



**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES
EROSION AND SEDIMENT CONTROL (E&S) MODULE 1**

Applicant: M & G Realty, Inc.

Project Site Name: Rutters Huntingdon Store # 93

Surface Water Name(s): wetlands tributary to UNT
of Juniata River

Surface Water Use(s): WWF

E&S PLAN INFORMATION

1. Describe the existing topographic features of the project site and the immediate surrounding area.
The project site slopes from north to south, similar to the adjacent properties also located on the south side of Rt. 22. The property slopes from Rt. 22, which parallels the northern property line, towards the adjacent southern lower property with an approximate 20 foot drop from the highway to the adjacent property.

2. Complete the following table for soils present at the project site.

Map Unit Symbol	Map Unit Name	Acres	HSG	% of Disturbed Area	Depth (ft)	Hydric
BuB/BuC	Buchanan gravelly / channery silt loam	7.4	C/D	98.6	1.6-3*	<input checked="" type="checkbox"/>
EgB	Edom-Weikert complex	0.1	B/D	1.2	2-2.5*	<input type="checkbox"/>
Ur	Urban land	<0.1	-	0.2	3.3-6*	<input type="checkbox"/>

** From NRCS Soil Survey – Geo-Tech revealed only 0.5-1.0 ft topsoil*

Discuss any soil limitations and how the E&S Plan was designed to address those limitations.

Poor source of topsoil, unknown soil conditions/droughty - apply adequate rates of lime and fertilizer for use as soil amendment. Soil testing is strongly recommended. Irrigation maybe needed when this soil is used for landscaped areas or PCSM BMPs

Corrosivity, low strength, piping, frost action, shrink swell - use plastic piping; conduct geo-technical investigation if these soils will be impacted. Site & structural building design will be based on results of geo-technical investigation. Hydric inclusions, wetness/flooding - wetlands have been identified on the property - project has been designed to avoid wetland impacts.

Slow percolation/poorly drained, wetness/depth to high water table, wetness - infiltration testing has been conducted and PCSM BMP's designed according to actual infiltration results.

Erosion hazard - minimize disturbed area; implement stabilization bmp's immediately. Temporary stabilization must be implemented immediately in areas where activity has ceased for four (4) or more days.

If Hydric soils are present, is a wetland determination attached to this module? Yes No N/A

If soils are known to be contaminated, 1) identify the pollutants exceeding Act 2 standards in the space provided below, 2) identify the extent of soil contamination on an E&S Plan Drawing that is attached to this module, and 3) describe the methods that will be used to avoid or minimize disturbance of the contaminated soils in the space provided below.

3. Describe the characteristics of the earth disturbance activity, including the past, present and proposed land uses and the proposed alteration to the project site.

To create the level pad needed for the proposed development, earth disturbance activity is primarily a cut/fill operation. The property has been used as farmland for more than 50 years, either as crop land or for cutting hay.

4. Describe the volume and rate of runoff from the project site and its upstream watershed area.

Rt. 22 cuts off nearly all of the upslope watershed draining to the project site. Less than 1 acre of upslope drainage from the highway enters the site at the proposed driveway location. This will be managed with the project site runoff. Runoff from the project site will be managed to assure that post-development rate and volume do not exceed pre-development rate and volume.

5. Check boxes to indicate all BMPs that will be installed or implemented, identify plan numbers for the BMPs, and describe any deviations from the E&S Manual.

E&S BMPs <i>revised 3/15/2022</i>	Plan No(s). Identified	Plan No(s). for O&M	Deviation(s) from E&S Manual
<input checked="" type="checkbox"/> Rock Construction Entrance	ES1	ES3	Use 100 ft. ABACT version
<input type="checkbox"/> Rock Construction Entrance with Wash Rack			
<input type="checkbox"/> Rumble Pad			
<input type="checkbox"/> Wheel Wash			
<input type="checkbox"/> Temporary and Permanent Access Roads			
<input type="checkbox"/> Waterbar			
<input type="checkbox"/> Broad-based Dip			
<input type="checkbox"/> Open-top Culvert			
<input type="checkbox"/> Water Deflector			
<input type="checkbox"/> Roadside Ditch			
<input type="checkbox"/> Ditch Relief Culvert			
<input type="checkbox"/> Turnout			
<input type="checkbox"/> Compost Sock Sediment Trap			
<input type="checkbox"/> Temporary Stream Crossing			
<input type="checkbox"/> Temporary Wetland Crossing			
<input type="checkbox"/> Turbidity Barrier (Silt Curtain)			
<input type="checkbox"/> Dewatering Work Areas			
<input checked="" type="checkbox"/> Pumped Water Filter Bag	ES1	ES3	
<input type="checkbox"/> Sump Pit			
<input type="checkbox"/> Waste Management			
<input checked="" type="checkbox"/> Concrete Washout	ES1	ES3	
<input checked="" type="checkbox"/> Compost Filter Sock	ES1	ES3	
<input type="checkbox"/> Compost Filter Berm			
<input type="checkbox"/> Weighted Sediment Filter Tube			
<input type="checkbox"/> Rock Filter Outlet			
<input type="checkbox"/> Silt Fence (Filter Fabric Fence)			
<input type="checkbox"/> Reinforced Silt Fence			
<input type="checkbox"/> Super Silt Fence (Super Filter Fabric Fence)			

E&S BMPs	Plan No(s). Identified	Plan No(s). for O&M	Deviation(s) from E&S Manual
<input type="checkbox"/> Sediment Filter Log (Fiber Log)			
<input type="checkbox"/> Wood Chip Filter Berm			
<input type="checkbox"/> Straw Bale Barrier			
<input type="checkbox"/> Rock Filter			
<input type="checkbox"/> Vegetative Filter Strip			
<input checked="" type="checkbox"/> Inlet Filter Bag	ES1 & ES2	ES3	
<input type="checkbox"/> Stone Inlet Protection			
<input type="checkbox"/> Runoff Conveyance (Channel)			
<input type="checkbox"/> Bench			
<input type="checkbox"/> Top-of-Slope Berm			
<input type="checkbox"/> Temporary Slope Pipe			
<input type="checkbox"/> Sediment Basin			
<input type="checkbox"/> Sediment Trap			
<input checked="" type="checkbox"/> Riprap Apron	ES1	ES3	
<input type="checkbox"/> Flow Transition Mat			
<input type="checkbox"/> Stilling Basin (Plunge Pool)			
<input type="checkbox"/> Stilling Well			
<input type="checkbox"/> Energy Dissipater			
<input type="checkbox"/> Drop Structure			
<input type="checkbox"/> Earthen Level Spreader			
<input type="checkbox"/> Structural Level Spreader			
<input type="checkbox"/> Surface Roughening			
<input checked="" type="checkbox"/> Vegetative Stabilization	ES1	ES4	
<input checked="" type="checkbox"/> Erosion Control Blanket	ES1	ES3	
<input type="checkbox"/> Soil Binders			
<input type="checkbox"/> Sodding			
<input type="checkbox"/> Cellular Confinement Systems			
<input type="checkbox"/> Alternative:			
<input type="checkbox"/> Alternative:			

Table 1 – For PAG-01 applicants, complete the requested information for each selected E&S BMP, where applicable.

Site Access BMPs									
BMP Name	No.	Length (ft)	Width (ft)	% Slope	Spacing (ft)	Length of Upslope Drainage (ft)	Culvert Diameter (in)	Soil Type in Ditch	E&S Manual Figure/Detail No.
Rock Construction Entrance (RCE)									
RCE with Wash Rack									
Temporary and Permanent Access Roads – Crowned Roadway									
Temporary and Permanent Access Roads – Insloped Roadway									
Waterbar									
Broad-based Dip									
Open-top Culvert									
Water Deflector									
Roadside Ditch									
Ditch Relief Culvert									
Sediment Barriers / Filters									
BMP Name	DA (ac)	Diameter (in)	Storage Capacity (cf)	Trap Height (in)	% Slope	Slope Length Above Barrier (ft)	Barrier Height (in)	E&S Manual Figure/Detail No.	
Compost Sock Sediment Trap									
Compost Filter Sock									
Compost Filter Berm									
Silt Fence (Filter Fabric Fence)									
Super Silt Fence									
Sediment Filter Log									
Weighted Sediment Filter Tube									
Straw Bale Barrier									
Wood Chip Filter Berm									
Toe-of-Slope Berm									

Table 1 – For PAG-01 applicants, complete the requested information for each selected E&S BMP, where applicable.

Runoff Conveyance BMPs													
BMP Name	Temporary	Design Storm	DA (ac)	Multiplier	Qr (cfs)	Q (cfs)	Manning's n	Va (fps)	V (fps)	D (ft)	d (ft)	Flow Depth Ratio	E&S Manual Figure/Detail No.
Vegetated Channel	<input type="checkbox"/>												
Sodded Channel	<input type="checkbox"/>												
Riprap Channel	<input type="checkbox"/>												
Energy Reduction BMPs													
BMP Name	Downstream Distance to Drainage Course (ft)		Downstream % Slope	DA (ac)	Discharge (cfs)	Manhole Depth (ft)	Inflow Pipe Diameter (in)	Outlet Pipe Diameter (in)	E&S Manual Figure/Detail No.				
Level Spreader													
Drop Structure													
Stilling Basins / Wells													
BMP Name	Pipe Diameter (in)	Discharge (cfs)	Well Diameter (in)	Depth of Well Below Invert (ft)	Basin Depth (ft)	Median Riprap Size (in)	Distance from Discharge Pipe to Basin Center (ft)	E&S Manual Figure/Detail No.					
Stilling Basin													
Stilling Well													
Other BMPs													
BMP Name	DA (ac)	Pipe Diameter (in)	Berm Height (in)	Length (ft)	% Slope	Vertical Spacing (ft)	Channel Depth (ft)	Riprap Size	Riprap Thickness (in)	Initial Width (ft)	Terminal Width (ft)	E&S Manual Figure/Detail No.	
Temporary Slope Pipe													
Bench													
Rock Filter													
Riprap Apron													

For selected BMPs not identified in Table 1, report the name of the BMP and the Figure or Detail No. from the E&S Manual that will be used for design and implementation (PAG-01 only).

BMP Name	E&S Manual Figure/Detail No.	BMP Name	E&S Manual Figure/Detail No.

6. All applicable Standard E&S Worksheets from Appendix B of the E&S Manual have been completed and are attached.
7. Other worksheets or calculations equivalent to Appendix B of the E&S Manual have been completed and are attached.
8. Identify the E&S Plan Drawing number(s) that describes the sequence of BMP installation and removal in relation to the scheduling of earth disturbance activities, prior to, during and after earth disturbance activities that ensure the proper functioning of all BMPs.
ES4
9. Supporting E&S calculations have been completed and are available upon request (PAG-01 only).
10. Supporting E&S calculations are attached to the NOI/application.
11. Plan drawings consist of standard Figures/Construction Details in E&S Manual (PAG-01 only).
12. Plan drawings have been developed for the project and are attached to the NOI/application.
13. BMPs will be inspected on a weekly basis and after measurable storm events (i.e., at least 0.25 inch).
14. Identify the following information relating to temporary stabilization measures on an E&S Plan Drawing and identify the Drawing No. below: 1) vegetative species, 2) % pure live seed, 3) seed application rate, 4) fertilizer type, 5) fertilizer application rate, 6) mulch type, 7) mulching rate, and 8) liming rate.
E&S Plan Drawing No(s): **ES4**
15. Identify the following information relating to permanent stabilization measures on an E&S Plan Drawing and identify the Drawing No. below: 1) vegetative species, 2) % pure live seed, 3) seed application rate, 4) fertilizer type, 5) fertilizer application rate, 6) mulch type, 7) mulching rate, 8) liming rate, 9) anchor material, 10) anchoring method, 11) rate of anchor material application, 12) topsoil placement depth, and 13) seeding season dates.
E&S Plan Drawing No(s): **ES4**
16. Describe the procedures that will be taken to ensure that recycling or disposal of materials associated with or from the project site will be conducted properly.
As shown on ES4 the primary site contractor is responsible for the proper disposal of waste from this project during construction. Construction wastes are those that can adversely impact water quality and include, but are not limited to, excess soil materials, building materials, concrete wash-water, and sanitary wastes. The contractor will inspect the project area weekly and properly dispose of all construction waste. Littering by construction crews is discouraged; housekeeping of the site and the surrounding area is encouraged. Whenever possible, reusable wastes will be separated from other waste and handled for recycling. All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the department's solid waste management regulations at 25 pa. Code 260.1 et seq., 271.1, and 287.1 et. Seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site.
17. Identify the presence of any naturally occurring geologic formations or soil conditions that may have the potential to cause pollution during earth disturbance activities. If such formations or conditions exist, identify BMPs that will be implemented to avoid or minimize potential pollution.
Yes, the site is underlain by Hamilton Group geology which is known to contain pyritic shale. The Geotechnical Engineering Report documents testing revealed pyritic sulfur bedrock could be encountered in the area proposed for the underground fuel tanks. The Geotechnical engineer will be present during excavation to evaluate soil conditions encountered in the field and determine the need for further testing. See Sheets ES4 and PCSM 3 for more detailed recommendations.
18. Identify whether the potential exists for thermal impacts to surface waters from the earth disturbance activity. If such potential exists, identify BMPs that will be implemented to avoid, minimize, or mitigate potential thermal impacts.
During construction it is likely that thermal impacts will result during earthmoving operations when vegetation has been removed and prior to establishing vegetative site stabilization. The use of compost filter sock will help to minimize thermal impacts by allowing accumulated runoff to slow filter through the compost.

19. The E&S Plan has been planned, designed, and will be implemented to be consistent with the PCSM Plan.

20. If applicable, identify existing and proposed riparian forest buffers on E&S and PCSM Plan Drawings and identify the Drawing No(s) below (select N/A if not applicable).

E&S Plan Drawing No(s): N/A

PCSM Plan Drawing No(s):

E&S PLAN DEVELOPER

I am trained and experienced in E&S control methods.

I am a licensed professional.

Name: Benjamin S. Piper, P.E.

Title: Senior Designer

Company: Keller Engineers, Inc.

Phone No.: 814-696-7430

Address: P.O. Box 61

Email: bpiper@keller-engineers.com

City, State, ZIP: Hollidaysburg, PA 16648

License No.: PE086344

License Type: Registered Professional Engineer

Exp. Date: 09/30/23



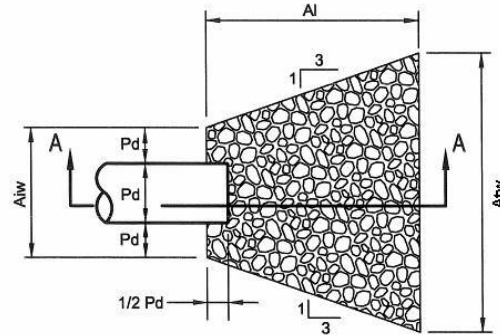
E&S Plan Developer Signature

09/08/22

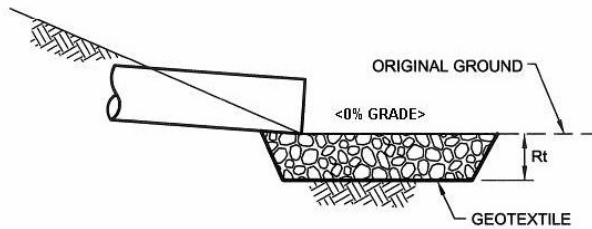
Date

STANDARD E&S WORKSHEET # 20 Riprap Apron Outlet Protection

PROJECT NAME: Huntingdon Rutter's
 LOCATION: Smithfield Township
 PREPARED BY: BSP DATE: 08/19/22
 CHECKED BY: BES DATE: 08/22/22



PLAN VIEW



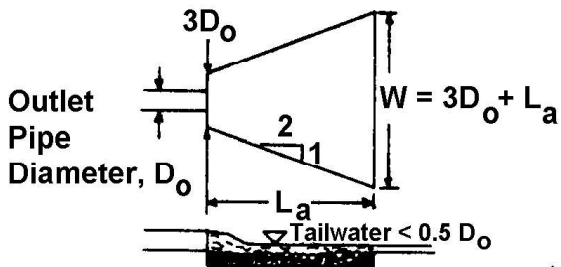
SECTION A - A

NO.	PIPE DIA. Do (in.)	TAIL WATER COND. (Max or Min)	MAN. "n" FOR PIPE	PIPE SLOPE (FT/FT)	Q (CFS)	V* (FPS)	RIPRAP SIZE	Rt (in)	Al (ft)	Aiw (ft)	Atw (ft)
1	24	MIN	0.011	1.5	35.1	11.4	R-5	30	18	6.0	24.0
2	15	MIN	0.011	1.4	10.0	8.3	R-4	18	12	3.75	15.75

***:The anticipated velocity (V) should not exceed the maximum permissible shown in Table 6.6 for the proposed riprap protection. Adjust for less than full pipe flow. Use Manning's equation to calculate velocity for pipe slopes ≥ 0.05 ft/ft.**

DESIGN OF RIPRAP APRON OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL
 MINIMUM TAILWATER CONDITION ($T_w < 0.5$ DIAMETER)

