 | 690.18 | 4.10 | 15.56 | 700.01 | | 9.96 | 9.83 | 8.87 | I-3B1 |
| | D-4C | | 75+11 | | | | | | | | | | | | | | | | 688.50 | | | | 690.05 | 690.18 | | | 699.26 | | 9.21 | 9.08 | 8.51 | I-2A-10 |
| P-4C | D-4C | | 75+11 | | 0.61 | 1.75 | 0.79 | 1.13 | 10.00 | 10.46 | 10.51 | 4.85 | 3.00 | 5.56 | 3.88 | 24.00 | 9.84 | 0.0102 | 688.50 | | 0.015 | 0.0007 | 690.05 | 690.18 | 5.40 | 19.76 | 699.26 | | 9.21 | 9.08 | 8.51 | I-2A-10 |
| | D-4D | | 75+11 | | | | | | | | | | | | | | | | 688.40 | | | | 690.05 | 690.17 | | | 702.23 | | 12.17 | 12.05 | 11.58 | MH-3-60 |
| P-4D | D-4D | | 75+13 | | 7.42 | 9.18 | 0.79 | 7.00 | 19.86 | 19.86 | 19.86 | 3.57 | 3.00 | 25.23 | 21.62 | 30.00 | 48.52 | 0.0062 | 688.40 | | 0.015 | 0.0064 | 690.05 | 690.17 | 6.45 | 30.07 | 702.23 | | 12.17 | 12.05 | 11.03 | MH-3-60 |
| | D-3A | | 75+55 | | | | | | | | | | | | | | | | 688.10 | | | | 689.70 | 689.82 | | | 699.05 | | 9.35 | 9.23 | 8.16 | MH-3-48 |
| P-3A | D-3A | | 75+59 | | 0.20 | 9.38 | 0.90 | 7.18 | 10.00 | 19.99 | 19.99 | 3.56 | 3.00 | 25.80 | 22.17 | 30.00 | 210.64 | 0.0071 | 688.10 | | 0.015 | 0.0071 | 689.70 | 689.82 | 6.87 | 32.27 | 699.05 | | 9.35 | 9.23 | 8.16 | MH-3-48 |
| | D-3B | | 77+68 | | | | | | | | | | | | | | | | 686.60 | | | | 688.25 | 688.34 | | | 696.49 | | 8.25 | 8.15 | 7.10 | MH-3-48 |
| P-3C | D-3C | | 77+74 | | 0.53 | 0.53 | 0.80 | 0.35 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.73 | 1.18 | 15.00 | 9.42 | 0.0106 | 690.10 | | 0.015 | 0.0095 | 690.53 | 690.55 | 4.11 | 6.21 | 696.05 | | 5.52 | 5.50 | 4.50 | I-2A-10 |
| | D-3B | | 77+71 | | | | | | | | | | | | | | | | 690.00 | | | | 690.39 | 690.40 | | | 696.49 | | 6.11 | 6.09 | 5.05 | MH-3-48 |
| P-3B | D-3B | | 77+72 | | (N/A) | 9.91 | (N/A) | 7.53 | 0.00 | 20.50 | 20.51 | 3.51 | 3.00 | 26.68 | 23.35 | 30.00 | 78.94 | 0.0076 | 686.60 | | 0.015 | 0.0076 | 688.25 | 688.34 | 7.10 | 33.34 | 696.49 | | 8.25 | 8.15 | 7.10 | MH-3-48 |
| | D-3D | | 78+48 | | | | | | | | | | | | | | | | 686.00 | | | | 687.62 | 687.73 | | | 695.50 | | 7.88 | 7.77 | 6.71 | MH-3-48 |
| P-3D | D-3D | | 78+52 | | (N/A) | 9.91 | (N/A) | 7.53 | 0.00 | 20.68 | 20.70 | 3.50 | 3.00 | 26.55 | 23.35 | 30.00 | 54.09 | 0.0209 | 686.00 | | 0.015 | 0.0149 | 687.65 | 687.73 | 10.56 | 55.33 | 695.50 | | 7.85 | 7.77 | 6.71 | MH-3-48 |
| | D-3 | | 78+95 | | | | | | | | | | | | | | | | 684.87 | | | | 686.10 | 686.17 | | | 700.99 | | 14.90 | 14.82 | 13.33 | MH-3-84 |
| P-1 | D-1 | | 78+46 | | 8.81 | 8.81 | (N/A) | 5.29 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 26.34 | 15.98 | 24.00 | 49.31 | 0.0522 | 709.57 | | 0.015 | 0.0315 | 711.02 | 711.09 | 14.83 | 48.16 | 719.29 | | 8.28 | 8.20 | 7.47 | MH-3-60 |
| | D-2A | | 78+92 | | | | | | | | | | | | | | | | 707.00 | | | | 707.87 | 707.93 | | | 717.25 | | 9.38 | 9.32 | 8.00 | MH-3-60 |
| P-2 | D-2 | | 78+58 | | 0.38 | 0.38 | 0.85 | 0.24 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.19 | 0.83 | 15.00 | 35.85 | 0.0279 | 712.50 | | 0.015 | 0.0240 | 712.86 | 712.87 | 5.23 | 10.06 | 718.91 | | 6.05 | 6.04 | 4.97 | I-2A-10 |
| | D-2A | | 78+92 | | | | | | | | | | | | | | | | 711.50 | | | | 711.75 | 711.76 | | | 717.25 | | 5.50 | 5.49 | 4.31 | MH-3-60 |
| P-2A | D-2A | | 78+94 | | (N/A) | 9.19 | (N/A) | 5.53 | 0.00 | 10.11 | 10.13 | 4.92 | 3.00 | 27.41 | 16.81 | 24.00 | 76.23 | 0.0984 | 702.00 | | 0.015 | 0.0594 | 703.48 | 703.56 | 19.01 | 66.15 | 717.25 | | 13.77 | 13.69 | 13.00 | MH-3-60 |
| | D-3 | | 78+98 | | | | | | | | | | | | | | | | 694.50 | | | | 695.22 | 695.27 | | | 700.99 | | 5.77 | 5.73 | 4.24 | MH-3-84 |
| P-5 | D-5 | | 78+90 | | 0.52 | 0.52 | 0.90 | 0.44 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 2.18 | 1.42 | 15.00 | 62.40 | 0.0248 | 691.12 | | 0.015 | 0.0235 | 691.59 | 691.62 | 5.95 | 9.47 | 696.22 | | 4.62 | 4.60 | 3.65 | I-3C1 |
| | D-6 | | 78+93 | | | | | | | | | | | | | | | | 689.58 | | | | 690.18 | 690.22 | | | 694.67 | | 4.49 | 4.45 | 3.65 | I-2A-8 |
| P-6 | D-6 | | 78+93 | | 0.32 | 0.84 | 0.80 | 0.77 | 10.00 | 10.17 | 10.20 | 4.91 | 3.00 | 3.79 | 2.28 | 15.00 | 18.26 | 0.0097 | 689.58 | | 0.015 | 0.0096 | 690.18 | 690.22 | 4.85 | 5.94 | 694.67 | | 4.49 | 4.45 | 3.65 | I-2A-8 |
| | D-3 | | 78+98 | | | | | | | | | | | | | | | | 689.40 | | | | 689.96 | 690.00 | | | 700.99 | | 11.03 | 11.00 | 10.15 | MH-3-84 |
| P-3 | D-3 | | 79+02 | | (N/A) | 19.94 | (N/A) | 13.82 | 0.00 | 20.77 | 20.79 | 3.49 | 3.00 | 48.61 | 42.45 | 54.00 | 256.73 | 0.0022 | 682.87 | | 0.015 | 0.0015 | 685.37 | 685.58 | 5.28 | 80.13 | 700.99 | | 15.62 | 15.42 | 13.17 | MH-3-84 |
| | D-7 | | 81+57 | | | | | | | | | | | | | | | | 682.30 | | | | 685.05 | 685.26 | | | 696.69 | | 11.64 | 11.43 | 9.43 | MH-3-84 |
| P-4 | D-4 | | 79+05 | | 0.48 | 0.48 | 0.71 | 0.34 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.69 | 1.02 | 15.00 | 198.01 | 0.0076 | 691.50 | | 0.015 | 0.0075 | 691.90 | 691.92 | 3.61 | 5.24 | 697.74 | | 5.84 | 5.81 | 4.79 | I-2A-10 |
| | D-8 | | 80+97 | | | | | | | | | | | | | | | | 690.00 | | | | 690.47 | 690.49 | | | 696.40 | | 5.93 | 5.91 | 4.96 | I-2A-8 |
| P-8 | D-8 | | 81+00 | | 0.17 | 0.64 | 0.71 | 0.46 | 10.00 | 10.91 | 11.05 | 4.77 | 3.00 | 2.20 | 1.38 | 15.00 | 69.45 | 0.0203 | 690.00 | | 0.015 | 0.0188 | 690.47 | 690.49 | 5.55 | 8.59 | 696.40 | | 5.93 | 5.91 | 4.96 | I-2A-8 |
| | D-13A | | 81+67 | | | | | | | | | | | | | | | | 688.59 | | | | 688.94 | 688.96 | | | 695.29 | | 6.34 | 6.32 | 5.25 | MH-3-48 |
| P-13 | D-13 | | 81+68 | | 3.04 | 3.04 | 0.71 | 2.16 | 15.00 | 15.00 | 15.00 | 4.13 | 3.00 | 8.97 | 6.52 | 24.00 | 45.84 | 0.0025 | 687.95 | | 0.015 | 0.0040 | 689.07 | 689.13 | 3.54 | 10.54 | 693.85 | | 4.79 | 4.72 | 3.65 | CB-5 |
| | D-13A | | 81+67 | | | | | | | | | | | | | | | | 687.84 | | | | 688.84 | 688.90 | | | 695.29 | | 6.45 | 6.39 | 5.20 | MH-3-48 |
| P-13A | D-13A | | 81+67 | | (N/A) | 3.68 | (N/A) | 2.61 | 0.00 | 15.22 | 15.23 | 4.10 | 3.00 | 10.80 | 7.90 | 24.00 | 54.28 | 0.0198 | 687.84 | | 0.015 | 0.0184 | 688.84 | 688.90 | 8.25 | 29.69 | 695.29 | | 6.45 | 6.39 | 5.20 | MH-3-48 |
| | D-9 | | 81+60 | | | | | | | | | | | | | | | | 686.76 | | | | 687.97 | 688.04 | | | 694.11 | | 6.14 | 6.07 | 5.10 | I-3C1 |
| P-16 | D-16 | | 83+49 | | 0.47 | 0.47 | 0.90 | 0.50 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 2.47 | 1.33 | 15.00 | 93.22 | 0.0036 | 689.01 | | 0.015 | 0.0042 | 689.55 | 689.59 | 3.00 | 3.63 | 694.10 | | 4.55 | 4.51 | 3.65 | I-3C1 |
| | D-14 | | 82+58 | | | | | | | | | | | | | | | | 688.67 | | | | 689.13 | 689.16 | | | 693.95 | | 4.82 | 4.79 | 3.83 | I-3C1 |
| P-14 | D-14 | | 82+55 | | 0.36 | 0.83 | 0.90 | 0.82 | 10.00 | 10.52 | 10.60 | 4.84 | 3.00 | 4.00 | 2.31 | 15.00 | 96.94 | 0.0119 | 688.42 | | 0.015 | 0.0116 | 689.03 | 689.07 | 5.31 | 6.58 | 693.95 | | 4.92 | 4.88 | 4.08 | I-3C1 |
| | D-9 | | 81+62 | | | | | | | | | | | | | | | | 687.26 | | | | 687.97 | 688.04 | | | 694.11 | | 6.14 | 6.07 | 5.41 | I-3C1 |
| P-9 | D-9 | | 81+60 | | 0.40 | 4.91 | 0.90 | 3.82 | 10.00 | 15.33 | 15.35 | 4.09 | 3.00 | 15.74 | 11.30 | 24.00 | 62.40 | 0.0154 | 686.76 | | 0.015 | 0.0152 | 687.97 | 688.04 | 8.24 | 26.18 | 694.11 | | 6.14 | 6.07 | 5.10 | I-3C1 |
| | D-10 | | 81+63 | | | | | | | | | | | | | | | | 685.80 | | | | 687.09 | 687.17 | | | 692.57 | | 5.47 | 5.40 | 4.52 | I-2A-8 |
| P-10A | D-10A | | 80+66 | | 0.44 | 0.44 | 0.80 | 0.35 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.75 | 1.06 | 15.00 | 96.47 | 0.0098 | 687.49 | | 0.015 | 0.0085 | 687.90 | 687.92 | 4.00 | 5.95 | 693.08 | | 5.19 | 5.16 | 4.15 | I-2A-8 |
| | D-10 | | 81+61 | | | | | | | | | | | | | | | | 686.55 | | | | 687.09 | 687.17 | | | 692.57 | | 5.47 | 5.40 | 4.58 | I-2A-8 |
| P-10 | D-10 | | 81+63 | | 0.23 | 5.57 | 0.82 | 4.36 | 10.00 | 15.45 | 15.48 | 4.07 | 3.00 | 17.89 | 12.92 | 24.00 | 16.72 | 0.0120 | 685.80 | | 0.015 | 0.0110 | 687.09 | 687.17 | 7.64 | 23.07 | 692.57 | | 5.47 | 5.40 | 4.52 | I-2A-8 |
| | D-7 | | 81+61 | | | | | | | | | | | | | | | | 685.60 | | | | 686.76 | 686.83 | | | 696.69 | | 9.94 | 9.86 | 8.84 | MH-3-84 |
| P-11 | D-11 | | 81+52 | | 0.48 | 0.48 | 0.78 | 0.32 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.59 | 1.05 | 15.00 | 54.00 | 0.0741 | 694.50 | | 0.015 | 0.0631 | 694.91 | 694.92 | 8.04 | 16.39 | 702.65 | | 7.75 | 7.73 | 6.71 | I-2A-12 |
| | D-7 | | 81+60 | | | | | | | | | | | | | | | | 690.50 | | | | 690.72 | 690.73 | | | 696.69 | | 5.97 | 5.96 | 4.75 | MH-3-84 |
| P-7 | D-7 | | 81+64 | | (N/A) | 25.99 | (N/A) | 18.50 | 0.00 | 21.58 | 21.63 | 3.42 | 3.00 | 63.70 | 56.42 | 54.00 | 187.16 | 0.0027 | 682.30 | | 0.015 | 0.0022 | 685.05 | 685.26 | 6.03 | 94.75 | 696.69 | | 11.64 | 11.43 | 9.43 | MH-3-84 |
| | D-12 | | 83+47 | | | | | | | | | | | | | | | | 681.80 | | | | 684.70 | 684.92 | | | 693.23 | | 8.52 | 8.31 | 6.47 | MH-3-84 |
| P-15C | D-15C | | 82+29 | | 0.14 | 0.14 | 0.83 | 0.11 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.57 | 0.35 | 15.00 | 30.37 | 0.0049 | 687.00 | | 0.015 | 0.0023 | 687.26 | 687.27 | 2.28 | 4.23 | 692.43 | | 5.17 | 5.16 | 3.98 | I-2A-8 |
| | D-15 | | 82+57 | | | | | | | | | | | | | | | | 686.85 | | | | 687.21 | 687.23 | | | 692.72 | | 5.52 | 5.50 | 4.43 | I-2A-6 |
| P-15 | D-15 | | 82+60 | | 0.12 | 0.26 | 0.85 | 0.22 | 10.00 | 10.22 | 10.26 | 4.90 | 3.00 | 1.07 | 0.66 | 15.00 | 33.64 | 0.0045 | 686.85 | | 0.015 | 0.0039 | 687.21 | 687.23 | 2.63 | 4.02 | 692.72 | | 5.52 | 5.50 | 4.43 | I-2A-6 |
| | D-17A | | 82+91 | | | | | | | | | | | | | | | | 686.70 | | | | 687.09 | 687.11 | | | 692.50 | | 5.41 | 5.39 | 4.36 | I-2A-8 |
| P-17A | D-17A | | 82+94 | | 0.10 | 0.36 | 0.86 | 0.31 | 10.00 | 10.43 | 10.50 | 4.86 | 3.00 | 1.50 | 0.92 | 15.00 | 57.08 | 0.0061 | 686.70 | | 0.015 | 0.0060 | 687.09 | 687.11 | 3.23 | 4.72 | 692.50 | | 5.41 | 5.39 | 4.36 | I-2A-8 |
| | D-17 | | 83+49 | | | | | | | | | | | | | | | | 686.35 | | | | 686.77 | 686.79 | | | 692.65 | | 5.89 | 5.86 | 4.86 | I-2A-6 |
| P-17 | D-17 | | 83+51 | | 0.07 | 0.44 | 0.87 | 0.37 | 10.00 | 10.73 | 10.84 | 4.80 | 3.00 | 1.79 | 1.12 | 15.00 | 7.34 | 0.0204 | 686.35 | | 0.015 | 0.0130 | 686.77 | 686.79 | 5.26 | 8.61 | 692.65 | | 5.89 | 5.86 | 4.86 | I-2A-6 |
| | D-12 | | 83+51 | | | | | | | | | | | | | | | | 686.20 | | | | 686.53 | 686.55 | | | 693.23 | | 6.70 | 6.68 | 5.58 | MH-3-84 |
| P-18A | D-18A | | 84+29 | | 0.64 | 0.64 | 0.70 | 0.31 | 15.00 | 15.00 | 15.00 | 4.13 | 3.00 | 1.29 | 0.97 | 15.00 | 29.45 | 0.0170 | 687.50 | | 0.015 | 0.0151 | 687.89 | 687.91 | 4.48 | 7.85 | 692.74 | | 4.85 | 4.83 | 3.80 | CB-2-3 |
| | D-18 | | 84+02 | | | | | | | | | | | | | | | | 687.00 | | | | 687.48 | 687.51 | | | 692.19 | | 4.72 | 4.69 | 3.75 | I-2A-6 |
| P-18 | D-18 | | 83+99 | | 0.18 | 0.82 | 0.83 | 0.52 | 10.00 | 15.11 | 15.12 | 4.11 | 3.00 | 2.17 | 1.45 | 15.00 | 23.88 | 0.0209 | 687.00 | | 0.015 | 0.0173 | 687.48 | 687.51 | 5.60 | 8.71 | 692.19 | | 4.72 | 4.69 | 3.75 | I-2A-6 |
| | D-19 | | 83+77 | | | | | | | | | | | | | | | | 686.50 | | | | 687.16 | 687.20 | | | 692.35 | | 5.20 | 5.16 | 4.41 | I-2A-10 |
| P-19 | D-19 | | 83+76 | | 0.44 | 1.25 | 0.78 | 0.93 | 10.00 | 15.18 | 15.20 | 4.11 | 3.00 | 3.87 | 2.67 | 15.00 | 40.41 | 0.0099 | 686.50 | | 0.015 | 0.0098 | 687.16 | 687.20 | 4.90 | 5.99 | 692.35 | | 5.20 | 5.16 | 4.41 | I-2A-10 |
| | D-12 | | 83+53 | | | | | | | | | | | | | | | | 686.10 | | | | 686.71 | 686.75 | | | 693.23 | | 6.52 | 6.47 | 5.68 | MH-3-84 |
| P-12 | D-12 | | 83+55 | | (N/A) | 27.68 | (N/A) | 19.80 | 0.00 | 22.09 | 22.16 | 3.37 | 3.00 | 67.29 | 60.21 | 54.00 | 244.10 | 0.0020 | 681.80 | | 0.015 | 0.0025 | 684.70 | 684.92 | 5.47 | 82.97 | 693.23 | | 8.52 | 8.31 | 6.47 | MH-3-84 |
| | D-22 | | 85+95 | | | | | | | | | | | | | | | | 681.30 | | | | 684.08 | 684.29 | | | 693.43 | | 9.35 | 9.14 | 7.17 | MH-3-84 |
| P-21A | D-21A | | 84+34 | | 0.10 | 0.10 | 0.90 | 0.09 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.43 | 0.26 | 15.00 | 49.80 | 0.0134 | 687.04 | | 0.015 | 0.0106 | 687.24 | 687.25 | 3.00 | 6.97 | 692.14 | | 4.89 | 4.88 | 3.65 | I-3D |
| | D-21 | | 84+81 | | | | | | | | | | | | | | | | 686.38 | | | | 686.74 | 686.76 | | | 692.33 | | 5.59 | 5.57 | 4.51 | I-3D |
| P-21 | D-21 | | 84+84 | | 0.19 | 0.29 | 0.90 | 0.26 | 10.00 | 10.28 | 10.32 | 4.89 | 3.00 | 1.27 | 0.78 | 15.00 | 114.53 | 0.0059 | 686.38 | | 0.015 | 0.0048 | 686.74 | 686.76 | 3.05 | 4.62 | 692.33 | | 5.59 | 5.57 | 4.51 | I-3D |
| | D-24 | | 85+98 | | | | | | | | | | | | | | | | 685.70 | | | | 686.22 | 686.25 | | | 693.59 | | 7.37 | 7.33 | 6.44 | I-3D |
| P-24 | D-24 | | 85+99 | | 0.30 | 0.59 | 0.90 | 0.53 | 10.00 | 10.90 | 11.04 | 4.77 | 3.00 | 2.56 | 1.61 | 15.00 | 15.81 | 0.0063 | 685.70 | | 0.015 | 0.0066 | 686.22 | 686.25 | 3.75 | 4.79 | 693.59 | | 7.37 | 7.33 | 6.44 | I-3D |
| | D-22 | | 85+99 | | | | | | | | | | | | | | | | 685.60 | | | | 686.10 | 686.13 | | | 693.43 | | 7.33 | 7.30 | 6.39 | MH-3-84 |
| P-23 | D-23 | | 86+00 | | 0.73 | 0.73 | 0.90 | 0.59 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 2.94 | 1.95 | 15.00 | 60.69 | 0.0330 | 689.00 | | 0.015 | 0.0282 | 689.56 | 689.58 | 7.16 | 10.93 | 695.80 | | 6.24 | 6.22 | 5.36 | I-3C1 |
| | D-22 | | 85+99 | | | | | | | | | | | | | | | | 687.00 | | | | 687.37 | 687.39 | | | 693.43 | | 6.06 | 6.04 | 4.99 | MH-3-84 |
| P-22 | D-22 | | 86+03 | | (N/A) | 29.01 | (N/A) | 20.93 | 0.00 | 22.84 | 22.92 | 3.31 | 3.00 | 69.78 | 63.77 | 54.00 | 306.45 | 0.0030 | 681.30 | | 0.015 | 0.0027 | 684.08 | 684.29 | 6.43 | 100.34 | 693.43 | | 9.35 | 9.14 | 7.17 | MH-3-84 |
| | D-27 | | 89+06 | | | | | | | | | | | | | | | | 680.38 | | | | 683.36 | 683.55 | | | 696.19 | | 12.83 | 12.64 | 10.85 | MH-3-90 |
| P-26 | D-26 | | 88+19 | | 0.28 | 0.28 | 0.87 | 0.24 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.20 | 0.73 | 15.00 | 92.26 | 0.0100 | 689.00 | | 0.015 | 0.0099 | 689.33 | 689.35 | 3.63 | 6.02 | 695.21 | | 5.87 | 5.85 | 4.76 | I-3D |
| | D-27 | | 89+06 | | | | | | | | | | | | | | | | 688.08 | | | | 688.38 | 688.40 | | | 696.19 | | 7.81 | 7.79 | 6.67 | MH-3-90 |
| P-27 | D-27 | | 89+14 | | 2.85 | 32.13 | 0.60 | 22.88 | 10.00 | 23.63 | 23.73 | 3.24 | 3.00 | 74.81 | 69.66 | 60.00 | 88.84 | 0.0020 | 680.38 | | 0.015 | 0.0022 | 683.36 | 683.55 | 5.68 | 109.89 | 696.19 | | 12.83 | 12.64 | 10.31 | MH-3-90 |
| | D-28 | | 89+96 | | | | | | | | | | | | | | | | 680.20 | | | | 683.15 | 683.34 | | | 696.44 | | 13.29 | 13.10 | 10.74 | MH-3-90 |
| P-30 | D-30 | | 89+98 | | 0.86 | 0.86 | (N/A) | 0.55 | 15.00 | 15.00 | 15.00 | 4.13 | 3.00 | 2.28 | 1.65 | 15.00 | 111.07 | 0.0242 | 692.09 | | 0.015 | 0.0228 | 692.60 | 692.63 | 5.97 | 9.37 | 700.05 | | 7.45 | 7.42 | 6.52 | MH-3-48 |

***Storm Sewer Calculations Burke Brook Outlet***

| Label | -Node- Upstream Downstream | -Station- Start Stop | Upstream Inlet Area (acres) | System Drainage Area (acres) | Upstream Inlet C | System CA (acres) | Upstream Inlet Tc (min) | System Flow Time (min) | | System Intensity (in/h) | | Flow (cfs) | | Diameter (in) | Length (Unified) (ft) | Slope (Calculated) (ft/ft) | -Invert- Upstream Downstream (ft) | Manning's n | Friction Slope (ft/ft) | HGL Start Stop (ft) | | Velocity (ft/s) | Capacity (Design) (cfs) | -Ground- Upstream Downstream (ft) | Ground Minus HGL (Start/Stop) (ft) | | Cover (Start/Stop) (ft) | Inlet Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | | | | | | | 25 Yr. | 50 Yr. | | | | 25 Yr. | 50 Yr. | | |
| | D-28 | 90+00 | | | | | | | | | | | | | | | 689.40 | | | 689.77 | 689.79 | | | 696.44 | 6.67 | 6.65 | 5.60 | MH-3-90 |
| P-28 | D-28 | 90+04 | 1.94 | 34.93 | 0.60 | 24.59 | 10.00 | 23.89 | 23.99 | 3.22 | 3.00 | 79.90 | 74.84 | 60.00 | 290.21 | 0.0024 | 680.20 | 0.015 | 0.0030 | 683.15 | 683.34 | 6.15 | 119.24 | 696.44 | 13.29 | 13.10 | 10.74 | MH-3-90 |
| | D-31 | 92+90 | | | | | | | | | | | | | | | 679.50 | | | 681.97 | 682.11 | | | 695.91 | 13.94 | 13.80 | 10.91 | MH-3-90 |
| P-31B | D-31B | 93+23 | 0.32 | 0.32 | 0.71 | 0.16 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.78 | 0.49 | 15.00 | 30.82 | 0.0229 | 698.11 | 0.015 | 0.0204 | 698.38 | 698.39 | 4.31 | 9.10 | 703.20 | 4.82 | 4.80 | 3.65 | CB-2-3 |
| | D-31A | 92+96 | | | | | | | | | | | | | | | 697.40 | | | 697.61 | 697.62 | | | 705.90 | 8.30 | 8.29 | 7.06 | MH-3-48 |
| P-31A | D-31A | 92+94 | (N/A) | 0.32 | (N/A) | 0.16 | 0.00 | 10.12 | 10.14 | 4.92 | 3.00 | 0.78 | 0.49 | 15.00 | 119.76 | 0.0292 | 692.00 | 0.015 | 0.0283 | 692.27 | 692.29 | 4.69 | 10.29 | 705.90 | 13.63 | 13.61 | 12.46 | MH-3-48 |
| | D-31 | 92+94 | | | | | | | | | | | | | | | 688.50 | | | 688.69 | 688.70 | | | 695.91 | 7.22 | 7.21 | 5.97 | MH-3-90 |
| P-31C | D-31C | 92+84 | 0.44 | 0.44 | 0.83 | 0.36 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.81 | 1.10 | 15.00 | 16.16 | 0.0309 | 689.50 | 0.015 | 0.0206 | 689.91 | 689.94 | 6.12 | 10.59 | 695.35 | 5.44 | 5.41 | 4.41 | I-3D |
| | D-31 | 92+93 | | | | | | | | | | | | | | | 689.00 | | | 689.29 | 689.30 | | | 695.91 | 6.62 | 6.61 | 5.47 | MH-3-90 |
| P-31 | D-31 | 92+98 | (N/A) | 35.68 | (N/A) | 25.11 | 0.00 | 24.68 | 24.79 | 3.16 | 3.00 | 80.07 | 76.43 | 60.00 | 267.52 | 0.0056 | 679.50 | 0.015 | 0.0048 | 681.97 | 682.11 | 8.49 | 181.80 | 695.91 | 13.94 | 13.80 | 10.91 | MH-3-90 |
| | D-32 | 95+61 | | | | | | | | | | | | | | | 678.00 | | | 681.25 | 681.43 | | | 693.76 | 12.51 | 12.33 | 10.26 | MH-3-96 |
| P-33 | D-33 | 95+19 | 31.68 | 31.68 | (N/A) | 15.92 | 29.20 | 29.20 | 29.20 | 2.86 | 3.00 | 45.91 | 48.14 | 36.00 | 30.31 | 0.0330 | 691.00 | 0.015 | 0.0153 | 693.26 | 693.38 | 14.35 | 112.94 | 705.99 | 12.73 | 12.62 | 11.66 | MH-3-60 |
| | D-34A | 95+41 | | | | | | | | | | | | | | | 690.00 | | | 691.66 | 691.77 | | | 698.12 | 6.46 | 6.35 | 4.78 | MH-3-60 |
| P-34 | D-34 | 95+54 | 0.21 | 0.21 | 0.77 | 0.16 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.80 | 0.49 | 15.00 | 14.94 | 0.0132 | 691.60 | 0.015 | 0.0119 | 691.87 | 691.89 | 3.57 | 6.93 | 696.69 | 4.82 | 4.81 | 3.65 | I-3D |
| | D-34A | 95+45 | | | | | | | | | | | | | | | 691.40 | | | 691.63 | 691.65 | | | 698.12 | 6.49 | 6.47 | 5.28 | MH-3-60 |
| P-34A | D-34A | 95+43 | (N/A) | 31.89 | (N/A) | 16.08 | 0.00 | 29.24 | 29.23 | 2.86 | 3.00 | 46.34 | 48.62 | 36.00 | 74.59 | 0.0201 | 687.00 | 0.015 | 0.0146 | 689.27 | 689.39 | 11.95 | 88.18 | 698.12 | 8.85 | 8.73 | 7.78 | MH-3-60 |
| | D-32A | 95+56 | | | | | | | | | | | | | | | 685.50 | | | 687.23 | 687.35 | | | 694.54 | 7.30 | 7.18 | 5.70 | MH-3-72 |
| P-32A | D-32A | 95+57 | (N/A) | 31.89 | (N/A) | 16.08 | 0.00 | 29.34 | 29.34 | 2.85 | 3.00 | 46.24 | 48.62 | 36.00 | 41.84 | 0.0239 | 685.50 | 0.015 | 0.0141 | 687.77 | 687.89 | 12.75 | 96.13 | 694.54 | 6.76 | 6.65 | 5.70 | MH-3-72 |
| | D-32 | 95+64 | | | | | | | | | | | | | | | 684.50 | | | 686.23 | 686.35 | | | 693.76 | 7.53 | 7.41 | 5.92 | MH-3-96 |
| P-36 | D-36 | 95+57 | 2.47 | 2.47 | (N/A) | 1.10 | 15.00 | 15.00 | 15.00 | 4.13 | 3.00 | 4.58 | 3.67 | 15.00 | 12.04 | 0.0207 | 687.25 | 0.015 | 0.0147 | 688.02 | 688.05 | 6.77 | 8.66 | 693.41 | 5.38 | 5.35 | 4.72 | I-3D |
| | D-32 | 95+63 | | | | | | | | | | | | | | | 687.00 | | | 687.63 | 687.66 | | | 693.76 | 6.13 | 6.10 | 5.32 | MH-3-96 |
| P-32 | D-32 | 95+69 | (N/A) | 70.04 | (N/A) | 42.28 | 0.00 | 29.39 | 29.39 | 2.85 | 3.00 | 121.47 | 128.72 | 60.00 | 333.04 | 0.0060 | 678.00 | 0.015 | 0.0060 | 681.25 | 681.43 | 9.62 | 188.15 | 693.76 | 12.51 | 12.33 | 10.26 | MH-3-96 |
| | D-37 | 98+96 | | | | | | | | | | | | | | | 676.00 | | | 679.31 | 679.49 | | | 690.56 | 11.25 | 11.07 | 9.06 | MH-3-96 |
| P-38A | D-38A | 99+00 | 0.33 | 0.33 | 0.75 | 0.17 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.84 | 0.53 | 15.00 | 58.75 | 0.0270 | 687.09 | 0.015 | 0.0208 | 687.37 | 687.38 | 4.67 | 9.89 | 692.18 | 4.81 | 4.79 | 3.65 | CB-2-3 |
| | D-38 | 99+00 | | | | | | | | | | | | | | | 685.50 | | | 686.20 | 686.23 | | | 691.26 | 5.06 | 5.03 | 4.31 | I-3B1 |
| P-38 | D-38 | 99+00 | 1.24 | 1.57 | 0.90 | 0.86 | 10.00 | 10.21 | 10.24 | 4.90 | 3.00 | 4.26 | 2.99 | 15.00 | 52.75 | 0.0227 | 685.50 | 0.015 | 0.0197 | 686.20 | 686.23 | 6.90 | 9.08 | 691.26 | 5.06 | 5.03 | 4.31 | I-3B1 |
| | D-37 | 99+00 | | | | | | | | | | | | | | | 684.30 | | | 684.82 | 684.84 | | | 690.56 | 5.74 | 5.72 | 4.82 | MH-3-96 |
| P-37A | D-37A | 98+92 | 0.33 | 0.33 | 0.90 | 0.55 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 2.72 | 1.83 | 15.00 | 15.43 | 0.0324 | 685.00 | 0.015 | 0.0200 | 685.54 | 685.57 | 6.97 | 10.84 | 691.16 | 5.62 | 5.59 | 4.72 | I-3D |
| | D-37 | 98+98 | | | | | | | | | | | | | | | 684.50 | | | 684.88 | 684.90 | | | 690.56 | 5.68 | 5.66 | 4.62 | MH-3-96 |
| P-37 | D-37 | 99+04 | (N/A) | 71.93 | (N/A) | 43.69 | 0.00 | 29.97 | 29.96 | 2.82 | 3.00 | 124.03 | 133.55 | 60.00 | 478.04 | 0.0063 | 676.00 | 0.015 | 0.0063 | 679.31 | 679.49 | 9.83 | 192.34 | 690.56 | 11.25 | 11.07 | 9.06 | MH-3-96 |
| | D-39 | 103+73 | | | | | | | | | | | | | | | 673.00 | | | 676.32 | 676.50 | | | 687.40 | 11.08 | 10.90 | 8.90 | MH-3-96 |
| P-40 | D-40 | 103+71 | 0.28 | 0.28 | 0.90 | 0.33 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.66 | 0.92 | 15.00 | 9.34 | 0.0107 | 680.00 | 0.015 | 0.0096 | 680.38 | 680.41 | 4.07 | 6.23 | 687.24 | 6.86 | 6.83 | 5.80 | I-3D |
| | D-39 | 103+75 | | | | | | | | | | | | | | | 679.90 | | | 680.24 | 680.27 | | | 687.40 | 7.16 | 7.13 | 6.06 | MH-3-96 |
| P-39 | D-39 | 103+81 | (N/A) | 72.21 | (N/A) | 44.03 | 0.00 | 30.78 | 30.76 | 2.77 | 3.00 | 122.93 | 134.47 | 60.00 | 234.53 | 0.0128 | 673.00 | 0.015 | 0.0128 | 676.32 | 676.50 | 12.88 | 274.60 | 687.40 | 11.08 | 10.90 | 8.90 | MH-3-96 |
| | D-41 | 106+04 | | | | | | | | | | | | | | | 670.00 | | | 673.33 | 673.51 | | | 684.55 | 11.22 | 11.04 | 9.05 | MH-3-96 |
| P-42 | D-42 | 106+08 | 0.68 | 0.68 | 0.70 | 0.32 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.57 | 0.99 | 15.00 | 13.50 | 0.0741 | 678.00 | 0.015 | 0.0398 | 678.39 | 678.41 | 8.01 | 16.39 | 684.55 | 6.15 | 6.13 | 5.10 | CB-2-3 |
| | D-41 | 106+08 | | | | | | | | | | | | | | | 677.00 | | | 677.22 | 677.24 | | | 684.55 | 7.33 | 7.32 | 6.11 | MH-3-96 |
| P-41 | D-41 | 106+12 | (N/A) | 72.89 | (N/A) | 44.34 | 0.00 | 31.08 | 31.06 | 2.75 | 3.00 | 123.06 | 135.46 | 60.00 | 279.18 | 0.0143 | 670.00 | 0.015 | 0.0143 | 673.33 | 673.51 | 13.44 | 290.62 | 684.55 | 11.22 | 11.04 | 9.05 | MH-3-96 |
| | D-52 | 108+74 | | | | | | | | | | | | | | | 666.00 | | | 669.37 | 669.55 | | | 684.35 | 14.98 | 14.80 | 12.85 | MH-3-90 |
| P-51 | D-51 | 108+20 | 0.30 | 0.30 | 0.75 | 0.25 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.24 | 0.69 | 15.00 | 65.25 | 0.0110 | 675.02 | 0.015 | 0.0067 | 675.35 | 675.37 | 3.80 | 6.33 | 680.11 | 4.77 | 4.74 | 3.65 | I-2A-8 |
| | D-50 | 108+81 | | | | | | | | | | | | | | | 674.30 | | | 674.94 | 674.98 | | | 679.39 | 4.45 | 4.41 | 3.65 | I-2A-10 |
| P-49 | D-49 | 109+13 | 0.56 | 0.56 | 0.80 | 0.45 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 2.25 | 1.37 | 15.00 | 33.06 | 0.0091 | 674.60 | 0.015 | 0.0054 | 675.06 | 675.09 | 4.16 | 5.74 | 679.70 | 4.64 | 4.61 | 3.66 | I-2A-10 |
| | D-50 | 108+83 | | | | | | | | | | | | | | | 674.30 | | | 674.94 | 674.98 | | | 679.39 | 4.45 | 4.41 | 3.65 | I-2A-10 |
| P-50 | D-50 | 108+82 | 0.19 | 1.06 | 0.78 | 0.91 | 10.00 | 10.29 | 10.34 | 4.89 | 3.00 | 4.46 | 2.54 | 15.00 | 21.37 | 0.0140 | 674.30 | 0.015 | 0.0127 | 674.94 | 674.98 | 5.80 | 7.13 | 679.39 | 4.45 | 4.41 | 3.65 | I-2A-10 |
| | D-52 | 108+79 | | | | | | | | | | | | | | | 674.00 | | | 674.54 | 674.58 | | | 684.35 | 9.80 | 9.77 | 8.90 | MH-3-90 |
| P-52 | D-52 | 108+81 | (N/A) | 73.95 | (N/A) | 45.25 | 0.00 | 31.43 | 31.39 | 2.73 | 3.00 | 124.71 | 138.00 | 60.00 | 217.68 | 0.0167 | 666.00 | 0.015 | 0.0130 | 669.37 | 669.55 | 14.27 | 313.61 | 684.35 | 14.98 | 14.80 | 12.85 | MH-3-90 |
| | D-43 | 110+76 | | | | | | | | | | | | | | | 662.37 | | | 664.82 | 664.98 | | | 676.82 | 11.99 | 11.83 | 8.95 | MH-3-90 |
| P-44 | D-44 | 104+31 | 0.97 | 0.97 | 0.84 | 0.63 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 3.14 | 2.17 | 15.00 | 10.91 | 0.0367 | 676.20 | 0.015 | 0.0191 | 676.79 | 676.81 | 7.59 | 11.53 | 682.65 | 5.86 | 5.84 | 5.01 | I-3D |
| | D-105 | 104+38 | | | | | | | | | | | | | | | 675.80 | | | 676.21 | 676.23 | | | 682.84 | 6.62 | 6.60 | 5.59 | MH-3-48 |
| P-105 | D-105 | 104+41 | (N/A) | 0.97 | (N/A) | 0.63 | 0.00 | 10.02 | 10.03 | 4.94 | 3.00 | 3.13 | 2.17 | 15.00 | 212.64 | 0.0114 | 675.80 | 0.015 | 0.0113 | 676.39 | 676.41 | 4.92 | 6.42 | 682.84 | 6.45 | 6.42 | 5.59 | MH-3-48 |
| | D-106 | 106+52 | | | | | | | | | | | | | | | 673.39 | | | 673.91 | 673.93 | | | 679.50 | 5.59 | 5.57 | 4.67 | MH-3-60 |
| P-45 | D-45 | 106+47 | 0.37 | 0.37 | 0.90 | 0.45 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 2.24 | 1.28 | 15.00 | 9.12 | 0.0837 | 674.15 | 0.015 | 0.0331 | 674.60 | 674.63 | 9.27 | 17.42 | 679.24 | 4.65 | 4.62 | 3.65 | I-3D |
| | D-106 | 106+53 | | | | | | | | | | | | | | | 673.39 | | | 673.64 | 673.66 | | | 679.50 | 5.86 | 5.84 | 4.67 | MH-3-60 |
| P-106 | D-106 | 106+57 | (N/A) | 1.34 | (N/A) | 1.08 | 0.00 | 10.74 | 10.82 | 4.80 | 3.00 | 5.22 | 3.44 | 15.00 | 52.67 | 0.0389 | 672.89 | 0.015 | 0.0372 | 673.63 | 673.67 | 8.87 | 11.87 | 679.50 | 5.86 | 5.83 | 5.17 | MH-3-60 |
| | D-107 | 107+01 | | | | | | | | | | | | | | | 670.84 | | | 671.80 | 671.86 | | | 678.98 | 7.18 | 7.12 | 6.70 | MH-3-60 |
| P-46A | D-46A | 106+97 | 0.27 | 0.27 | 0.70 | 0.14 | 15.00 | 15.00 | 15.00 | 4.13 | 3.00 | 0.59 | 0.44 | 15.00 | 6.20 | 0.0072 | 671.54 | 0.015 | 0.0009 | 671.86 | 671.90 | 2.64 | 5.11 | 684.60 | 12.74 | 12.70 | 11.62 | CB-2-3 |
| | D-46 | 106+97 | | | | | | | | | | | | | | | 671.50 | | | 671.86 | 671.90 | | | 678.86 | 7.00 | 6.96 | 5.92 | I-3D |
| P-46 | D-46 | 106+98 | 0.08 | 0.35 | 0.90 | 0.30 | 10.00 | 15.04 | 15.04 | 4.12 | 3.00 | 1.24 | 0.69 | 15.00 | 32.93 | 0.0048 | 671.50 | 0.015 | 0.0024 | 671.86 | 671.90 | 2.82 | 4.18 | 678.86 | 7.00 | 6.96 | 5.92 | I-3D |
| | D-107 | 107+03 | | | | | | | | | | | | | | | 671.34 | | | 671.80 | 671.86 | | | 678.98 | 7.18 | 7.12 | 6.20 | MH-3-60 |
| P-107 | D-107 | 107+06 | (N/A) | 1.69 | (N/A) | 1.38 | 0.00 | 15.23 | 15.27 | 4.10 | 3.00 | 5.69 | 4.13 | 21.00 | 111.96 | 0.0025 | 670.84 | 0.015 | 0.0034 | 671.80 | 671.86 | 3.19 | 7.39 | 678.98 | 7.18 | 7.12 | 6.15 | MH-3-60 |
| | D-108 | 108+15 | | | | | | | | | | | | | | | 670.56 | | | 671.37 | 671.42 | | | 676.48 | 5.11 | 5.06 | 3.94 | MH-3-48 |
| P-47C | D-47C | 108+07 | 0.17 | 0.17 | 0.70 | 0.09 | 15.00 | 15.00 | 15.00 | 4.13 | 3.00 | 0.38 | 0.28 | 15.00 | 6.20 | 0.0161 | 675.30 | 0.015 | 0.0016 | 675.53 | 675.55 | 3.07 | 7.65 | 681.90 | 6.37 | 6.35 | 5.16 | CB-2-3 |
| | D-47 | 108+08 | | | | | | | | | | | | | | | 675.20 | | | 675.55 | 675.57 | | | 680.99 | 5.43 | 5.41 | 4.34 | I-3D |
| P-47 | D-47 | 108+08 | 0.23 | 0.40 | 0.75 | 0.27 | 10.00 | 15.03 | 15.04 | 4.13 | 3.00 | 1.11 | 0.80 | 15.00 | 47.42 | 0.0874 | 675.20 | 0.015 | 0.0873 | 675.55 | 675.57 | 7.67 | 17.80 | 680.99 | 5.43 | 5.41 | 4.34 | I-3D |
| | D-108 | 108+17 | | | | | | | | | | | | | | | 671.06 | | | 671.25 | 671.26 | | | 676.48 | 5.24 | 5.23 | 3.98 | MH-3-48 |
| P-108 | D-108 | 108+19 | (N/A) | 2.09 | (N/A) | 1.64 | 0.00 | 15.82 | 15.90 | 4.02 | 3.00 | 6.67 | 4.94 | 21.00 | 259.16 | 0.0138 | 670.56 | 0.015 | 0.0133 | 671.37 | 671.42 | 6.39 | 17.36 | 676.48 | 5.11 | 5.06 | 3.94 | MH-3-48 |
| | D-53 | 110+79 | | | | | | | | | | | | | | | 666.98 | | | 668.08 | 668.14 | | | 671.50 | 3.42 | 3.36 | 2.54 | CB-5 |
| P-47A | D-47A | 110+65 | 0.12 | 0.12 | 0.90 | 0.11 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.53 | 0.34 | 15.00 | 57.16 | 0.1050 | 674.00 | 0.015 | 0.0975 | 674.23 | 674.24 | 6.54 | 19.51 | 689.82 | 15.59 | 15.58 | 14.38 | I-2A-8 |
| | D-53 | 110+80 | | | | | | | | | | | | | | | 668.00 | | | 668.12 | 668.13 | | | 671.50 | 3.38 | 3.38 | 2.06 | CB-5 |
| P-53 | D-53 | 110+80 | 1.41 | 3.63 | 0.80 | 2.88 | 15.00 | 16.49 | 16.63 | 3.94 | 3.00 | 11.44 | 8.70 | 21.00 | 75.43 | 0.0098 | 666.98 | 0.015 | 0.0090 | 668.08 | 668.14 | 6.34 | 14.63 | 671.50 | 3.42 | 3.36 | 2.54 | CB-5 |
| | D-48 | 110+80 | | | | | | | | | | | | | | | 666.24 | | | 667.57 | 667.63 | | | 675.06 | 7.49 | 7.42 | 6.83 | I-3C1 |
| P-48 | D-48 | 110+80 | 1.87 | 5.50 | 0.90 | 4.05 | 10.00 | 16.69 | 16.84 | 3.92 | 3.00 | 16.00 | 12.72 | 21.00 | 43.32 | 0.0201 | 666.24 | 0.015 | 0.0173 | 667.57 | 667.63 | 9.04 | 20.95 | 675.06 | 7.49 | 7.42 | 6.83 | I-3C1 |
| | D-43 | 110+80 | | | | | | | | | | | | | | | 665.37 | | | 666.42 | 666.49 | | | 676.82 | 10.39 | 10.32 | 9.46 | MH-3-90 |
| P-54 | D-54 | 111+13 | 0.25 | 0.25 | 0.71 | 0.18 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.90 | 0.54 | 15.00 | 37.26 | 0.0054 | 670.00 | 0.015 | 0.0055 | 670.31 | 670.33 | 2.68 | 4.41 | 676.06 | 5.75 | 5.73 | 4.62 | I-2A-8 |
| | D-43 | 110+83 | | | | | | | | | | | | | | | 669.80 | | | 670.09 | 670.10 | | | 676.82 | 6.73 | 6.71 | 5.57 | MH-3-90 |
| P-43 | D-43 | 110+84 | (N/A) | 79.71 | (N/A) | 49.48 | 0.00 | 31.69 | 31.64 | 2.72 | 3.00 | 135.69 | 151.27 | 60.00 | 261.66 | 0.0050 | 654.50 | 0.015 | 0.0050 | 658.39 | 658.82 | 9.10 | 171.14 | 676.82 | 18.43 | 18.00 | 16.81 | MH-3-90 |
| | D-43A | 113+35 | | | | | | | | | | | | | | | 653.20 | | | 657.00 | 657.40 | | | 673.14 | 16.14 | 15.73 | 14.43 | MH-3-96 |
| P-43A | D-43A | 113+43 | (N/A) | 79.71 | (N/A) | 49.48 | 0.00 | 32.16 | 32.11 | 2.69 | 3.00 | 134.43 | 151.27 | 60.00 | 418.75 | 0.0053 | 653.20 | 0.015 | 0.0053 | 657.00 | 657.40 | 9.30 | 175.98 | 673.14 | 16.14 | 15.73 | 14.43 | MH-3-96 |
| | D-55 | 117+48 | | | | | | | | | | | | | | | 651.00 | | | 654.56 | 654.75 | | | 665.01 | 10.45 | 10.26 | 8.51 | MH-3-96 |
| P-58 | D-58 | 117+54 | 0.92 | 0.92 | 0.90 | 0.87 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 4.33 | 2.79 | 15.00 | 66.85 | 0.0179 | 660.20 | 0.015 | 0.0167 | 660.87 | 660.91 | 6.33 | 8.07 | 665.29 | 4.42 | 4.39 | 3.65 | I-3C1 |
| | D-55 | 117+52 | | | | | | | | | | | | | | | 659.00 | | | 659.53 | 659.56 | | | 665.01 | 5.48 | 5.45 | 4.56 | MH-3-96 |
| P-55 | D-55 | 117+56 | (N/A) | 80.62 | (N/A) | 50.35 | 0.00 | 32.91 | 32.85 | 2.66 | 3.00 | 134.81 | 154.06 | 60.00 | 251.80 | 0.0079 | 651.00 | 0.015 | 0.0076 | 654.56 | 654.75 | 10.98 | 216.38 | 665.01 | 10.45 | 10.26 | 8.51 | MH-3-96 |

