# Worksheet for 50' Trench Drain 3% Slope

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.013 | |
| Channel Slope | 0.03000 | ft/ft |
| Height | 3.00 | ft |
| Bottom Width | 3.00 | ft |
| Discharge | 175.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 2.96 | ft |
| Flow Area | 8.87 | $ft^2$ |
| Wetted Perimeter | 8.91 | ft |
| Top Width | 3.00 | ft |
| Critical Depth | 4.73 | ft |
| Percent Full | 98.5 | % |
| Critical Slope | 0.00979 | ft/ft |
| Velocity | 19.73 | ft/s |
| Velocity Head | 6.05 | ft |
| Specific Energy | 9.01 | ft |
| Froude Number | 2.02 | |
| Discharge Full | 147.08 | $ft^3/s$ |
| Slope Full | 0.02119 | ft/ft |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Average End Depth Over Rise | 0.00 | % |
| Normal Depth Over Rise | 98.53 | % |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |

# Worksheet for 50' Trench Drain 6% Slope

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.013 | |
| Channel Slope | 0.06000 | ft/ft |
| Height | 4.30 | ft |
| Bottom Width | 3.00 | ft |
| Discharge | 350.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 3.94 | ft |
| Flow Area | 11.83 | $ft^2$ |
| Wetted Perimeter | 10.88 | ft |
| Top Width | 3.00 | ft |
| Critical Depth | 7.51 | ft |
| Percent Full | 91.7 | % |
| Critical Slope | 0.01373 | ft/ft |
| Velocity | 29.59 | ft/s |
| Velocity Head | 13.61 | ft |
| Specific Energy | 17.55 | ft |
| Froude Number | 2.63 | |
| Discharge Full | 332.56 | $ft^3/s$ |
| Slope Full | 0.05417 | ft/ft |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Average End Depth Over Rise | 0.00 | % |
| Normal Depth Over Rise | 91.68 | % |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |