

ODOT TP 26 SE Region Site 6

Introduction

The TP 26 SE Region Site 6 project, henceforth referred to as TP Site 6, includes the construction of a parking lot on an existing grass area near the US-35 and US-50 interchange in Ross County. The existing site has a depression that collects surface runoff from surrounding areas including the Marathon gas station to the east of TP Site 6. Field surveys have not found any outlets in the depression area, so it is assumed that runoff stays in this location until it evaporates, transpires through existing vegetation, or infiltrates into the ground. There are existing ditches along US-35 and US-50 that discharge through an existing 46" steel culvert under US-50. Runoff from the proposed TP Site 6 will enter these ditches through curb cuts or storm sewer outlets.

Pavement Drainage

TP Site 6 will have curb around the perimeter of the parking lot. Therefore, we performed spread calcs to determine necessary locations for curb cuts. The entire parking lot will slope from east to west so that curb cuts will only be needed on the western, low side. Since the outlet ditch along US-35 is so close to the western edge of the proposed parking lot, curb cuts were used to allow runoff to exit the parking lot and enter the ditch. A 50% AEP design storm was used for the spread analysis with a total allowable spread of 10 feet. We used the 10-foot allowable spread to limit the amount of curb cuts needed and assumed that the truck cabins will be far enough away from the back of the trucks to be outside of the spread limits. We used FHWA Hydraulic Toolbox to analyze spread for the curb cuts.

Storm Sewer

We designed the storm pipes in CDSS using a 10% AEP design storm and a 4% AEP HGL check storm. There are existing catch basins in the Marathon parking lot that discharge to the depression TP Site 6 is filling in. Those storm sewers have been re-routed to outlet into the ditch on the west side of the parking lot.

Existing Ditch and Culvert Analysis

As previously mentioned, no evidence was found that the existing depression area at the site discharges into the existing roadside ditch or culvert. This existing depression will be filled in for the new parking lot. Therefore, we analyzed the ditch and culvert to ensure they could adequately convey the additional flow. We analyzed the ditch flow depth using a 10% AEP storm in CDSS. The following table summarizes the ditch calculations:

| Model | Drainage Area (ac) | 10% AEP flow (cfs) | 10% AEP flow depth (ft) | 10% AEP Elev. at Low Point (ft) | Near, Low Edge of Pavement Elev. (ft) | Freeboard Below Near, Low Edge of Pavement (ft) |
|----------|--------------------|--------------------|-------------------------|---------------------------------|---------------------------------------|---|
| Existing | 63.29 | 44.91 | 1.80 | 626.76 | 639.05 | 12.29 |
| Proposed | 70.09 | 54.49 | 1.98 | 626.94 | | 12.11 |

The additional flow from the proposed parking lot does increase the flow depth, but it is still well below the near, low edge of pavement and exceeds the 1-foot requirement in the ODOT L&D Volume 2. The existing ditch has sufficient capacity to adequately convey the 10% AEP design storm for the proposed condition. The existing ditch also has a concrete lining that is in good condition and will not need improvements.

We analyzed the culvert in HY-8 using a 4% AEP design storm and a 1% AEP design check storm with those flows calculated from the drainage areas shown in the ditch summary table above. The following table summarizes the culvert calculations for the 4% AEP design storm:

| Model | 4% AEP flow (cfs) | 4% AEP HW Elev. (ft) | Near, Low Edge of Pavement Elev. (ft) | Freeboard Below Near, Low Edge of Pavement (ft) |
|----------|-------------------|----------------------|---------------------------------------|---|
| Existing | 55.79 | 628.77 | 639.05 | 10.28 |
| Proposed | 67.53 | 629.32 | | 9.73 |

The additional flow from the proposed parking lot does increase the 4% AEP design storm HW elevation, but it is still well below the near, low edge of pavement and exceeds the 1-foot requirement in the ODOT L&D Volume 2.

The following table summarizes the culvert calculations for the 1% AEP check storm:

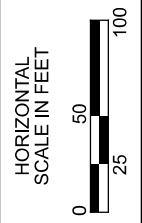
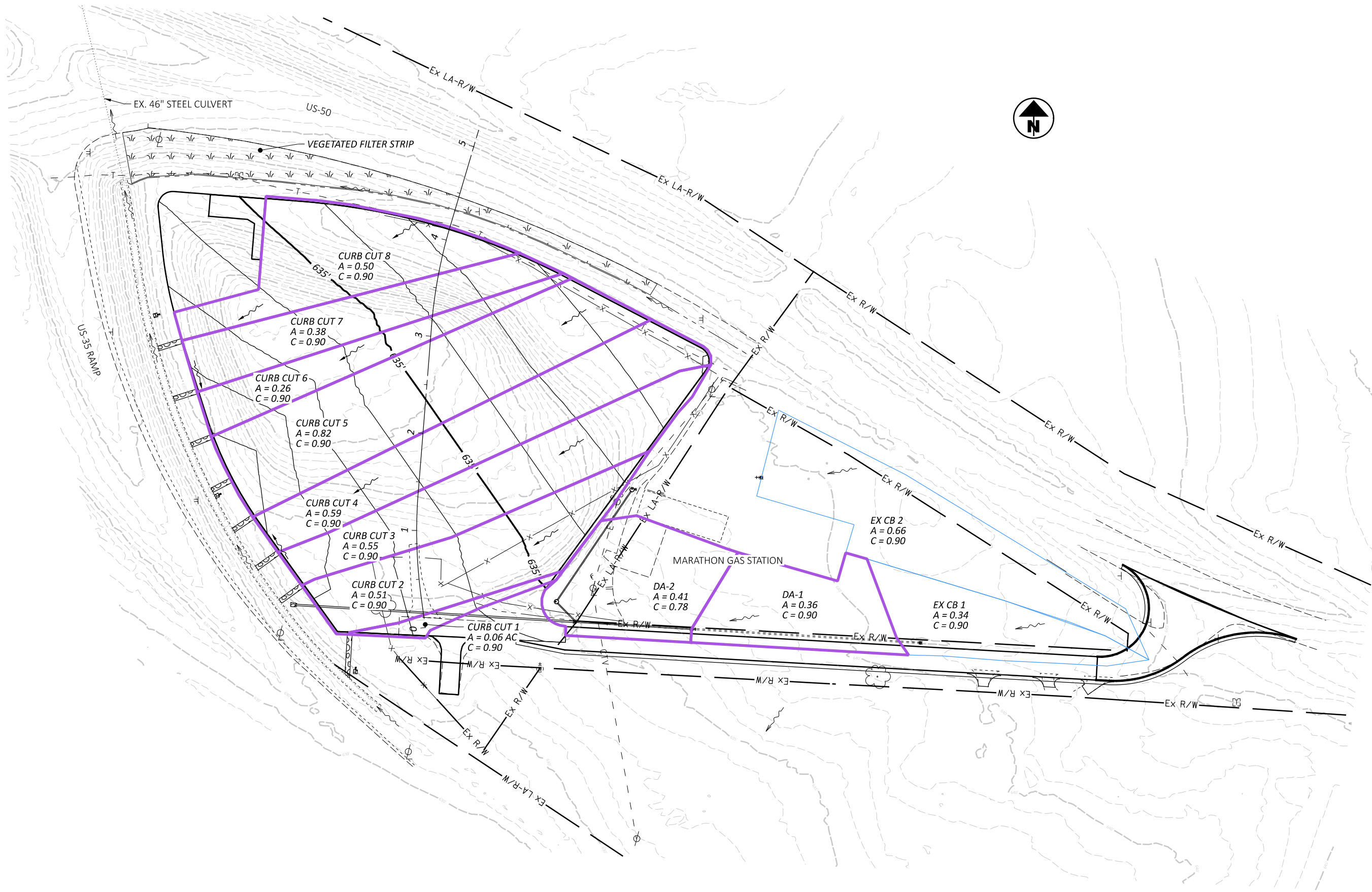
| Model | 1% AEP flow (cfs) | 1% AEP HW Elev. (ft) | Near, Low Edge of Pavement Elev. (ft) | Marathon Lowest Building Elev. (ft) | TP Site 6 Parking Lot Low Elev. (ft) |
|----------|-------------------|----------------------|---------------------------------------|-------------------------------------|--------------------------------------|
| Existing | 67.22 | 629.31 | 639.05 | 639.15± | 630.20 |
| Proposed | 81.37 | 630.14 | | | |

The additional flow from the proposed parking lot does increase the 1% AEP check storm HW elevation, but it will not impact any surrounding buildings or infrastructure. The existing culvert has sufficient capacity to adequately convey the 4% AEP design and 1% AEP check storms.