***Storm Sewer Calculations Burke Brook Outlet***

| Label | -Node- Upstream Downstream | -Station- Start Stop | Upstream Inlet Area (acres) | System Drainage Area (acres) | Upstream Inlet C | System CA (acres) | Upstream Inlet Tc (min) | System Flow Time (min) | | System Intensity (in/h) | | Flow (cfs) | | Diameter (in) | Length (Unified) (ft) | Slope (Calculated) (ft/ft) | -Invert- Upstream Downstream (ft) | Manning's n | Friction Slope (ft/ft) | HGL Start Stop (ft) | | Velocity (ft/s) | Capacity (Design) (cfs) | -Ground- Upstream Downstream (ft) | Ground Minus HGL (Start/Stop) (ft) | | Cover (Start/Stop) (ft) | Inlet Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | | | | | | | 25 Yr. | 50 Yr. | | | | 25 Yr. | 50 Yr. | | |
| | D-59 | 120+00 | | | | | | | | | | | | | | | 649.00 | | | 652.28 | 652.54 | | | 663.62 | 11.34 | 11.09 | 9.12 | MH-3-96 |
| P-59 | D-59 | 120+00 | (N/A) | 80.62 | (N/A) | 50.35 | 0.00 | 33.30 | 33.22 | 2.64 | 3.00 | 133.83 | 154.06 | 60.00 | 28.61 | 0.0070 | 649.00 | 0.015 | 0.0064 | 652.56 | 652.75 | 10.43 | 203.01 | 663.62 | 11.06 | 10.88 | 9.12 | MH-3-96 |
| | D-59A | 120+13 | | | | | | | | | | | | | | | 648.80 | | | 652.25 | 652.52 | | | 663.35 | 11.09 | 10.82 | 9.04 | MH-3-96 |
| P-59A | D-59A | 120+18 | (N/A) | 80.62 | (N/A) | 50.35 | 0.00 | 33.34 | 33.27 | 2.63 | 3.00 | 133.72 | 154.06 | 60.00 | 572.12 | 0.0081 | 648.80 | 0.015 | 0.0081 | 652.36 | 652.55 | 11.06 | 218.93 | 663.35 | 10.99 | 10.80 | 9.04 | MH-3-96 |
| | D-61 | 125+74 | | | | | | | | | | | | | | | 644.15 | | | 647.74 | 647.93 | | | 655.67 | 7.93 | 7.74 | 6.02 | MH-3-96 |
| P-63 | D-63 | 125+78 | 1.34 | 1.34 | 0.90 | 0.97 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 4.84 | 3.13 | 15.00 | 58.82 | 0.0130 | 648.27 | 0.015 | 0.0127 | 648.98 | 649.01 | 5.72 | 6.86 | 653.36 | 4.38 | 4.34 | 3.65 | I-3C1 |
| | D-61 | 125+78 | | | | | | | | | | | | | | | 647.50 | | | 648.12 | 648.15 | | | 655.67 | 7.55 | 7.52 | 6.73 | MH-3-96 |
| P-61 | D-61 | 125+82 | (N/A) | 81.96 | (N/A) | 51.32 | 0.00 | 34.20 | 34.11 | 2.59 | 3.00 | 134.11 | 157.19 | 60.00 | 332.16 | 0.0122 | 644.15 | 0.015 | 0.0120 | 647.74 | 647.93 | 12.92 | 268.04 | 655.67 | 7.93 | 7.74 | 6.02 | MH-3-96 |
| | D-64A | 129+02 | | | | | | | | | | | | | | | 640.10 | | | 644.45 | 645.31 | | | 651.37 | 6.91 | 6.06 | 5.76 | MH-3-96 |
| P-65 | D-65 | 129+00 | 0.47 | 0.47 | 0.90 | 1.05 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 5.24 | 2.97 | 15.00 | 45.23 | 0.0177 | 644.30 | 0.015 | 0.0162 | 644.99 | 645.46 | 6.57 | 8.01 | 649.57 | 4.58 | 4.11 | 3.83 | I-3C1 |
| | D-64A | 129+06 | | | | | | | | | | | | | | | 643.50 | | | 644.45 | 645.31 | | | 651.37 | 6.91 | 6.06 | 6.42 | MH-3-96 |
| P-69 | D-69 | 129+07 | 0.00 | 0.00 | 0.90 | 0.00 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.01 | 0.00 | 15.00 | 7.98 | 0.0397 | 643.32 | 0.015 | 0.0000 | 644.45 | 645.31 | 1.27 | 12.00 | 650.88 | 6.43 | 5.57 | 6.12 | I-3D |
| | D-64A | 129+07 | | | | | | | | | | | | | | | 643.00 | | | 644.45 | 645.31 | | | 651.37 | 6.91 | 6.06 | 6.92 | MH-3-96 |
| P-64A | D-64A | 129+10 | (N/A) | 82.44 | (N/A) | 52.38 | 0.00 | 34.63 | 34.52 | 2.57 | 3.00 | 135.78 | 160.17 | 60.00 | 160.66 | 0.0050 | 640.10 | 0.015 | 0.0044 | 644.45 | 645.31 | 9.11 | 171.33 | 651.37 | 6.91 | 6.06 | 5.76 | MH-3-96 |
| | D-64 | 130+61 | | | | | | | | | | | | | | | 639.30 | | | 643.78 | 644.32 | | | 651.26 | 7.48 | 6.94 | 6.46 | MH-3-96 |
| P-66 | D-66 | 129+79 | 0.23 | 0.23 | 0.90 | 1.06 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 5.30 | 1.60 | 15.00 | 87.75 | 0.0080 | 644.20 | 0.015 | 0.0078 | 644.70 | 644.78 | 4.59 | 5.38 | 649.41 | 4.70 | 4.63 | 3.76 | I-3C1 |
| | D-67 | 130+64 | | | | | | | | | | | | | | | 643.50 | | | 644.30 | 644.37 | | | 649.63 | 5.33 | 5.26 | 4.69 | I-3C1 |
| P-67 | D-67 | 130+65 | 0.65 | 0.88 | 0.90 | 1.95 | 10.00 | 10.32 | 10.40 | 4.88 | 3.00 | 9.57 | 4.31 | 18.00 | 44.82 | 0.0223 | 643.50 | 0.015 | 0.0186 | 644.30 | 644.37 | 8.33 | 14.63 | 649.63 | 5.33 | 5.26 | 4.42 | I-3C1 |
| | D-64 | 130+65 | | | | | | | | | | | | | | | 642.50 | | | 643.78 | 644.32 | | | 651.26 | 7.48 | 6.94 | 7.05 | MH-3-96 |
| P-70 | D-70 | 129+79 | 0.04 | 0.04 | 0.90 | 0.03 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.16 | 0.10 | 15.00 | 88.76 | 0.0128 | 642.94 | 0.015 | 0.0001 | 643.78 | 644.32 | 2.19 | 6.82 | 650.89 | 7.11 | 6.57 | 6.51 | I-3D |
| | D-68 | 130+64 | | | | | | | | | | | | | | | 641.80 | | | 643.78 | 644.32 | | | 650.88 | 7.11 | 6.57 | 7.64 | I-3D |
| P-68 | D-68 | 130+65 | 0.02 | 0.06 | 0.90 | 0.05 | 10.00 | 10.67 | 10.78 | 4.81 | 3.00 | 0.26 | 0.16 | 15.00 | 7.92 | 0.0253 | 641.80 | 0.015 | 0.0000 | 643.78 | 644.32 | 0.21 | 9.57 | 650.88 | 7.11 | 6.57 | 7.64 | I-3D |
| | D-64 | 130+65 | | | | | | | | | | | | | | | 641.60 | | | 643.78 | 644.32 | | | 651.26 | 7.48 | 6.94 | 8.22 | MH-3-96 |
| P-64 | D-64 | 130+69 | (N/A) | 83.37 | (N/A) | 54.37 | 0.00 | 34.93 | 34.81 | 2.56 | 3.00 | 140.20 | 164.64 | 60.00 | 306.77 | 0.0042 | 639.30 | 0.015 | 0.0046 | 643.78 | 644.32 | 8.52 | 158.05 | 651.26 | 7.48 | 6.94 | 6.46 | MH-3-96 |
| | D-71A | 133+67 | | | | | | | | | | | | | | | 638.00 | | | 641.68 | 641.87 | | | 652.96 | 11.28 | 11.09 | 9.46 | MH-3-96 |
| P-71A | D-71A | 133+75 | (N/A) | 83.37 | (N/A) | 54.37 | 0.00 | 35.53 | 35.42 | 2.53 | 3.00 | 138.67 | 164.64 | 66.00 | 132.35 | 0.0172 | 631.41 | 0.013 | 0.0095 | 635.00 | 635.20 | 16.41 | 440.08 | 652.96 | 17.96 | 17.76 | 15.51 | MH-3-96 |
| | D-71 | 134+95 | | | | | | | | | | | | | | | 629.14 | | | 631.69 | 631.86 | | | 643.92 | 12.23 | 12.07 | 8.74 | MH-5-66 |
| P-103 | D-103 | 151+98 | 0.11 | 0.11 | 0.90 | 0.10 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.51 | 0.31 | 15.00 | 99.86 | 0.0100 | 671.95 | 0.015 | 0.0096 | 672.16 | 672.17 | 2.84 | 6.02 | 681.81 | 9.65 | 9.64 | 8.42 | I-3D |
| | D-102 | 151+02 | | | | | | | | | | | | | | | 670.95 | | | 671.24 | 671.26 | | | 681.41 | 10.16 | 10.14 | 9.02 | I-3D |
| P-102 | D-102 | 150+99 | 0.10 | 0.21 | 0.90 | 0.19 | 10.00 | 10.59 | 10.68 | 4.83 | 3.00 | 0.93 | 0.58 | 15.00 | 39.03 | 0.0096 | 670.95 | 0.015 | 0.0064 | 671.24 | 671.26 | 3.33 | 5.91 | 681.41 | 10.16 | 10.14 | 9.02 | I-3D |
| | D-100 | 150+63 | | | | | | | | | | | | | | | 670.57 | | | 671.04 | 671.06 | | | 681.28 | 10.24 | 10.22 | 9.27 | I-3D |
| P-100A | D-100A | 150+62 | 0.27 | 0.27 | 0.80 | 0.21 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.06 | 0.64 | 15.00 | 7.72 | 0.0065 | 676.05 | 0.015 | 0.0065 | 676.37 | 676.39 | 3.00 | 4.85 | 681.74 | 5.37 | 5.35 | 4.24 | CB-2-3 |
| | D-100 | 150+61 | | | | | | | | | | | | | | | 676.00 | | | 676.31 | 676.33 | | | 681.28 | 4.97 | 4.95 | 3.84 | I-3D |
| P-100 | D-100 | 150+60 | 0.01 | 0.49 | 0.90 | 0.41 | 10.00 | 10.78 | 10.90 | 4.79 | 3.00 | 2.00 | 1.25 | 15.00 | 43.02 | 0.0059 | 670.57 | 0.015 | 0.0059 | 671.04 | 671.06 | 3.43 | 4.61 | 681.28 | 10.24 | 10.22 | 9.27 | I-3D |
| | D-101 | 150+20 | | | | | | | | | | | | | | | 670.32 | | | 670.77 | 670.80 | | | 681.78 | 11.01 | 10.99 | 10.02 | I-3D |
| P-101 | D-101 | 150+18 | 0.02 | 0.51 | 0.90 | 0.43 | 10.00 | 10.99 | 11.14 | 4.76 | 3.00 | 2.08 | 1.31 | 15.00 | 30.54 | 0.0105 | 670.32 | 0.015 | 0.0104 | 670.77 | 670.80 | 4.31 | 6.18 | 681.78 | 11.01 | 10.99 | 10.02 | I-3D |
| | D-97 | 150+16 | | | | | | | | | | | | | | | 670.00 | | | 670.48 | 670.50 | | | 681.03 | 10.55 | 10.52 | 9.59 | MH-3-48 |
| P-98 | D-98 | 150+59 | 0.06 | 0.06 | 0.90 | 0.05 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.25 | 0.16 | 15.00 | 44.00 | 0.0045 | 676.20 | 0.015 | 0.0047 | 676.37 | 676.38 | 1.74 | 4.06 | 681.08 | 4.71 | 4.70 | 3.44 | CB-8 |
| | D-97 | 150+18 | | | | | | | | | | | | | | | 676.00 | | | 676.15 | 676.16 | | | 681.03 | 4.88 | 4.87 | 3.59 | MH-3-48 |
| P-97 | D-97 | 150+14 | (N/A) | 0.58 | (N/A) | 0.48 | 0.00 | 11.11 | 11.27 | 4.73 | 3.00 | 2.31 | 1.47 | 15.00 | 226.00 | 0.0133 | 670.00 | 0.015 | 0.0133 | 670.48 | 670.50 | 4.82 | 6.93 | 681.03 | 10.55 | 10.52 | 9.59 | MH-3-48 |
| | D-96 | 147+92 | | | | | | | | | | | | | | | 667.00 | | | 667.48 | 667.51 | | | 677.18 | 9.70 | 9.67 | 8.74 | MH-3-48 |
| P-96 | D-96 | 147+88 | (N/A) | 0.58 | (N/A) | 0.48 | 0.00 | 11.89 | 12.16 | 4.60 | 3.00 | 2.25 | 1.47 | 15.00 | 188.16 | 0.0069 | 667.00 | 0.015 | 0.0069 | 667.48 | 667.51 | 3.76 | 5.01 | 677.18 | 9.70 | 9.67 | 8.74 | MH-3-48 |
| | D-88 | 146+05 | | | | | | | | | | | | | | | 665.70 | | | 666.18 | 666.20 | | | 674.56 | 8.39 | 8.36 | 7.42 | MH-3-48 |
| P-95 | D-95 | 146+03 | 0.89 | 0.89 | 0.90 | 0.47 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 2.35 | 1.68 | 15.00 | 55.99 | 0.0138 | 666.77 | 0.015 | 0.0117 | 667.29 | 667.31 | 4.90 | 7.06 | 671.86 | 4.58 | 4.56 | 3.65 | I-3C1 |
| | D-95A | 146+02 | | | | | | | | | | | | | | | 666.00 | | | 666.72 | 666.75 | | | 672.75 | 6.03 | 6.00 | 5.31 | I-2A-12 |
| P-95A | D-95A | 146+02 | 0.75 | 1.64 | 0.80 | 0.91 | 10.00 | 10.19 | 10.21 | 4.91 | 3.00 | 4.52 | 3.21 | 15.00 | 5.86 | 0.0341 | 666.00 | 0.015 | 0.0158 | 666.72 | 666.75 | 8.15 | 11.12 | 672.75 | 6.03 | 6.00 | 5.31 | I-2A-12 |
| | D-88 | 146+03 | | | | | | | | | | | | | | | 665.80 | | | 666.36 | 666.38 | | | 674.56 | 8.20 | 8.18 | 7.32 | MH-3-48 |
| P-88 | D-88 | 146+01 | (N/A) | 2.22 | (N/A) | 1.40 | 0.00 | 12.72 | 13.09 | 4.46 | 3.00 | 6.29 | 4.68 | 18.00 | 275.36 | 0.0119 | 663.27 | 0.015 | 0.0119 | 664.11 | 664.14 | 5.95 | 10.69 | 674.56 | 10.46 | 10.42 | 9.58 | MH-3-48 |
| | D-86 | 143+32 | | | | | | | | | | | | | | | 659.99 | | | 660.84 | 660.87 | | | 667.12 | 6.29 | 6.25 | 5.42 | MH-3-48 |
| P-86A | D-86A | 143+30 | 0.07 | 0.07 | 0.80 | 0.04 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.22 | 0.13 | 15.00 | 9.00 | 0.0333 | 661.10 | 0.015 | 0.0268 | 661.24 | 661.25 | 3.35 | 10.99 | 666.95 | 5.71 | 5.71 | 4.41 | CB-2-3 |
| | D-86 | 143+30 | | | | | | | | | | | | | | | 660.80 | | | 660.90 | 660.91 | | | 667.12 | 6.22 | 6.22 | 4.88 | MH-3-48 |
| P-86 | D-86 | 143+28 | (N/A) | 2.29 | (N/A) | 1.44 | 0.00 | 13.49 | 13.92 | 4.34 | 3.00 | 6.32 | 4.82 | 18.00 | 174.19 | 0.0163 | 659.99 | 0.015 | 0.0162 | 660.84 | 660.87 | 6.72 | 12.51 | 667.12 | 6.29 | 6.25 | 5.42 | MH-3-48 |
| | D-84 | 141+60 | | | | | | | | | | | | | | | 657.15 | | | 658.07 | 658.12 | | | 663.61 | 5.54 | 5.49 | 4.75 | MH-3-72 |
| P-85 | D-85 | 141+52 | 0.30 | 0.30 | 0.80 | 0.30 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.51 | 0.91 | 15.00 | 8.59 | 0.0116 | 657.50 | 0.015 | 0.0016 | 658.07 | 658.11 | 4.09 | 6.50 | 663.11 | 5.04 | 5.00 | 4.17 | I-3D |
| | D-84 | 141+55 | | | | | | | | | | | | | | | 657.40 | | | 658.07 | 658.12 | | | 663.61 | 5.54 | 5.49 | 4.77 | MH-3-72 |
| P-84 | D-84 | 141+54 | (N/A) | 2.59 | (N/A) | 1.75 | 0.00 | 13.93 | 14.38 | 4.28 | 3.00 | 7.53 | 5.73 | 18.00 | 283.20 | 0.0235 | 657.15 | 0.015 | 0.0227 | 658.07 | 658.12 | 8.05 | 15.02 | 663.61 | 5.54 | 5.49 | 4.75 | MH-3-72 |
| | D-83 | 138+77 | | | | | | | | | | | | | | | 650.49 | | | 651.16 | 651.20 | | | 655.85 | 4.69 | 4.65 | 3.65 | MH-3-48 |
| P-83 | D-83 | 138+73 | (N/A) | 2.59 | (N/A) | 1.75 | 0.00 | 14.51 | 15.01 | 4.20 | 3.00 | 7.38 | 5.73 | 18.00 | 295.03 | 0.0296 | 650.49 | 0.015 | 0.0295 | 651.41 | 651.46 | 8.74 | 16.85 | 655.85 | 4.43 | 4.39 | 3.65 | MH-3-48 |
| | D-72 | 135+83 | | | | | | | | | | | | | | | 641.75 | | | 642.76 | 642.84 | | | 651.50 | 8.74 | 8.66 | 8.04 | MH-3-60 |
| P-89 | D-89 | 148+44 | 0.98 | 0.98 | 0.75 | 0.54 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 2.70 | 1.88 | 15.00 | 74.19 | 0.0222 | 671.00 | 0.015 | 0.0214 | 671.55 | 671.57 | 6.07 | 8.97 | 676.52 | 4.98 | 4.95 | 4.08 | I-2A-12 |
| | D-90 | 147+73 | | | | | | | | | | | | | | | 669.36 | | | 670.02 | 670.05 | | | 674.45 | 4.43 | 4.40 | 3.65 | I-2A-10 |
| P-90 | D-90 | 147+70 | 0.22 | 1.20 | 0.80 | 0.84 | 10.00 | 10.20 | 10.23 | 4.90 | 3.00 | 4.13 | 2.70 | 15.00 | 140.05 | 0.0354 | 669.36 | 0.015 | 0.0350 | 670.02 | 670.05 | 8.06 | 11.33 | 674.45 | 4.43 | 4.40 | 3.65 | I-2A-10 |
| | D-91 | 146+32 | | | | | | | | | | | | | | | 664.40 | | | 665.19 | 665.24 | | | 670.54 | 5.35 | 5.31 | 4.70 | I-2A-12 |
| P-91 | D-91 | 146+29 | 0.45 | 1.65 | 0.81 | 1.23 | 10.00 | 10.49 | 10.55 | 4.85 | 3.00 | 6.00 | 3.85 | 15.00 | 26.68 | 0.0150 | 664.40 | 0.015 | 0.0135 | 665.19 | 665.24 | 6.30 | 7.37 | 670.54 | 5.35 | 5.31 | 4.70 | I-2A-12 |
| | D-92 | 146+05 | | | | | | | | | | | | | | | 664.00 | | | 664.93 | 664.98 | | | 670.31 | 5.38 | 5.33 | 4.87 | I-2A-10 |
| P-93 | D-93 | 145+86 | 0.50 | 0.50 | 0.77 | 0.36 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.77 | 1.15 | 15.00 | 18.98 | 0.0263 | 664.50 | 0.015 | 0.0030 | 664.92 | 664.95 | 5.74 | 9.77 | 670.54 | 5.62 | 5.60 | 4.60 | I-2A-12 |
| | D-92 | 146+02 | | | | | | | | | | | | | | | 664.00 | | | 664.93 | 664.98 | | | 670.31 | 5.38 | 5.33 | 4.87 | I-2A-10 |
| P-92 | D-92 | 146+04 | 0.11 | 2.26 | 0.75 | 1.74 | 10.00 | 10.56 | 10.63 | 4.83 | 3.00 | 8.49 | 5.27 | 15.00 | 28.38 | 0.0264 | 664.00 | 0.015 | 0.0235 | 664.93 | 664.98 | 8.43 | 9.79 | 670.31 | 5.38 | 5.33 | 4.87 | I-2A-10 |
| | D-94 | 146+02 | | | | | | | | | | | | | | | 663.25 | | | 663.95 | 664.00 | | | 670.88 | 6.93 | 6.88 | 6.19 | I-2A-6 |
| P-94 | D-94 | 146+00 | 0.03 | 2.29 | 0.90 | 1.77 | 10.00 | 10.62 | 10.69 | 4.82 | 3.00 | 8.58 | 5.34 | 18.00 | 179.31 | 0.0110 | 663.25 | 0.015 | 0.0110 | 664.14 | 664.19 | 6.11 | 10.26 | 670.88 | 6.74 | 6.69 | 5.92 | I-2A-6 |
| | D-94A | 144+23 | | | | | | | | | | | | | | | 661.28 | | | 662.24 | 662.29 | | | 667.10 | 4.86 | 4.81 | 4.11 | I-2A-10 |
| P-94A | D-94A | 144+20 | 0.35 | 2.64 | 0.85 | 2.00 | 10.00 | 11.11 | 11.23 | 4.73 | 3.00 | 9.55 | 6.14 | 18.00 | 151.82 | 0.0262 | 661.28 | 0.015 | 0.0261 | 662.24 | 662.29 | 8.87 | 15.86 | 667.10 | 4.86 | 4.81 | 4.11 | I-2A-10 |
| | D-87 | 142+70 | | | | | | | | | | | | | | | 657.30 | | | 658.35 | 658.40 | | | 663.80 | 5.45 | 5.40 | 4.79 | I-2A-10 |
| P-87 | D-87 | 142+67 | 0.62 | 3.25 | (N/A) | 2.35 | 10.00 | 11.39 | 11.55 | 4.68 | 3.00 | 11.07 | 7.30 | 18.00 | 115.10 | 0.0165 | 657.30 | 0.015 | 0.0165 | 658.35 | 658.40 | 7.53 | 12.58 | 663.80 | 5.45 | 5.40 | 4.79 | I-2A-10 |
| | D-84A | 141+54 | | | | | | | | | | | | | | | 655.40 | | | 656.50 | 656.55 | | | 661.46 | 4.97 | 4.91 | 4.35 | I-2A-10 |
| P-84A | D-84A | 141+51 | 0.17 | 3.43 | 0.82 | 2.59 | 10.00 | 11.65 | 11.82 | 4.64 | 3.00 | 12.12 | 7.98 | 18.00 | 255.47 | 0.0201 | 655.40 | 0.015 | 0.0198 | 656.50 | 656.55 | 8.30 | 13.88 | 661.46 | 4.97 | 4.91 | 4.35 | I-2A-10 |
| | D-81A | 138+98 | | | | | | | | | | | | | | | 650.27 | | | 651.12 | 651.18 | | | 658.49 | 7.37 | 7.31 | 6.51 | I-2A-10 |
| P-81A | D-81A | 138+95 | 0.75 | 4.18 | 0.79 | 3.06 | 10.00 | 12.16 | 12.37 | 4.55 | 3.00 | 14.06 | 9.53 | 21.00 | 316.99 | 0.0211 | 650.00 | 0.015 | 0.0211 | 651.15 | 651.21 | 8.99 | 21.47 | 658.49 | 7.34 | 7.28 | 6.51 | I-2A-10 |
| | D-81 | 135+81 | | | | | | | | | | | | | | | 643.30 | | | 644.15 | 644.20 | | | 654.89 | 10.74 | 10.69 | 9.61 | I-2A-10 |
| P-79 | D-79 | 139+80 | 0.18 | 0.18 | 0.90 | 0.15 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.74 | 0.49 | 15.00 | 227.74 | 0.0476 | 679.04 | 0.015 | 0.0475 | 679.32 | 679.33 | 5.50 | 13.14 | 684.21 | 4.90 | 4.89 | 3.73 | I-2A-8 |
| | D-80 | 137+58 | | | | | | | | | | | | | | | 668.20 | | | 668.54 | 668.56 | | | 673.42 | 4.87 | 4.86 | 3.78 | I-2A-8 |

***Storm Sewer Calculations Burke Brook Outlet***

| Label | -Node- Upstream Downstream | -Station- Start Stop | Upstream Inlet Area (acres) | System Drainage Area (acres) | Upstream Inlet C | System CA (acres) | Upstream Inlet Tc (min) | System Flow Time (min) | | System Intensity (in/h) | | Flow (cfs) | | Diameter (in) | Length (Unified) (ft) | Slope (Calculated) (ft/ft) | -Invert- Upstream Downstream (ft) | Manning's n | Friction Slope (ft/ft) | HGL Start Stop (ft) | | Velocity (ft/s) | Capacity (Design) (cfs) | -Ground- Upstream Downstream (ft) | Ground Minus HGL (Start/Stop) (ft) | | Cover (Start/Stop) (ft) | Inlet Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | | | | | | | 25 Yr. | 50 Yr. | | | | 25 Yr. | 50 Yr. | | |
| P-80 | D-80 | 137+56 | 0.10 | 0.28 | 0.90 | 0.25 | 10.00 | 10.69 | 10.78 | 4.81 | 3.00 | 1.20 | 0.77 | 15.00 | 163.72 | 0.0495 | 668.20 | 0.015 | 0.0477 | 668.54 | 668.56 | 6.42 | 13.40 | 673.42 | 4.87 | 4.86 | 3.78 | I-2A-8 |
| | D-77 | 135+95 | | | | | | | | | | | | | | | 660.09 | | | 660.81 | 660.84 | | | 665.36 | 4.56 | 4.52 | 3.83 | I-2A-6 |
| P-78 | D-78 | 135+91 | 1.23 | 1.23 | 0.71 | 0.64 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 3.20 | 2.23 | 15.00 | 28.36 | 0.0134 | 660.47 | 0.015 | 0.0119 | 661.06 | 661.09 | 5.26 | 6.96 | 665.70 | 4.63 | 4.61 | 3.79 | I-2A-16 |
| | D-77 | 135+94 | | | | | | | | | | | | | | | 660.09 | | | 660.81 | 660.84 | | | 665.36 | 4.56 | 4.52 | 3.83 | I-2A-6 |
| P-77 | D-77 | 135+92 | 0.07 | 1.59 | 0.90 | 0.95 | 10.00 | 11.11 | 11.27 | 4.73 | 3.00 | 4.55 | 3.19 | 15.00 | 136.00 | 0.0482 | 660.09 | 0.015 | 0.0479 | 660.81 | 660.84 | 9.26 | 13.22 | 665.36 | 4.56 | 4.52 | 3.83 | I-2A-6 |
| | D-76 | 134+59 | | | | | | | | | | | | | | | 653.54 | | | 654.36 | 654.40 | | | 658.68 | 4.32 | 4.28 | 3.71 | I-2A-6 |
| P-76A | D-76A | 134+53 | 0.20 | 0.20 | 0.71 | 0.29 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.43 | 0.78 | 15.00 | 28.49 | 0.0052 | 653.68 | 0.015 | 0.0008 | 654.36 | 654.41 | 3.00 | 4.33 | 658.82 | 4.46 | 4.41 | 3.70 | I-2A-12 |
| | D-76 | 134+58 | | | | | | | | | | | | | | | 653.54 | | | 654.36 | 654.40 | | | 658.68 | 4.32 | 4.28 | 3.71 | I-2A-6 |
| P-76 | D-76 | 134+57 | 0.06 | 1.84 | 0.90 | 1.30 | 10.00 | 11.36 | 11.53 | 4.69 | 3.00 | 6.12 | 4.14 | 15.00 | 161.00 | 0.0437 | 653.54 | 0.015 | 0.0436 | 654.36 | 654.40 | 9.64 | 12.59 | 658.68 | 4.32 | 4.28 | 3.71 | I-2A-6 |
| | D-74 | 132+99 | | | | | | | | | | | | | | | 646.50 | | | 647.37 | 647.42 | | | 652.19 | 4.82 | 4.78 | 4.25 | I-2A-6 |
| P-73 | D-73 | 132+96 | 0.08 | 0.08 | 0.80 | 0.14 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 0.68 | 0.24 | 15.00 | 30.05 | 0.0250 | 647.25 | 0.015 | 0.0039 | 647.44 | 647.47 | 4.27 | 9.51 | 652.36 | 4.92 | 4.89 | 3.66 | I-2A-10 |
| | D-74 | 132+97 | | | | | | | | | | | | | | | 646.50 | | | 647.37 | 647.42 | | | 652.19 | 4.82 | 4.78 | 4.25 | I-2A-6 |
| P-74 | D-74 | 132+97 | 0.09 | 2.01 | 0.90 | 1.51 | 10.00 | 11.64 | 11.84 | 4.64 | 3.00 | 7.06 | 4.62 | 15.00 | 7.15 | 0.0420 | 646.50 | 0.015 | 0.0392 | 647.37 | 647.42 | 9.83 | 12.34 | 652.19 | 4.82 | 4.78 | 4.25 | I-2A-6 |
| | D-75 | 132+95 | | | | | | | | | | | | | | | 646.20 | | | 647.12 | 647.18 | | | 651.68 | 4.56 | 4.50 | 4.04 | I-2A-12 |
| P-75 | D-75 | 132+97 | 0.35 | 2.36 | 0.83 | 1.92 | 10.00 | 11.65 | 11.86 | 4.64 | 3.00 | 8.98 | 5.71 | 18.00 | 284.01 | 0.0113 | 646.20 | 0.015 | 0.0099 | 647.12 | 647.18 | 6.21 | 10.39 | 651.68 | 4.56 | 4.50 | 3.77 | I-2A-12 |
| | D-81 | 135+78 | | | | | | | | | | | | | | | 643.00 | | | 644.43 | 644.51 | | | 654.89 | 10.47 | 10.39 | 10.18 | I-2A-10 |
| P-81 | D-81 | 135+79 | 0.55 | 7.09 | 0.82 | 5.45 | 10.00 | 12.75 | 13.02 | 4.46 | 3.00 | 24.48 | 16.67 | 27.00 | 61.93 | 0.0161 | 643.00 | 0.015 | 0.0159 | 644.43 | 644.51 | 9.33 | 36.69 | 654.89 | 10.47 | 10.39 | 9.37 | I-2A-10 |
| | D-82 | 135+80 | | | | | | | | | | | | | | | 642.00 | | | 643.55 | 643.63 | | | 655.10 | 11.55 | 11.47 | 10.57 | I-3B1 |
| P-82 | D-82 | 135+80 | 1.28 | 8.37 | 0.90 | 6.28 | 10.00 | 12.86 | 13.14 | 4.44 | 3.00 | 28.08 | 19.51 | 27.00 | 72.25 | 0.0138 | 642.00 | 0.015 | 0.0136 | 643.55 | 643.63 | 8.97 | 33.97 | 655.10 | 11.55 | 11.47 | 10.57 | I-3B1 |
| | D-72 | 135+80 | | | | | | | | | | | | | | | 641.00 | | | 642.76 | 642.84 | | | 651.50 | 8.74 | 8.66 | 7.98 | MH-3-60 |
| P-72 | D-72 | 135+78 | (N/A) | 10.96 | (N/A) | 8.02 | 0.00 | 15.08 | 15.61 | 4.12 | 3.00 | 33.31 | 25.24 | 27.00 | 86.47 | 0.0231 | 641.00 | 0.015 | 0.0197 | 642.76 | 642.84 | 11.45 | 43.91 | 651.50 | 8.74 | 8.66 | 7.98 | MH-3-60 |
| | D-71 | 134+96 | | | | | | | | | | | | | | | 639.00 | | | 640.30 | 640.39 | | | 643.92 | 3.63 | 3.54 | 2.40 | MH-5-66 |
| P-71B | D-71B | 134+03 | 4.59 | 4.59 | 0.75 | 1.76 | 15.00 | 15.00 | 15.00 | 4.13 | 3.00 | 7.32 | 5.56 | 14x23 | 64.50 | 0.0030 | 627.90 | 0.015 | 0.0071 | 629.58 | 629.70 | 4.17 | 5.09 | 630.05 | 0.47 | 0.35 | 0.75 | CB-5 |
| | D-71D | 134+64 | | | | | | | | | | | | | | | 627.71 | | | 629.31 | 629.39 | | | 632.79 | 3.48 | 3.41 | 3.68 | MH-3-72 |
| P-71C | D-71C | 134+55 | 9.50 | 9.50 | 0.90 | 8.55 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 42.60 | 25.86 | 24.00 | 49.96 | 0.0532 | 630.44 | 0.015 | 0.0531 | 632.22 | 632.28 | 16.36 | 48.62 | 645.54 | 13.32 | 13.26 | 12.85 | MH-3-48 |
| | D-71D | 134+66 | | | | | | | | | | | | | | | 627.79 | | | 628.95 | 629.03 | | | 632.79 | 3.84 | 3.76 | 2.76 | MH-3-72 |
| P-71D | D-71D | 134+68 | (N/A) | 14.09 | (N/A) | 10.31 | 0.00 | 15.26 | 15.34 | 4.10 | 3.00 | 42.56 | 31.41 | 24x38 | 50.51 | 0.0107 | 627.71 | 0.015 | 0.0132 | 629.31 | 629.39 | 8.56 | 38.75 | 632.79 | 3.48 | 3.41 | 2.77 | MH-3-72 |
| | D-71 | 134+95 | | | | | | | | | | | | | | | 627.17 | | | 628.59 | 628.70 | | | 643.92 | 15.34 | 15.23 | 14.44 | MH-5-66 |
| P-71 | D-71 | 134+96 | (N/A) | 108.43 | (N/A) | 72.70 | 0.00 | 35.66 | 35.55 | 2.52 | 3.00 | 184.97 | 221.29 | 66.00 | 12.93 | 0.0626 | 619.00 | 0.013 | 0.0030 | 626.56 | 626.57 | 7.79 | 840.47 | 643.92 | 17.37 | 17.36 | 18.88 | MH-5-66 |
| | D-O3 | 135+07 | | | | | | | | | | | | | | | 618.19 | | | 626.50 | 626.50 | | | 641.79 | 15.29 | 15.29 | 17.56 | |
| P-60 | D-60 | 118+51 | 1.69 | 1.69 | 0.73 | 0.72 | 15.00 | 15.00 | 15.00 | 4.13 | 3.00 | 2.99 | 2.24 | 15.00 | 67.17 | 0.0058 | 658.39 | 0.015 | 0.0060 | 659.04 | 659.07 | 3.77 | 4.59 | 663.48 | 4.45 | 4.41 | 3.65 | CB-5 |
| | D-O2 | 118+71 | | | | | | | | | | | | | | | 658.00 | | | 658.60 | 658.63 | | | 658.00 | -0.60 | -0.63 | -1.44 | |
| P-56 | D-56 | 116+30 | 0.92 | 0.92 | 0.81 | 0.56 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 2.80 | 1.94 | 15.00 | 7.83 | 0.0089 | 661.17 | 0.015 | 0.0087 | 661.73 | 661.75 | 4.37 | 5.70 | 665.80 | 4.07 | 4.05 | 3.19 | I-2A-12 |
| | D-56A | 116+30 | | | | | | | | | | | | | | | 661.10 | | | 661.63 | 661.65 | | | 667.46 | 5.84 | 5.81 | 4.92 | MH-3-48 |
| P-56A | D-56A | 116+32 | (N/A) | 0.92 | (N/A) | 0.56 | 0.00 | 10.03 | 10.03 | 4.94 | 3.00 | 2.79 | 1.94 | 15.00 | 125.16 | 0.0104 | 661.10 | 0.015 | 0.0104 | 661.66 | 661.68 | 4.63 | 6.14 | 667.46 | 5.81 | 5.78 | 4.92 | MH-3-48 |
| | D-57A | 117+55 | | | | | | | | | | | | | | | 659.80 | | | 660.30 | 660.33 | | | 664.54 | 4.24 | 4.22 | 3.30 | MH-3-48 |
| P-57 | D-57 | 117+56 | 0.22 | 0.22 | 0.85 | 0.33 | 10.00 | 10.00 | 10.00 | 4.94 | 3.00 | 1.66 | 0.87 | 15.00 | 6.95 | 0.0072 | 659.60 | 0.015 | 0.0011 | 660.24 | 660.29 | 3.53 | 5.11 | 664.19 | 3.95 | 3.90 | 3.15 | I-2A-12 |
| | D-57A | 117+57 | | | | | | | | | | | | | | | 659.55 | | | 660.24 | 660.29 | | | 664.54 | 4.30 | 4.26 | 3.55 | MH-3-48 |
| P-57A | D-57A | 117+58 | (N/A) | 1.14 | (N/A) | 0.89 | 0.00 | 10.48 | 10.53 | 4.85 | 3.00 | 4.37 | 2.81 | 15.00 | 41.14 | 0.0073 | 659.55 | 0.015 | 0.0077 | 660.24 | 660.29 | 4.42 | 5.14 | 664.54 | 4.30 | 4.26 | 3.55 | MH-3-48 |
| | D-O1 | 117+75 | | | | | | | | | | | | | | | 659.25 | | | 659.92 | 659.96 | | | 662.10 | 2.18 | 2.14 | 1.41 | |

## 2.4 Storm Sewer Calculations – Morgana Run Outfall

Includes flow assumptions (CDSS), 10-year storm sewer design (StormCAD), 25-year constant intensity check (StormCAD) and 50-year constant intensity check (StormCAD).