Adapted from USDA - NRCS



Not to be used for Box Culverts

NOTE: Do not extrapolate

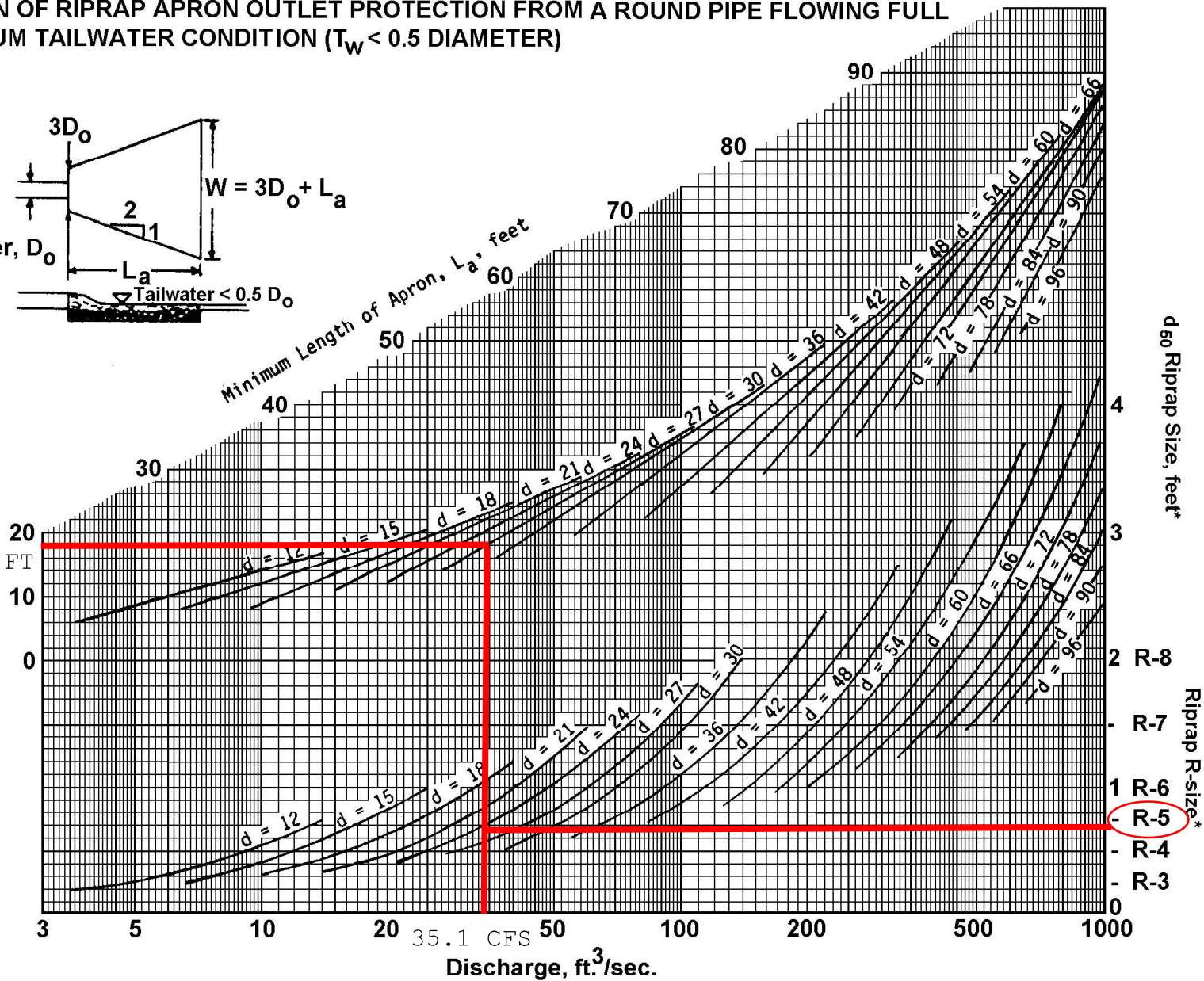
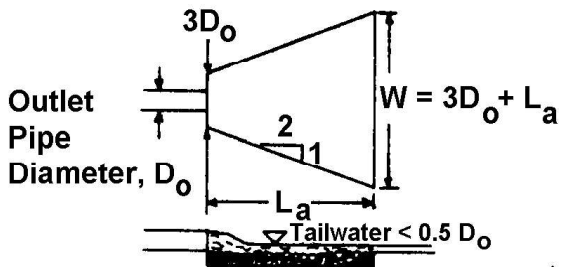


FIGURE 9.3
 Riprap Apron Design, Minimum Tailwater Condition

* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase d_{50} stone size and/or provide velocity reduction device.

**DESIGN OF RIPRAP APRON OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL
MINIMUM TAILWATER CONDITION ($T_w < 0.5$ DIAMETER)**