BMP

The project EDA for TP Site 6 is 4.26 acres. The entire site is within existing ODOT right-of-way, therefore, only water quality treatment is required. The treatment percentage is 20% resulting in a treatment requirement of 0.85 acres. Sloping the proposed parking lot from east to west closely matches existing conditions and is the preferred layout. This is too much pavement for a vegetated filter strip adjacent to the parking lot, so a vegetated filter strip is proposed on the south side of US-50 directly north of TP Site 6. A vegetated filter strip is preferable for water quality treatment due to less required maintenance and reduced installation costs when compared to a manufactured system. The vegetated filter strip provide 0.86 acres of treatment which satisfies the required treatment.

CDSS Spread Analysis



SPREAD DRAINAGE AREA MAP

| | |
|---|------------|
| DESIGN AGENCY | |
| ARCADIS 222 SOUTHWAN STREET SUITE 200 ARLINGTON, TEXAS 76010 (817) 434-1985 www.arcadis.com | |
| DESIGNER | |
| AZF | |
| REVIEWER | |
| JC | 09-27-25 |
| PROJECT ID | |
| 122885 | |
| SHEET | |
| P.1 | TOTAL 1 |

Storm Design
Date: 10/31/25
Project: Truck Parking Site 6
All areas measured in CAD

Pavement "C" = 0.90
Berms/Slopes (4:1 and flatter) "C" = 0.50
Berms/Slopes (steeper than 4:1) "C" = 0.70
Residential Single Family "C" = 0.40
Residential Multi-Family "C" = 0.55
Commercial "C" = 0.65
Gravel "C" = 0.60
Woods "C" = 0.30
Cultivated "C" = 0.40

| Name | Alignment | Station/Offset | Area (SF) | Area (AC) | Pavement (SF) | Pavement (Acres) | Pavement (A*C) | Berms/Slopes (4:1 and flatter) (SF) | Berms/Slopes (4:1 and flatter) (Acres) | Berms/Slopes (4:1 and flatter) (A*C) | Summation of A*C | Weighted C | Notes |
|------------|-------------|-----------------------|-----------|-----------|---------------|------------------|----------------|-------------------------------------|--|--------------------------------------|------------------|------------|--|
| Curb Cut 1 | Access Road | 100+00, 9.54' RT | 2540 | 0.06 | 2540 | 0.06 | 0.05 | | | | 0.05 | 0.90 | |
| Curb Cut 2 | Parking Lot | 0+55, 118.77' LT | 22074 | 0.51 | 22074 | 0.51 | 0.46 | | | | 0.46 | 0.90 | |
| Curb Cut 3 | Parking Lot | 0+83, 140.98' LT | 24158 | 0.55 | 24158 | 0.55 | 0.5 | | | | 0.5 | 0.90 | |
| Curb Cut 4 | Parking Lot | 1+11, 166.78' LT | 25688 | 0.59 | 25688 | 0.59 | 0.53 | | | | 0.53 | 0.90 | |
| Curb Cut 5 | Parking Lot | 1+37.81, 191.04' LT | 35801 | 0.82 | 35801 | 0.82 | 0.74 | | | | 0.74 | 0.90 | Low point |
| Curb Cut 6 | Parking Lot | 1+80, 213.84' LT | 11186 | 0.26 | 11186 | 0.26 | 0.23 | | | | 0.23 | 0.90 | |
| Curb Cut 7 | Parking Lot | 2+25, 232.86' LT | 16453 | 0.38 | 16453 | 0.38 | 0.34 | | | | 0.34 | 0.90 | |
| Curb Cut 8 | Parking Lot | 2+75, 253.29' LT | 21721 | 0.5 | 21721 | 0.5 | 0.45 | | | | 0.45 | 0.90 | |
| EX-CB-1 | Access Road | 105+85.44, 12.92' LT | 14815 | 0.34 | 14815 | 0.34 | 0.31 | | | | 0.31 | 0.90 | Marathon parking lot south of building |
| EX-CB-2 | Access Road | 104+12.80, 172.98' LT | 28697 | 0.66 | 28697 | 0.66 | 0.59 | | | | 0.59 | 0.90 | Marathon parking lot north of building |
| DA-1 | Access Road | 103+50.00, 13.95' LT | 15838 | 0.36 | 15838 | 0.36 | 0.32 | | | | 0.32 | 0.90 | |
| DA-2 | Access Road | 102+30.00, 14.42' LT | 17864 | 0.41 | 12082 | 0.28 | 0.25 | 5782 | 0.13 | 0.07 | 0.32 | 0.78 | |

Hydraulic Analysis Report

Curb and Gutter Analysis: Curb Cut 1, 100+00

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 0.0010 ft

Gutter Result Parameters

Design Flow: 0.2200 cfs

Gutter Result Parameters

Width of Spread: 4.2987 ft

Gutter Depression: 0.0000 in

Area of Flow: 0.1848 ft²

Eo (Gutter Flow to Total Flow): 0.0006

Gutter Depth at Curb: 1.0317 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 8.0000 ft

Local Depression: 0.5000 in

Inlet Result Parameters

Intercepted Flow: 0.2200 cfs

Bypass Flow: 0.0000 cfs

Efficiency: 1.0000

Curb and Gutter Analysis: Curb Cut 2, 0+55

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 0.0010 ft

Gutter Result Parameters

Design Flow: 1.8700 cfs

Gutter Result Parameters

Width of Spread: 5.6012 ft

Gutter Depression: 0.0000 in

Area of Flow: 0.3137 ft²

Eo (Gutter Flow to Total Flow): 0.0005

Gutter Depth at Curb: 1.3443 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 8.0000 ft

Local Depression: 0.5000 in

Inlet Result Parameters

Intercepted Flow: 0.6923 cfs

Bypass Flow: 1.1777 cfs

Efficiency: 0.3702

Curb and Gutter Analysis: Curb Cut 3, 0+83

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 0.0010 ft

Gutter Result Parameters

Design Flow: 3.2000 cfs

Gutter Result Parameters

Width of Spread: 6.8513 ft

Gutter Depression: 0.0000 in

Area of Flow: 0.4694 ft²

Eo (Gutter Flow to Total Flow): 0.0004

Gutter Depth at Curb: 1.6443 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 8.0000 ft

Local Depression: 0.5000 in

Inlet Result Parameters

Intercepted Flow: 0.9155 cfs

Bypass Flow: 2.2845 cfs

Efficiency: 0.2861

Curb and Gutter Analysis: Curb Cut 4, 1+11

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 0.0010 ft

Gutter Result Parameters

Design Flow: 4.4500 cfs

Gutter Result Parameters

Width of Spread: 7.7531 ft

Gutter Depression: 0.0000 in

Area of Flow: 0.6011 ft²

Eo (Gutter Flow to Total Flow): 0.0003

Gutter Depth at Curb: 1.8608 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 8.0000 ft

Local Depression: 0.5000 in

Inlet Result Parameters

Intercepted Flow: 1.0861 cfs

Bypass Flow: 3.3639 cfs

Efficiency: 0.2441

Curb and Gutter Analysis: Curb Cut 5, 1+37.81

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 0.0010 ft

Gutter Result Parameters

Design Flow: 6.3700 cfs

Gutter Result Parameters

Width of Spread: 8.8694 ft

Gutter Depression: 0.0000 in

Area of Flow: 0.7867 ft²

Eo (Gutter Flow to Total Flow): 0.0003

Gutter Depth at Curb: 2.1287 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 8.0000 ft

Local Depression: 0.5000 in

Inlet Result Parameters

Intercepted Flow: 1.3081 cfs

Bypass Flow: 5.0619 cfs

Efficiency: 0.2054

Curb and Gutter Analysis: Curb Cut 6, 1+80

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 0.0010 ft

Gutter Result Parameters

Design Flow: 2.6500 cfs

Gutter Result Parameters

Width of Spread: 6.3835 ft

Gutter Depression: 0.0000 in

Area of Flow: 0.4075 ft²

Eo (Gutter Flow to Total Flow): 0.0004

Gutter Depth at Curb: 1.5320 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 8.0000 ft