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/06/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 12" at STA. 175+50 LT

**Description :**Assumption to get a flow for 12" at STA. 175+50 LT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 15.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X333 | DU17 | 175+55 | 1.07 | 0.64 | 10.00 | 4.94 | 5.51 | 3.2 | 3.5 | 12 | 142.7 | 0.0088 | 658.50 | 4.04 | 3.12 | 0.0131 | 660.01 | 0.00 | -660.01 | -659.50 | MH 3 |
| begin | | 175+50 | 1.07 | 0.64 | | | | | | Warning | | | 657.24 | | | | 658.14 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include:
DA = 1.07ac, C=0.6, Tc=10 min to get the just full capacity for the ex 12". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/06/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 15" at STA. 194+84 RT

**Description :**Assumption to get a flow for 15" at STA. 194+84 RT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 15.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X872 | DU12 | 194+79 | 4.45 | 2.67 | 10.00 | 4.94 | 5.61 | 13.2 | 15.0 | 15 | 57.3 | 0.0479 | 661.04 | 10.75 | 13.18 | 0.0716 | 663.64 | 0.00 | -663.64 | -662.29 | MH 3 |
| begin | | 194+84 | 4.45 | 2.67 | | | | | | Warning | | | 658.29 | | | | 659.54 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include:
DA = 4.45ac, C=0.6, Tc=10 min to get the just full capacity for the ex 15". This flow will be added to the proposed manhole in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/06/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 6" at STA. 200+18 LT

**Description :**Assumption to get a flow for 6" at STA. 200+18 LT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 6.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X101 | DU22 | 200+18 | 0.18 | 0.11 | 10.00 | 4.94 | 5.58 | 0.5 | 0.6 | 6 | 40.3 | 0.0099 | 657.07 | 2.72 | 0.52 | 0.0153 | 657.73 | 0.00 | -657.73 | -657.57 | I 2A |
| begin | | 200+18 | 0.18 | 0.11 | | | | | | Warning | | | 656.67 | | | | 657.12 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include:
DA = 0.18ac, C=0.6, Tc=10 min to get the just full capacity for the ex 6". This flow will be added to the proposed inlet in StormCAD.

# STORM SEWER SYSTEM

**PID :** 105743 **Date :** 05/06/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** 15" at STA. 203+04 LT

**Description :**Assumption to get a flow for 15" at STA. 203+04 LT **Designer :** AKM

**Rainfall Area:** A **Just Full Capacity Frequency (yrs.) :** 10 **Hydraulic Gradient Frequency (yrs.) :** 25

**Minimum Pipe Size :** 15.00 **Tailwater Elevation (ft.):** 0.00

| JUNCTION From | To | STATION From | To | ΔAREA ΣAREA (acres) | ΔCA ΣCA | BEGIN TIME (min.) | RAINFALL INTENSITY (10 yrs.) | (25 yrs.) | DISCHARGE (cfs.) (10 yrs.) | (25 yrs.) | PIPE DIAM. (in.) | LENGTH (ft.) | SLOPE (ft./ft.) | F/L PIPE IN / OUT (ft.) | MEAN VEL (fps.) | JUST FULL CAPACITY (cfs.) | FRICT SLOPE (ft./ft.) | HYGR EL. IN / OUT (ft.) | COVER IN / OUT (ft.) | COVER MINUS HY GR | COVER MINUS CROWN | INLET TYPE MANNING'S 'n' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X212 | DU18 | 203+19 | | 4.98 | 2.99 | 10.00 | 4.94 | 5.61 | 14.8 | 16.8 | 15 | 63.9 | 0.0602 | 663.40 | 12.04 | 14.78 | 0.0896 | 666.52 | 0.00 | -666.52 | -664.65 | MH 3 |
| begin | | 203+04 | | 4.98 | 2.99 | | | | | | | | | 659.55 | | | | 660.80 | 0.00 | | | 0.015 |

To account for existing system which will continue to flow to the new 77 system include:
DA = 4.98ac, C=0.6, Tc=10 min to get the just full capacity for the ex 15". This flow will be added to the proposed manhole in StormCAD.

***Storm Sewer Calculations Morgana Run Outlet***

| Label | -Node- Upstream Downstream | -Station- Start Stop | Upstream Inlet Area (acres) | System Drainage Area (acres) | Upstream Inlet C | System CA (acres) | Upstream Inlet Tc (min) | System Flow Time (min) | | System Intensity (in/h) | | Flow (cfs) | | Diameter (in) | Length (Unified) (ft) | Slope (Calculated) (ft/ft) | -Invert- Upstream Downstream (ft) | Manning's n | Friction Slope (ft/ft) | HGL Start Stop (ft) | | Velocity (ft/s) | Capacity (Design) (cfs) | -Ground- Upstream Downstream (ft) | Ground Minus HGL (Start/Stop) (ft) | | Cover (Start/Stop) (ft) | Inlet Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | | | | | | | 25 Yr. | 50 Yr. | | | | 25 Yr. | 50 Yr. | | |
| P-188 | D-188 | 188+18 | 0.69 | 0.69 | 0.85 | 0.38 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 1.90 | 1.51 | 15.00 | 160.33 | 0.0187 | 670.20 | 0.015 | 0.0180 | 670.69 | 670.71 | 5.17 | 8.24 | 675.90 | 5.21 | 5.20 | 4.26 | I-2A-10 |
| | D-189A | 189+80 | | | | | | | | | | | | | | | 667.20 | | | 667.89 | 667.92 | | | 673.09 | 5.20 | 5.17 | 4.44 | I-3C1 |
| P-189A | D-189A | 189+83 | 0.33 | 1.02 | 0.85 | 0.76 | 10.00 | 10.52 | 10.55 | 4.84 | 3.55 | 3.72 | 2.91 | 15.00 | 182.58 | 0.0197 | 667.20 | 0.015 | 0.0194 | 667.89 | 667.92 | 6.32 | 8.46 | 673.09 | 5.20 | 5.17 | 4.44 | I-3C1 |
| | D-189 | 191+67 | | | | | | | | | | | | | | | 663.60 | | | 664.43 | 664.47 | | | 669.22 | 4.79 | 4.75 | 4.18 | I-2A-10 |
| P-189 | D-189 | 191+69 | 0.37 | 1.39 | 0.85 | 1.15 | 10.00 | 11.00 | 11.06 | 4.75 | 3.55 | 5.51 | 4.23 | 15.00 | 23.48 | 0.0128 | 663.60 | 0.015 | 0.0128 | 664.43 | 664.47 | 5.81 | 6.81 | 669.22 | 4.79 | 4.75 | 4.18 | I-2A-10 |
| | D-190 | 191+91 | | | | | | | | | | | | | | | 663.30 | | | 664.05 | 664.10 | | | 669.11 | 5.06 | 5.01 | 4.37 | I-2A-8 |
| P-190 | D-190 | 191+94 | 0.11 | 1.50 | 0.78 | 1.28 | 10.00 | 11.07 | 11.14 | 4.74 | 3.55 | 6.10 | 4.54 | 18.00 | 38.75 | 0.0103 | 663.30 | 0.015 | 0.0099 | 664.12 | 664.16 | 5.59 | 9.95 | 669.11 | 4.99 | 4.95 | 4.10 | I-2A-8 |
| | D-191 | 192+31 | | | | | | | | | | | | | | | 662.90 | | | 663.81 | 663.85 | | | 669.35 | 5.54 | 5.49 | 4.74 | I-2A-10 |
| P-191 | D-191 | 192+32 | 0.35 | 1.85 | 0.78 | 1.54 | 10.00 | 11.18 | 11.26 | 4.72 | 3.55 | 7.33 | 5.51 | 18.00 | 31.68 | 0.0126 | 662.90 | 0.015 | 0.0118 | 663.81 | 663.85 | 6.30 | 11.00 | 669.35 | 5.54 | 5.49 | 4.74 | I-2A-10 |
| | D-191A | 192+38 | | | | | | | | | | | | | | | 662.50 | | | 663.29 | 663.34 | | | 669.91 | 6.62 | 6.57 | 5.70 | MH-3-48 |
| P-191A | D-191A | 192+41 | (N/A) | 1.85 | (N/A) | 1.54 | 0.00 | 11.26 | 11.35 | 4.71 | 3.55 | 7.30 | 5.51 | 18.00 | 239.75 | 0.0180 | 662.50 | 0.015 | 0.0180 | 663.41 | 663.45 | 7.22 | 13.14 | 669.91 | 6.50 | 6.46 | 5.70 | MH-3-48 |
| | D-198 | 194+82 | | | | | | | | | | | | | | | 658.19 | | | 658.89 | 658.93 | | | 662.40 | 3.50 | 3.46 | 2.50 | MH-3-48 |
| P-198 | D-198 | 194+87 | 4.45 | 6.30 | 0.60 | 4.21 | 10.00 | 11.82 | 11.94 | 4.61 | 3.55 | 19.56 | 15.06 | 24.00 | 162.84 | 0.0107 | 657.64 | 0.015 | 0.0107 | 659.04 | 659.11 | 7.35 | 21.82 | 662.40 | 3.35 | 3.28 | 2.50 | MH-3-48 |
| | D-197 | 196+49 | | | | | | | | | | | | | | | 655.90 | | | 657.42 | 657.83 | | | 659.79 | 2.37 | 1.96 | 1.64 | CB-5 |
| P-197 | D-197 | 196+52 | 1.66 | 7.96 | 0.78 | 4.96 | 15.00 | 15.00 | 15.00 | 4.13 | 3.55 | 20.65 | 17.79 | 24.00 | 268.52 | 0.0120 | 655.90 | 0.015 | 0.0115 | 657.42 | 657.83 | 7.79 | 23.13 | 659.79 | 2.37 | 1.96 | 1.64 | CB-5 |
| | D-205 | 199+17 | | | | | | | | | | | | | | | 652.67 | | | 654.53 | 655.18 | | | 659.62 | 5.08 | 4.44 | 4.70 | MH-3-60 |
| P-209 | D-209 | 204+98 | 0.21 | 0.21 | 0.82 | 0.12 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 0.60 | 0.45 | 15.00 | 55.91 | 0.0215 | 657.00 | 0.015 | 0.0100 | 657.26 | 657.50 | 3.90 | 8.82 | 659.96 | 2.70 | 2.46 | 1.52 | CB-5 |
| | D-208 | 204+89 | | | | | | | | | | | | | | | 655.80 | | | 656.70 | 657.50 | | | 658.74 | 2.04 | 1.24 | 1.50 | CB-5 |
| P-208 | D-208 | 204+88 | 1.75 | 1.96 | 0.76 | 0.88 | 15.00 | 15.00 | 15.00 | 4.13 | 3.55 | 3.68 | 3.22 | 15.00 | 273.84 | 0.0044 | 655.80 | 0.015 | 0.0039 | 656.70 | 657.50 | 3.44 | 3.99 | 658.74 | 2.04 | 1.24 | 1.50 | CB-5 |
| | D-207 | 202+18 | | | | | | | | | | | | | | | 654.60 | | | 655.52 | 656.43 | | | 657.99 | 2.47 | 1.56 | 1.94 | CB-5 |
| P-207 | D-207 | 202+16 | 0.66 | 2.63 | 0.80 | 1.22 | 15.00 | 16.33 | 16.34 | 3.96 | 3.55 | 4.86 | 4.44 | 18.00 | 182.06 | 0.0060 | 654.60 | 0.015 | 0.0028 | 655.52 | 656.43 | 4.32 | 7.61 | 657.99 | 2.47 | 1.56 | 1.68 | CB-5 |
| | D-206 | 200+36 | | | | | | | | | | | | | | | 653.50 | | | 655.15 | 655.91 | | | 657.43 | 2.28 | 1.52 | 2.22 | CB-5 |
| P-206 | D-206 | 200+34 | 1.29 | 3.92 | 0.79 | 1.81 | 15.00 | 17.03 | 17.06 | 3.88 | 3.55 | 7.08 | 6.60 | 18.00 | 116.56 | 0.0071 | 653.50 | 0.015 | 0.0060 | 655.15 | 655.91 | 4.01 | 8.26 | 657.43 | 2.28 | 1.52 | 2.22 | CB-5 |
| | D-205 | 199+22 | | | | | | | | | | | | | | | 652.67 | | | 654.53 | 655.18 | | | 659.62 | 5.08 | 4.44 | 5.24 | MH-3-60 |
| P-205 | D-205 | 199+19 | (N/A) | 11.88 | (N/A) | 6.77 | 0.00 | 17.51 | 17.58 | 3.82 | 3.55 | 26.08 | 24.40 | 30.00 | 75.26 | 0.0057 | 652.67 | 0.015 | 0.0060 | 654.53 | 655.18 | 6.22 | 28.80 | 659.62 | 5.08 | 4.44 | 4.16 | MH-3-60 |
| | D-202 | 199+20 | | | | | | | | | | | | | | | 652.24 | | | 654.05 | 654.76 | | | 660.20 | 6.15 | 5.44 | 5.16 | I-3B1 |
| P-203 | D-203 | 200+18 | 0.21 | 0.21 | 0.90 | 0.39 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 1.93 | 0.96 | 15.00 | 97.51 | 0.0147 | 654.93 | 0.015 | 0.0144 | 655.31 | 655.35 | 4.76 | 7.30 | 660.02 | 4.71 | 4.67 | 3.65 | I-3B1 |
| | D-202 | 199+20 | | | | | | | | | | | | | | | 653.49 | | | 654.05 | 654.76 | | | 660.20 | 6.15 | 5.44 | 5.26 | I-3B1 |
| P-202 | D-202 | 199+20 | 0.68 | 12.78 | 0.90 | 7.93 | 10.00 | 17.72 | 17.78 | 3.80 | 3.55 | 30.36 | 28.05 | 30.00 | 47.25 | 0.0094 | 652.24 | 0.015 | 0.0072 | 654.05 | 654.76 | 7.91 | 37.02 | 660.20 | 6.15 | 5.44 | 5.16 | I-3B1 |
| | D-201 | 199+20 | | | | | | | | | | | | | | | 651.80 | | | 653.93 | 654.40 | | | 660.53 | 6.59 | 6.13 | 5.93 | MH-3-72 |
| P-215C | D-215C | 203+04 | 0.37 | 0.37 | 0.85 | 0.28 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 1.39 | 1.06 | 15.00 | 5.56 | 0.0108 | 656.25 | 0.015 | 0.0092 | 656.66 | 656.67 | 3.89 | 6.25 | 660.84 | 4.18 | 4.17 | 3.15 | I-2A-8 |
| | D-215 | 203+01 | | | | | | | | | | | | | | | 656.19 | | | 656.56 | 656.57 | | | 663.57 | 7.01 | 7.00 | 5.94 | MH-3-60 |
| P-215 | D-215 | 202+99 | 5.17 | 5.54 | (N/A) | 3.40 | 10.00 | 10.02 | 10.03 | 4.94 | 3.55 | 16.92 | 12.23 | 24.00 | 182.36 | 0.0099 | 654.85 | 0.015 | 0.0072 | 656.11 | 656.17 | 7.00 | 21.02 | 663.57 | 7.46 | 7.40 | 6.47 | MH-3-60 |
| | D-213 | 201+22 | | | | | | | | | | | | | | | 653.04 | | | 654.50 | 655.26 | | | 662.71 | 8.20 | 7.45 | 7.41 | MH-3-60 |
| P-204 | D-204 | 201+15 | 0.51 | 0.51 | 0.90 | 0.44 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 2.17 | 1.62 | 15.00 | 56.53 | 0.0139 | 655.11 | 0.015 | 0.0093 | 655.62 | 655.64 | 4.83 | 7.11 | 660.20 | 4.59 | 4.56 | 3.65 | I-3B1 |
| | D-214 | 201+18 | | | | | | | | | | | | | | | 654.32 | | | 655.00 | 655.26 | | | 659.98 | 4.98 | 4.73 | 4.22 | I-2A-10 |
| P-214 | D-214 | 201+18 | 0.40 | 0.91 | 0.83 | 0.80 | 10.00 | 10.20 | 10.21 | 4.90 | 3.55 | 3.94 | 2.87 | 15.00 | 5.86 | 0.0119 | 654.32 | 0.015 | 0.0048 | 655.00 | 655.26 | 5.30 | 6.58 | 659.98 | 4.98 | 4.73 | 4.22 | I-2A-10 |
| | D-213 | 201+19 | | | | | | | | | | | | | | | 654.25 | | | 654.87 | 655.26 | | | 662.71 | 7.83 | 7.45 | 7.01 | MH-3-60 |
| P-213 | D-213 | 201+17 | (N/A) | 6.45 | (N/A) | 4.20 | 0.00 | 10.46 | 10.49 | 4.85 | 3.55 | 20.53 | 15.10 | 27.00 | 102.51 | 0.0067 | 653.04 | 0.015 | 0.0058 | 654.50 | 655.26 | 5.16 | 23.69 | 662.71 | 8.20 | 7.45 | 7.14 | MH-3-60 |
| | D-211 | 200+19 | | | | | | | | | | | | | | | 652.35 | | | 654.32 | 654.87 | | | 659.18 | 4.86 | 4.32 | 4.31 | MH-3-60 |
| P-212D | D-212D | 200+42 | 0.19 | 0.19 | 0.79 | 0.16 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 0.80 | 0.55 | 15.00 | 23.50 | 0.0085 | 654.00 | 0.015 | 0.0004 | 654.32 | 654.87 | 3.06 | 5.56 | 659.78 | 5.47 | 4.91 | 4.34 | I-2A-8 |
| | D-212 | 200+20 | | | | | | | | | | | | | | | 653.80 | | | 654.33 | 654.87 | | | 659.78 | 5.45 | 4.91 | 4.54 | I-2A-10 |
| P-212E | D-212E | 200+03 | 0.20 | 0.20 | 0.79 | 0.16 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 0.80 | 0.57 | 15.00 | 14.17 | 0.0494 | 654.50 | 0.015 | 0.0170 | 654.80 | 654.81 | 5.69 | 13.38 | 659.78 | 4.98 | 4.97 | 3.83 | I-2A-10 |
| | D-212 | 200+15 | | | | | | | | | | | | | | | 653.80 | | | 654.33 | 654.87 | | | 659.78 | 5.45 | 4.91 | 4.54 | I-2A-10 |
| P-212 | D-212 | 200+20 | 0.28 | 0.67 | (N/A) | 0.51 | 10.00 | 10.13 | 10.14 | 4.92 | 3.55 | 2.51 | 1.78 | 15.00 | 6.86 | 0.0146 | 653.80 | 0.015 | 0.0022 | 654.33 | 654.87 | 5.10 | 7.27 | 659.78 | 5.45 | 4.91 | 4.54 | I-2A-10 |
| | D-211 | 200+16 | | | | | | | | | | | | | | | 653.70 | | | 654.32 | 654.87 | | | 659.18 | 4.86 | 4.32 | 4.04 | MH-3-60 |
| P-211 | D-211 | 200+14 | (N/A) | 7.12 | (N/A) | 4.70 | 0.00 | 10.79 | 10.78 | 4.79 | 3.55 | 22.71 | 16.88 | 27.00 | 97.82 | 0.0082 | 651.80 | 0.015 | 0.0072 | 654.32 | 654.87 | 5.71 | 26.11 | 659.18 | 4.86 | 4.32 | 4.86 | MH-3-60 |
| | D-201 | 199+23 | | | | | | | | | | | | | | | 651.00 | | | 653.93 | 654.40 | | | 660.53 | 6.59 | 6.13 | 7.00 | MH-3-72 |
| P-210 | D-210 | 199+18 | 0.40 | 0.40 | 0.78 | 0.31 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 1.56 | 1.13 | 15.00 | 9.30 | 0.0107 | 654.55 | 0.015 | 0.0096 | 654.97 | 654.99 | 4.01 | 6.24 | 660.07 | 5.10 | 5.07 | 4.07 | I-2A-10 |
| | D-201 | 199+21 | | | | | | | | | | | | | | | 654.45 | | | 654.83 | 654.85 | | | 660.53 | 5.70 | 5.68 | 4.63 | MH-3-72 |
| P-201 | D-201 | 199+17 | (N/A) | 20.30 | (N/A) | 12.94 | 0.00 | 17.82 | 17.88 | 3.79 | 3.55 | 49.42 | 46.06 | 48.00 | 231.00 | 0.0017 | 651.00 | 0.015 | 0.0019 | 653.93 | 654.40 | 4.69 | 55.72 | 660.53 | 6.59 | 6.13 | 5.11 | MH-3-72 |
| | D-195 | 196+92 | | | | | | | | | | | | | | | 650.60 | | | 653.53 | 654.05 | | | 663.38 | 9.85 | 9.33 | 8.36 | MH-3-72 |
| P-200 | D-200 | 197+09 | 0.04 | 0.04 | 0.90 | 0.04 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 0.20 | 0.14 | 15.00 | 58.93 | 0.1773 | 668.00 | 0.015 | 0.1727 | 668.15 | 668.15 | 5.84 | 25.36 | 681.24 | 13.09 | 13.09 | 11.80 | MH-3-48 |
| | D-199 | 197+00 | | | | | | | | | | | | | | | 657.55 | | | 658.01 | 658.04 | | | 660.99 | 2.97 | 2.95 | 2.00 | CB-5 |
| P-199 | D-199 | 197+00 | 0.77 | 0.81 | 0.71 | 0.38 | 15.00 | 15.00 | 15.00 | 4.13 | 3.55 | 1.58 | 1.37 | 15.00 | 23.26 | 0.0100 | 657.55 | 0.015 | 0.0096 | 658.01 | 658.04 | 3.93 | 6.03 | 660.99 | 2.97 | 2.95 | 2.00 | CB-5 |
| | D-195 | 196+91 | | | | | | | | | | | | | | | 657.32 | | | 657.74 | 657.76 | | | 663.38 | 5.64 | 5.62 | 4.62 | MH-3-72 |
| P-195 | D-195 | 196+86 | (N/A) | 21.11 | (N/A) | 13.32 | 0.00 | 18.64 | 18.71 | 3.70 | 3.55 | 49.68 | 47.44 | 48.00 | 296.05 | 0.0019 | 650.60 | 0.015 | 0.0020 | 653.53 | 654.05 | 4.85 | 57.72 | 663.38 | 9.85 | 9.33 | 8.36 | MH-3-72 |
| | D-193 | 194+01 | | | | | | | | | | | | | | | 650.05 | | | 652.99 | 653.59 | | | 668.16 | 15.17 | 14.57 | 13.69 | MH-3-84 |
| P-194 | D-194 | 194+00 | 0.86 | 0.86 | 0.90 | 0.69 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 3.45 | 2.56 | 15.00 | 64.85 | 0.0099 | 662.14 | 0.015 | 0.0098 | 662.78 | 662.81 | 4.78 | 5.98 | 667.23 | 4.45 | 4.42 | 3.65 | I-3C1 |
| | D-193 | 193+98 | | | | | | | | | | | | | | | 661.50 | | | 662.10 | 662.13 | | | 668.16 | 6.06 | 6.03 | 5.22 | MH-3-84 |
| P-193 | D-193 | 193+97 | (N/A) | 21.98 | (N/A) | 14.02 | 0.00 | 19.65 | 19.73 | 3.59 | 3.55 | 50.80 | 49.99 | 48.00 | 74.14 | 0.0020 | 650.05 | 0.015 | 0.0021 | 652.99 | 653.59 | 5.05 | 60.23 | 668.16 | 15.17 | 14.57 | 13.69 | MH-3-84 |
| | D-193A | 193+84 | | | | | | | | | | | | | | | 649.90 | | | 652.84 | 653.46 | | | 670.47 | 17.64 | 17.01 | 16.15 | MH-3-84 |
| P-193A | D-193A | 193+80 | (N/A) | 21.98 | (N/A) | 14.02 | 0.00 | 19.90 | 19.98 | 3.57 | 3.55 | 50.46 | 49.99 | 48.00 | 247.31 | 0.0019 | 649.90 | 0.015 | 0.0022 | 652.84 | 653.46 | 4.90 | 58.38 | 670.47 | 17.64 | 17.01 | 16.15 | MH-3-84 |
| | D-192 | 191+50 | | | | | | | | | | | | | | | 649.43 | | | 652.29 | 653.04 | | | 668.80 | 16.51 | 15.76 | 14.95 | CB-2-6 |
| P-192 | D-192 | 191+44 | 0.92 | 22.90 | 0.78 | 14.49 | 15.00 | 20.74 | 20.82 | 3.49 | 3.55 | 50.99 | 51.70 | 48.00 | 269.61 | 0.0023 | 649.43 | 0.015 | 0.0024 | 652.29 | 653.04 | 5.37 | 64.73 | 668.80 | 16.51 | 15.76 | 14.95 | CB-2-6 |
| | D-186 | 188+91 | | | | | | | | | | | | | | | 648.80 | | | 651.67 | 652.57 | | | 667.45 | 15.78 | 14.88 | 14.24 | CB-2-5 |
| P-187 | D-187 | 189+00 | 0.91 | 0.91 | 0.90 | 0.76 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 3.81 | 2.86 | 15.00 | 86.31 | 0.0072 | 671.63 | 0.015 | 0.0073 | 672.32 | 672.36 | 4.31 | 5.12 | 676.72 | 4.39 | 4.35 | 3.65 | I-3C1 |
| | D-187A | 188+92 | | | | | | | | | | | | | | | 671.00 | | | 671.68 | 671.71 | | | 678.00 | 6.32 | 6.29 | 5.55 | MH-3-48 |
| P-187A | D-187A | 188+91 | (N/A) | 0.91 | (N/A) | 0.76 | 0.00 | 10.33 | 10.35 | 4.88 | 3.55 | 3.76 | 2.86 | 15.00 | 30.12 | 0.0166 | 664.50 | 0.015 | 0.0144 | 665.18 | 665.21 | 5.94 | 7.76 | 678.00 | 12.82 | 12.79 | 12.05 | MH-3-48 |
| | D-186 | 188+89 | | | | | | | | | | | | | | | 664.00 | | | 664.55 | 664.58 | | | 667.45 | 2.90 | 2.88 | 2.01 | CB-2-5 |
| P-186 | D-186 | 188+85 | 0.42 | 24.23 | 0.75 | 15.47 | 15.00 | 21.58 | 21.65 | 3.42 | 3.55 | 53.27 | 55.35 | 48.00 | 268.81 | 0.0026 | 648.80 | 0.015 | 0.0028 | 651.67 | 652.57 | 5.66 | 68.33 | 667.45 | 15.78 | 14.88 | 14.24 | CB-2-5 |
| | D-185 | 186+25 | | | | | | | | | | | | | | | 648.10 | | | 650.94 | 652.02 | | | 666.11 | 15.17 | 14.09 | 13.59 | CB-2-5 |
| P-185 | D-185 | 186+19 | 0.45 | 24.68 | 0.75 | 15.72 | 15.00 | 22.37 | 22.44 | 3.35 | 3.55 | 53.03 | 56.24 | 48.00 | 266.77 | 0.0030 | 648.10 | 0.015 | 0.0028 | 650.94 | 652.02 | 6.00 | 73.33 | 666.11 | 15.17 | 14.09 | 13.59 | CB-2-5 |
| | D-182 | 183+53 | | | | | | | | | | | | | | | 647.30 | | | 650.27 | 651.38 | | | 664.77 | 14.50 | 13.40 | 13.06 | CB-2-5 |
| P-184 | D-184 | 183+46 | 0.19 | 0.19 | 0.86 | 0.17 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 0.83 | 0.60 | 15.00 | 60.80 | 0.0156 | 675.98 | 0.015 | 0.0150 | 676.28 | 676.30 | 3.84 | 7.52 | 681.07 | 4.79 | 4.77 | 3.65 | I-2A-10 |
| | D-183 | 183+50 | | | | | | | | | | | | | | | 675.03 | | | 675.28 | 675.29 | | | 680.12 | 4.84 | 4.83 | 3.65 | I-3C1 |
| P-183 | D-183 | 183+50 | 0.95 | 1.14 | 0.90 | 0.83 | 10.00 | 10.26 | 10.29 | 4.89 | 3.55 | 4.12 | 3.21 | 15.00 | 83.23 | 0.0180 | 673.50 | 0.015 | 0.0170 | 674.22 | 674.25 | 6.26 | 8.08 | 680.12 | 5.90 | 5.87 | 5.18 | I-3C1 |
| | D-183A | 183+53 | | | | | | | | | | | | | | | 672.00 | | | 672.57 | 672.60 | | | 677.08 | 4.51 | 4.48 | 3.63 | MH-3-48 |
| P-183A | D-183A | 183+53 | (N/A) | 1.14 | (N/A) | 0.83 | 0.00 | 10.49 | 10.53 | 4.85 | 3.55 | 4.08 | 3.21 | 15.00 | 39.02 | 0.0154 | 661.80 | 0.015 | 0.0140 | 662.52 | 662.55 | 5.88 | 7.47 | 677.08 | 14.55 | 14.53 | 13.83 | MH-3-48 |
| | D-182 | 183+55 | | | | | | | | | | | | | | | 661.20 | | | 661.80 | 661.83 | | | 664.77 | 2.98 | 2.95 | 2.13 | CB-2-5 |
| P-182 | D-182 | 183+53 | 0.68 | 26.51 | 0.81 | 16.94 | 15.00 | 23.11 | 23.17 | 3.29 | 3.55 | 56.10 | 60.84 | 48.00 | 341.88 | 0.0029 | 647.30 | 0.015 | 0.0030 | 650.27 | 651.38 | 5.99 | 72.42 | 664.77 | 14.50 | 13.40 | 13.06 | CB-2-5 |

