There will be no changes in specification, dimensions, or materials unless approved by the engineer responsible for this drawing.

The drawings are prepared cooperatively by the Natural Resource Conservation Service for the named landowner. Construction found not in accordance with these drawings and specifications shall violate the cooperative agreement and all drawings, specifications, and quantities estimate shall immediately be returned to the local NRCS office.

The Contractor/Owner is to notify the SOIL CONSERVATION DISTRICT at least 72 hours prior to construction to schedule a pre-construction meeting, facilitate any scheduling, layout, or preliminary mobilization necessary to ensure proper construction inspection to enable appropriate certification of the project. a conservation technician shall verify cut/grade stakes at the contractors request. The owner/operator gives permission for MDE and COE inspection.

It is the Landowner's responsibility to obtain all County, State, and Federal permits that may be needed, and to maintain this structure and related regulations

ALL EXCAVATION AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MARYLAND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (MOSHA) STANDARDS AS SET FORTH IN THE LATEST VERSION OF THE CODE OF MARYLAND REGULATIONS.

Producers are responsible for securing grading, building, electrical, and plumbing permits to install the required facilities and for properly managing the facility.

## CRITICAL INSPECTION ITEMS for DENITRIFYING BIOREACTOR

The landowner will arrange for a pre-construction meeting between the contractor, NRCS and landowner to review the plans, standards and specifications prior to the start of construction.

for this drawing.

The drawings are prepared cooperatively by the Natural Resources Conservation Service for named owner/operator. Construction found not in accordance with these drawings and specifications shall violate the cooperative agreement and all drawings, specifications, and Quantities Estimate shall immediately be returned to

There will be no changes in specifications, dimensions, or materials unless approved by the engineer responsible

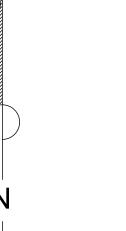
the local NRCS office.

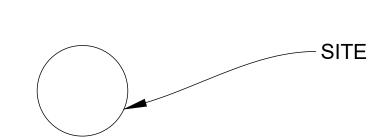
The following is a list of items that must be inspected by the Technician-in-Charge. If cost share is involved,

Preconstruction Meeting:	Date:	Initials:		
Verify layouts:	Date:	Initials:		
Verify all subgrades:	Date:	Initials:		
Tile Drainage:				
Location:	Date:	Initials:		
Pipe size and type:		Initials:		
Depth:	Date:	Initials:		
Stone Type:	Date:	Initials:		
Bioreactor:				
Location:	Date:	Initials:		
Dimensions:	Date:	Initials:		
Poly lining material:	Date:	Initials:		
Carbon material:	Date:	Initials:		
Water Control Structure: (Diversion	n):			
Size:	Date:	Initials:		
Placement:	Date:	Initials:		
Backfill:	Date:	Initials:		
Water Control Structure: (Capacity):				
Size:	Date:	Initials:		
Placement:	Date:	Initials:		
Backfill:	Date:	Initials:		
Outlet Pipe:				
Material:	Date:	Initials:		
Size:	Date:	Initials:		
Placement:	Date:	Initials:		
Backfill:	Date:	Initials:		
Rodent guard:	Date:	Initials:		
Installation of riprap outlet:				
Riprap size and gradation:	Date:	Initials:		
Fencing or signage required for big	oreactor location: Date:	Initials:		
Other items as shown on the plan:	Date:	Initials:		

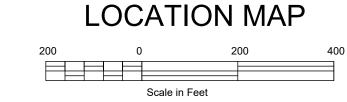
All disturbed areas seeded and mulched:

# LANDOWNER - SITE NAME 605 DENITRIFYING BIOREACTOR





# **REVISED 7/1/2021**



USER TO INSERT SHEET LIST TABLE

### AS-BUILT STATEMENT

, to Boile 1 of the little in						
THE CONSERVATION PRACTICE(S) MEETS OR EXCEEDS NRCS STANDARDS AND SPECIFICATIONS						
INSPECTED BY	SIGNATURE	DATE				
CONSTRUCTION APPROVAL		5/112				
VERIFIED DISTRICT	SIGNATURE	DATE				
CONSERVATIONIST	SIGNATURE	DATE				

AS BUILT CONTRACT ITEMS:	Papartable	Contract	
PRACTICE	Reportable Amount	Amount	

#### **USER TO ENTER PRACTICES**

# OWNER/CONTRACTOR STATEMENT

I CERTIFY THAT THIS DESIGN HAS BEEN EXPLAINED TO ME BY A REPRESENTATIVE OF THE COUNTY SOIL CONSERVATION DISTRICT, AND I UNDERSTAND THE CONTENTS, ALL CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND SPECIFICATIONS, I FURTHER UNDERSTAND THAT ALL CONSTRUCTION WILL BE UNDER THE INSPECTION OF THIS OFFICE.