Local Depression: 0.5000 in

Inlet Result Parameters

Intercepted Flow: 0.8302 cfs

Bypass Flow: 1.8198 cfs

Efficiency: 0.3133

Curb and Gutter Analysis: Curb Cut 7, 2+25

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 0.0010 ft

Gutter Result Parameters

Design Flow: 2.5500 cfs

Gutter Result Parameters

Width of Spread: 6.2921 ft

Gutter Depression: 0.0000 in

Area of Flow: 0.3959 ft²

Eo (Gutter Flow to Total Flow): 0.0004

Gutter Depth at Curb: 1.5101 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 8.0000 ft

Local Depression: 0.5000 in

Inlet Result Parameters

Intercepted Flow: 0.8138 cfs

Bypass Flow: 1.7362 cfs

Efficiency: 0.3191

Curb and Gutter Analysis: Curb Cut 8, 2+75

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 0.0010 ft

Gutter Result Parameters

Design Flow: 1.8400 cfs

Gutter Result Parameters

Width of Spread: 5.5674 ft

Gutter Depression: 0.0000 in

Area of Flow: 0.3100 ft²

Eo (Gutter Flow to Total Flow): 0.0005

Gutter Depth at Curb: 1.3362 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 8.0000 ft

Local Depression: 0.5000 in

Inlet Result Parameters

Intercepted Flow: 0.6865 cfs

Bypass Flow: 1.1535 cfs

Efficiency: 0.3731

CDSS Storm Sewer Analysis

(See DA Map in Spread Analysis Section for Areas)



STORM SEWER SYSTEM

PID : 122885 **Date :** 11/08/2025 **Project :** Truck Parking

Location : Site 6

Description : Marathon Parking Lot to Outlet

Designer : AZF

Rainfall Area: C

Just Full Capacity Frequency (yrs.) : 10

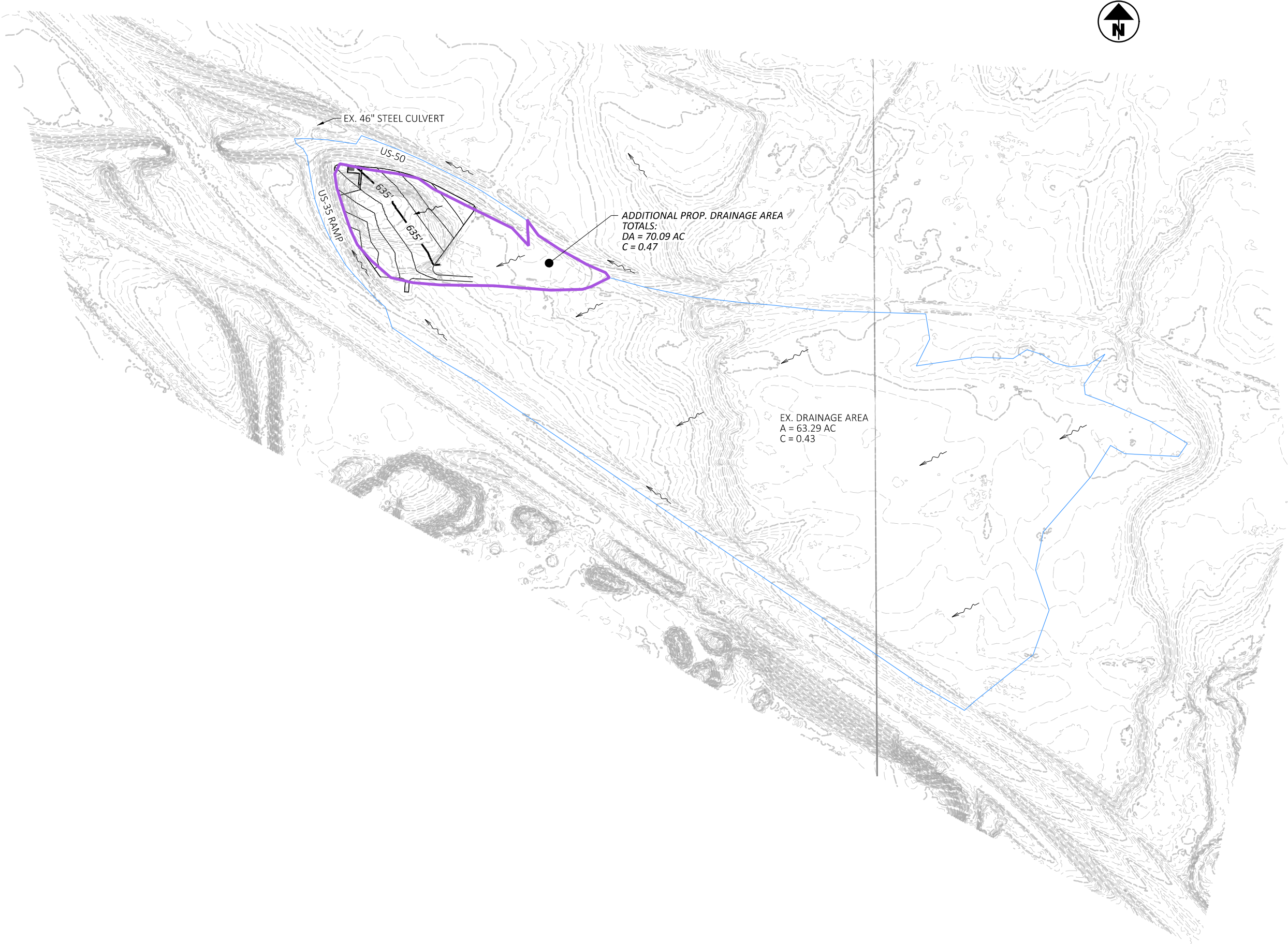
Hydraulic Gradient Frequency (yrs.) : 25

Minimum Pipe Size : 0.00

Tailwater Elevation (ft.): 0.00

| JUNCTION From | STATION To | From To | ΔAREA Σ AREA (acres) | ΔCA Σ CA | BEGIN TIME (min.) | RAINFALL | | DISCHARGE | | PIPE DIAM. (in.) | PIPE 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' |
|------------------|---------------|------------|----------------------------|-------------|-------------------------|-----------|-----------|-----------|-----------|------------------------|-------------------------|--------------------|-------------------------------|-----------------------|---------------------------------|-----------------------------|-------------------------------|----------------------------|-------------------------|-------------------------|--------------------------------|
| | | | | | | (10 yrs.) | (25 yrs.) | (10 yrs.) | (25 yrs.) | | | | | | | | | | | | |
| EXCB | 1 | 105+85 | 0.34 | 0.31 | 10.00 | 5.32 | 5.81 | 1.6 | 1.8 | 15 | 236.0 | 0.0107 | 637.20 | 4.05 | 6.24 | 0.0010 | 637.68 | 639.58 | 1.90 | 1.13 | CB 2-2B |
| | begin | 103+50 | 0.34 | 0.31 | | | | | | | | | 634.67 | | | | 635.56 | 636.88 | | | 0.015 |
| 1 | 2 | 103+50 | 0.00 | 0.00 | 10.97 | 5.13 | 5.72 | 1.6 | 1.8 | 15 | 120.0 | 0.0183 | 632.70 | 4.87 | 8.15 | 0.0010 | 633.11 | 636.88 | 3.77 | 2.93 | CB 2-2B |
| | | 102+30 | 0.34 | 0.31 | | | | | | | | | 630.50 | | | | 631.39 | 633.90 | | | 0.015 |
| 2 | 4 | 102+30 | 0.41 | 0.32 | 11.38 | 5.06 | 5.71 | 3.2 | 3.6 | 15 | 30.0 | 0.0167 | 630.50 | 5.70 | 7.77 | 0.0041 | 631.13 | 633.90 | 2.77 | 2.15 | CB 2-2B |
| | | 102+00 | 0.75 | 0.63 | | | | | | | | | 630.00 | | | | 631.01 | 634.45 | | | 0.015 |
| EXCB | 3 | 104+13 | 0.66 | 0.59 | 10.00 | 5.32 | 5.91 | 3.2 | 3.5 | 12 | 133.0 | 0.0105 | 636.92 | 4.58 | 3.40 | 0.0129 | 638.14 | 639.16 | 1.02 | 1.24 | CB 2-2B |
| | begin | 1+60 | 1.41 | 1.22 | | | | | | | | | 635.53 | | | | 636.43 | 638.02 | | | 0.015 |
| 3 | 4 | 1+60 | 0.00 | 0.00 | 10.48 | 5.23 | 5.82 | 3.1 | 3.5 | 12 | 161.0 | 0.0248 | 635.00 | 6.56 | 5.24 | 0.0125 | 635.62 | 638.02 | 2.40 | 2.02 | MH 3 |
| | | 102+00 | 1.41 | 1.22 | | | | | | | | | 631.00 | | | | 631.90 | 634.45 | | | 0.015 |
| 4 | HW1 | 102+00 | 0.00 | 0.00 | 11.47 | 5.04 | 5.52 | 6.1 | 6.7 | 18 | 257.0 | 0.0058 | 629.75 | 4.43 | 7.46 | 0.0055 | 630.94 | 634.45 | 3.51 | 3.20 | CB 2-2B |
| | final | 0+38 | 1.41 | 1.22 | | | | | | | | | 628.26 | | | | 629.51 | 630.25 | | | 0.015 |