***Storm Sewer Calculations Morgana Run Outlet***

| Label | -Node- Upstream Downstream | -Station- Start Stop | Upstream Inlet Area (acres) | System Drainage Area (acres) | Upstream Inlet C | System CA (acres) | Upstream Inlet Tc (min) | System Flow Time (min) | | System Intensity (in/h) | | Flow (cfs) | | Diameter (in) | Length (Unified) (ft) | Slope (Calculated) (ft/ft) | -Invert- Upstream Downstream (ft) | Manning's n | Friction Slope (ft/ft) | HGL Start Stop (ft) | | Velocity (ft/s) | Capacity (Design) (cfs) | -Ground- Upstream Downstream (ft) | Ground Minus HGL (Start/Stop) (ft) | | Cover (Start/Stop) (ft) | Inlet Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | | | | | | | 25 Yr. | 50 Yr. | | | | 25 Yr. | 50 Yr. | | |
| | D-181 | 180+04 | | | | | | | | | | | | | | | 646.30 | | | 649.25 | 650.39 | | | 663.07 | 13.82 | 12.68 | 12.35 | CB-2-5 |
| P-181 | D-181 | 179+98 | 1.05 | 27.56 | 0.80 | 17.51 | 15.00 | 24.06 | 24.11 | 3.21 | 3.55 | 56.67 | 62.92 | 48.00 | 337.51 | 0.0031 | 646.30 | 0.015 | 0.0033 | 649.25 | 650.39 | 6.16 | 74.69 | 663.07 | 13.82 | 12.68 | 12.35 | CB-2-5 |
| | D-180 | 176+56 | | | | | | | | | | | | | | | 645.25 | | | 648.03 | 649.35 | | | 657.54 | 9.50 | 8.18 | 7.87 | CB-2-6 |
| P-180 | D-180 | 176+50 | 1.03 | 28.59 | 0.79 | 18.06 | 15.00 | 24.97 | 25.01 | 3.14 | 3.55 | 57.21 | 64.94 | 48.00 | 74.52 | 0.0034 | 645.25 | 0.015 | 0.0042 | 648.03 | 649.35 | 6.37 | 77.56 | 657.54 | 9.50 | 8.18 | 7.87 | CB-2-6 |
| | D-179 | 175+88 | | | | | | | | | | | | | | | 645.00 | | | 647.43 | 649.11 | | | 662.17 | 14.74 | 13.07 | 12.75 | MH-3-72 |
| P-179 | D-179 | 175+82 | (N/A) | 28.59 | (N/A) | 18.06 | 0.00 | 25.17 | 25.20 | 3.13 | 3.55 | 56.95 | 64.94 | 48.00 | 39.37 | 0.0203 | 645.00 | 0.015 | 0.0154 | 647.43 | 649.11 | 12.57 | 190.89 | 662.17 | 14.74 | 13.07 | 12.75 | MH-3-72 |
| | D-178 | 175+54 | | | | | | | | | | | | | | | 644.20 | | | 647.47 | 648.98 | | | 660.98 | 13.51 | 12.00 | 12.36 | MH-3-84 |
| P-178 | D-178 | 175+49 | (N/A) | 28.59 | (N/A) | 18.06 | 0.00 | 25.22 | 25.25 | 3.12 | 3.55 | 87.68 | 98.66 | 48.00 | 22.13 | 0.0081 | 644.20 | 0.015 | 0.0080 | 647.47 | 648.98 | 9.86 | 120.44 | 660.98 | 13.51 | 12.00 | 12.36 | MH-3-84 |
| | D-177 | 175+38 | | | | | | | | | | | | | | | 644.02 | | | 647.41 | 648.81 | | | 665.67 | 18.26 | 16.86 | 17.23 | MH-3-84 |
| P-177 | D-177 | 175+32 | 1.27 | 29.87 | (N/A) | 18.85 | 10.00 | 25.26 | 25.29 | 3.12 | 3.55 | 90.10 | 101.47 | 48.00 | 7.97 | 0.0127 | 644.02 | 0.015 | 0.0114 | 647.41 | 648.81 | 11.84 | 150.73 | 665.67 | 18.26 | 16.86 | 17.23 | MH-3-84 |
| | DU-176 | 175+28 | | | | | | | | | | | | | | | 643.92 | | | 647.44 | 648.75 | | | 663.23 | 15.80 | 14.49 | 14.90 | MH-3-72 |
| P-176 | DU-176 | 175+28 | (N/A) | 29.87 | (N/A) | 18.85 | 0.00 | 25.27 | 25.30 | 3.12 | 3.55 | 90.08 | 101.47 | 48.00 | 339.24 | 0.0063 | 643.92 | 0.015 | 0.0060 | 647.44 | 648.75 | 8.90 | 98.64 | 663.23 | 15.80 | 14.49 | 14.90 | MH-3-72 |
| | D-175 | 171+94 | | | | | | | | | | | | | | | 641.79 | | | 645.57 | 646.02 | | | 652.59 | 7.02 | 6.57 | 6.38 | MH-3-72 |
| P-175 | D-175 | 171+89 | (N/A) | 29.87 | (N/A) | 18.85 | 0.00 | 25.90 | 25.93 | 3.08 | 3.55 | 89.22 | 101.47 | 48.00 | 85.39 | 0.0052 | 641.79 | 0.015 | 0.0050 | 645.57 | 646.02 | 8.11 | 89.36 | 652.59 | 7.02 | 6.57 | 6.38 | MH-3-72 |
| | D-174 | 171+15 | | | | | | | | | | | | | | | 641.35 | | | 645.05 | 645.33 | | | 652.88 | 7.83 | 7.55 | 7.12 | MH-3-72 |
| P-174 | D-174 | 171+10 | (N/A) | 29.87 | (N/A) | 18.85 | 0.00 | 26.08 | 26.11 | 3.06 | 3.55 | 88.99 | 101.47 | 48.00 | 107.44 | 0.0037 | 641.30 | 0.015 | 0.0053 | 645.05 | 645.33 | 7.08 | 76.08 | 652.88 | 7.83 | 7.55 | 7.17 | MH-3-72 |
| | D-173 | 170+05 | | | | | | | | | | | | | | | 640.90 | | | 643.95 | 644.09 | | | 654.94 | 10.99 | 10.85 | 9.63 | MH-3-72 |
| P-173 | D-173 | 170+05 | (N/A) | 29.87 | (N/A) | 18.85 | 0.00 | 26.33 | 26.33 | 3.05 | 3.55 | 88.66 | 101.47 | 48.00 | 48.98 | 0.0061 | 627.36 | 0.015 | 0.0063 | 630.66 | 630.90 | 8.79 | 97.42 | 654.94 | 24.29 | 24.05 | 23.17 | MH-3-72 |
| | D-172 | 169+60 | | | | | | | | | | | | | | | 627.06 | | | 630.11 | 630.25 | | | 647.88 | 17.77 | 17.63 | 16.40 | MH-3-72 |
| P-172 | D-172 | 169+55 | (N/A) | 29.87 | (N/A) | 18.85 | 0.00 | 26.42 | 26.43 | 3.04 | 3.55 | 88.54 | 101.47 | 48.00 | 59.49 | 0.0167 | 612.06 | 0.015 | 0.0049 | 615.93 | 616.05 | 13.10 | 160.75 | 647.88 | 31.95 | 31.83 | 31.40 | MH-3-72 |
| | D-171 | 169+11 | | | | | | | | | | | | | | | 611.07 | | | 615.56 | 615.57 | | | 636.28 | 20.72 | 20.71 | 20.79 | MH-3-72 |
| P-161 | D-161 | 167+70 | 1.03 | 1.03 | 0.90 | 0.67 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 3.36 | 2.65 | 0.00 | 54.10 | 0.0029 | 673.36 | 0.015 | 0.0021 | 674.01 | 674.04 | 2.99 | 5.04 | 677.91 | 3.90 | 3.87 | 3.15 | I-3B1 |
| | D-155 | 167+60 | | | | | | | | | | | | | | | 673.20 | | | 673.91 | 673.94 | | | 677.76 | 3.85 | 3.82 | 3.16 | I-3D |
| P-155 | D-155 | 167+59 | 0.71 | 1.74 | 0.88 | 1.18 | 10.00 | 10.30 | 10.32 | 4.88 | 3.55 | 5.82 | 4.63 | 0.00 | 133.00 | 0.0056 | 673.20 | 0.015 | 0.0050 | 673.91 | 673.94 | 4.37 | 7.00 | 677.76 | 3.85 | 3.82 | 3.16 | I-3D |
| | D-154 | 166+29 | | | | | | | | | | | | | | | 672.45 | | | 673.33 | 673.37 | | | 677.53 | 4.20 | 4.16 | 3.69 | I-3D |
| P-154 | D-154 | 166+26 | 0.13 | 1.87 | 0.80 | 1.40 | 10.00 | 10.81 | 10.86 | 4.79 | 3.55 | 6.76 | 5.25 | 18.00 | 97.30 | 0.0087 | 672.45 | 0.015 | 0.0086 | 673.33 | 673.37 | 5.34 | 9.15 | 677.53 | 4.20 | 4.16 | 3.37 | I-3D |
| | D-152 | 165+32 | | | | | | | | | | | | | | | 671.60 | | | 672.55 | 672.59 | | | 677.66 | 5.11 | 5.06 | 4.35 | I-3D |
| P-152 | D-152 | 165+29 | 0.27 | 2.14 | 0.80 | 1.62 | 10.00 | 11.11 | 11.18 | 4.73 | 3.55 | 7.71 | 6.03 | 18.00 | 60.07 | 0.0100 | 671.60 | 0.015 | 0.0100 | 672.55 | 672.59 | 5.78 | 9.79 | 677.66 | 5.11 | 5.06 | 4.35 | I-3D |
| | D-151A | 164+73 | | | | | | | | | | | | | | | 671.00 | | | 671.89 | 671.94 | | | 678.16 | 6.26 | 6.21 | 5.45 | MH-3-48 |
| P-151A | D-151A | 164+69 | (N/A) | 2.14 | (N/A) | 1.62 | 0.00 | 11.29 | 11.36 | 4.70 | 3.55 | 7.66 | 6.03 | 18.00 | 223.06 | 0.0090 | 671.00 | 0.015 | 0.0071 | 671.95 | 671.99 | 5.51 | 9.27 | 678.16 | 6.21 | 6.16 | 5.45 | MH-3-48 |
| | D-151 | 162+52 | | | | | | | | | | | | | | | 669.00 | | | 670.37 | 670.48 | | | 678.82 | 8.45 | 8.34 | 8.11 | MH-3-48 |
| P-150 | D-150 | 159+87 | 0.19 | 0.19 | 0.88 | 0.16 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 0.82 | 0.59 | 15.00 | 177.24 | 0.0080 | 675.49 | 0.015 | 0.0080 | 675.79 | 675.80 | 3.00 | 5.37 | 680.58 | 4.79 | 4.78 | 3.65 | I-3D |
| | D-150A | 161+58 | | | | | | | | | | | | | | | 674.08 | | | 674.37 | 674.38 | | | 679.33 | 4.96 | 4.94 | 3.81 | MH-3-48 |
| P-150A | D-150A | 161+62 | (N/A) | 0.19 | (N/A) | 0.16 | 0.00 | 10.98 | 11.08 | 4.76 | 3.55 | 0.79 | 0.59 | 15.00 | 91.15 | 0.0502 | 674.08 | 0.015 | 0.0422 | 674.38 | 674.39 | 5.70 | 13.49 | 679.33 | 4.95 | 4.93 | 3.81 | MH-3-48 |
| | D-151 | 162+48 | | | | | | | | | | | | | | | 669.50 | | | 670.37 | 670.48 | | | 678.82 | 8.45 | 8.34 | 7.88 | MH-3-48 |
| P-151 | D-151 | 162+50 | (N/A) | 2.33 | (N/A) | 1.78 | 0.00 | 11.96 | 12.06 | 4.59 | 3.55 | 8.23 | 6.61 | 21.00 | 57.50 | 0.0041 | 669.00 | 0.015 | 0.0033 | 670.37 | 670.48 | 4.17 | 9.50 | 678.82 | 8.45 | 8.34 | 7.83 | MH-3-48 |
| | D-156 | 162+50 | | | | | | | | | | | | | | | 668.76 | | | 670.26 | 670.35 | | | 677.67 | 7.41 | 7.32 | 6.93 | MH-3-60 |
| P-160 | D-160 | 165+63 | 0.28 | 0.28 | 0.90 | 0.50 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 2.50 | 1.59 | 15.00 | 94.37 | 0.0096 | 671.75 | 0.015 | 0.0087 | 672.25 | 672.29 | 4.36 | 5.89 | 676.84 | 4.59 | 4.55 | 3.65 | I-3B1 |
| | D-159 | 164+72 | | | | | | | | | | | | | | | 670.85 | | | 671.50 | 671.55 | | | 676.74 | 5.24 | 5.19 | 4.45 | I-3C1 |
| P-159 | D-159 | 164+69 | 0.32 | 0.60 | 0.90 | 0.83 | 10.00 | 10.36 | 10.41 | 4.87 | 3.55 | 4.07 | 2.62 | 15.00 | 135.79 | 0.0085 | 670.85 | 0.015 | 0.0076 | 671.50 | 671.55 | 4.66 | 5.54 | 676.74 | 5.24 | 5.19 | 4.45 | I-3C1 |
| | D-158A | 163+37 | | | | | | | | | | | | | | | 669.70 | | | 670.49 | 670.54 | | | 677.37 | 6.88 | 6.83 | 6.23 | MH-3-48 |
| P-158 | D-158 | 163+35 | 0.15 | 0.15 | 0.90 | 0.50 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 2.47 | 1.57 | 15.00 | 5.32 | 0.0094 | 671.25 | 0.015 | 0.0087 | 671.75 | 671.79 | 4.32 | 5.84 | 676.99 | 5.24 | 5.20 | 4.30 | I-3C1 |
| | D-158A | 163+35 | | | | | | | | | | | | | | | 671.20 | | | 671.67 | 671.70 | | | 677.37 | 5.70 | 5.67 | 4.73 | MH-3-48 |
| P-158A | D-158A | 163+33 | (N/A) | 0.76 | (N/A) | 1.33 | 0.00 | 10.85 | 10.94 | 4.78 | 3.55 | 6.39 | 4.19 | 18.00 | 85.15 | 0.0110 | 669.70 | 0.015 | 0.0049 | 670.49 | 670.54 | 5.79 | 10.28 | 677.37 | 6.88 | 6.83 | 5.96 | MH-3-48 |
| | D-156 | 162+53 | | | | | | | | | | | | | | | 668.76 | | | 670.26 | 670.35 | | | 677.67 | 7.41 | 7.32 | 7.20 | MH-3-60 |
| P-157 | D-157 | 162+27 | 1.35 | 1.35 | 0.90 | 0.83 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 4.11 | 3.27 | 15.00 | 25.18 | 0.0159 | 672.00 | 0.015 | 0.0138 | 672.73 | 672.76 | 5.97 | 7.59 | 677.55 | 4.82 | 4.79 | 4.11 | I-3C1 |
| | D-156 | 162+48 | | | | | | | | | | | | | | | 671.60 | | | 672.20 | 672.23 | | | 677.67 | 5.47 | 5.44 | 4.63 | MH-3-60 |
| P-156 | D-156 | 162+50 | (N/A) | 4.43 | (N/A) | 3.93 | 0.00 | 12.19 | 12.30 | 4.55 | 3.55 | 18.02 | 14.07 | 30.00 | 61.50 | 0.0040 | 668.76 | 0.015 | 0.0036 | 670.26 | 670.35 | 5.09 | 24.18 | 677.67 | 7.41 | 7.32 | 6.12 | MH-3-60 |
| | D-162 | 162+50 | | | | | | | | | | | | | | | 668.52 | | | 670.11 | 670.19 | | | 676.46 | 6.35 | 6.27 | 5.15 | MH-3-60 |
| P-167 | D-167 | 167+75 | 0.78 | 0.78 | 0.90 | 0.43 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 2.15 | 1.67 | 15.00 | 200.03 | 0.0072 | 672.54 | 0.015 | 0.0068 | 673.05 | 673.07 | 3.77 | 5.11 | 677.62 | 4.56 | 4.54 | 3.63 | CB-6 |
| | D-166A | 165+77 | | | | | | | | | | | | | | | 671.10 | | | 671.77 | 671.81 | | | 676.19 | 4.42 | 4.39 | 3.65 | CB-6 |
| P-166A | D-166A | 165+74 | 0.20 | 0.98 | 0.90 | 0.75 | 10.00 | 10.88 | 10.94 | 4.77 | 3.55 | 3.62 | 2.81 | 15.00 | 49.65 | 0.0081 | 671.10 | 0.015 | 0.0078 | 671.77 | 671.81 | 4.46 | 5.40 | 676.19 | 4.42 | 4.39 | 3.65 | CB-6 |
| | D-166 | 165+27 | | | | | | | | | | | | | | | 670.70 | | | 671.43 | 671.47 | | | 675.88 | 4.45 | 4.42 | 3.74 | CB-6 |
| P-166 | D-166 | 165+24 | 0.06 | 1.04 | 0.90 | 0.91 | 10.00 | 11.07 | 11.14 | 4.74 | 3.55 | 4.33 | 3.28 | 15.00 | 74.25 | 0.0108 | 670.70 | 0.015 | 0.0082 | 671.43 | 671.47 | 5.19 | 6.25 | 675.88 | 4.45 | 4.42 | 3.74 | CB-6 |
| | D-165 | 164+52 | | | | | | | | | | | | | | | 669.90 | | | 670.69 | 670.74 | | | 675.61 | 4.92 | 4.87 | 4.27 | CB-6 |
| P-165 | D-165 | 164+49 | 0.21 | 1.25 | 0.90 | 1.17 | 10.00 | 11.31 | 11.39 | 4.70 | 3.55 | 5.54 | 4.17 | 18.00 | 113.85 | 0.0070 | 669.90 | 0.015 | 0.0036 | 670.69 | 670.74 | 4.71 | 8.21 | 675.61 | 4.92 | 4.87 | 4.00 | CB-6 |
| | D-164 | 163+37 | | | | | | | | | | | | | | | 669.10 | | | 670.32 | 670.49 | | | 675.86 | 5.54 | 5.37 | 5.05 | CB-6 |
| P-164 | D-164 | 163+34 | 0.38 | 1.63 | 0.90 | 1.43 | 10.00 | 11.71 | 11.82 | 4.63 | 3.55 | 6.67 | 5.13 | 18.00 | 84.16 | 0.0069 | 669.10 | 0.015 | 0.0054 | 670.32 | 670.49 | 3.77 | 8.16 | 675.86 | 5.54 | 5.37 | 5.05 | CB-6 |
| | D-162 | 162+53 | | | | | | | | | | | | | | | 668.52 | | | 670.11 | 670.19 | | | 676.46 | 6.35 | 6.27 | 6.23 | MH-3-60 |
| P-163A | D-163A | 157+57 | 0.59 | 0.59 | 0.85 | 0.43 | 10.00 | 10.00 | 10.00 | 4.94 | 3.55 | 2.16 | 1.67 | 15.00 | 232.62 | 0.0086 | 672.50 | 0.015 | 0.0083 | 673.01 | 673.03 | 4.04 | 5.58 | 679.46 | 6.45 | 6.43 | 5.52 | I-3D |
| | D-163 | 159+89 | | | | | | | | | | | | | | | 670.50 | | | 671.15 | 671.19 | | | 677.95 | 6.80 | 6.76 | 6.00 | I-3D |
| P-163 | D-163 | 159+92 | 0.26 | 0.84 | 0.90 | 0.72 | 10.00 | 10.96 | 11.03 | 4.76 | 3.55 | 3.45 | 2.61 | 15.00 | 257.37 | 0.0077 | 670.50 | 0.015 | 0.0044 | 671.15 | 671.19 | 4.34 | 5.29 | 677.95 | 6.80 | 6.76 | 6.00 | I-3D |
| | D-162 | 162+48 | | | | | | | | | | | | | | | 668.52 | | | 670.11 | 670.19 | | | 676.46 | 6.35 | 6.27 | 6.50 | MH-3-60 |
| P-162 | D-162 | 162+50 | (N/A) | 6.90 | (N/A) | 6.08 | 0.00 | 12.39 | 12.51 | 4.51 | 3.55 | 27.66 | 21.80 | 30.00 | 16.95 | 0.0180 | 668.52 | 0.015 | 0.0113 | 670.11 | 670.19 | 10.07 | 51.30 | 676.46 | 6.35 | 6.27 | 5.15 | MH-3-60 |
| | D-168 | 162+50 | | | | | | | | | | | | | | | 668.21 | | | 669.86 | 669.94 | | | 675.49 | 5.63 | 5.55 | 4.49 | MH-3-60 |
| P-168A | D-168A | 162+21 | 1.09 | 1.09 | 0.80 | 0.52 | 15.00 | 15.00 | 15.00 | 4.13 | 3.55 | 2.18 | 1.91 | 15.00 | 30.01 | 0.0644 | 671.39 | 0.015 | 0.0443 | 671.94 | 671.96 | 8.38 | 15.29 | 676.56 | 4.62 | 4.59 | 3.73 | CB-2-3 |
| | D-168 | 162+48 | | | | | | | | | | | | | | | 669.45 | | | 669.76 | 669.78 | | | 675.49 | 5.73 | 5.72 | 4.60 | MH-3-60 |
| P-168 | D-168 | 162+53 | (N/A) | 7.99 | (N/A) | 6.60 | 0.00 | 15.06 | 15.06 | 4.12 | 3.55 | 27.43 | 23.71 | 30.00 | 217.66 | 0.0248 | 668.20 | 0.015 | 0.0220 | 669.86 | 669.94 | 11.35 | 60.23 | 675.49 | 5.63 | 5.55 | 4.50 | MH-3-60 |
| | D-169 | 164+69 | | | | | | | | | | | | | | | 662.80 | | | 663.94 | 664.00 | | | 669.24 | 5.31 | 5.24 | 3.65 | MH-3-48 |
| P-169 | D-169 | 164+73 | (N/A) | 7.99 | (N/A) | 6.60 | 0.00 | 15.38 | 15.39 | 4.08 | 3.55 | 27.15 | 23.71 | 30.00 | 242.29 | 0.0290 | 662.80 | 0.015 | 0.0290 | 664.46 | 664.54 | 12.00 | 65.11 | 669.24 | 4.78 | 4.70 | 3.65 | MH-3-48 |
| | D-170A | 167+12 | | | | | | | | | | | | | | | 655.78 | | | 657.47 | 657.56 | | | 662.22 | 4.74 | 4.66 | 3.65 | MH-3-48 |
| P-170 | D-170 | 167+14 | 0.56 | 0.56 | 0.80 | 0.32 | 15.00 | 15.00 | 15.00 | 4.13 | 3.55 | 1.34 | 1.16 | 15.00 | 12.05 | 0.0100 | 657.56 | 0.015 | 0.0093 | 657.98 | 658.00 | 3.75 | 6.03 | 661.00 | 3.02 | 3.00 | 2.00 | CB-2-3 |
| | D-170A | 167+14 | | | | | | | | | | | | | | | 657.43 | | | 657.82 | 657.84 | | | 662.22 | 4.40 | 4.38 | 3.34 | MH-3-48 |
| P-170A | D-170A | 167+16 | (N/A) | 8.56 | (N/A) | 6.92 | 0.00 | 15.72 | 15.74 | 4.04 | 3.55 | 28.17 | 24.87 | 30.00 | 172.00 | 0.0307 | 655.78 | 0.015 | 0.0255 | 657.47 | 657.56 | 12.37 | 66.96 | 662.22 | 4.74 | 4.66 | 3.65 | MH-3-48 |
| | D-170B | 168+84 | | | | | | | | | | | | | | | 650.50 | | | 651.60 | 651.66 | | | 657.23 | 5.63 | 5.57 | 3.94 | MH-3-48 |
| P-170B | D-170B | 168+87 | (N/A) | 8.56 | (N/A) | 6.92 | 0.00 | 15.95 | 15.98 | 4.01 | 3.55 | 27.96 | 24.87 | 30.00 | 88.20 | 0.0099 | 630.88 | 0.015 | 0.0097 | 632.58 | 632.66 | 7.99 | 38.09 | 657.23 | 24.65 | 24.57 | 23.56 | MH-3-48 |
| | D-171 | 169+11 | | | | | | | | | | | | | | | 630.00 | | | 631.55 | 631.65 | | | 636.28 | 4.73 | 4.63 | 3.48 | MH-3-72 |
| P-171 | D-171 | 169+11 | (N/A) | 38.42 | (N/A) | 25.77 | 0.00 | 26.50 | 26.50 | 3.03 | 3.55 | 109.61 | 126.34 | 48.00 | 5.72 | 0.0000 | 604.80 | 0.015 | 0.0078 | 615.56 | 615.57 | 8.72 | 1.24 | 636.28 | 20.72 | 20.71 | 27.06 | MH-3-72 |
| | D-O4 | 169+15 | | | | | | | | | | | | | | | 604.80 | | | 615.50 | 615.50 | | | 604.80 | -10.70 | -10.70 | -4.42 | |

***Storm Sewer Calculations Morgana Run Outlet***

| Label | -Node- Upstream Downstream | -Station- Start Stop | Upstream Inlet Area (acres) | System Drainage Area (acres) | Upstream Inlet C | System CA (acres) | Upstream Inlet Tc (min) | System Flow Time (min) | | System Intensity (in/h) | | Flow (cfs) | | Diameter (in) | Length (Unified) (ft) | Slope (Calculated) (ft/ft) | -Invert- Upstream Downstream (ft) | Manning's n | Friction Slope (ft/ft) | HGL Start Stop (ft) | | Velocity (ft/s) | Capacity (Design) (cfs) | -Ground- Upstream Downstream (ft) | Ground Minus HGL (Start/Stop) (ft) | | Cover (Start/Stop) (ft) | Inlet Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | | | | | | | 25 Yr. | 50 Yr. | | | | 25 Yr. | 50 Yr. | | |
| P-208A | D-208A | 112+36 | 0.24 | 0.24 | 0.80 | 0.11 | 15.00 | 15.00 | 15.00 | 4.13 | 3.55 | 0.45 | 0.40 | 15.00 | 46.46 | 0.0074 | 670.95 | 0.015 | 0.0074 | 671.19 | 671.20 | 2.46 | 5.18 | 675.72 | 4.53 | 4.52 | 3.33 | CB-3A |
| | D-O5 | 209+86 | | | | | | | | | | | | | | | 670.60 | | | 670.85 | 670.85 | | | 670.60 | -0.24 | -0.25 | -1.44 | |

## 2.5 Storm Sewer Calculations – Dille Ave System

Includes flow assumptions (CDSS), 10-year storm sewer design (StormCAD), 25-year constant intensity check (StormCAD) and 50-year constant intensity check (StormCAD).

***Storm Sewer Calculations Dille Outlet***

| Label | -Node- Upstream Downstream | -Station- Start Stop | Upstream Inlet Area (acres) | System Drainage Area (acres) | Upstream Inlet C | System CA (acres) | Upstream Inlet Tc (min) | System Flow Time (min) | | System Intensity (in/h) | | Flow (cfs) | | Diameter (in) | Length (Unified) (ft) | Slope (Calculated) (ft/ft) | -Invert- Upstream Downstream (ft) | Manning's n | Friction Slope (ft/ft) | HGL Start Stop (ft) | | Velocity (ft/s) | Capacity (Design) (cfs) | -Ground- Upstream Downstream (ft) | Ground Minus HGL (Start/Stop) (ft) | | Cover (Start/Stop) (ft) | Inlet Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | 10 Yr. | 25 Yr. | | | | | | | 25 Yr. | 50 Yr. | | | | 25 Yr. | 50 Yr. | | |
| P-400 | D-400 | 214+68 | 1.01 | 1.01 | 0.90 | 0.68 | 10.00 | 10.00 | 10.00 | 4.94 | 3.57 | 3.40 | 2.69 | 15.00 | 89.06 | 0.0037 | 647.70 | 0.015 | 0.0037 | 648.64 | 648.72 | 2.77 | 3.67 | 651.65 | 3.01 | 2.93 | 2.50 | I-3D |
| | D-401 | 215+55 | | | | | | | | | | | | | | | 647.37 | | | 648.45 | 648.52 | | | 651.35 | 2.90 | 2.84 | 2.54 | I-3D |
| P-401 | D-401 | 215+55 | 0.33 | 1.34 | 0.90 | 1.21 | 10.00 | 10.54 | 10.48 | 4.84 | 3.57 | 5.89 | 4.35 | 15.00 | 8.78 | 0.0023 | 647.37 | 0.015 | 0.0107 | 648.45 | 648.52 | 4.80 | 2.67 | 651.35 | 2.90 | 2.84 | 2.54 | I-3D |
| | D-404 | 215+55 | | | | | | | | | | | | | | | 647.35 | | | 648.38 | 648.44 | | | 651.34 | 2.96 | 2.90 | 2.55 | I-3D |
| P-404 | D-404 | 215+55 | 0.06 | 1.40 | 0.90 | 1.26 | 10.00 | 10.57 | 10.52 | 4.83 | 3.57 | 6.16 | 4.55 | 15.00 | 10.12 | 0.0030 | 647.35 | 0.015 | 0.0108 | 648.38 | 648.44 | 5.02 | 3.05 | 651.34 | 2.96 | 2.90 | 2.55 | I-3D |
| | DU-406a | 215+52 | | | | | | | | | | | | | | | 647.32 | | | 648.19 | 648.23 | | | 650.90 | 2.71 | 2.67 | 2.13 | |

## 2.6 Ditch Calculations

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** Wall 1A STA. 89+39 to 84+31 LT.

**Description :** Ditch Analysis at Wall 1A STA. 89+39 to 84+31 LT. **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Seed:** | 0.40 | **Jute Mat:** | 0.45 | **Temporary Mat:** | 1.00 |
| **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** | 3.00 | **Type 3:** | 5.00 |
| **RCP** | **Type B:** | 6.00 | | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 89+39 | 84+31 | L | 500.00 | 1.00 | 2.00 | 4.00 | 0.0409 | 0.64 | 0.64 | 0.70 | 0.45 | Seed | 3.36 | 5 | 0.030 | 17.58 | 3.15 | 0.68 | 1.51 | 0.27 | 2.60 |
| | | | | | | | | | | | | Jute Mat | 3.30 | 5 | 0.040 | 18.19 | 2.55 | 0.77 | 1.48 | 0.30 | 2.82 |
| | | | | | | | | | | | | Temp. Mat | 3.30 | 5 | 0.040 | 18.19 | 2.55 | 0.77 | 1.48 | 0.30 | 2.82 |
| | | | | | | | | | | | | Temp. Mat | 3.76 | 10 | 0.040 | 18.07 | 2.64 | 0.83 | 1.68 | 0.32 | 2.94 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** Wall 1D STA. 96+81 to 106+00 LT.

**Description :**Ditch Analysis atWall 1D STA. 96+81 to 106+00 LT. **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | |
|---|---|---|---|---|---|
| | **Seed:** | 0.40 | **Jute Mat:** 0.45 | **Temporary Mat:** | 1.00 |
| **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** 3.00 | **Type 3:** | 5.00 |
| **RCP** | **Type B:** | 6.00 | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 96+81 | 106+00 | L | 924.00 | 0.00 | 2.00 | 2.00 | 0.0211 | 0.67 | 0.67 | 0.70 | 0.47 | Seed | 3.09 | 5 | 0.030 | 20.45 | 2.70 | 0.68 | 1.45 | 0.52 | 2.07 |
| | | | | | | | | | | | | Jute Mat | 2.99 | 5 | 0.040 | 21.74 | 2.16 | 0.75 | 1.40 | 0.57 | 2.28 |
| | | | | | | | | | | | | Temp. Mat | 2.99 | 5 | 0.040 | 21.74 | 2.16 | 0.75 | 1.40 | 0.57 | 2.28 |
| | | | | | | | | | | | | Temp. Mat | 3.42 | 10 | 0.040 | 21.55 | 2.23 | 0.79 | 1.60 | 0.60 | 2.40 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** Wall 3 STA. 100+57 to 104+66 RT.

**Description :** Ditch Analysis at Wall 3 STA. 100+57 to 104+66 RT. **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | |
|---|---|---|---|---|---|
| | **Seed:** | 0.40 | **Jute Mat:** 0.45 | **Temporary Mat:** | 1.00 |
| **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** 3.00 | **Type 3:** | 5.00 |
| **RCP** | **Type B:** | 6.00 | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100+57 | 101+48 | R | 91.00 | 0.00 | 2.00 | 2.00 | 0.0192 | 0.07 | 0.07 | 0.70 | 0.05 | Seed | 3.54 | 5 | 0.030 | 15.95 | 1.55 | 0.28 | 0.17 | 0.24 | 0.95 |
| | | | | | | | | | | | | Seed | 3.98 | 10 | 0.040 | 16.17 | 1.25 | 0.34 | 0.19 | 0.28 | 1.12 |
| 101+48 | 104+66 | R | 318.00 | 1.00 | 0.00 | 2.00 | 0.0083 | 0.20 | 0.27 | 0.70 | 0.19 | Seed | 3.19 | 5 | 0.030 | 19.32 | 1.54 | 0.16 | 0.60 | 0.30 | 1.60 |
| | | | | | | | | | | | | Seed | 3.55 | 10 | 0.040 | 20.15 | 1.30 | 0.20 | 0.67 | 0.38 | 1.75 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** Wall 3 STA. 104+66 to 105+75 RT.

**Description :** Ditch Analysis at Wall 3 STA. 104+66 to 105+75 RT. **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | |
|---|---|---|---|---|---|
| | **Seed:** | 0.40 | **Jute Mat:** 0.45 | **Temporary Mat:** | 1.00 |
| **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** 3.00 | **Type 3:** | 5.00 |
| **RCP** | **Type B:** | 6.00 | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 104+66 | 105+75 | R | 108.00 | 1.00 | 0.00 | 2.00 | 0.0250 | 0.17 | 0.17 | 0.70 | 0.12 | Seed | 3.55 | 5 | 0.030 | 15.86 | 2.02 | 0.28 | 0.42 | 0.18 | 1.35 |
| | | | | | | | | | | | | Seed | 4.00 | 10 | 0.040 | 16.04 | 1.72 | 0.35 | 0.48 | 0.23 | 1.45 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** STA. 120+80 to 125+50 RT.

**Description :** Ditch Analysis at STA. 120+80 to 125+50 RT. **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Seed:** | 0.40 | **Jute Mat:** | 0.45 | **Temporary Mat:** | 1.00 |
| | **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** | 3.00 | **Type 3:** | 5.00 |
| | **RCP** | **Type B:** | 6.00 | | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 120+80 | 125+50 | R | 350.00 | 12.00 | 4.00 | 4.00 | 0.0337 | 7.20 | 7.20 | 0.70 | 5.04 | Seed | 3.49 | 5 | 0.030 | 16.42 | 4.04 | 0.69 | 17.56 | 0.33 | 14.61 |
| | | | | | | | | | | | | Jute Mat | 3.45 | 5 | 0.040 | 16.71 | 3.34 | 0.81 | 17.40 | 0.38 | 15.08 |
| | | | | | | | | | | | | Temp. Mat | 3.45 | 5 | 0.040 | 16.71 | 3.34 | 0.81 | 17.40 | 0.38 | 15.08 |
| | | | | | | | | | | | | Temp. Mat | 3.92 | 10 | 0.040 | 16.64 | 3.50 | 0.87 | 19.77 | 0.41 | 15.31 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** Wall 4 STA. 130+46 to 126+50 LT.

**Description :** Ditch Analysis at Wall 4 STA. 130+46 to 126+50 LT. **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | |
|---|---|---|---|---|---|
| | **Seed:** | 0.40 | **Jute Mat:** 0.45 | **Temporary Mat:** | 1.00 |
| **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** 3.00 | **Type 3:** | 5.00 |
| **RCP** | **Type B:** | 6.00 | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 130+46 | 129+28 | L | 120.10 | 0.00 | 2.00 | 2.00 | 0.0395 | 0.18 | 0.18 | 0.70 | 0.13 | Seed | 3.56 | 5 | 0.030 | 15.79 | 2.57 | 0.73 | 0.45 | 0.30 | 1.18 |
| | | | | | | | | | | | | Jute Mat | 3.54 | 5 | 0.040 | 15.96 | 2.08 | 0.81 | 0.45 | 0.33 | 1.31 |
| | | | | | | | | | | | | Temp. Mat | 3.54 | 5 | 0.040 | 15.96 | 2.08 | 0.81 | 0.45 | 0.33 | 1.31 |
| | | | | | | | | | | | | Temp. Mat | 4.01 | 10 | 0.040 | 15.94 | 2.14 | 0.85 | 0.51 | 0.34 | 1.38 |
| 129+28 | 129+00 | L | 30.00 | 2.00 | 4.00 | 4.00 | 0.1670 * | 0.09 | 0.27 | 0.70 | 0.19 | Seed | 3.52 | 5 | 0.030 | 16.11 | 3.49 | 0.85 | 0.67 | 0.08 | 2.66 |
| | | | | | | | | | | | | Jute Mat | 3.52 | 5 | 0.040 | 16.14 | 2.88 | 1.01 | 0.66 | 0.10 | 2.77 |
| | | | | | | | | | | | | Temp. Mat | 3.52 | 5 | 0.040 | 16.14 | 2.88 | 1.01 | 0.66 | 0.10 | 2.77 |
| | | | | | | | | | | | | Perm, Type 1 | 3.52 | 5 | 0.040 | 16.14 | 2.88 | 1.01 | 0.66 | 0.10 | 2.77 |
| | | | | | | | | | | | | Perm, Type 1 | 3.99 | 10 | 0.040 | 16.10 | 3.02 | 1.08 | 0.75 | 0.10 | 2.83 |
| 129+00 | 126+50 | L | 257.00 | 4.00 | 2.00 | 2.00 | 0.0468 | 0.85 | 1.12 | 0.70 | 0.78 | Seed | 3.38 | 5 | 0.030 | 17.43 | 3.27 | 0.54 | 2.65 | 0.19 | 4.74 |
| | | | | | | | | | | | | Jute Mat | 3.35 | 5 | 0.040 | 17.70 | 2.70 | 0.64 | 2.63 | 0.22 | 4.88 |
| | | | | | | | | | | | | Temp. Mat | 3.35 | 5 | 0.040 | 17.70 | 2.70 | 0.64 | 2.63 | 0.22 | 4.88 |
| | | | | | | | | | | | | Temp. Mat | 3.81 | 10 | 0.040 | 17.59 | 2.83 | 0.69 | 2.99 | 0.24 | 4.95 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** Wall 4 STA. 130+46 to 134+02 LT.

**Description :** Ditch Analysis at Wall 4 STA. 130+46 to 134+02 LT. **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | |
|---|---|---|---|---|---|
| | **Seed:** | 0.40 | **Jute Mat:** 0.45 | **Temporary Mat:** | 1.00 |
| **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** 3.00 | **Type 3:** | 5.00 |
| **RCP** | **Type B:** | 6.00 | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 130+46 | 131+35 | L | 90.00 | 0.00 | 2.00 | 2.00 | 0.0394 | 0.14 | 0.14 | 0.70 | 0.10 | Seed | 3.58 | 5 | 0.030 | 15.63 | 2.43 | 0.66 | 0.35 | 0.27 | 1.07 |
| | | | | | | | | | | | | Jute Mat | 3.56 | 5 | 0.040 | 15.76 | 1.93 | 0.74 | 0.35 | 0.30 | 1.20 |
| | | | | | | | | | | | | Temp. Mat | 3.56 | 5 | 0.040 | 15.76 | 1.93 | 0.74 | 0.35 | 0.30 | 1.20 |
| | | | | | | | | | | | | Temp. Mat | 4.03 | 10 | 0.040 | 15.74 | 1.97 | 0.78 | 0.40 | 0.32 | 1.27 |
| 131+35 | 131+76 | L | 44.00 | 2.00 | 4.00 | 1.50 | 0.1236 * | 0.11 | 0.25 | 0.70 | 0.18 | Seed | 3.53 | 5 | 0.030 | 15.99 | 3.16 | 0.67 | 0.62 | 0.09 | 2.48 |
| | | | | | | | | | | | | Jute Mat | 3.53 | 5 | 0.040 | 16.04 | 2.65 | 0.79 | 0.62 | 0.10 | 2.56 |
| | | | | | | | | | | | | Temp. Mat | 3.53 | 5 | 0.040 | 16.04 | 2.65 | 0.79 | 0.62 | 0.10 | 2.56 |
| | | | | | | | | | | | | Temp. Mat | 4.00 | 10 | 0.040 | 16.01 | 2.76 | 0.85 | 0.70 | 0.11 | 2.61 |
| 131+76 | 134+02 | L | 230.00 | 4.00 | 4.00 | 2.00 | 0.0737 | 0.99 | 1.24 | 0.70 | 0.87 | Seed | 3.42 | 5 | 0.030 | 17.02 | 3.82 | 0.79 | 2.97 | 0.17 | 5.03 |
| | | | | | | | | | | | | Jute Mat | 3.40 | 5 | 0.040 | 17.23 | 3.17 | 0.93 | 2.95 | 0.20 | 5.21 |
| | | | | | | | | | | | | Temp. Mat | 3.40 | 5 | 0.040 | 17.23 | 3.17 | 0.93 | 2.95 | 0.20 | 5.21 |
| | | | | | | | | | | | | Temp. Mat | 3.86 | 10 | 0.040 | 17.16 | 3.31 | 1.00 | 3.35 | 0.22 | 5.31 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** STA. 137+30 to 134+02 LT.

**Description :** Ditch Analysis at STA. 137+30 to 134+02 LT. **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Seed:** | 0.40 | **Jute Mat:** | 0.45 | **Temporary Mat:** | 1.00 |
| | **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** | 3.00 | **Type 3:** | 5.00 |
| | **RCP** | **Type B:** | 6.00 | | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 137+30 | 135+00 | L | 235.00 | 4.00 | 3.00 | 2.00 | 0.0853 | 2.73 | 2.73 | 0.70 | 1.91 | Seed | 3.57 | 5 | 0.030 | 15.72 | 5.43 | 1.43 | 6.81 | 0.27 | 5.34 |
| | | | | | | | | | | | | Jute Mat | 3.55 | 5 | 0.040 | 15.87 | 4.48 | 1.68 | 6.78 | 0.32 | 5.58 |
| | | | | | | | | | | | | Temp. Mat | 3.55 | 5 | 0.040 | 15.87 | 4.48 | 1.68 | 6.78 | 0.32 | 5.58 |
| | | | | | | | | | | | | Perm, Type 1 | 3.55 | 5 | 0.040 | 15.87 | 4.48 | 1.68 | 6.78 | 0.32 | 5.58 |
| | | | | | | | | | | | | Perm, Type 1 | 4.02 | 10 | 0.040 | 15.83 | 4.67 | 1.81 | 7.69 | 0.34 | 5.70 |
| 135+00 | 134+02 | L | 102.50 | 4.00 | 3.00 | 3.00 | 0.0111 | 0.87 | 3.60 | 0.70 | 2.52 | Seed | 3.48 | 5 | 0.030 | 16.46 | 2.88 | 0.38 | 8.77 | 0.54 | 7.25 |
| | | | | | | | | | | | | Seed | 3.94 | 10 | 0.040 | 16.53 | 2.44 | 0.47 | 9.92 | 0.67 | 8.05 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** STA. 149+38 to 150+62 LT

**Description :** Ditch Analysis at STA. 149+38 to 150+62 LT **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Seed:** | 0.40 | **Jute Mat:** | 0.45 | **Temporary Mat:** | 1.00 |
| | **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** | 3.00 | **Type 3:** | 5.00 |
| | **RCP** | **Type B:** | 6.00 | | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 149+38 | 150+62 | L | 124.00 | 2.00 | 4.00 | 3.00 | 0.0277 | 0.04 | 0.04 | 0.80 | 0.03 | Seed | 3.43 | 5 | 0.030 | 16.92 | 1.07 | 0.08 | 0.11 | 0.05 | 2.34 |
| | | | | | | | | | | | | Seed | 3.86 | 10 | 0.040 | 17.19 | 0.88 | 0.11 | 0.13 | 0.06 | 2.45 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** STA. 152+78 to 149+38 LT

**Description :** Ditch Analysis at STA. 152+78 to 149+38 LT **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Seed:** | 0.40 | **Jute Mat:** | 0.45 | **Temporary Mat:** | 1.00 |
| | **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** | 3.00 | **Type 3:** | 5.00 |
| | **RCP** | **Type B:** | 6.00 | | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 152+78 | 149+38 | L | 340.00 | 2.00 | 5.00 | 9.00 | 0.0030 | 0.23 | 0.23 | 0.80 | 0.18 | Seed | 2.95 | 5 | 0.030 | 22.16 | 0.75 | 0.04 | 0.54 | 0.21 | 4.93 |
| | | | | | | | | | | | | Seed | 3.26 | 10 | 0.040 | 23.48 | 0.63 | 0.05 | 0.60 | 0.25 | 5.53 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** STA. 152+78 to 162+21 LT

**Description :** Ditch Analysis at STA. 152+78 to 162+21 LT **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Seed:** | 0.40 | **Jute Mat:** | 0.45 | **Temporary Mat:** | 1.00 |
| | **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** | 3.00 | **Type 3:** | 5.00 |
| | **RCP** | **Type B:** | 6.00 | | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 152+78 | 155+57 | L | 279.00 | 2.00 | 4.00 | 8.00 | 0.0026 | 0.50 | 0.50 | 0.80 | 0.40 | Seed | 3.15 | 5 | 0.030 | 19.82 | 0.93 | 0.06 | 1.26 | 0.34 | 6.03 |
| | | | | | | | | | | | | Seed | 3.49 | 10 | 0.040 | 20.76 | 0.78 | 0.07 | 1.40 | 0.41 | 6.87 |
| 155+57 | 156+26 | L | 68.00 | 0.00 | 4.00 | 8.00 | 0.0015 | 0.10 | 0.60 | 0.80 | 0.48 | Seed | 3.03 | 5 | 0.030 | 21.22 | 0.80 | 0.05 | 1.45 | 0.55 | 6.61 |
| | | | | | | | | | | | | Seed | 3.34 | 10 | 0.040 | 22.46 | 0.66 | 0.06 | 1.60 | 0.64 | 7.64 |
| 156+26 | 157+25 | L | 98.50 | 0.00 | 3.00 | 3.00 | 0.0122 | 0.27 | 0.87 | 0.72 | 0.67 | Seed | 2.97 | 5 | 0.030 | 21.96 | 2.22 | 0.42 | 2.00 | 0.55 | 3.29 |
| | | | | | | | | | | | | Jute Mat | 2.95 | 5 | 0.040 | 22.14 | 1.79 | 0.46 | 1.99 | 0.61 | 3.66 |
| | | | | | | | | | | | | Temp. Mat | 2.95 | 5 | 0.040 | 22.14 | 1.79 | 0.46 | 1.99 | 0.61 | 3.66 |
| | | | | | | | | | | | | Temp. Mat | 3.27 | 10 | 0.040 | 23.34 | 1.84 | 0.48 | 2.20 | 0.63 | 3.79 |
| 157+25 | 159+12 | L | 185.00 | 0.00 | 3.00 | 3.00 | 0.0027 | 0.12 | 0.99 | 0.77 | 0.77 | Seed | 2.78 | 5 | 0.030 | 24.50 | 1.29 | 0.13 | 2.13 | 0.74 | 4.46 |
| | | | | | | | | | | | | Seed | 3.05 | 10 | 0.040 | 26.21 | 1.06 | 0.14 | 2.34 | 0.86 | 5.14 |
| 159+12 | 160+33 | L | 119.50 | 0.00 | 3.00 | 3.00 | 0.0126 | 0.05 | 1.04 | 0.80 | 0.81 | Seed | 2.73 | 5 | 0.030 | 25.36 | 2.30 | 0.44 | 2.20 | 0.56 | 3.38 |
| | | | | | | | | | | | | Jute Mat | 2.71 | 5 | 0.040 | 25.56 | 1.85 | 0.49 | 2.19 | 0.63 | 3.76 |
| | | | | | | | | | | | | Temp. Mat | 2.71 | 5 | 0.040 | 25.56 | 1.85 | 0.49 | 2.19 | 0.63 | 3.76 |

# DITCH ANALYSIS

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Temp. Mat | 2.98 | 10 | 0.040 | 27.25 | 1.90 | 0.51 | 2.41 | 0.65 | 3.90 |
| 160+33 | 160+58 | L | 25.00 | 0.00 | 3.00 | 3.00 | 0.0160 | 0.01 | 1.05 | 0.80 | 0.81 | Seed | 2.70 | 5 | 0.030 | 25.73 | 2.52 | 0.54 | 2.20 | 0.54 | 3.24 |
| | | | | | | | | | | | | Jute Mat | 2.70 | 5 | 0.040 | 25.77 | 2.03 | 0.60 | 2.20 | 0.60 | 3.60 |
| | | | | | | | | | | | | Temp. Mat | 2.70 | 5 | 0.040 | 25.77 | 2.03 | 0.60 | 2.20 | 0.60 | 3.60 |
| | | | | | | | | | | | | Temp. Mat | 2.97 | 10 | 0.040 | 27.45 | 2.08 | 0.62 | 2.42 | 0.62 | 3.74 |
| 160+58 | 161+31 | L | 73.00 | 2.00 | 4.00 | 3.00 | 0.0178 | 0.03 | 1.08 | 0.80 | 0.84 | Seed | 2.67 | 5 | 0.030 | 26.27 | 2.41 | 0.34 | 2.24 | 0.30 | 4.12 |
| | | | | | | | | | | | | Seed | 2.93 | 10 | 0.040 | 28.05 | 2.01 | 0.41 | 2.46 | 0.37 | 4.59 |
| 161+31 | 162+24 | L | 89.00 | 2.00 | 4.00 | 8.00 | 0.0081 | 0.02 | 1.10 | 0.75 | 0.85 | Seed | 2.61 | 5 | 0.030 | 27.17 | 1.64 | 0.17 | 2.23 | 0.34 | 6.06 |
| | | | | | | | | | | | | Seed | 2.87 | 10 | 0.040 | 29.13 | 1.36 | 0.21 | 2.45 | 0.41 | 6.87 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** STA. 161+23 to 167+14 LT

**Description :** Ditch Analysis at STA. 161+23 to 167+14 LT **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Seed:** | 0.40 | **Jute Mat:** | 0.45 | **Temporary Mat:** | 1.00 |
| **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** | 3.00 | **Type 3:** | 5.00 |
| **RCP** | **Type B:** | 6.00 | | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 161+23 | 163+76 | L | 249.00 | 0.00 | 3.00 | 2.00 | 0.0265 | 0.24 | 0.24 | 0.74 | 0.18 | Seed | 3.45 | 5 | 0.030 | 16.77 | 2.28 | 0.54 | 0.61 | 0.33 | 1.64 |
| | | | | | | | | | | | | Jute Mat | 3.40 | 5 | 0.040 | 17.20 | 1.84 | 0.60 | 0.60 | 0.36 | 1.81 |
| | | | | | | | | | | | | Temp. Mat | 3.40 | 5 | 0.040 | 17.20 | 1.84 | 0.60 | 0.60 | 0.36 | 1.81 |
| | | | | | | | | | | | | Temp. Mat | 3.86 | 10 | 0.040 | 17.15 | 1.89 | 0.63 | 0.69 | 0.38 | 1.91 |
| 163+76 | 163+86 | L | 10.00 | 2.00 | 3.00 | 2.00 | 0.0070 | 0.01 | 0.25 | 0.74 | 0.19 | Seed | 3.39 | 5 | 0.030 | 17.33 | 1.24 | 0.09 | 0.63 | 0.20 | 3.01 |
| | | | | | | | | | | | | Seed | 3.84 | 10 | 0.040 | 17.30 | 1.06 | 0.11 | 0.71 | 0.26 | 3.28 |
| 163+86 | 165+38 | L | 150.00 | 2.00 | 4.00 | 28.00 | 0.0290 | 0.18 | 0.43 | 0.74 | 0.32 | Seed | 3.24 | 5 | 0.030 | 18.76 | 1.72 | 0.26 | 1.03 | 0.14 | 6.51 |
| | | | | | | | | | | | | Seed | 3.66 | 10 | 0.040 | 19.01 | 1.44 | 0.31 | 1.16 | 0.17 | 7.46 |
| 165+38 | 167+14 | L | 177.50 | 2.00 | 4.00 | 2.00 | 0.0285 | 0.13 | 0.56 | 0.74 | 0.41 | Seed | 3.14 | 5 | 0.030 | 19.95 | 2.48 | 0.36 | 1.30 | 0.20 | 3.21 |
| | | | | | | | | | | | | Seed | 3.52 | 10 | 0.040 | 20.41 | 2.10 | 0.45 | 1.46 | 0.25 | 3.51 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** STA. 195+98 to 176+51 LT.

**Description :** Ditch Analysis at STA. 195+98 to 176+51 LT. **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | |
|---|---|---|---|---|---|
| | **Seed:** | 0.40 | **Jute Mat:** 0.45 | **Temporary Mat:** | 1.00 |
| **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** 3.00 | **Type 3:** | 5.00 |
| **RCP** | **Type B:** | 6.00 | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 195+98 | 193+86 | L | 223.50 | 2.00 | 11.00 | 4.00 | 0.0267 | 0.45 | 0.45 | 0.80 | 0.36 | Seed | 3.45 | 5 | 0.030 | 16.78 | 2.06 | 0.30 | 1.24 | 0.18 | 4.70 |
| | | | | | | | | | | | | Seed | 3.87 | 10 | 0.040 | 17.12 | 1.72 | 0.37 | 1.39 | 0.22 | 5.32 |
| 193+86 | 191+45 | L | 254.00 | 2.00 | 13.00 | 4.00 | 0.0055 | 0.47 | 0.92 | 0.78 | 0.73 | Seed | 3.14 | 5 | 0.030 | 19.90 | 1.32 | 0.12 | 2.28 | 0.35 | 7.91 |
| | | | | | | | | | | | | Seed | 3.48 | 10 | 0.040 | 20.86 | 1.10 | 0.14 | 2.53 | 0.42 | 9.08 |
| 191+45 | 188+87 | L | 269.00 | 2.00 | 3.00 | 4.00 | 0.0050 | 0.42 | 1.34 | 0.75 | 1.04 | Seed | 2.92 | 5 | 0.030 | 22.53 | 1.67 | 0.15 | 3.05 | 0.49 | 5.44 |
| | | | | | | | | | | | | Seed | 3.21 | 10 | 0.040 | 24.03 | 1.38 | 0.19 | 3.35 | 0.59 | 6.15 |
| 188+87 | 186+21 | L | 269.00 | 2.00 | 3.00 | 4.00 | 0.0050 | 0.45 | 1.79 | 0.75 | 1.38 | Seed | 2.75 | 5 | 0.030 | 25.02 | 1.77 | 0.17 | 3.79 | 0.55 | 5.83 |
| | | | | | | | | | | | | Seed | 3.00 | 10 | 0.040 | 27.04 | 1.46 | 0.21 | 4.13 | 0.66 | 6.60 |
| 186+21 | 183+53 | L | 267.00 | 2.00 | 3.00 | 4.00 | 0.0050 | 0.68 | 2.47 | 0.81 | 1.93 | Seed | 2.60 | 5 | 0.030 | 27.33 | 1.90 | 0.20 | 5.02 | 0.63 | 6.40 |
| | | | | | | | | | | | | Seed | 2.82 | 10 | 0.040 | 29.82 | 1.57 | 0.23 | 5.45 | 0.75 | 7.24 |
| 183+53 | 180+00 | L | 342.00 | 2.00 | 3.00 | 4.00 | 0.0050 | 1.05 | 3.52 | 0.80 | 2.77 | Seed | 2.45 | 5 | 0.030 | 30.05 | 2.06 | 0.23 | 6.79 | 0.73 | 7.09 |
| | | | | | | | | | | | | Seed | 2.65 | 10 | 0.040 | 33.13 | 1.70 | 0.27 | 7.33 | 0.86 | 8.03 |
| 180+00 | 179+19 | L | 79.00 | 2.00 | 3.00 | 4.00 | 0.0072 | 0.24 | 3.76 | 0.79 | 2.96 | Seed | 2.42 | 5 | 0.030 | 30.60 | 2.40 | 0.31 | 7.18 | 0.68 | 6.77 |

# DITCH ANALYSIS

| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Seed | 2.61 | 10 | 0.040 | 33.79 | 1.98 | 0.36 | 7.73 | 0.81 | 7.67 |
| 179+19 | 176+51 | L | 259.50 | 2.00 | 2.50 | 4.00 | 0.0191 | 0.79 | 4.55 | 0.79 | 3.58 | Seed | 2.37 | 5 | 0.030 | 31.78 | 3.63 | 0.71 | 8.48 | 0.59 | 5.86 |
| | | | | | | | | | | | | Jute Mat | 2.35 | 5 | 0.040 | 32.06 | 2.94 | 0.81 | 8.43 | 0.68 | 6.43 |
| | | | | | | | | | | | | Temp. Mat | 2.35 | 5 | 0.040 | 32.06 | 2.94 | 0.81 | 8.43 | 0.68 | 6.43 |
| | | | | | | | | | | | | Temp. Mat | 2.54 | 10 | 0.040 | 35.22 | 3.00 | 0.84 | 9.12 | 0.71 | 6.60 |

# DITCH ANALYSIS

**PID :** 105743 **Date :** 05/01/2026 **Project :** CUY-77-11.41 - PART 1 **Location :** STA. 205+50 to 212+05 RT.

**Description :** Ditch Analysis at STA. 205+50 to 212+05 RT. **Designer :** SMS

**Rainfall Area :** A

**Allowable Shears**

| | | | | | |
|---|---|---|---|---|---|
| | **Seed:** | 0.40 | **Jute Mat:** 0.45 | **Temporary Mat:** | 1.00 |
| **Permanent Mat** | **Type 1:** | 2.00 | **Type 2:** 3.00 | **Type 3:** | 5.00 |
| **RCP** | **Type B:** | 6.00 | | | |

(*) Warning: Grade is steeper than allowable. If value is parantheses, design parameters have been exceeded. - See user manual.

