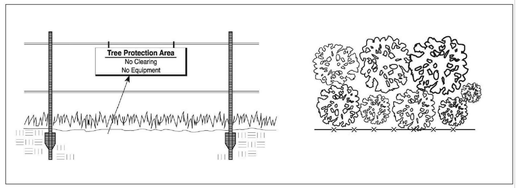
Specifications
for

Tree and Natural Area Preservation

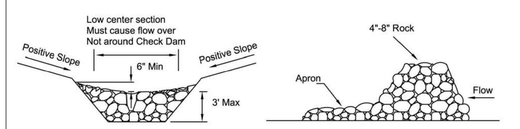


1. Tree and natural area preservation shall be fenced prior to beginning clearing operations.
2. Fence materials shall be metal fence posts with two strands of high tensile wire, plastic fence or snow fence.
3. Signage shall clearly identify the tree and natural preservation area and state that no clearing or equipment is allowed within it.
4. Fence shall be placed as shown on plans and beyond the drip line or canopy of trees to be protected.
5. If any clearing is done around specimen trees it shall be done by cutting at ground level with hand held tools and shall not be grubbed or pulled out. No clearing shall be done in buffer strips or other preserved forested areas.
6. No filling or stockpiling of materials shall occur within the tree protection area, including deposition of sediment.

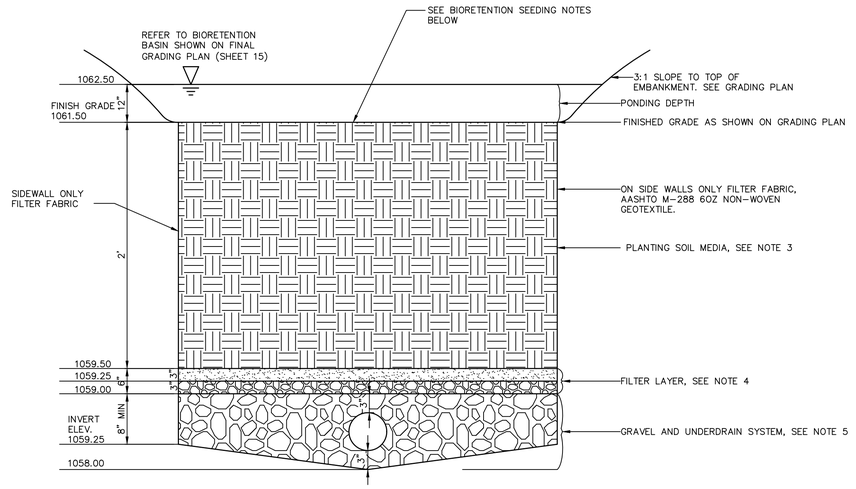
Specifications
for

Rock Check Dam

(Not to Scale)



1. The check dam shall be constructed of 4-8 inch diameter stone, placed so that it completely covers the width of the channel. ODOT Type D stone is acceptable, but should be underlain with a gravel filter consisting of ODOT No. 3 or 4 or suitable filter fabric.
2. Maximum height of check dam shall not exceed 3.0 feet.
3. The midpoint of the rock check dam shall be a minimum of 6 inches lower than the sides in order to direct across the center and away from the channel sides.
4. The base of the check dam shall be entrenched approximately 6 inches.
5. Spacing of check dams shall be in a manner such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.
6. A Splash Apron shall be constructed where check dams are expected to be in use for an extended period of time, a stone apron shall be constructed immediately downstream of the check dam to prevent flows from undercutting the structure. The apron should be 6 in. thick and its length two times the height of the dam.
7. Stone placement shall be performed either by hand or mechanically as long as the center of check dam is lower than the sides and extends across entire channel.
8. Side slopes shall be a minimum of 2:1.



NOTES:

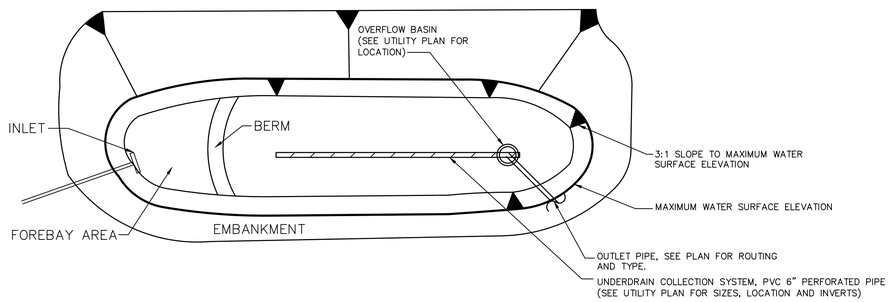
1. CONSTRUCTION SHALL BE PER ODNR RAIN WATER MANUAL CHAPTER 2.10 BIORETENTION REQUIREMENTS.
2. TIMING OF CONSTRUCTION – CONSTRUCTION OF BIORETENTION PRACTICES SHALL TAKE PLACE AFTER LAND GRADING IS COMPLETE AND THE CONTRIBUTING DRAINAGE AREA HAS BEEN FULLY STABILIZED.
3. PLANTING SOIL REQUIREMENTS (SHALL MEET THE LATEST ODNR REQUIREMENTS):
   –TEXTURE CLASS: LOAMY SAND. HAVING NO LESS THAN 80% SAND AND NO GREATER THAN 10% CLAY CONSIDERING ONLY THE MINERAL FRACTION OF THE SOIL.
   –PH RANGE: 5.2–8.0
   –SOLUBLE SALTS: 500 PPM MAXIMUM.
   –DECOMPOSED ORGANIC MATTER: 3–5% BY WEIGHT [NOTE: THIS TRANSLATES TO 8–20% ORGANIC MATTER BY VOLUME. SEE NOTE ON "CREATING A SUITABLE SOIL MEDIA" BELOW.]
   –PHOSPHORUS: PHOSPHORUS OF THE PLANTING MEDIA SHOULD FALL BETWEEN 15 AND 60 MG/KG (PPM) AS DETERMINED BY THE MEHLICH III TEST. FOR SITES IN WATERSHEDS WITH A PHOSPHORUS TMDL OR SITES WITH HIGH PHOSPHORUS LOADS, THE PHOSPHORUS CONTENT OF THE PLANTING MEDIA SHOULD FALL BETWEEN 10 AND 30 MG/KG AS DETERMINED BY THE MEHLICH III TEST.
   –SAND ADDED SHALL BE CLEAN AND MEET AASHTO M–6 OR ASTM C–33 WITH A GRAIN SIZE OF 0.02–0.04 INCHES.

CREATING SUITABLE SOIL MEDIA – TO MEET THE ABOVE SOIL MEDIA CRITERIA, THE FOLLOWING MIX (BY VOLUME) IS RECOMMENDED AS A STARTING POINT:
SAND: 7.5 PARTS CLEAN SAND (I.E., ASTM C–33 OR EQUIVALENT, <1% PASSING NO. 200 SIEVE)
NATIVE SOIL: 1.5 PART (LOAM, SILT LOAM OR CLAY LOAM TEXTURE)
DECOMPOSED ORGANIC MATTER: 1 PART (LEAF COMPOST, PINE BARK FINES, MULCH FINES, ETC.)

BASED ON TESTING, EXPERIENCE AND NATIVE SOIL CHARACTERISTICS THE SAND, SOIL OR ORGANIC MATTER CONTENT CAN BE ADJUSTED TO ACHIEVE THE DESIRED MIX. THE SOIL MIX SUPPLIER SHOULD PRE–TEST THE SAND, NATIVE SOIL AND ORGANIC MATTER TO EVALUATE THEIR PHOSPHORUS CONTENT. THE SOIL MIX SUPPLIER MUST PRESENT A SOIL TEST SHOWING THE PLANTING MEDIA MEETS THE CRITERIA ABOVE.

4. FILTER LAYER – THREE INCHES OF CLEAN MEDIUM CONCRETE SAND (ASTM C–33) OVER THREE INCHES OF #8 OR #78 STONE (PEA GRAVEL).
5. GRAVEL LAYER AND UNDERDRAIN SYSTEM – A GRAVEL BED CONSISTING OF #57 WASHED STONE (EXCLUDING RECYLCLED CONCRETE) SHALL BE PROVIDED AS DRAINAGE MEDIA AND BEDDING MATERIAL FOR UNDERDRAIN PIPES. THE GRAVEL LAYER SHALL GENERALLY BE 10–12" THICK WITH A MINIMUM OF 3–IN. OF GRAVEL PROVIDED ABOVE AND BELOW UNDERDRAIN PIPES.
6. PLANTING SOIL MEDIA STOCK TO BE USED ON PROJECT SHALL BE TESTED AND CERTIFIED BY A CERTIFIED LABORATORY TO INSURE THEY MEET THE REQUIRED SPECIFICATIONS.
7. PLANTING SOIL MEDIA SHALL BE PLACED IN 12 INCH LIFTS AND LIGHTLY SETTLED BY SOAKING WITH WATER. THIS SHALL BE COMPLETED AT A STEADY RATE, DO NOT RUSH.
8. CONTRACTOR SHALL PLACE ADDITIONAL PLANTING SOIL MEDIA TO ACCOUNT FOR SETTLEMENT. DO NOT COMPACT DURING OR AFTER INSTALLATION.