CDSS Ditch Analysis



Culvert Analysis
Date: 9/18/25
Project: Truck Parking Site 6
All areas measured in CAD

Pavement "C" = 0.90
Berms/Slopes (4:1 and flatter) "C" = 0.50
Berms/Slopes (steeper than 4:1) "C" = 0.70
Residential Single Family "C" = 0.40
Residential Multi-Family "C" = 0.55
Commercial "C" = 0.65
Gravel "C" = 0.60
Woods "C" = 0.30
Cultivated "C" = 0.40

| Name | Alignment | Station/Offset | Area (SF) | Area (AC) | Pavement (SF) | Pavement (Acres) | Pavement (A*C) | Cultivated (SF) | Cultivated (Acres) | Cultivated (A*C) | Summation of A*C | Weighted C |
|----------------------|-----------|----------------|--------------|--------------|------------------|---------------------|-------------------|--------------------|-----------------------|---------------------|------------------|------------|
| Ex Area To Culvert | | | 2756900 | 63.29 | 139141 | 3.19 | 2.87 | 2617759 | 60.1 | 24.04 | 26.91 | 0.43 |
| Prop Area To Culvert | | | 3053272 | 70.09 | 406382 | 9.33 | 8.4 | 2646890 | 60.76 | 24.3 | 32.7 | 0.47 |

Time of Concentration
Date: 9/18/25
Project: Truck Parking Site 6
All areas measured in CAD

| | | | |
|---------------------------------------|------|---|-------|
| Pavement "C" = | 0.90 | Forest with heavy ground filter "k" = | 0.076 |
| Berms/Slopes (4:1 and flatter) "C" = | 0.50 | Min. tillage cultivated; woodland "k" = | 0.152 |
| Berms/Slopes (steeper than 4:1) "C" = | 0.70 | Short grass pasture "k" = | 0.213 |
| Residential Single Family "C" = | 0.40 | Cultivated straight row "k" = | 0.274 |
| Residential Multi-Family "C" = | 0.55 | Poor grass; untilled "k" = | 0.305 |
| Commercial "C" = | 0.65 | Grassed waterways "k" = | 0.457 |
| Gravel "C" = | 0.60 | Unpaved area; bare soil "k" = | 0.491 |
| Woods "C" = | 0.30 | Paved area "k" = | 0.619 |

| Name | Overland Flow | | | | Shallow Concentrated Flow | | | | | | Open Channel Flow | | | | | | | | | | | | t _c (min) | t _c [min] (min. = 15) |
|------------------|---------------|------|-------|----------------------|---------------------------|--------------------|----------------------|---------------------|------------------------|-----------------------------|-------------------|-------------------|--------------------|--------------------|--------------------|-----------|------------------------------|-----------------------|-------------------|---------|--------|----------------------|----------------------|-------------------------------------|
| | L (ft) | C | s (%) | t _o (min) | k ₁ | s ₁ (%) | V ₁ (fps) | L ₁ (ft) | t _{s,1} (min) | t _{s, total} (min) | n | Bottom Width (ft) | Side Slope 1 (x:1) | Side Slope 2 (x:1) | Assumed Depth (ft) | S (ft/ft) | Flow Area (ft ²) | Wetted Perimeter (ft) | Actual Flow (cfs) | V (fps) | L (ft) | t _d (min) | | |
| Existing Culvert | 300 | 0.40 | 1 | 21.82 | 0.274 | 1 | 0.9 | 1428 | 26.44 | 26.44 | 0.03 | 4 | 8 | 8 | 0.5 | 0.011 | 4 | 12.06 | 9.98 | 2.5 | 3072 | 20.48 | 68.74 | 68.74 |



DITCH ANALYSIS

PID : 122885 **Date :** 09/18/2025 **Project :** Truck Parking

Location : Site 6

Description : Existing Ditch West of Parking Lot Existing Area

Designer : AZF

Rainfall Area : C

Allowable Shears

| | | | | | | |
|----------------------|----------------|------|------------------|------|-----------------------|------|
| | Seed: | 0.40 | Jute Mat: | 0.45 | Temporary Mat: | 1.00 |
| Permanent Mat | Type 1: | 3.00 | Type 2: | 4.00 | 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+32 | 3+84 | L | 619.00 | 6.00 | 3.00 | 4.00 | 0.0024 | 63.29 | 63.29 | 0.43 | 27.21 | Seed | 1.45 | 5 | 0.030 | 72.97 | 2.41 | 0.22 | 39.34 | 1.47 | 16.26 |
| | | | | | | | | | | | | Seed | 1.65 | 10 | 0.040 | 73.76 | 2.02 | 0.27 | 44.91 | 1.80 | 18.61 |



DITCH ANALYSIS

PID : 122885 **Date :** 09/18/2025 **Project :** Truck Parking

Location : Site 6

Description : Existing Ditch West of Parking Lot Proposed Area

Designer : AZF

Rainfall Area : C

Allowable Shears

| | | | | | | |
|----------------------|----------------|------|------------------|------|-----------------------|------|
| | Seed: | 0.40 | Jute Mat: | 0.45 | Temporary Mat: | 1.00 |
| Permanent Mat | Type 1: | 3.00 | Type 2: | 4.00 | 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+32 | 3+84 | L | 619.00 | 6.00 | 3.00 | 4.00 | 0.0024 | 70.09 | 70.09 | 0.47 | 32.94 | Seed | 1.45 | 5 | 0.030 | 72.75 | 2.54 | 0.25 | 47.72 | 1.61 | 17.29 |
| | | | | | | | | | | | | Seed | 1.65 | 10 | 0.040 | 73.52 | 2.13 | 0.30 | 54.49 | 1.98 | 19.85 |

HY-8 Culvert Analysis

(See DA Map in Ditch Analysis Section for Areas)

| Zone C | | | |
|--------|--------|------|-------|
| Storm | a | b | c |
| 4% AEP | 95.736 | 14 | 0.871 |
| 1% AEP | 80.436 | 11.5 | 0.794 |

| Existing Area To Culvert | | | | | |
|--------------------------|---------|------|----------|------|-------|
| | DA (ac) | C | Tc (min) | i | Q |
| 4% AEP | 63.29 | 0.43 | 68.74 | 2.05 | 55.79 |
| 1% AEP | 63.29 | 0.43 | 68.74 | 2.47 | 67.22 |

| Proposed Area To Culvert | | | | | |
|--------------------------|---------|------|----------|------|-------|
| | DA (ac) | C | Tc (min) | i | Q |
| 4% AEP | 70.09 | 0.47 | 68.74 | 2.05 | 67.53 |
| 1% AEP | 70.09 | 0.47 | 68.74 | 2.47 | 81.37 |

HY-8 Culvert Analysis Report

Table 1 - Project Headwater Table

| Crossing Name | Culvert Name | Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth (ft) | Outlet Control Depth (ft) | HW / D (ft) | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Outlet Velocity (ft/s) |
|---------------|---------------|-----------------------|-------------------------|--------------------------|--------------------------|---------------------------|-------------|-------------------|---------------------|-------------------|------------------------|
| Existing Area | Existing Area | 55.79 | 55.79 | 628.77 | 3.52 | 3.811 | 1.02 | 3.75 | 2.29 | 2.29 | 7.89 |