Adapted from USDA - NRCS



Not to be used for Box Culverts

NOTE: Do not extrapolate

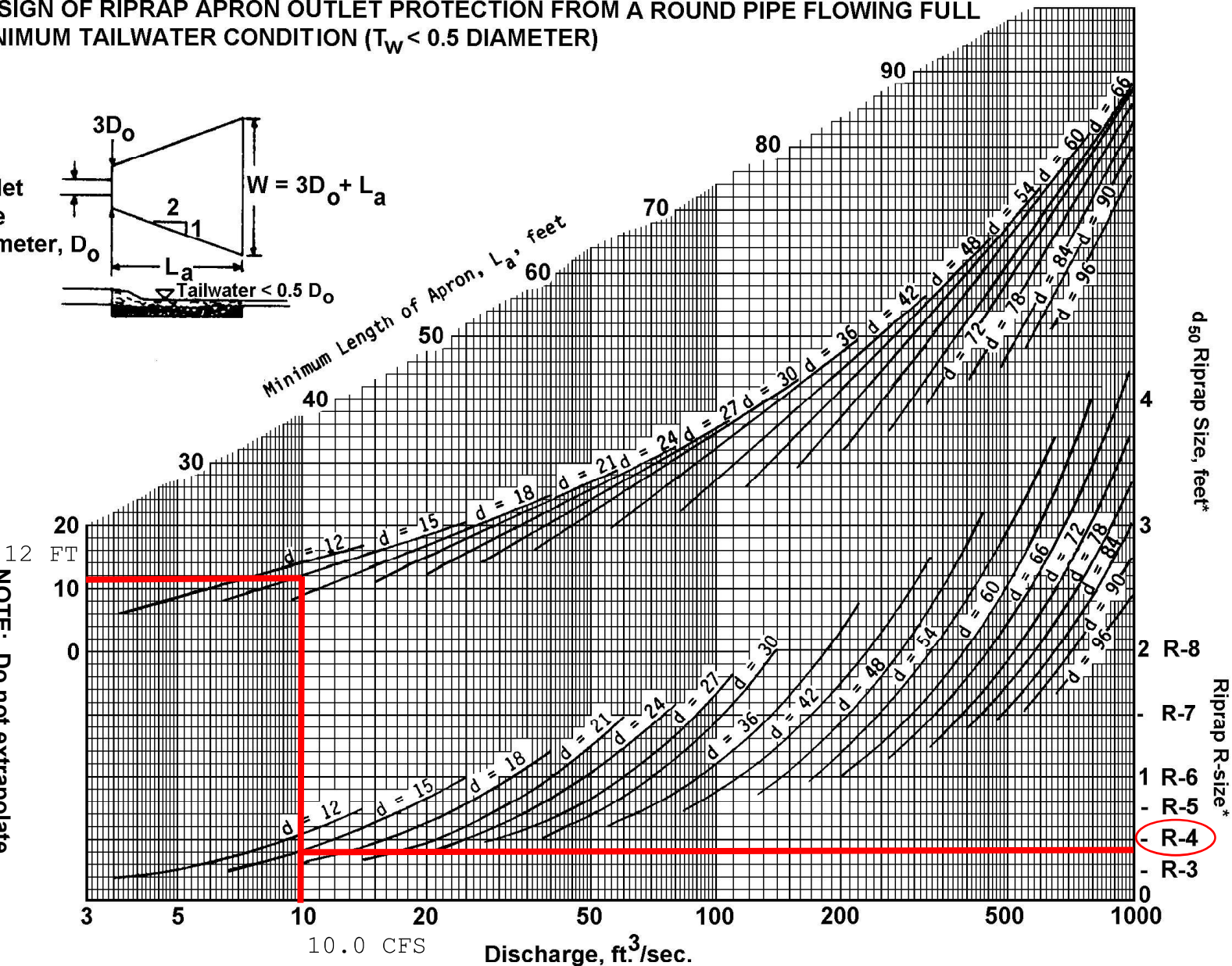


FIGURE 9.3
Riprap Apron Design, Minimum Tailwater Condition

* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase d_{50} stone size and/or provide velocity reduction device.