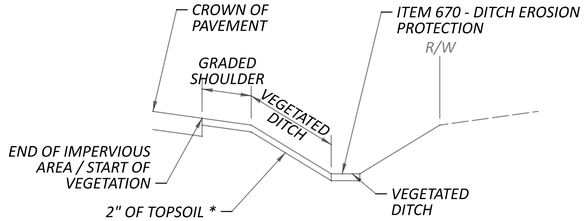
| STATION BEGIN | STATION END | SIDE | LENGTH (ft.) | RADIUS WIDTH (ft.) | IN SLOPE (ft./ft.) | BACK SLOPE (ft./ft.) | GRADE (ft./ft.) | AREA (acres) | AREA SUM (acres) | RUNOFF COEFF. | CA (Sum) | PROTECT TYPE | RAIN INT. (in./hr.) | STORM FREQ. (yrs.) | MANN. COEFF. | TIME FLOW (min.) | VEL. FLOW (fps.) | SHEAR (lbs./ sq.ft.) | DESIGN FLOW (cfs.) | DEPTH FLOW (ft.) | WIDTH FLOW (ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205+50 | 205+98 | R | 48.50 | 4.00 | 4.00 | 7.00 | 0.0303 | 0.09 | 0.09 | 0.83 | 0.07 | Seed | 3.57 | 5 | 0.030 | 15.68 | 1.16 | 0.10 | 0.27 | 0.05 | 4.59 |
| | | | | | | | | | | | | Seed | 4.03 | 10 | 0.040 | 15.80 | 1.03 | 0.13 | 0.30 | 0.07 | 4.74 |
| 205+98 | 207+11 | R | 113.00 | 4.00 | 4.00 | 7.00 | 0.0035 | 0.25 | 0.34 | 0.82 | 0.28 | Seed | 3.34 | 5 | 0.030 | 17.75 | 0.89 | 0.05 | 0.94 | 0.20 | 6.25 |
| | | | | | | | | | | | | Seed | 3.74 | 10 | 0.040 | 18.23 | 0.76 | 0.06 | 1.05 | 0.26 | 6.81 |
| 207+11 | 208+34 | R | 123.00 | 4.00 | 4.00 | 9.00 | 0.0065 | 0.35 | 0.69 | 0.79 | 0.56 | Seed | 3.19 | 5 | 0.030 | 19.29 | 1.31 | 0.10 | 1.78 | 0.24 | 7.16 |
| | | | | | | | | | | | | Seed | 3.56 | 10 | 0.040 | 20.06 | 1.10 | 0.12 | 1.98 | 0.30 | 7.91 |
| 208+34 | 212+05 | R | 371.00 | 4.00 | 4.00 | 4.00 | 0.0139 | 1.69 | 2.38 | 0.72 | 1.77 | Seed | 2.99 | 5 | 0.030 | 21.65 | 2.56 | 0.33 | 5.31 | 0.38 | 7.01 |
| | | | | | | | | | | | | Seed | 3.31 | 10 | 0.040 | 22.86 | 2.16 | 0.40 | 5.86 | 0.46 | 7.71 |

# 3. Post-Construction Storm Water BMP Calculations

## 3.1 PC-BMP Drainage Area Maps

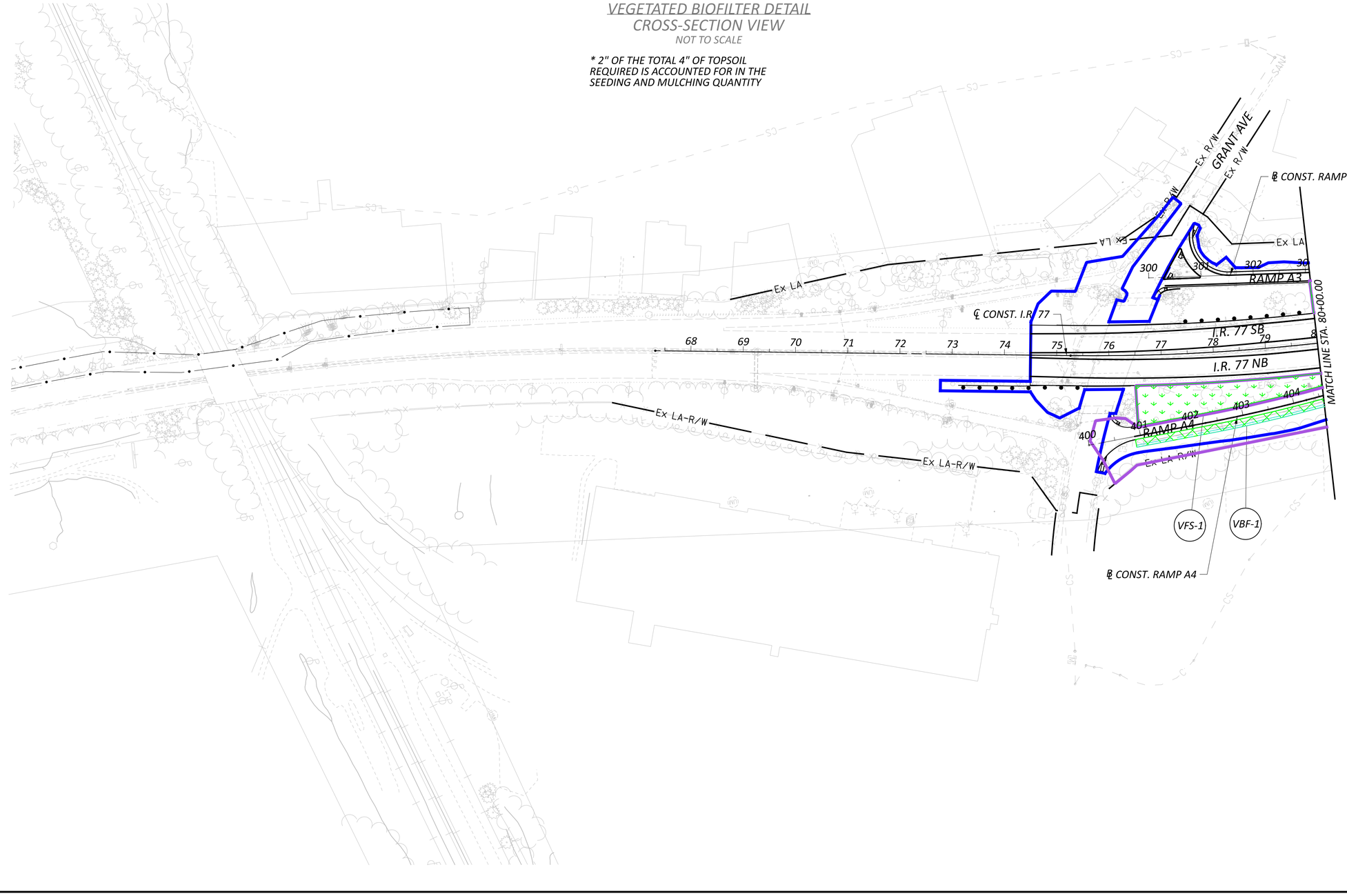
## LEGEND

- EARTH DISTURBED AREA (NOT DRAINING TO CSO) = 70.4 ACRES
- EARTH DISTURBED AREA (DRAINING TO CSO) = 8.2 ACRES
- DRAINAGE AREA FOR BMPS WITHIN ODOT RIGHT-OF-WAY = 20.4 ACRES
- DRAINAGE AREA FOR BMPS OUTSIDE OF ODOT RIGHT-OF-WAY = 1.0 ACRES
- PROP. VEGETATED BIOFILTER DITCH BOTTOM
- PROP. VEGETATED FILTER STRIP
- PROP. VEGETATED BIOFILTERS




VEGETATED BIOFILTER DETAIL
CROSS-SECTION VIEW
NOT TO SCALE

* 2" OF THE TOTAL 4" OF TOPSOIL REQUIRED IS ACCOUNTED FOR IN THE SEEDING AND MULCHING QUANTITY




HORIZONTAL SCALE IN FEET
0 50 100 200

# BMP DRAINAGE MAP

CUY-77-11.41 - PART 1

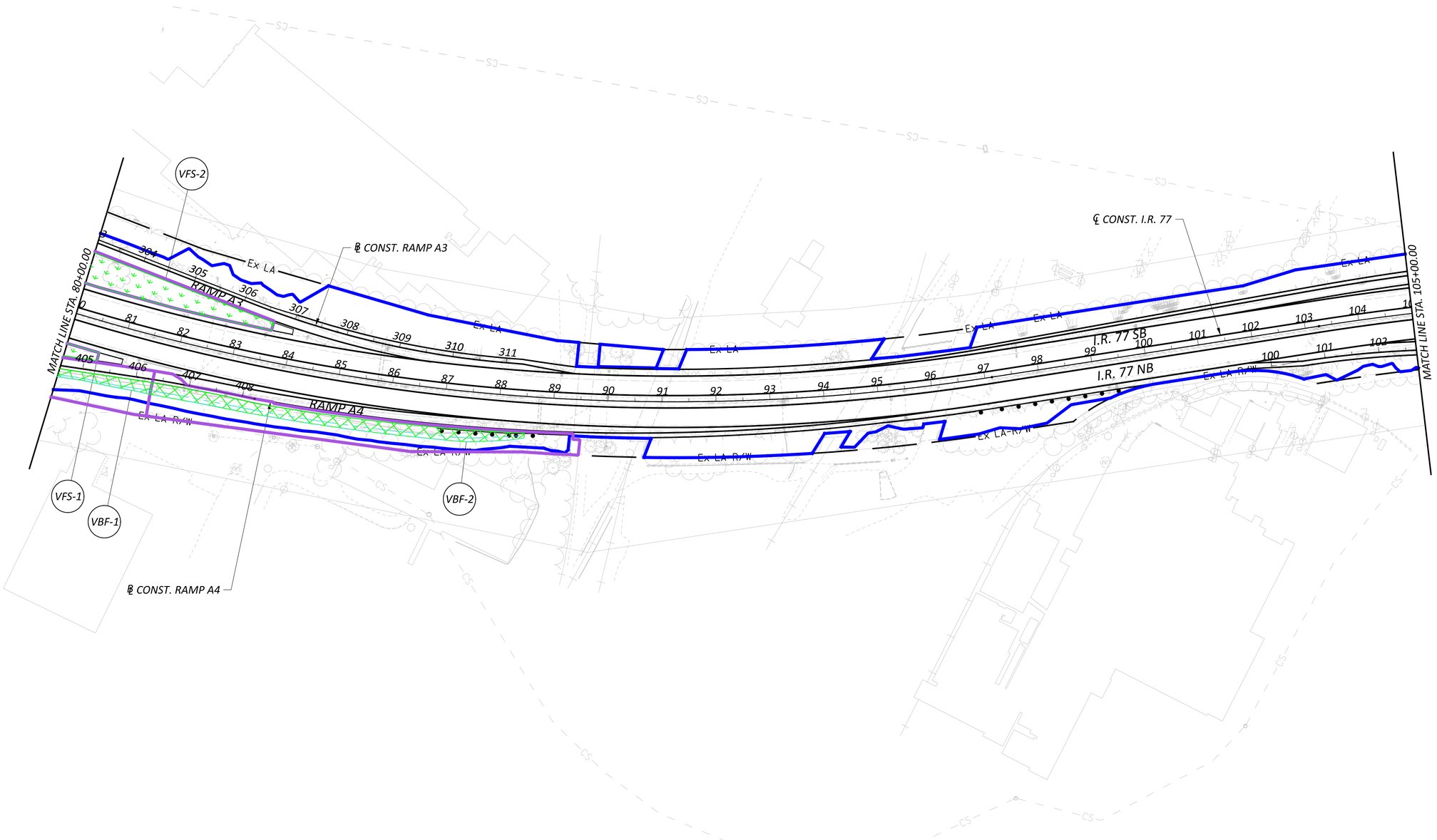

MODEL: CLP_I077 - Plan 1 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 12:02:45 PM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\v00-Engineering\Drainage\EngData\BMPs\Stage 1\BMP Drainage Area Maps\105743_DP001.dgn


DESIGN AGENCY
AECOM

DESIGNER SMS
REVIEWER AKM 05/01/26
PROJECT ID 105743
SHEET P.1 TOTAL P.7

## LEGEND

- EARTH DISTURBED AREA (NOT DRAINING TO CSO) = 70.4 ACRES
- EARTH DISTURBED AREA (DRAINING TO CSO) = 8.2 ACRES
- DRAINAGE AREA FOR BMPS WITHIN ODOT RIGHT-OF-WAY = 20.4 ACRES
- DRAINAGE AREA FOR BMPS OUTSIDE OF ODOT RIGHT-OF-WAY = 1.0 ACRES
- PROP. VEGETATED BIOFILTER DITCH BOTTOM
- PROP. VEGETATED FILTER STRIP
- PROP. VEGETATED BIOFILTERS




HORIZONTAL SCALE IN FEET
0 50 100 200

# BMP DRAINAGE MAP

CUY-77-11.41 - PART 1

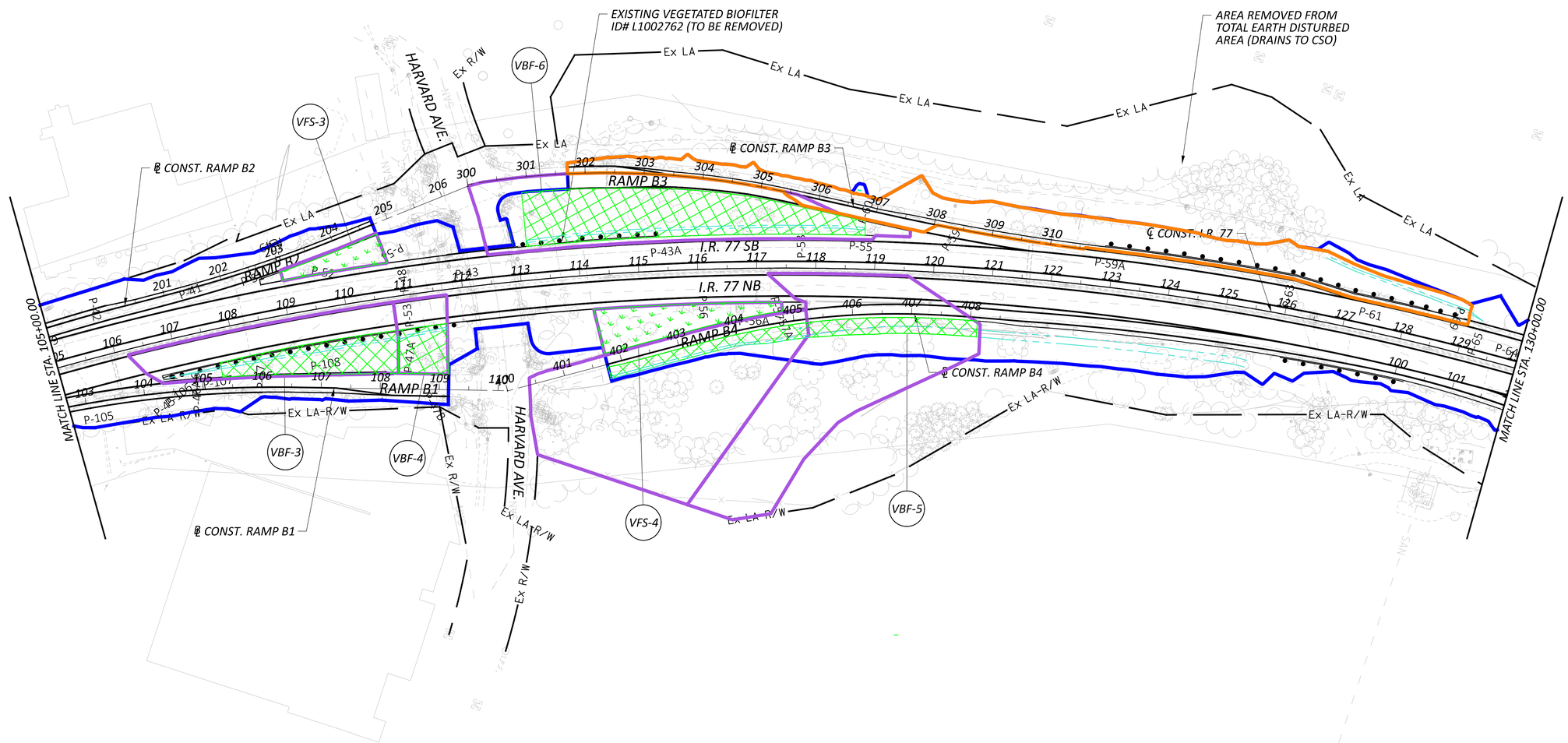
DESIGN AGENCY
AECOM

DESIGNER SMS
REVIEWER AKM 05/01/26
PROJECT ID 105743
SHEET P.2 TOTAL P.7


MODEL: CLP_I077 - Plan 2 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 12:02:55 PM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\BMPs\Stage 1\BMP Drainage Area Maps\105743_DP001.dgn

## LEGEND

- EARTH DISTURBED AREA (NOT DRAINING TO CSO) = 70.4 ACRES
- EARTH DISTURBED AREA (DRAINING TO CSO) = 8.2 ACRES
- DRAINAGE AREA FOR BMPS WITHIN ODOT RIGHT-OF-WAY = 20.4 ACRES
- DRAINAGE AREA FOR BMPS OUTSIDE OF ODOT RIGHT-OF-WAY = 1.0 ACRES
- PROP. VEGETATED BIOFILTER DITCH BOTTOM
- PROP. VEGETATED FILTER STRIP
- PROP. VEGETATED BIOFILTERS




HORIZONTAL SCALE IN FEET
0 50 100 200

# BMP DRAINAGE MAP

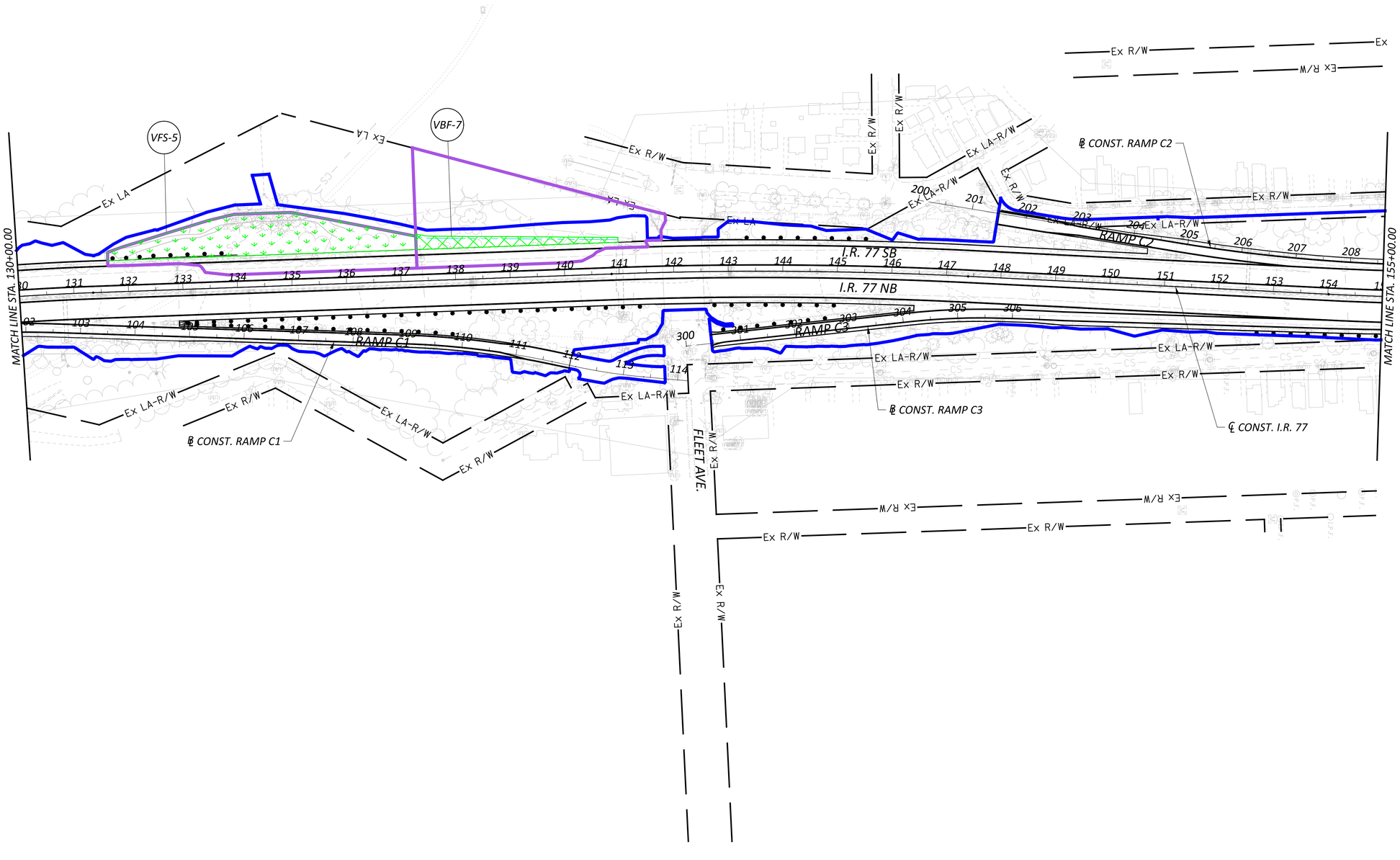
CUY-77-11.41 - PART 1

| | |
|---|---|
| DESIGN AGENCY | AECOM |
| DESIGNER | SMS |
| REVIEWER | AKM 05/01/26 |
| PROJECT ID | 105743 |
| SHEET | P.3 |
| TOTAL | P.7 |

MODEL: CLP_i077 - Plan 3 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 12:02:56 PM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\BMPs\Stage 1\BMP Drainage Area Maps\105743_DP001.dgn

## LEGEND

- EARTH DISTURBED AREA (NOT DRAINING TO CSO) = 70.4 ACRES
- EARTH DISTURBED AREA (DRAINING TO CSO) = 8.2 ACRES
- DRAINAGE AREA FOR BMPS WITHIN ODOT RIGHT-OF-WAY = 20.4 ACRES
- DRAINAGE AREA FOR BMPS OUTSIDE OF ODOT RIGHT-OF-WAY = 1.0 ACRES
- PROP. VEGETATED BIOFILTER DITCH BOTTOM
- PROP. VEGETATED FILTER STRIP
- PROP. VEGETATED BIOFILTERS




HORIZONTAL SCALE IN FEET
0 50 100 200

# BMP DRAINAGE MAP

CUY-77-11.41 - PART 1

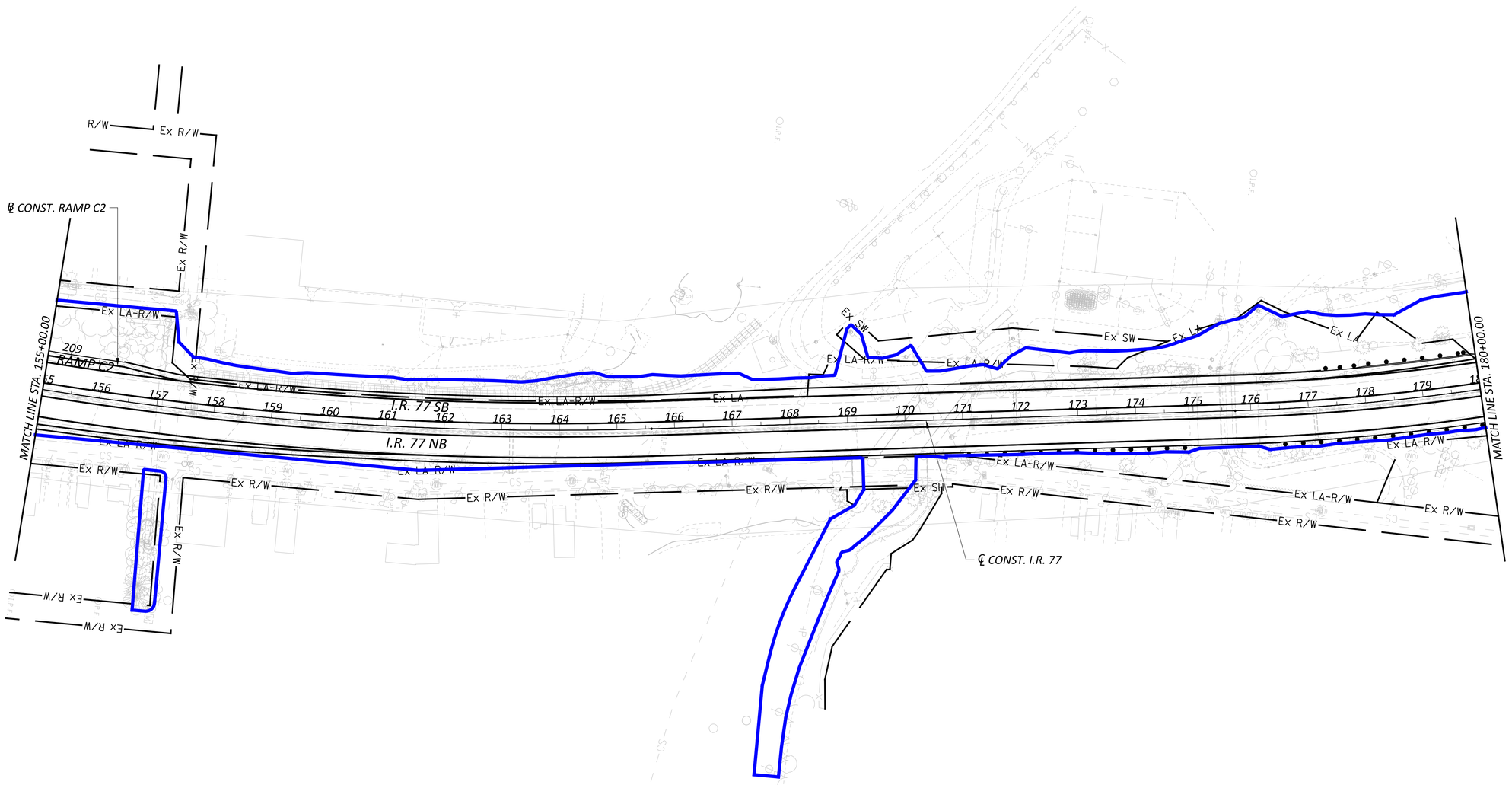
DESIGN AGENCY
AECOM

DESIGNER SMS
REVIEWER AKM 05/01/26
PROJECT ID 105743
SHEET P.4 TOTAL P.7

MODEL: CLP_I077 - Plan 4 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 12:02:57 PM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\BMPs\Stage 1\BMP Drainage Area Maps\105743_DP001.dgn

## LEGEND

- EARTH DISTURBED AREA (NOT DRAINING TO CSO) = 70.4 ACRES
- EARTH DISTURBED AREA (DRAINING TO CSO) = 8.2 ACRES
- DRAINAGE AREA FOR BMPS WITHIN ODOT RIGHT-OF-WAY = 20.4 ACRES
- DRAINAGE AREA FOR BMPS OUTSIDE OF ODOT RIGHT-OF-WAY = 1.0 ACRES
- PROP. VEGETATED BIOFILTER DITCH BOTTOM
- PROP. VEGETATED FILTER STRIP
- PROP. VEGETATED BIOFILTERS




HORIZONTAL SCALE IN FEET
0 50 100 200

# BMP DRAINAGE MAP

CUY-77-11.41 - PART 1


MODEL: CLP_I077 - Plan 5 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 12:02:58 PM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\BMPs\Stage 1\BMP Drainage Area Maps\105743_DP001.dgn


DESIGN AGENCY
AECOM

DESIGNER
SMS

REVIEWER
AKM 05/01/26

PROJECT ID
105743

SHEET P.5 | TOTAL P.7

LEGEND

EARTH DISTURBED AREA (NOT DRAINING TO CSO) = 70.4 ACRES

EARTH DISTURBED AREA (DRAINING TO CSO) = 8.2 ACRES

DRAINAGE AREA FOR BMPS WITHIN ODOT RIGHT-OF-WAY = 20.4 ACRES

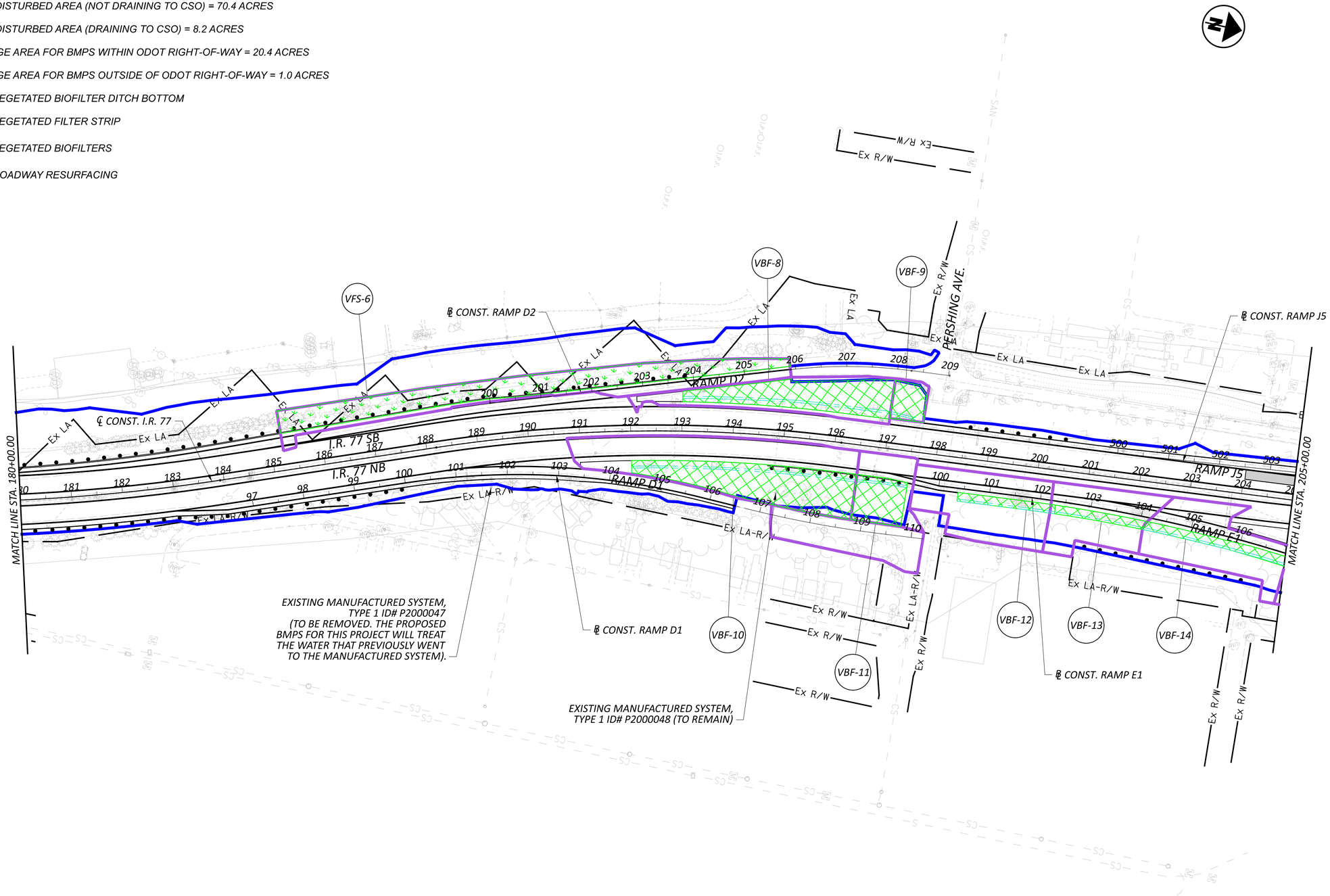
DRAINAGE AREA FOR BMPS OUTSIDE OF ODOT RIGHT-OF-WAY = 1.0 ACRES

PROP. VEGETATED BIOFILTER DITCH BOTTOM

PROP. VEGETATED FILTER STRIP

PROP. VEGETATED BIOFILTERS

PROP. ROADWAY RESURFACING




HORIZONTAL SCALE IN FEET
0 50 100 200

BMP DRAINAGE MAP

CUY-77-11.41 - PART 1

MODEL: CLP_i077 - Plan 6 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 6/30/2026 TIME: 9:36:51 AM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@aecom.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\BMPs\Stage 1\BMP Drainage Area Maps\105743_DP001.dgn