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 0.00 cfs

Design Flow: 55.79 cfs

Maximum Flow: 67.22 cfs

Table 2 - Summary of Culvert Flows at crossing: Existing Area

| Headwater Elevation (ft) | Total Discharge (cfs) | Existing Area Discharge (cfs) | Roadway Discharge (cfs) | Iterations |
|--------------------------|-----------------------|-------------------------------|-------------------------|-------------|
| 624.96 | 0.00 | 0.00 | 0.00 | 1 |
| 626.14 | 6.72 | 6.72 | 0.00 | 1 |
| 626.65 | 13.44 | 13.44 | 0.00 | 1 |
| 627.06 | 20.17 | 20.17 | 0.00 | 1 |
| 627.42 | 26.89 | 26.89 | 0.00 | 1 |
| 627.75 | 33.61 | 33.61 | 0.00 | 1 |
| 628.07 | 40.33 | 40.33 | 0.00 | 1 |
| 628.38 | 47.05 | 47.05 | 0.00 | 1 |
| 628.77 | 55.79 | 55.79 | 0.00 | 1 |
| 628.99 | 60.50 | 60.50 | 0.00 | 1 |
| 629.31 | 67.22 | 67.22 | 0.00 | 1 |
| 640.24 | 186.42 | 186.42 | 0.00 | Overtopping |

Rating Curve Plot for crossing: Existing Area

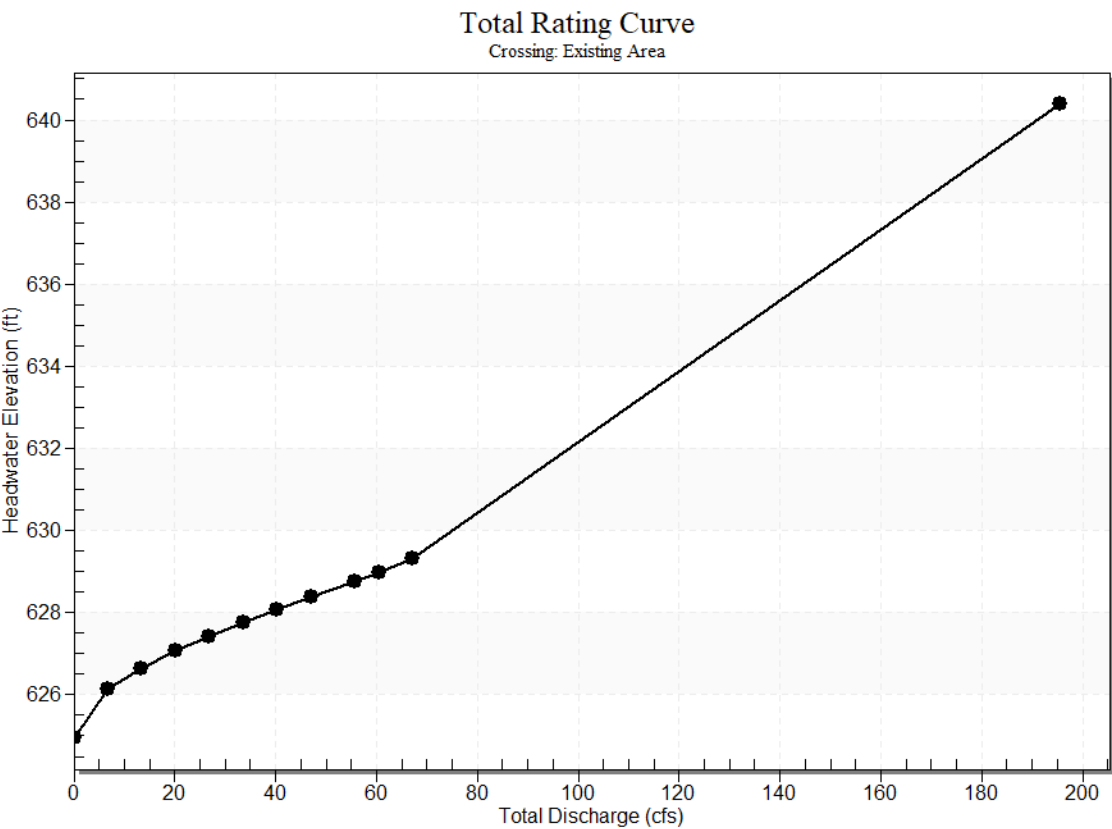


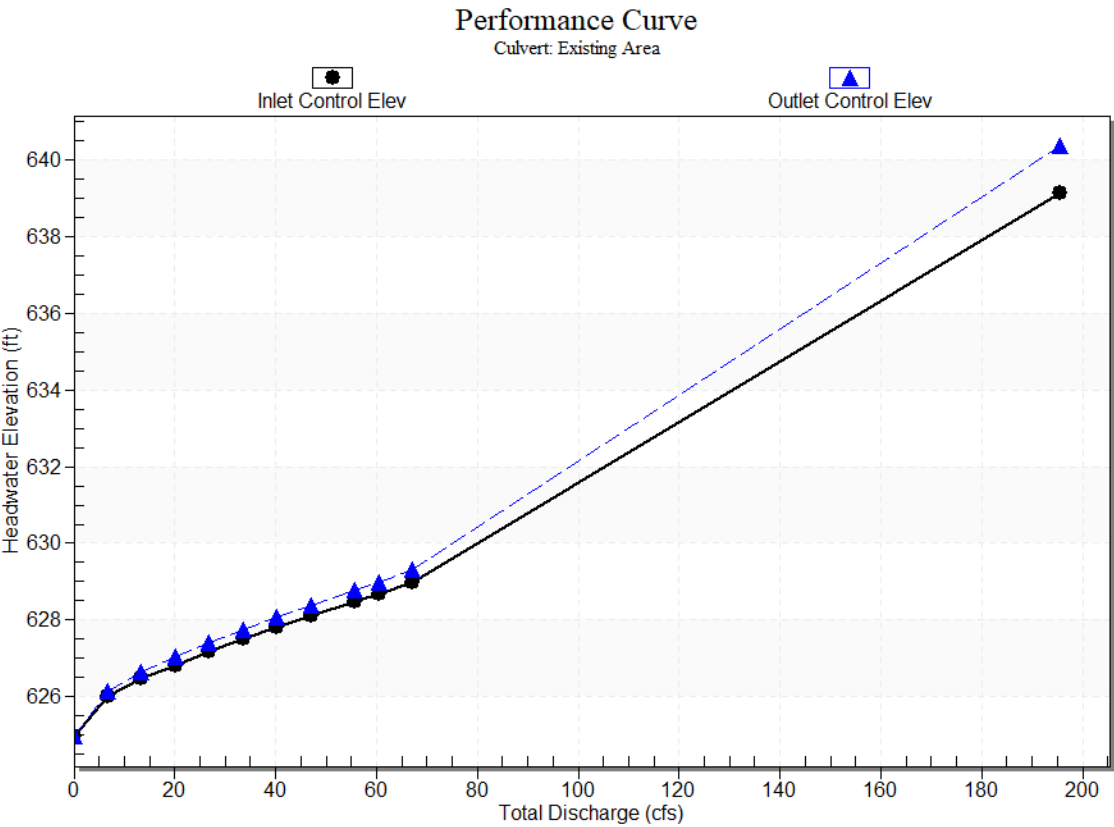
Table 3 - Culvert Summary Table: Existing Area

| Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth (ft) | Outlet Control Depth (ft) | HW / D (ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s) |
|------------------------------|--------------------------------|---------------------------------|---------------------------------|----------------------------------|--------------------|------------------|--------------------------|----------------------------|--------------------------|-----------------------------|-------------------------------|----------------------------------|
| 0.00 | 0.00 | 624.96 | 0.00 | 0.000 | 0.00 | 0-NF | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6.72 | 6.72 | 626.14 | 1.04 | 1.175 | 0.31 | 2-M2c | 0.98 | 0.77 | 0.77 | 0.38 | 4.15 | 1.84 |
| 13.44 | 13.44 | 626.65 | 1.50 | 1.688 | 0.45 | 2-M2c | 1.41 | 1.09 | 1.09 | 0.57 | 5.03 | 2.31 |
| 20.17 | 20.17 | 627.06 | 1.86 | 2.098 | 0.56 | 2-M2c | 1.76 | 1.35 | 1.35 | 0.71 | 5.65 | 2.62 |
| 26.89 | 26.89 | 627.42 | 2.23 | 2.460 | 0.66 | 2-M2c | 2.09 | 1.56 | 1.56 | 0.83 | 6.16 | 2.85 |
| 33.61 | 33.61 | 627.75 | 2.56 | 2.793 | 0.74 | 2-M2c | 2.43 | 1.76 | 1.76 | 0.94 | 6.61 | 3.05 |
| 40.33 | 40.33 | 628.07 | 2.87 | 3.110 | 0.83 | 2-M2c | 2.78 | 1.93 | 1.93 | 1.03 | 7.02 | 3.22 |
| 47.05 | 47.05 | 628.38 | 3.15 | 3.416 | 0.91 | 2-M2c | 3.29 | 2.10 | 2.10 | 1.12 | 7.41 | 3.36 |
| 55.79 | 55.79 | 628.77 | 3.52 | 3.811 | 1.02 | 7-M2c | 3.75 | 2.29 | 2.29 | 1.22 | 7.89 | 3.53 |
| 60.50 | 60.50 | 628.99 | 3.71 | 4.027 | 1.07 | 7-M2c | 3.75 | 2.39 | 2.39 | 1.28 | 8.14 | 3.61 |
| 67.22 | 67.22 | 629.31 | 4.01 | 4.346 | 1.16 | 7-M2c | 3.75 | 2.52 | 2.52 | 1.35 | 8.50 | 3.72 |
| 195.55 | 187.54 | 640.38 | 14.16 | 15.423 | 4.11 | 6-FFc | 3.75 | 3.75 | 3.75 | 2.29 | 16.98 | 4.98 |

Culvert Barrel Data

Culvert Barrel Type: Straight Culvert
Inlet Elevation(invert): 624.96 ft
Outlet Elevation (invert): 624.66 ft
Culvert Length: 258.00 ft
Culvert Slope: 0.00 ft/ft

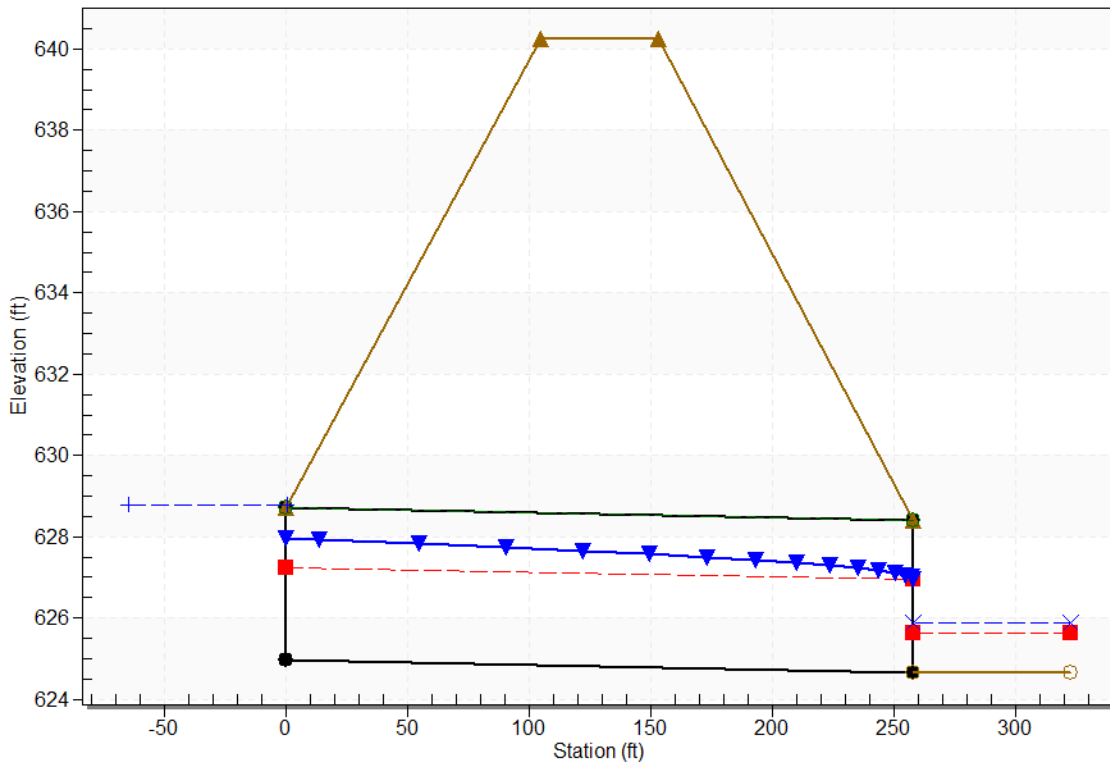
Culvert Performance Curve Plot: Existing Area



Water Surface Profile Plot for Culvert: Existing Area

Crossing - Existing Area, Design Discharge - 55.8 cfs

Culvert - Existing Area, Culvert Discharge - 55.8 cfs



Site Data - Existing Area

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 624.96 ft

Outlet Station: 258.00 ft

Outlet Elevation: 624.66 ft

Number of Barrels: 1

Culvert Data Summary - Existing Area

Barrel Shape: Circular

Barrel Diameter: 3.75 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall ($K_e=0.5$)

Inlet Depression: None

Tailwater Channel Data for Crossing: Existing Area

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 8.00 ft

a_side Slope (H:V): 4.00 (.:1)

Channel Slope: 0.01 ft/ft

Channel Manning's n: 0.0350

Channel Invert Elevation: 624.66 ft

Table 4 - Downstream Channel Rating Curve (crossing: Existing Area)

| Flow (cfs) | Water Surface Elev (ft) | Depth (ft) | Velocity (ft/s) | Shear (psf) | Froude Number |
|------------|-------------------------------|------------|--------------------|-------------|------------------|
| 0.00 | 624.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6.72 | 625.04 | 0.38 | 1.84 | 0.20 | 0.56 |
| 13.44 | 625.23 | 0.57 | 2.31 | 0.29 | 0.60 |
| 20.17 | 625.37 | 0.71 | 2.62 | 0.37 | 0.61 |
| 26.89 | 625.49 | 0.83 | 2.85 | 0.43 | 0.63 |
| 33.61 | 625.60 | 0.94 | 3.05 | 0.49 | 0.64 |
| 40.33 | 625.69 | 1.03 | 3.22 | 0.54 | 0.65 |
| 47.05 | 625.78 | 1.12 | 3.36 | 0.58 | 0.65 |
| 55.79 | 625.88 | 1.22 | 3.53 | 0.63 | 0.66 |
| 60.50 | 625.94 | 1.28 | 3.61 | 0.66 | 0.66 |
| 67.22 | 626.01 | 1.35 | 3.72 | 0.70 | 0.67 |

Roadway Data for crossing: Existing Area

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 50.00 ft

Crest Elevation: 640.24 ft

Roadway Surface: Paved

Roadway Top Width: 48.00 ft

HY-8 Culvert Analysis Report

Table 1 - Project Headwater Table

| Crossing Name | Culvert Name | Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth (ft) | Outlet Control Depth (ft) | HW / D (ft) | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Outlet Velocity (ft/s) |
|---------------|---------------|-----------------------|-------------------------|--------------------------|--------------------------|---------------------------|-------------|-------------------|---------------------|-------------------|------------------------|
| Proposed Area | Proposed Area | 67.53 | 67.53 | 629.32 | 4.02 | 4.361 | 1.16 | 3.75 | 2.53 | 2.53 | 8.52 |

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 0.00 cfs

Design Flow: 67.53 cfs

Maximum Flow: 81.37 cfs

Table 2 - Summary of Culvert Flows at crossing: Proposed Area

| Headwater Elevation (ft) | Total Discharge (cfs) | Proposed Area Discharge (cfs) | Roadway Discharge (cfs) | Iterations |
|--------------------------|-----------------------|-------------------------------|-------------------------|-------------|
| 624.96 | 0.00 | 0.00 | 0.00 | 1 |
| 626.26 | 8.14 | 8.14 | 0.00 | 1 |
| 626.83 | 16.27 | 16.27 | 0.00 | 1 |
| 627.29 | 24.41 | 24.41 | 0.00 | 1 |
| 627.70 | 32.55 | 32.55 | 0.00 | 1 |
| 628.09 | 40.69 | 40.69 | 0.00 | 1 |
| 628.46 | 48.82 | 48.82 | 0.00 | 1 |
| 628.82 | 56.96 | 56.96 | 0.00 | 1 |
| 629.32 | 67.53 | 67.53 | 0.00 | 1 |
| 629.61 | 73.23 | 73.23 | 0.00 | 1 |
| 630.14 | 81.37 | 81.37 | 0.00 | 1 |
| 640.24 | 186.42 | 186.42 | 0.00 | Overtopping |

Rating Curve Plot for crossing: Proposed Area

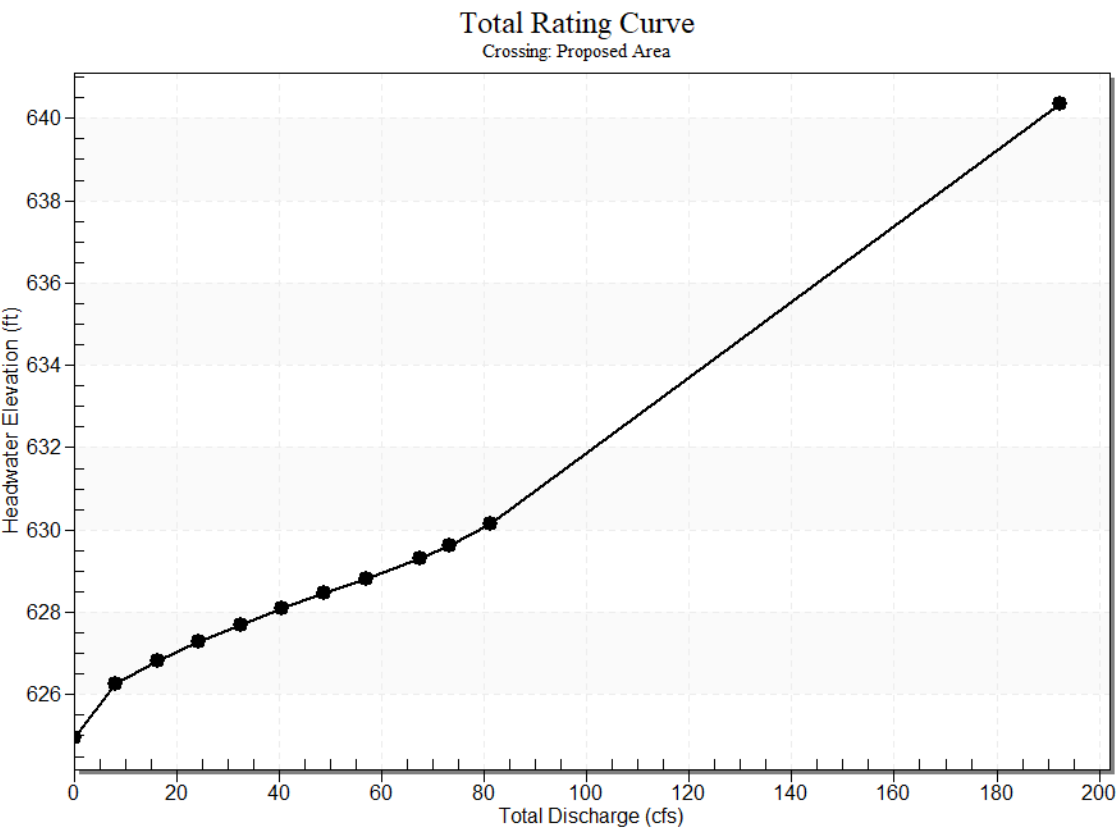


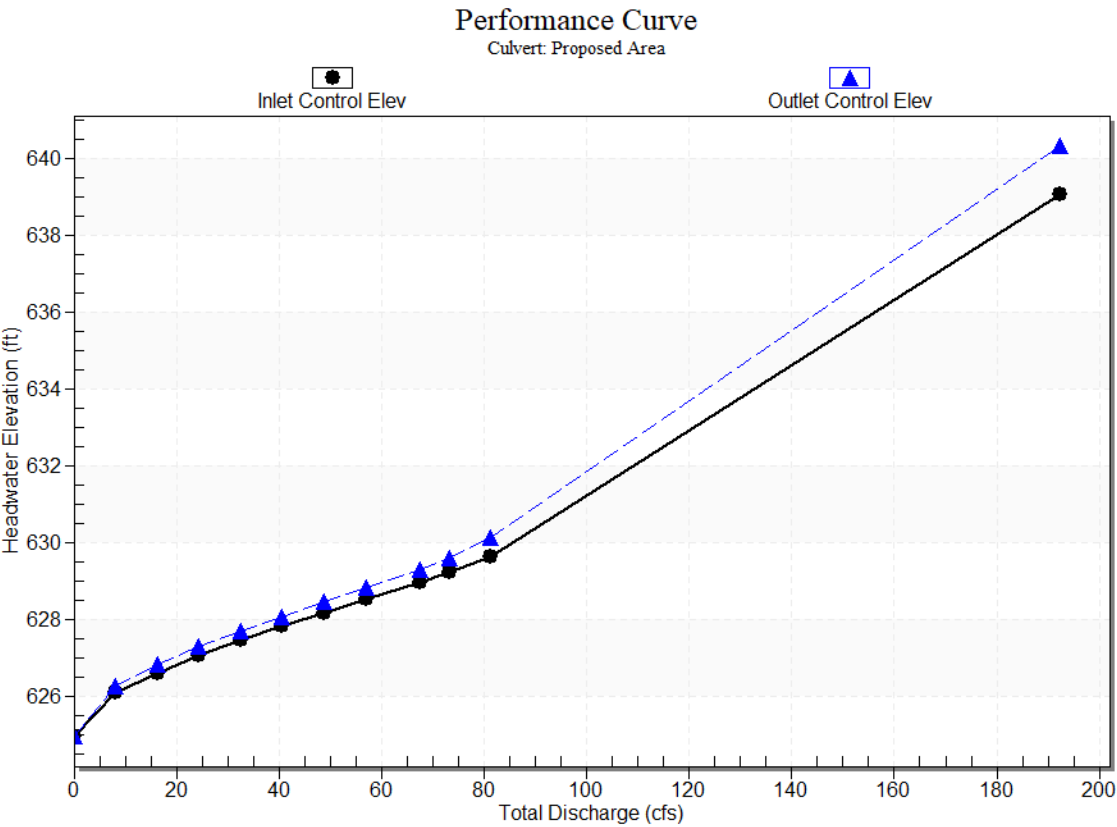
Table 3 - Culvert Summary Table: Proposed Area

| Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth (ft) | Outlet Control Depth (ft) | HW / D (ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s) |
|------------------------------|--------------------------------|---------------------------------|---------------------------------|----------------------------------|--------------------|------------------|--------------------------|----------------------------|--------------------------|-----------------------------|-------------------------------|----------------------------------|
| 0.00 | 0.00 | 624.96 | 0.00 | 0.000 | 0.00 | 0-NF | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8.14 | 8.14 | 626.26 | 1.15 | 1.297 | 0.35 | 2-M2c | 1.08 | 0.84 | 0.84 | 0.43 | 4.37 | 1.96 |
| 16.27 | 16.27 | 626.83 | 1.66 | 1.869 | 0.50 | 2-M2c | 1.56 | 1.21 | 1.21 | 0.63 | 5.31 | 2.45 |
| 24.41 | 24.41 | 627.29 | 2.10 | 2.331 | 0.62 | 2-M2c | 1.97 | 1.49 | 1.49 | 0.79 | 5.98 | 2.77 |
| 32.55 | 32.55 | 627.70 | 2.51 | 2.742 | 0.73 | 2-M2c | 2.37 | 1.73 | 1.73 | 0.92 | 6.54 | 3.02 |
| 40.69 | 40.69 | 628.09 | 2.88 | 3.126 | 0.83 | 2-M2c | 2.81 | 1.94 | 1.94 | 1.04 | 7.04 | 3.23 |
| 48.82 | 48.82 | 628.46 | 3.23 | 3.496 | 0.93 | 2-M2c | 3.75 | 2.14 | 2.14 | 1.14 | 7.51 | 3.40 |
| 56.96 | 56.96 | 628.82 | 3.56 | 3.865 | 1.03 | 7-M2c | 3.75 | 2.32 | 2.32 | 1.24 | 7.95 | 3.55 |
| 67.53 | 67.53 | 629.32 | 4.02 | 4.361 | 1.16 | 7-M2c | 3.75 | 2.53 | 2.53 | 1.35 | 8.52 | 3.73 |
| 73.23 | 73.23 | 629.61 | 4.28 | 4.653 | 1.24 | 7-M2c | 3.75 | 2.64 | 2.64 | 1.41 | 8.83 | 3.81 |
| 81.37 | 81.37 | 630.14 | 4.68 | 5.183 | 1.38 | 7-M2c | 3.75 | 2.78 | 2.78 | 1.49 | 9.27 | 3.93 |
| 192.33 | 187.25 | 640.35 | 14.12 | 15.386 | 4.10 | 6-FFc | 3.75 | 3.75 | 3.75 | 2.27 | 16.95 | 4.96 |