OWNER/OPERATOR SIGNATURE	DATE	
CONTRACTOR'S SIGNATURE	DATE	
CONTINACTOR S SIGNATURE		



"The Soil Conservation District makes no representation as to the existence or Non-existence of any utilities at the construction site. Shown on these construction drawings are those utilities which have been identified. It is the responsibility of the landowners or operators and contractors to assure themselves that no hazard exists or damage will occur to utilities"

# MATERIALS LIST

\* For bidding purposes only

All disturbed areas to be stabilized within 7 days of completion, using the following recommendations.

#### Seeding Recommendations

Tall Fescue Perennial Ryegrass or 5 lb/ac Redtop (tolerates moist sites) 2 lb/ac White Clover 5 lb/ac 20-40-40 Fertilizer 500 lb/ac Ground lime 50% oxides 3 tons /ac Straw Mulch Dates listed are for plant hardiness Zone 6B, dates will need to be changed for other zones. Seeding Dates March 1 thru May 15

It is the landowner responsibility to obtain All County, State, and Federal permits that may be needed, and to maintain this structure and those regulations.

August 1 thru October 1

**USER TO ENTER SEEDING INFO** 

USER TO ENTER CONSTRUCTION SEQUENCE

NAME
District

### onservation District

### COUNTY Soil Cons

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United States Department of Agriculture

Agricult al Resource

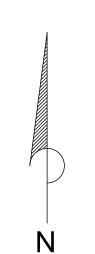


File Name

MD 0041 Bioreactor.dwg

Drawing No. MD\_0041

Sheet 1 of 3



USER TO INSERT TOPO SURVEY/PLAN MAP

**CROSS SECTION** 

# BENCH MARK DESCRIPTIONS

TBM #1 (IP): Elev = ???.?? Top of 1" X 2" wooden hub, marked by witness lath.

TBM #2: Elev = ???.?? Top of 1" X 2" wooden hub, marked by witness lath, near NW corner of building.

TBM #3: Elev = ???.??
Top of bolt in NW corner of concrete.

PLAN VIEW

0 0 20 40

Scale in Feet

PROFILE

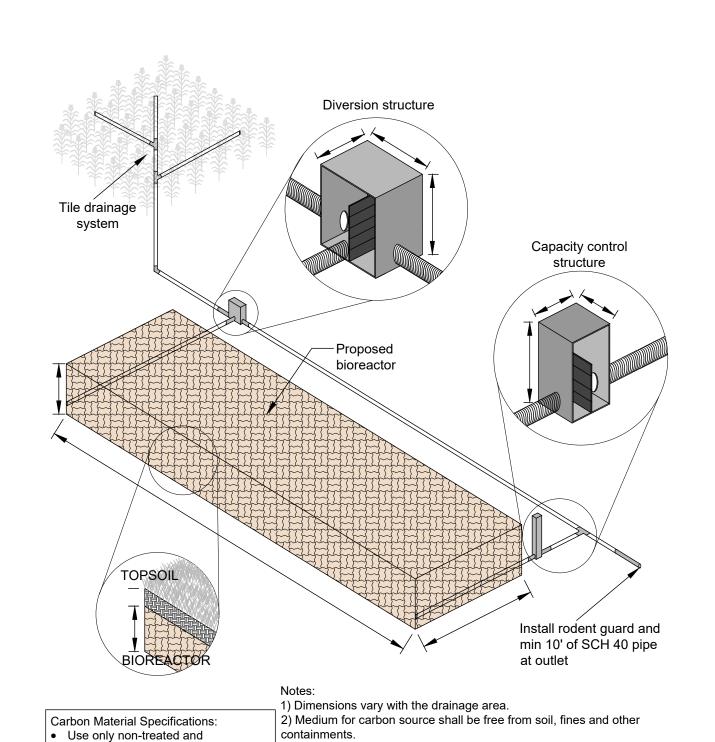
File Name

Drawing No.

MD\_0041\_Bioreactor.dwg

MD\_0041

Sheet 2 of 3



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identified using signage or fence.