Channel Report

PIPE 1

Circular

Diameter (ft) = 2.00

Invert Elev (ft) = 655.00

Slope (%) = 1.50

N-Value = 0.011

Calculations

Compute by: Q vs Depth

No. Increments = 20

Highlighted

Depth (ft) = 1.90

Q (cfs) = 35.17

Area (sqft) = 3.08

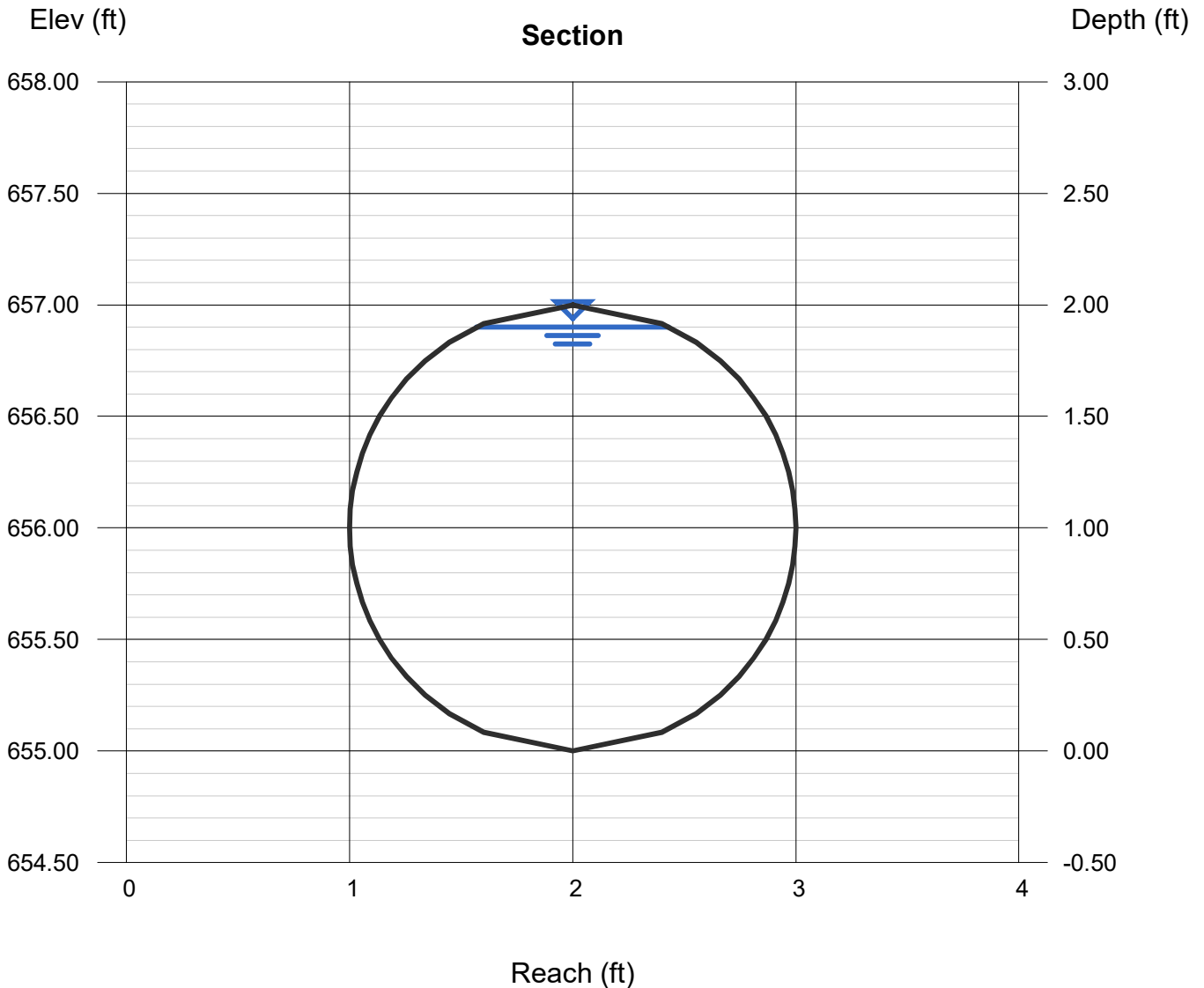
Velocity (ft/s) = 11.40

Wetted Perim (ft) = 5.39

Crit Depth, Y_c (ft) = 1.93

Top Width (ft) = 0.86

EGL (ft) = 3.92



Channel Report

PIPE 19

Circular

Diameter (ft) = 1.25

Invert Elev (ft) = 661.50

Slope (%) = 1.50

N-Value = 0.011

Calculations

Compute by: Q vs Depth

No. Increments = 20

Highlighted

Depth (ft) = 1.19

Q (cfs) = 10.04

Area (sqft) = 1.20

Velocity (ft/s) = 8.33

Wetted Perim (ft) = 3.37

Crit Depth, Yc (ft) = 1.19

Top Width (ft) = 0.54

EGL (ft) = 2.27