Culvert Barrel Data

Culvert Barrel Type: Straight Culvert
Inlet Elevation(invert): 624.96 ft
Outlet Elevation (invert): 624.66 ft
Culvert Length: 258.00 ft
Culvert Slope: 0.00 ft/ft

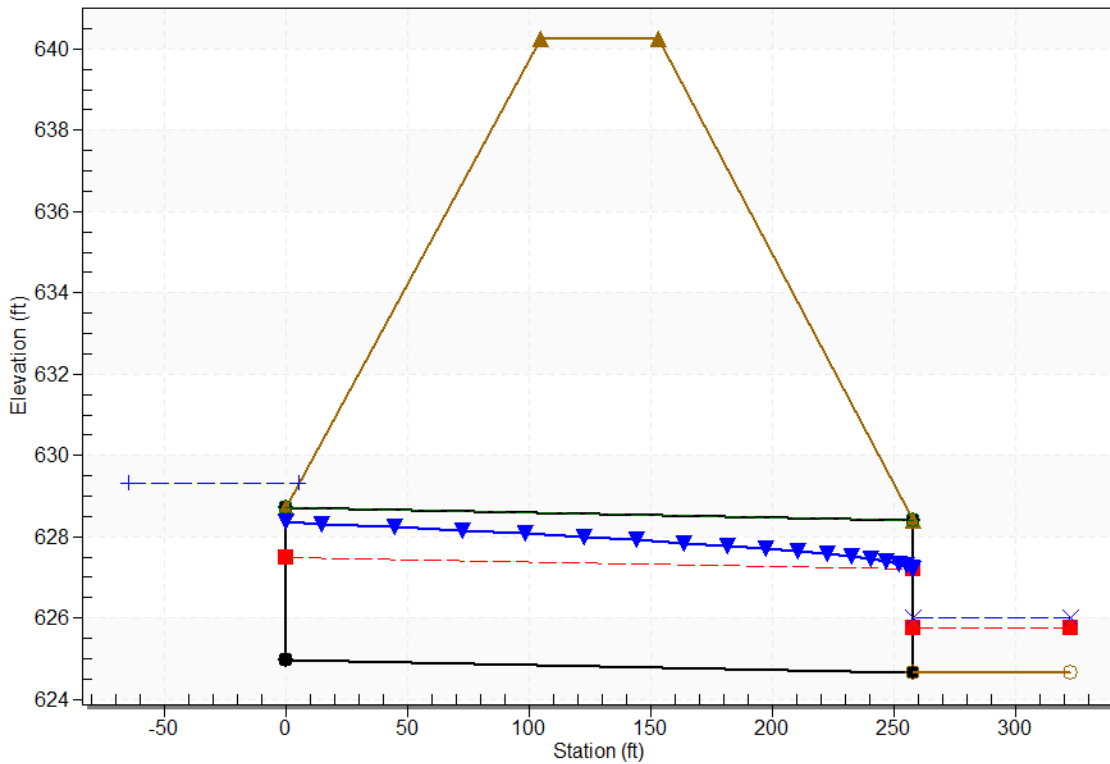
Culvert Performance Curve Plot: Proposed Area



Water Surface Profile Plot for Culvert: Proposed Area

Crossing - Proposed Area, Design Discharge - 67.5 cfs

Culvert - Proposed Area, Culvert Discharge - 67.5 cfs



Site Data - Proposed Area

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 624.96 ft

Outlet Station: 258.00 ft

Outlet Elevation: 624.66 ft

Number of Barrels: 1

Culvert Data Summary - Proposed Area

Barrel Shape: Circular

Barrel Diameter: 3.75 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall ($K_e=0.5$)

Inlet Depression: None

Tailwater Channel Data for Crossing: Proposed Area

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 8.00 ft

a_side Slope (H:V): 4.00 (.:1)

Channel Slope: 0.01 ft/ft

Channel Manning's n: 0.0350
Channel Invert Elevation: 624.66 ft

Table 4 - Downstream Channel Rating Curve (crossing: Proposed Area)

| Flow (cfs) | Water Surface Elev (ft) | Depth (ft) | Velocity (ft/s) | Shear (psf) | Froude Number |
|--------------|-------------------------------|------------|--------------------|-------------|------------------|
| 0.00 | 624.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8.14 | 625.09 | 0.43 | 1.96 | 0.22 | 0.57 |
| 16.27 | 625.29 | 0.63 | 2.45 | 0.33 | 0.60 |
| 24.41 | 625.45 | 0.79 | 2.77 | 0.41 | 0.62 |
| 32.55 | 625.58 | 0.92 | 3.02 | 0.48 | 0.64 |
| 40.69 | 625.70 | 1.04 | 3.23 | 0.54 | 0.65 |
| 48.82 | 625.80 | 1.14 | 3.40 | 0.59 | 0.65 |
| 56.96 | 625.90 | 1.24 | 3.55 | 0.64 | 0.66 |
| 67.53 | 626.01 | 1.35 | 3.73 | 0.70 | 0.67 |
| 73.23 | 626.07 | 1.41 | 3.81 | 0.73 | 0.67 |
| 81.37 | 626.15 | 1.49 | 3.93 | 0.77 | 0.68 |

Roadway Data for crossing: Proposed Area

Roadway Profile Shape: Constant Roadway Elevation
Crest Length: 50.00 ft
Crest Elevation: 640.24 ft
Roadway Surface: Paved
Roadway Top Width: 48.00 ft

BMP



Ohio Department of Transportation - Office of Hydraulic Engineering

Post-Construction BMP Calculation Spreadsheet

Post Construction - Project Summary

Project Data

| | | |
|--|---------------|-------|
| Project EDA | 4.26 | 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 | 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) | 4.26 | acres |
| Ain (New Impervious Area in New Permanent R/W) | 0 | acres |
| T% (Treatment Percent) | 20.00 | % |
| Treatment Requirement | 0.85 | acres |

BMPs Provided

| BMP Name | BMP Type | Contributing Drainage Area (acres) | Contributing Drainage Area in ODOT R/W (acres) |
|----------|------------------------|------------------------------------|--|
| BMP1 | Vegetated Filter Strip | 0.86 | 0.86 |
| BMP2 | | | |
| BMP3 | | | |
| BMP4 | | | |
| BMP5 | | | |
| BMP6 | | | |
| BMP7 | | | |
| BMP8 | | | |
| BMP9 | | | |
| BMP10 | | | |

Treatment Provided

| | |
|--|------|
| Total Area with ODOT R/W Treated (acres) | 0.86 |
| Treatment Requirements (acres) | 0.85 |
| Treatment Check | Good |

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 |



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 | US 50 | N/A | N/A | RT | 18 | 15 | 4 | 565 | 0.86 | 13,788 | 170.2 | 1,532.0 |
| Filter Strip #2 | | | | | | | | 0 | | | 0.0 | 0.0 |
| Filter Strip #3 | | | | | | | | 0 | | | 0.0 | 0.0 |
| Filter Strip #4 | | | | | | | | 0 | | | 0.0 | 0.0 |
| Filter Strip #5 | | | | | | | | 0 | | | 0.0 | 0.0 |
| Filter Strip #6 | | | | | | | | 0 | | | 0.0 | 0.0 |
| Filter Strip #7 | | | | | | | | 0 | | | 0.0 | 0.0 |
| Filter Strip #8 | | | | | | | | 0 | | | 0.0 | 0.0 |
| Filter Strip #9 | | | | | | | | 0 | | | 0.0 | 0.0 |
| Filter Strip #10 | | | | | | | | 0 | | | 0.0 | 0.0 |

Total Treatment Credit Earned from Vegetated Filter Strips **0.86** 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 |