**BIOREACTOR DETAIL** 

Not to scale

Wood chips may be from softwoods or provide the required bioreactor volume and flow rate along with the

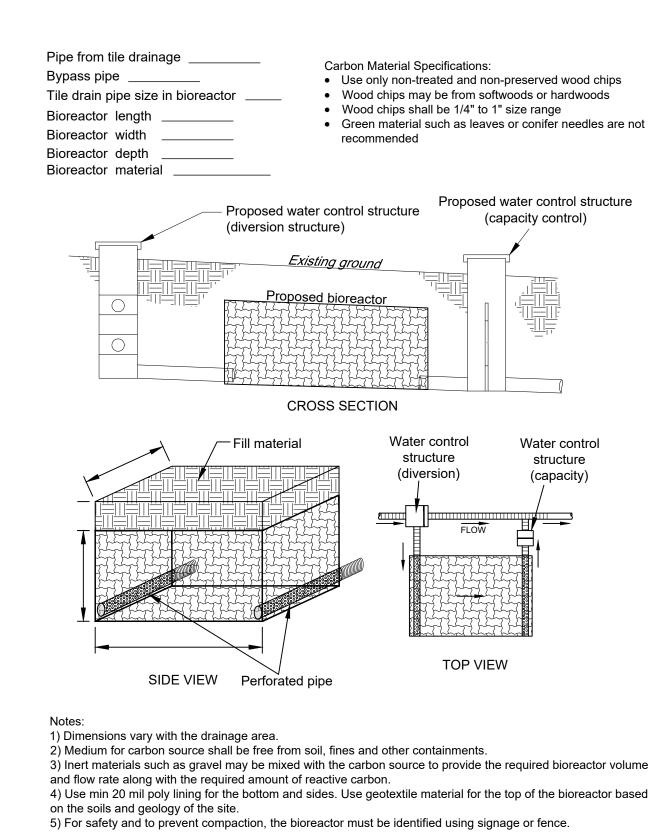
conifer needles are not recommended 5) For safety and to prevent compaction, the bioreactor must be

required amount of reactive carbon.

3) Inert materials such as gravel may be mixed with the carbon source to

4) Use min 20 mil poly lining for the bottom and sides. Use geotextile

material for the top of the bioreactor based on the soils and geology of



**BIOREACTOR SIZING DETAIL** 

Not to scale

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(May 16- June 1) \_\_\_\_ ea of 7" boards \* Diversion stop logs should be lowered during extremely wet periods to prevent water table from rising into the crop root zone Fill \_\_\_\_\_cy Outlet pipe slope Bypass pipe slope \_\_\_\_\_ structure Proposed water control structure (diversion structure) Existing ground **Bioreactor CROSS SECTION** Pipe from tile drainage Top of carbon source drainage EL.= Bottom of SIDE VIEW BIOREACTOR DIVERSION STRUCTURE Not to scale

Pipe size \_\_\_\_\_"

Structure height \_\_\_\_\_

\_\_\_\_ ea of 5" boards

\_\_\_\_\_' OF \_\_\_\_\_" Outlet pipe

\_\_\_\_\_' OF \_\_\_\_\_" Bypass pipe

\_\_\_\_\_' OF \_\_\_\_\_" Inlet pipe

Clearing \_\_\_\_\_ac Bypass pipe slope Outlet pipe slope Proposed water control structure (capacity control) Proposed water control Proposed water control structure (diversion structure) (capacity control) Existing ground Bioreactor **CROSS SECTION** EL.= Bottom of structure SIDE VIEW **TOP VIEW BIOREACTOR CAPACITY STRUCTURE** Not to scale \*DOUBLE CLICK TO EDIT BLOCK\*

Structure height \_\_\_\_\_'

\_\_\_\_ ea of 5" boards

\_\_\_\_ ea of 7" boards

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Stop log height

in Diversion Structure

6 inches below the ground surface

12 to 24 inches above tile invert

24 to 36 inches above tile invert \*

November 1

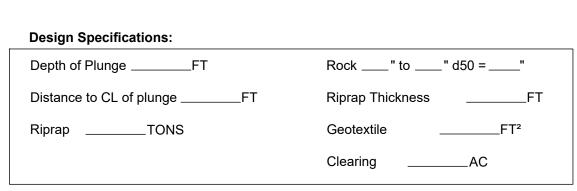
Two weeks

before planting

(March 16- April 31)

Two weeks after

the end of the planting

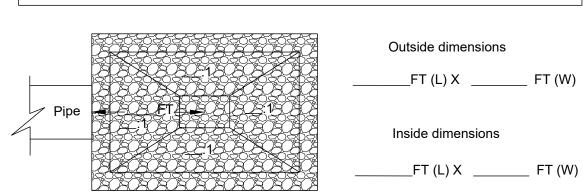


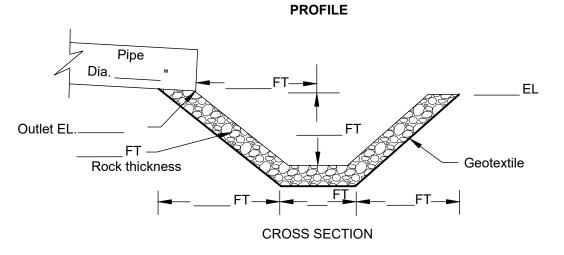
non-preserved wood chips

Wood chips shall be 1/4" to 1" size

Green material such as leaves or

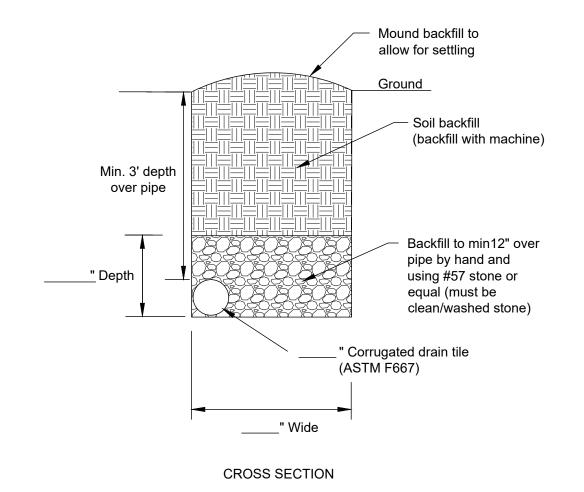
hardwoods





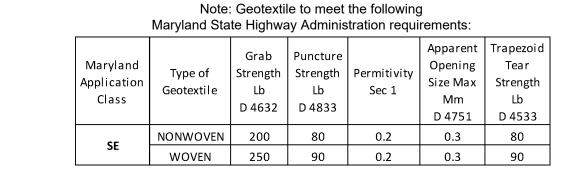
**ROCK PLUNGE POOL DETAIL** Not to scale

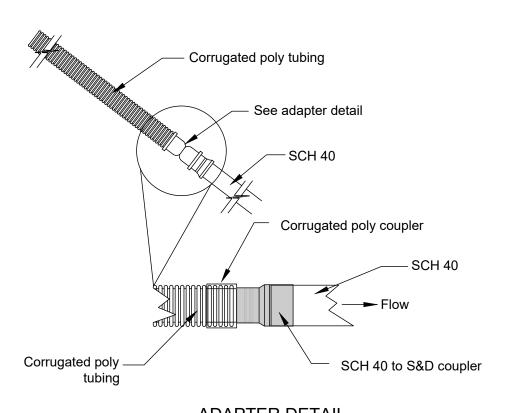
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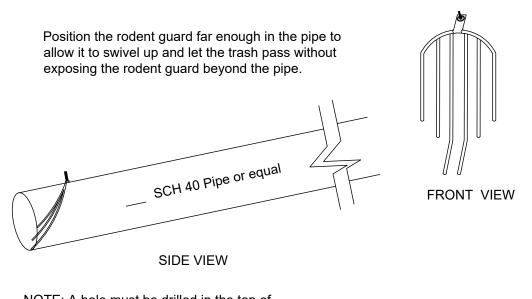
CONSTRUCTION NOTES Plan, design and construct spring developments in accordance with Federal, State, and Local laws and regulations. When collecting water for potable uses, meet the requirements of the state health department for materials and installation. Permits may be required for the installation of these systems. Contact the Permits Division of the local county government for regulations and permit requirements.

> TILE DRAIN DETAIL Not to scale \*DOUBLE CLICK TO EDIT BLOCK\*





ADAPTER DETAIL \*DOUBLE CLICK TO EDIT BLOCK\*



NOTE: A hole must be drilled in the top of the pipe in order to attach the rodent guard

> **OUTLET DETAIL** Not to scale \*DOUBLE CLICK TO EDIT BLOCK\*

United States Department of Agriculture File Name MD\_0041

NAME District SITE ation

**TOP VIEW** 

**JOWNER** 4

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MD\_0041\_Bioreactor.dwg

Drawing No.

Sheet 3 of 3