TYPICAL BIORETENTION SECTION

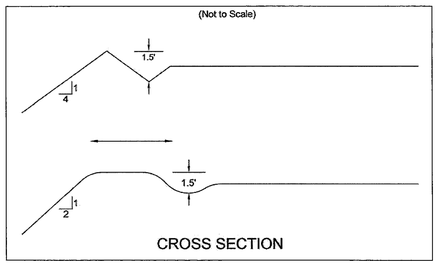


TYPICAL BIORETENTION AREA SCHEMATIC (PLAN)

Specifications
for

Temporary Diversion

(Not to Scale)



1. Drainage area should not exceed 10 acres. Larger areas require a more extensive design.
2. The channel cross section may be parabolic or trapezoidal. Disk the base of the dike before placing fill. Build the dike 10% higher than designed for settlement. The dike shall be compacted by traversing with tracked earth-moving equipment.
3. The minimum cross section of the levee or dike will be as follows: (Minimum design freeboard shall be 0.3 foot.) Where construction traffic will cross, the top width may be made wider and the side slopes flatter than specified above.

Table 5.3.2

Dike Top Width (ft.)	Height (ft.)	Side Slopes	Shape
0	1.5	4.1	Trapezoidal
4	1.5	2.1	Parabolic

4. The grade may be variable depending upon the topography, but must have a positive drainage to the outlet and be stabilized to be non-erosive.

Table 5.3.3

Temporary Diversion Stabilization Treatment			
Diversion Slope	< 2 ac.	2 - 5 ac.	5 - 10 ac.
0 - 3%	Seed and Straw	Seed and Straw	Seed and Straw
3 - 5%	Seed and Straw	Seed and Straw	Matting
5 - 8%	Seed and Straw	Matting	Matting
8 - 20%	Seed and Straw	Matting	Engineered
Note: Diversions with steeper slopes or greater drainage areas are beyond the scope of this standard and must be designed for stability. Seed, straw and matting used shall meet the Specifications for Temporary Seeding, Mulching and Matting.			

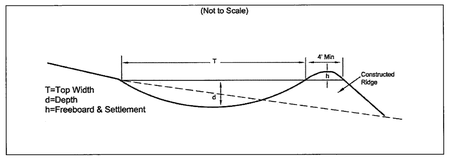
5. Outlet runoff onto a stabilized area, into a properly designed waterway, grade stabilization structure, or sediment trapping facility.
6. Diversions shall be seeded and mulched in accordance with the requirements in practice standards TEMPORARY SEEDING (or PERMANENT SEEDING) and MULCHING as soon as they are constructed or other suitable stabilization in order to preserve dike height and reduce maintenance.

Specifications
for

Diversion

PERMANENT TOP OF SLOPE REAR YARD SWALE

(Not to Scale)



1. All trees, brush, stumps, and other unsuitable material shall be removed from the work site.
2. The diversion shall be excavated and shaped to the proper grade and cross section.
3. Fill material used in the construction of the channel shall be well compacted in uniform layers not exceeding 9 inches using the wheel treads or tracks of the construction equipment to prevent unequal settlement.
4. Excess earth shall be graded or disposed of so that it will not restrict flow to the channel or interfere with its functioning.
5. Fertilizing, seeding, and mulching shall conform to the recommendations in the applicable vegetative specifications.
6. Construction shall be sequenced so that the newly constructed channel is stabilized prior to becoming operational. To aid in the establishment of vegetation, surface water may be prevented from entering the newly constructed channel through the establishment period.
7. Gullies that may form in the channel or other erosion damage that occurs before the grass lining becomes established shall be repaired without delay.

BIORETENTION SEEDING

1. GRASS SEED SHALL BE FRESH, CLEAN, DRY, NEW–CROP SEED COMPLYING WITH THE ASSOCIATION OF OFFICIAL SEED ANALYSTS' "RULES FOR TESTING SEEDS" FOR PURITY AND GERMINATION TOLERANCES.
2. ALL AREAS TO BE SEEDED SHALL RECEIVE NO LESS THAN 200 LBS. PER ACRE. APPLY SEED AND PROTECT WITH STRAW MULCH AS REQUIRED FOR NEW LAWNS. GRASS SEED MIX SHALL CONSIST OF THE FOLLOWING:

PROPORTION	NAME	MIN.% GERM.	MIN.% PURE SEED	MAX.% WEED SEED
30%	KENTUCKY BLUEGRASS (POA PRATENSIS)	80	85	0.50
40%	KENTUCKY 31 FESCUE (FESTUCA ARUNDINACEA VAR. KY 31)	85	98	0.50
30%	PERENNIAL RYE GRASS (LOLIUM PERENNE)	90	98	0.50

GPD GROUP
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REV.	DATE	DESCRIPTION
	01/23/17	ISSUED FOR REVIEW
	04/17/17	REVISED PER AGENCY COMMENTS

THE PRESERVE AT MILLER'S FARM
PHASE 4
SE CORNER OF SR 18 AND MEDINA LINE RD
COPLEY, OHIO 44321

SWPP NOTES AND DETAILS

ISSUED FOR:	
PERMIT	01/23/17
BID	
CONSTRUCTION	
AS-BUILT	

PROJECT MANAGER	DESIGNER
MAL	ALF

JOB NO.
2013258.04

10/29

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