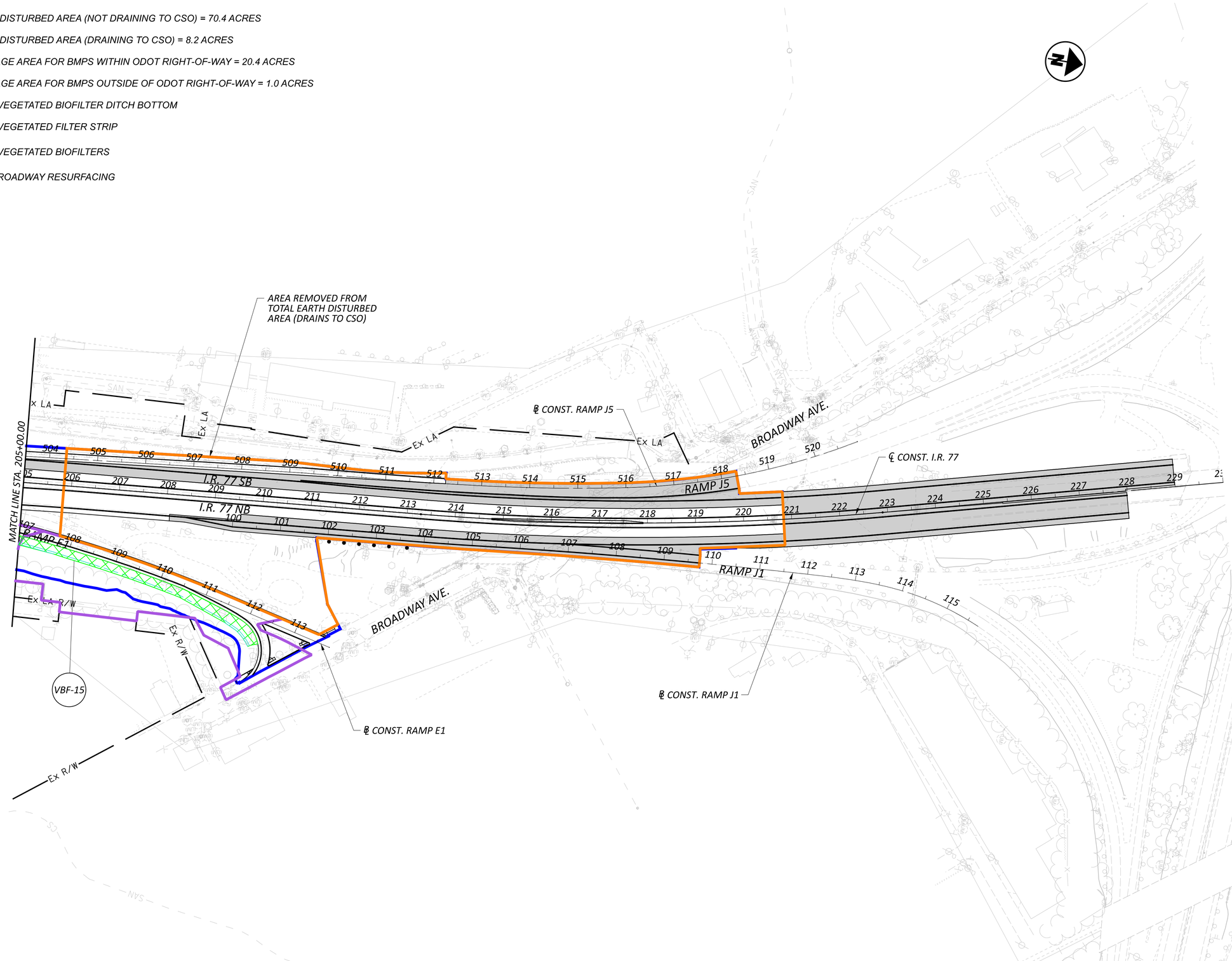
DESIGN AGENCY
AECOM

DESIGNER SMS
REVIEWER AKM 05/01/26
PROJECT ID 105743
SHEET P.6 TOTAL P.7

# BMP DRAINAGE MAP

## LEGEND

- EARTH DISTURBED AREA (NOT DRAINING TO CSO) = 70.4 ACRES
- EARTH DISTURBED AREA (DRAINING TO CSO) = 8.2 ACRES
- DRAINAGE AREA FOR BMPS WITHIN ODOT RIGHT-OF-WAY = 20.4 ACRES
- DRAINAGE AREA FOR BMPS OUTSIDE OF ODOT RIGHT-OF-WAY = 1.0 ACRES
- PROP. VEGETATED BIOFILTER DITCH BOTTOM
- PROP. VEGETATED FILTER STRIP
- PROP. VEGETATED BIOFILTERS
- PROP. ROADWAY RESURFACING




HORIZONTAL SCALE IN FEET
0 50 100 200

CUY-77-11.41 - PART 1


MODEL: CLP_I077 - Plan 7 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 4/27/2026 TIME: 12:03:00 PM PLTDRV: OHDOT_PDF.pltcfg PENTBL: OHDOT_PenC.tbl USER: sydney.stefanek@trcext.com WORKSPACE: OHDOTCEv02 WORKSET: 105743 PRODUCT: OpenRoadsDesigner 24.00.02.25
pw:\\trc-pw.bentley.com:trc-pw-01\Documents\5 - Projects - External\Ohio Department of Transportation (ODOT)\301525 - CUY-77-11.21\105743\400-Engineering\Drainage\EngData\BMPs\Stage 1\BMP Drainage Area Maps\105743_DP001.dgn


DESIGN AGENCY
AECOM

| | |
|---|---|
| DESIGNER | SMS |
| REVIEWER | AKM 05/01/26 |
| PROJECT ID | 105743 |
| SHEET | P.7 |
| TOTAL | P.7 |

## 3.2 PC-BMP Calculations

# Ohio Department of Transportation - Office of Hydraulic Engineering

**Post-Construction BMP Calculation Spreadsheet**

## Post Construction - Project Summary

**Project Data**

| | | Units |
|---|---|---|
| Project EDA | 70.41 | acres * |
| Is the Project Routine Maintenance per L&D Vol. 2, Sec. 1112.2 | No | |
| BMPs Required? | **BMPs Required** | NA |
| Ain (New Impervious Area in New Permanent R/W* | 0.86 | acres |
| Does Entire Site Drain to Large River (>100 sq. miles)? | No | |
| Water Quality Treatment Required | **Yes** | |
| Water Quantity Treatment Required | **No** | |

**Treatment Percent and Treatment Requirement**

| | | |
|---|---|---|
| Aix (Project EDA that is inside the existing right-of-way) | 70.41 | acres |
| Ain (New Impervious Area in New Permanent R/W) | 0.86 | acres |
| **T% (Treatment Percent)** | **20.97** | **%** |
| **Treatment Requirement** | **14.76** | **acres** |

**BMPs Provided**

| BMP Name | BMP Type | Contributing Drainage Area (acres) | Contributing Drainage Area in ODOT R/W (acres) |
|---|---|---|---|
| VFS1 | Vegetated Filter Strip | 0.44 | 0.44 |
| VFS2 | Vegetated Filter Strip | 0.35 | 0.35 |
| VBF1 | Vegetated Biofilter | 1.43 | 1.1 |
| VBF2 | Vegetated Biofilter | 1.68 | 0.97 |
| VBF3 | Vegetated Biofilter | 0.89 | 0.89 |
| VFS3 | Vegetated Filter Strip | 0.14 | 0.14 |
| VFS4 | Vegetated Filter Strip | 0.35 | 0.35 |
| VBF4 | Vegetated Biofilter | 0.25 | 0.25 |
| VBF5 | Vegetated Biofilter | 4.07 | 4.07 |
| VBF6 | Vegetated Biofilter | 1.55 | 1.55 |
| VBF7 | Vegetated Biofilter | 1.5 | 1.5 |
| VBF8 | Vegetated Biofilter | 0.65 | 0.65 |
| VBF9 | Vegetated Biofilter | 0.12 | 0.12 |
| VBF10 | Vegetated Biofilter | 1.3 | 1.3 |
| VFS5 | Vegetated Filter Strip | 1.05 | 1.05 |
| VBF11 | Vegetated Biofilter | 0.37 | 0.37 |
| VBF12 | Vegetated Biofilter | 0.76 | 0.76 |
| VBF13 | Vegetated Biofilter | 0.55 | 0.55 |
| VBF14 | Vegetated Biofilter | 1.6 | 1.6 |
| VBF15 | Vegetated Biofilter | 0.72 | 0.72 |
| VFS6 | Vegetated Filter Strip | 1.15 | 1.15 |
| P2000048 | Manufactured System | 0.5 | 0.5 |

**Treatment Provided**

| | |
|---|---|
| **Total Area with ODOT R/W Treated (acres)** | **20.38** |
| **Treatment Requirements (acres)** | **14.76** |
| Treatment Check | **Good** |

# Ohio Department of Transportation - Office of Hydraulic Engineering

## Post-Construction BMP Calculation Spreadsheet

**BMP Submittal Requirements (Per L&D, Vol. 2, Sec. 1116.2)**

| | | |
|---|---|---|
| 1. Estimated Project Earth Disturbed Area | Yes | **Good** |
| 2. Treatment Percent Calculation | Yes | **Good** |
| 3. BMP Selected for use | Yes | **Good** |
| 4. Drainage area mapping for post-construction BMPs that show the total contributing drainage area and the amount of contributing area within ODOT right-of-way | Yes | **Good** |
| 5. Plan sheets showing locations of post-construction BMP | Yes | **Good** |
| 6. Calculations for each BMP | Yes | **Good** |
| 7. Explanation for any area that is not treated | Yes | **Good** |

# Water Quality Flow Rate ($WQ_F$)

| Drainage Area #1 | Area (acres) | Coefficient of Runoff (C) |
|---|---|---|
| Tributary Area within Existing R/W | 1.10 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | 0.00 | 0.9 |
| Tributary Area Land Use #3 | 0.33 | 0.5 |
| Tributary Area Land Use #4 | 0.00 | 0.3 |
| Total Tributary Area | 1.43 | 0.808 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | NA | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.751** | **cfs** |

| Drainage Area #2B | Area (acres) | Coefficient of Runoff (C) |
|---|---|---|
| Tributary Area within Existing R/W | 0.97 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | 0.71 | 0.5 |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 1.68 | 0.731 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | NA | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.798** | **cfs** |

| Drainage Area #3 | Area (acres) | Coefficient of Runoff (C) |
|---|---|---|
| Tributary Area within Existing R/W | 0.89 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 0.89 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.521** | **cfs** |

| Drainage Area #4 | Area (acres) | Coefficient of Runoff (C) |
|---|---|---|
| Tributary Area within Existing R/W | 0.25 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 0.25 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.146** | **cfs** |

| Drainage Area #5 | Area (acres) | Coefficient of Runoff (C) |
|---|---|---|
| Tributary Area within Existing R/W | 4.07 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |

| | | |
|---|---|---|
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 4.07 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **2.381** | **cfs** |

| **Drainage Area #6** | **Area (acres)** | **Coefficient of Runoff (C)** |
|---|---|---|
| Tributary Area within Existing R/W | 1.55 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 1.55 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.907** | **cfs** |

| **Drainage Area #7** | **Area (acres)** | **Coefficient of Runoff (C)** |
|---|---|---|
| Tributary Area within Existing R/W | 1.50 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 1.50 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.878** | **cfs** |

| **Drainage Area #8** | **Area (acres)** | **Coefficient of Runoff (C)** |
|---|---|---|
| Tributary Area within Existing R/W | 0.65 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 0.65 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.380** | **cfs** |

| **Drainage Area #9** | **Area (acres)** | **Coefficient of Runoff (C)** |
|---|---|---|
| Tributary Area within Existing R/W | 0.12 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 0.12 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |

| | | |
|---|---|---|
| **Water Quality Flow ($WQ_F$)** | **0.070** | **cfs** |

| **Drainage Area #10** | **Area (acres)** | **Coefficient of Runoff (C)** |
|---|---|---|
| Tributary Area within Existing R/W | 1.30 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 1.30 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.761** | **cfs** |

| **Drainage Area #11** | **Area (acres)** | **Coefficient of Runoff (C)** |
|---|---|---|
| Tributary Area within Existing R/W | 0.37 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 0.37 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.216** | **cfs** |

| **Drainage Area #12** | **Area (acres)** | **Coefficient of Runoff (C)** |
|---|---|---|
| Tributary Area within Existing R/W | 0.76 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 0.76 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.445** | **cfs** |

| **Drainage Area #13** | **Area (acres)** | **Coefficient of Runoff (C)** |
|---|---|---|
| Tributary Area within Existing R/W | 0.55 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 0.55 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.322** | **cfs** |

| **Drainage Area #14** | **Area (acres)** | **Coefficient of Runoff (C)** |
|---|---|---|
| Tributary Area within Existing R/W | 1.60 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |

| | | |
|---|---|---|
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 1.60 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.936** | **cfs** |

| **Drainage Area #15** | **Area (acres)** | **Coefficient of Runoff (C)** |
|---|---|---|
| Tributary Area within Existing R/W | 0.72 | 0.9 |
| Impervious Trib. Area Outside Existing R/W | | 0.9 |
| Tributary Area Land Use #3 | | |
| Tributary Area Land Use #4 | | |
| Total Tributary Area | 0.72 | 0.900 |
| BMP Type | Vegetated Biofilter | |
| Time of Concentration (minutes) | | |
| Intensity, i (in/hr) | 0.65 | |
| **Water Quality Flow ($WQ_F$)** | **0.421** | **cfs** |

# Ohio Department of Transportation - Office of Hydraulic Engineering

**Post-Construction BMP Calculation Spreadsheet**

## Vegetated Filter Strip

| Filter Strip | Route | Begin Station | End Station | Side | Pavement Width (FT) | Filter Strip Width (FT) | Filter Strip Slope (z:1) | Filter Strip Length (FT) | Drainage Area (acres) | Filter Strip Area (SF) | Item 659 Topsoil Volume (CY) | Item 670 Erosion Protection Area (SY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Filter Strip #1 | IR 77 | 76+50 | 80+61 | RT | 3 | 46.6 | 4 | 411 | 0.44 | 19,153 | 236.5 | 2,128.1 |
| Filter Strip #2 | IR 77 | 79+98 | 83+62 | LT | 3 | 38.4 | 3 | 364 | 0.35 | 13,978 | 172.6 | 1,553.1 |
| Filter Strip #3 | IR 77 | 109+02 | 110+81 | LT | 3 | 31.3 | 4 | 179 | 0.14 | 5,603 | 69.2 | 622.5 |
| Filter Strip #4 | IR 77 | 114+20 | 117+42 | RT | 3 | 44 | 3 | 322 | 0.35 | 14,168 | 174.9 | 1,574.2 |
| Filter Strip #5 | IR 77 | 131+62 | 137+28 | LT | 34 | 37.6 | 3 | 566 | 1.05 | 21,282 | 262.7 | 2,364.6 |
| Filter Strip #6 | IR 77 | 185+22 | 195+26 | LT | 34 | 37.1 | 3 | 1,004 | 1.15 | 37,248 | 459.9 | 4,138.7 |
| Filter Strip #7 | | | | | | | | 0 | | | 0.0 | 0.0 |
| Filter Strip #8 | | | | | | | | 0 | | | 0.0 | 0.0 |
| Filter Strip #9 | | | | | | | | 0 | | | 0.0 | 0.0 |

**Total Treatment Credit Earned from Vegetated Filter Strips** **3.48** **acres**

(Treatment is for quality only, not quantity)

| | BMP Design Considerations | Answer | Design Check |
|---|---|---|---|
| 1 | Is the min. filter strip width 15-25 ft wide depending on L&D Table 1117-3? | Yes | Good |
| 2 | Is the slope 3:1 or flatter for 34 ft or narrower pavement drainage width | Yes | Good |
| 3 | Is the slope 6:1 or flatter for 35 - 48 ft pavement drainage width | NA | Good |
| 4 | Is the only contributing drainage to the filter strip from the road and shoulder? | Yes | Good |
| 5 | Does any concentrated flow or any outlets discharge to the filter strip? | No | Good |
| 6 | Is 4" of Item 659, Topsoil, included for the filter strip? | Yes | Good |
| 7 | Is Item 670, Slope Erosion Protection, included for the filter strip? | Yes | Good |

## Ohio Department of Transportation - Office of Hydraulic Engineering

**Post-Construction BMP Calculation Spreadsheet**

# Vegetated Biofilter

| Location Information | | | | | Hydrology | | | Channel Characteristics | | | | | Analysis Results | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VBF | Route | Begin Station | End Station | Side | Total Drainage Area (acres) | EDA Treatment Credit (acres)[1] | $WQ_F$ (cfs) | VBF Bottom Width (ft)[note2] | VBF Fore Slope (z:1) | VBF Back Slope (z:1) | VBF Longitudinal Slope (ft/ft) | Manning's Roughness Coefficient[3] | Depth of Runoff at $WQ_F$ (inches)[4] | Velocity of Runoff at $WQ_F$ (ft/sec)[4] | Standard Ditch Width (feet)[5] | Required Ditch Width (feet) |
| VBF#1 | Ramp B4 | 400+89 | 81+65 | RT | 1.43 | 1.10 | 0.751 | 4 | 4 | 4 | 0.024 | 0.15 | 3.20 | 0.56 | 2 | 4 |
| VBF#2 | IR 77 | 88+51 | 81+65 | RT | 1.68 | 0.97 | 0.798 | 7 | 4 | 4 | 0.005 | 0.15 | 3.87 | 0.30 | 2 | 7 |
| VBF#3 | IR 77 | 107+72 | 110+80 | RT | 0.89 | 0.89 | 0.529 | 4 | 4 | 3 | 0.018 | 0.15 | 2.87 | 0.46 | 2 | 4 |
| VBF#4 | IR 77 | 111+67 | 110+80 | RT | 0.25 | 0.25 | 0.146 | 4 | 4 | 3 | 0.005 | 0.15 | 1.98 | 0.19 | 2 | 4 |
| VBF#5A | Ramp B4 | 401+75 | 405+22 | RT | 2.07 | Included 5B | 1.211 | 4 | 4 | 4 | 0.070 | 0.15 | 3.09 | 0.93 | 2 | 4 |
| VBF#5B | IR 77 | 117+89 | 120+83 | RT | 4.07 | 4.07 | 2.380 | 12 | 4 | 4 | 0.016 | 0.15 | 3.88 | 0.55 | 2 | 12 |
| VBF#6 | IR 77 | 113+15 | 118+82 | LT | 1.55 | 1.55 | 0.907 | 4 | 4 | 4 | 0.017 | 0.15 | 3.91 | 0.53 | 2 | 4 |
| VBF#7 | IR 77 | 141+00 | 137+28 | LT | 1.50 | 1.50 | 0.878 | 4 | 4 | 2 | 0.026 | 0.15 | 3.48 | 0.62 | 2 | 4 |
| VBF#8 | IR 77 | 193+00 | 197+00 | LT | 0.65 | 0.65 | 0.380 | 4 | 4 | 3 | 0.025 | 0.15 | 2.16 | 0.46 | 2 | 4 |
| VBF#9 | IR 77 | 197+65 | 197+00 | LT | 0.12 | 0.12 | 0.070 | 4 | 4 | 3 | 0.014 | 0.15 | 0.95 | 0.21 | 2 | 4 |
| VBF#10 | IR 77 | 192+00 | 196+50 | RT | 1.30 | 1.30 | 0.761 | 4 | 4 | 4 | 0.022 | 0.15 | 3.30 | 0.54 | 2 | 4 |
| VBF#11 | IR 77 | 197+50 | 196+50 | RT | 0.37 | 0.37 | 0.216 | 4 | 4 | 4 | 0.005 | 0.15 | 2.46 | 0.22 | 2 | 4 |
| VBF#12 | IR 77 | 198+50 | 200+33 | RT | 0.76 | 0.76 | 0.445 | 4 | 4 | 4 | 0.004 | 0.15 | 3.94 | 0.26 | 2 | 4 |
| VBF#13 | IR 77 | 202+17 | 200+33 | RT | 0.55 | 0.55 | 0.322 | 4 | 4 | 4 | 0.003 | 0.15 | 3.56 | 0.21 | 2 | 4 |
| VBF#14 | Ramp E1 | 112+29 | 106+96 | RT | 1.60 | 1.60 | 0.936 | 4 | 3 | 3 | 0.020 | 0.15 | 3.89 | 0.58 | 2 | 4 |
| VBF#15 | Ramp E1 | 106+97 | 104+07 | RT | 0.72 | 0.72 | 0.421 | 4 | 4 | 4 | 0.004 | 0.15 | 3.81 | 0.25 | 2 | 4 |

**Total Treatment Credit Earned from VBFs (within R/W):** 16.40 acres

(Treatment is for quality only, not quantity)

Yellow: Requires Input (See instructions tab)

**BMP Design Considerations**

| | | | |
|---|---|---|---|
| 1 | Do the VBF characteristics match the calculated flow and velocity checks using Manning's Equation above? | Yes | Good |
| 2 | Is the VBF a trapezoidal ditch with a flat bottom, not a radius ditch? | Yes | Good |
| 3 | Is the VBF width at least 4 feet? | Yes | Good |
| 4 | Is the depth of runoff for the $WQ_F$ for each VBF less than or equal to 4 inches? | Yes | Good |
| 5 | Is the velocity of runoff for the $WQ_F$ for each VBF less than or equal to 1.0 ft/sec? | Yes | Good |
| 6 | Does the "Total Drainage Area" include all onsite and off-site drainage to the VBF? | Yes | Good |
| 7 | Does each VBF include 4" of Item 659 Topsoil on the vegetated portion of the shoulder and foreslope? | Yes | Good |
| 8 | Does each VBF include Item 670, Ditch Erosion Protection? | Yes | Good |
| 9 | Are the station ranges and locations of the VBFs labeled on the Project Site Plan drawing? | Yes | Good |

# 4. Temporary Erosion and Sediment Control Calculations

# 4.1 Notice of Intent Acreage Calculation

January 2020

| NOTICE OF INTENT (NOI) ACREAGE CALCULATION FORM | 1112-1<br>Reference Section<br>1112 |
|---|---|

| | | Area (acres) |
|---|---|---|
| **Project Earth Disturbing Activities** | | 70.41 |
| If the project is a Routine Maintenance Project, an NOI is not required. (See Section 1112) | | |
| **Contractor Earth Disturbing Activities** | | |
| Field Office per CMS Item 619: | | |
| Enter 0.125 for Type A; 0.25 for Type B; or 1.00 for Type C | | 1.00 |
| Batch Plant: Yes = 2.0; No = 0 | | 0.00 |
| Off-Project Waste / Borrow Pit: | | |
| Add 1.0 acre per 15,000 CY of waste or borrow | | 0.33 |
| Miscellaneous Other Off-Project Areas: | | |
| Off-Project staging areas, stock yards, etc. | | 0.00 |
| **Contractor Earth Disturbing Activities** | **Subtotal** | **1.33** |
| **Total Earth Disturbing Activities** (add Project EDA and Contractor EDA) | **TOTAL** | **71.74** |
| **NOI Earth Disturbing Activities (see below to determine value)** | **TOTAL** | **71.74** |

Project Earth Disturbing Activities - Enter the area of earth disturbing activities directly related to project activities. Earth disturbing activity is defined as any activity that exposes bare ground or an erodible material to storm water as well as anywhere Item 659 Seeding, or Item 660 Sodding is being furnished.

Contractor Earth Disturbing Activities:

Field Office - These sizes were determined with regard to size of the trailer, parking, and some stock area for equipment and materials based on Item 619 Field Office.

Batch Plant - It is assumed that a typical batch plant would occupy 2 acres of ground. The designer should investigate the location of the project relative to existing plants, facilities, etc. to estimate whether a batch plant might be used by the Contractor. This is not needed for existing plants, it is only for plants set up for the specific project.

Off-Project Waste / Borrow - The specified estimation is based on approximately 10 feet of depth or fill over 1 acre. The designer may choose a different value based on knowledge of the project area, bedrock elevations, previous projects, etc. Consideration should be given for grindings, as well. (10ft. x 43560 s.f. / 27 = 16,133 c.y. ~ 15,000 c.y.)

NOI Earth Disturbing Activities - This is the combined Project and Contractor Earth Disturbed Area. Based on project conditions and activities, some flexibility in the area calculation should be provided to avoid the possibility of the estimated work being less than the actual work. This scenario would require submittal of an NOI for projects originally calculated to be less than one acre during construction.

For projects with Total EDA less than one acre: No NOI is required.

A Routine Maintenance Project consists of activities that do not change the line, grade, or hydraulic capacity of the existing condition and has less than 5 acres of earth disturbing activities (see section 1112.2).

## 4.2 Temporary Sediment Erosion Control Spreadsheet

# Temporary Erosion Control Estimating
# English Units

Version 07/21/23

| | |
|---|---|
| Project Name | CUY-77-11.41 - PART 1 |
| PID | 105743 |
| Estimated Construction Cost | $60,000,000 |
| Project Type | Major Reconstruction |
| Planned Construction Seasons | 1 |
| Total of Temporary Erosion Control | $600,000 |
| Percentage of Costruction Cost | 1.000% |

**Sediment Basins** — CLICK FOR INPUT HELP

| | |
|---|---|
| Project Earth Disturbed Area (acres) | 70.41 |
| Est. Contractor Disturbed Area (acres) | 1.33 |
| Total Acres | 71.74 |

Settling Basin May Be Needed

| Contributing Drainage Area to Culverts (CLICK FOR INPUT HELP) | Drainage Area (acres) | Settling Basin Size (cyd.) | Temporary Sediment & Erosion Cost |
|---|---|---|---|
| Burke Brook | 50.4 | 509 | |
| Morgana Run | 28.8 | 291 | |
| Culvert 3 | | 0 | |
| Culvert 4 | | 0 | |
| Culvert 5 | | 0 | |
| Culvert 6 | | 0 | |
| Culvert 7 | | 0 | |
| Culvert 8 | | 0 | |
| Culvert 9 | | 0 | |
| Culvert 10 | | 0 | |
| Culvert 11 | | 0 | |
| Culvert 12 | | 0 | |
| Culvert 13 | | 0 | |
| Culvert 14 | | 0 | |
| Culvert 15 | | 0 | |
| Culvert 16 | | 0 | |
| Culvert 17 | | 0 | |
| Culvert 18 | | 0 | |
| Culvert 19 | | 0 | |
| Culvert 20 | | 0 | |
| Culvert 21 | | 0 | |
| Culvert 22 | | 0 | |
| Culvert 23 | | 0 | |
| Culvert 24 | | 0 | |
| Culvert 25 | | 0 | |
| Total Sediment Basins (cyd.) | | 800 | $12,199 |
| Sediment Removal | | 400 | $4,500 |

**Constuction Seeding and Mulching** — CLICK FOR INPUT HELP

| | (Square. yd.) | ($/Square Yard) | |
|---|---|---|---|
| Seeding Area | 143739 | | |
| | | $0.83 | $178,955 |

**Perimeter Filter Fabric Fence** — CLICK FOR INPUT HELP

| | | ($/Foot) | |
|---|---|---|---|
| Length of project (ft) | 14975 | $2.58 | $57,953 |

# Temporary Erosion Control Estimating
# English Units

Version 07/21/23

| | | | | |
|---|---|---|---|---|
| **Filter Fabric Ditch Check** | **CLICK FOR INPUT HELP** | **Length (Ft)** | | |
| | Length of project (ft) | 14975 | | |
| | Number of Filter Ditch Checks | | 60 | |
| | Length of Filter Ditch Checks (ft) | | 719 | $8,985 |
| **Rock Channel Protection w/ Filter** | **CLICK FOR INPUT HELP** | | | |
| | Rock (cubic yards) | | 27 | $3,674 |
| **Existing Stream Protection** | **CLICK FOR INPUT HELP** | | | |
| Average Right of Way Width | | | | |
| Number of Existing Streams | 0 | | | |
| | | **($/Foot)** | | |
| | Silt Fence Length (Ft) | $2.58 | 0 | $0 |
| | | **($/Square Yard)** | | |
| | Seeding (square yd) | $0.83 | 0 | $0 |
| **Inlet Protection** | **CLICK FOR INPUT HELP** | | | |
| **Catch Basins** | | | | |
| New | 184 | | | |
| Adjusted | 11 | | | |
| | Catch Basin Protection (Ft.) | | 3120 | $39,780 |
| **Construction Entrance** | **CLICK FOR INPUT HELP** | | | |
| | Length of project (ft) | 14975 | | |
| | Number of Entrances | | 9 | $38,603 |