Virginia Conservation Assistance Program

Presented by Virginia Association of Soil & Water Conservation Districts

Application Number _____

APPLICATION

VCAP Form 1

Part A. Application

I, _____ (PRINT) hereby make application to _____ Soil & Water Conservation District for cost-share assistance to purchase and install a best management practice as described in part B below.

I agree that all best management practice(s) approved will be installed, operated, and maintained in accordance with the practice(s) standard(s) and the Landowner Agreement (VCAP Form 3). I agree not to use the BMP for purposes of Nutrient Trading or regulatory compliance. I shall indemnify and save the District harmless from any and all claims for damages to persons or property arising from the installation, maintenance, repair, operation or use of the BMP(s).

I understand that it is my responsibility to pay in full all bills for work completed under this agreement prior to submission of eligible bills for reimbursement.

I understand that VCAP cost-share funds may be combined with other grant or cost-share resources, but may not exceed one hundred percent (100%) of total costs for the practice.

Mailing Address:	**Phone:**
Address of Practice (if different from mailing address):	**Email:**
Applicant Signature:	**Are you receiving any other funding assistance for this project?** Yes or (No)
SSN / Tax ID (Attach IRS Form W-9):	

The local Soil and Water Conservation District (SWCD) is required to issue a 1099-MISC to the Internal Revenue Service (IRS) for any individual to whom it issues a check for $600.00 or greater. Because the IRS uses the Social Security number or Federal Tax ID number as a unique identifier, the SWCD must collect that information from any individual to whom it issues a check. The SWCD does not use the Social Security number or Federal Tax ID number for any purpose other than that stated above.

Part B. Technical Determination and District Approval **(To be completed by District Staff)**

Practice Code & Title	Practice Size (sq. ft, lin. ft., gal)	Total Estimated Cost	Approved Estimated Cost-Share	Required Completion Date
DW - Dry Well	652 gal.	$5,275.00	$3,500.00	June 1, 2020

I have reviewed this application and all supporting documentation and have indicated the quantity aut[illegible] This practice must be installed and certified by the completion date.

X _____ 2019

District Employee Signature Date

Approval to Forward Application: X_____

District Director Signature Date

Virginia Conservation Assistance Program

Presented by Virginia Association of Soil & Water Conservation Districts

Application Number

JOB SHEET

VCAP Form 2

This Job Sheet is to be filled out by District technical staff. Please document any information that helps to describe any unique aspects of the project from design to completion. The Job Sheet is an active document and will need to be updated as the project progresses. It will document the installed practice and must be submitted to the Program Coordinator at project completion. If completed project differs from the original design approved by the Steering Committee, explain and justify the changes on this Job Sheet.

Tracking and Reporting:

Property Owner: _____ Address: _____

Representative (if applicable): _____ Phone Number: _____

Hydrologic Unit Code: 020801031103 (RA42) GPS Coordinates: _____

Practice Code & Description: DW - 4 Flo-Well Chambers with gravel diaphragm pretreatment

Dominant Land Use Treated: Driveway Runoff

Contributing Drainage Area (sq. ft.): 1,100 sq. ft. Impervious Area Treated: (sq. ft.): 1,100 sq. ft.

Practice Size (sq. ft., lin. ft., gal.): 652 gallons Impervious Surface Removed (sq. ft.): NA

Installation Date: _____

Site Assessment: Describe the current conditions of the site, landowner goals/concerns, resource concern needing to be addressed, and the proposed water quality benefit of the project. Note all ranking considerations and attach ranking spreadsheet. Include photo documentation of site conditions and resource concerns. **(Describe or attach.) Ranking Score:** 84.4

The house was built in 1985 on 1/3 acre lot. The landowner concern is driveway runoff impacting the crawl space and foundation of the house. The slope between the driveway and house is 15%, excess runoff from the driveway is not stopped by the existing vegetation on the slope and floods the foundation area.

The resource concern is localized flooding from impervious runoff.

This project will prevent runoff from washing mulch and other materials and provide an area for the runoff to infiltrate.

Project Layout: Attach an aerial of site and sketch or outline the practice layout, contributing drainage area, impervious area treated, location and flow paths of downspouts/channels, and any known utilities or rights-of-way. Note the proximity to waterways or stormwater conveyance systems. **(Describe or attach.)**

Application Number

Design and Specification: Include sizing calculations, practice dimensions, soil evaluation results, site preparation plan, pretreatment measures, outlet and overflow, cross section and profile, planting plan (with scientific names), and cost estimates. **(Describe or attach.)**

The drainage area collected and treated is the 1,100 sq. ft. driveway. The remaining yard runoff will bypass the Dry Well reservoir and continue downslope.
- Tv = 87 cubic feet or 652 gallons.
- The Dry Well will consist of 4 ez flow wells which are 24 inches in diameter and 28 inches tall, wrapped with 12 inches of clean washed stone on all sides and underneath.
- A french drain trench will act as a gravel diaphragm to provide pretreatment for the Dry Well.
- Overflow will be piped downslope and outlet with a pop-up emitter.
- There will be 6 inches of soil cover. See Attached manufacturer cross sections and profile.

Construction and Installation: Include sizing calculations, practice dimensions, soil evaluation results, site preparation plan, pretreatment measures, outlet and overflow, cross section and profile, planting plan (with scientific names), and itemized cost estimates, including estimated volunteer labor time. **(Describe or attach.)**

1. A gravel trench with perforated piping will be installed along the driveway. Trench will be 1 to 2 feet wide and 1 foot deep. A solid pipe will convey runoff to the Dry Well area.
2. The Dry Well footprint will be 64 square feet (8ft by 8ft). The depth of Excavation will be 48 inches.
3. Nonwoven Geotextile fabric will be placed on the sides of the trench.
4. The bottom 12 inches will be a stone bed of clean washed stone.
5. Four EZ Flow wells will be assembled and placed on top of stone bedding.
6. 12 inches of stone will surrounding each Flow Well on the sides.
7. Wrap geotextile fabric on the top and cover with 6 inches of soil. Observation port will be exposed.
8. Overflow piping will extend behind shed and install pop-up emitter.

Permits: Confirm local policies, such as land disturbance, grass heights, etc. **(Describe or attach.)**

No permits necessary from County.

HOA promotes landscape plantings where ever possible. No community restrictions.

Operation and Maintenance Plan: **(Describe or attach.)**

- The gravel trench along driveway will be inspected and cleaned as needed.
- Observation ports and pop-up emitters will be inspected for standing water and debris. Clean chambers and pop-up as needed.
- Routine maintenance of the vegetation above the dry well is needed to ensure uniform cover.
- Any surface erosion should be repaired as soon as possible.

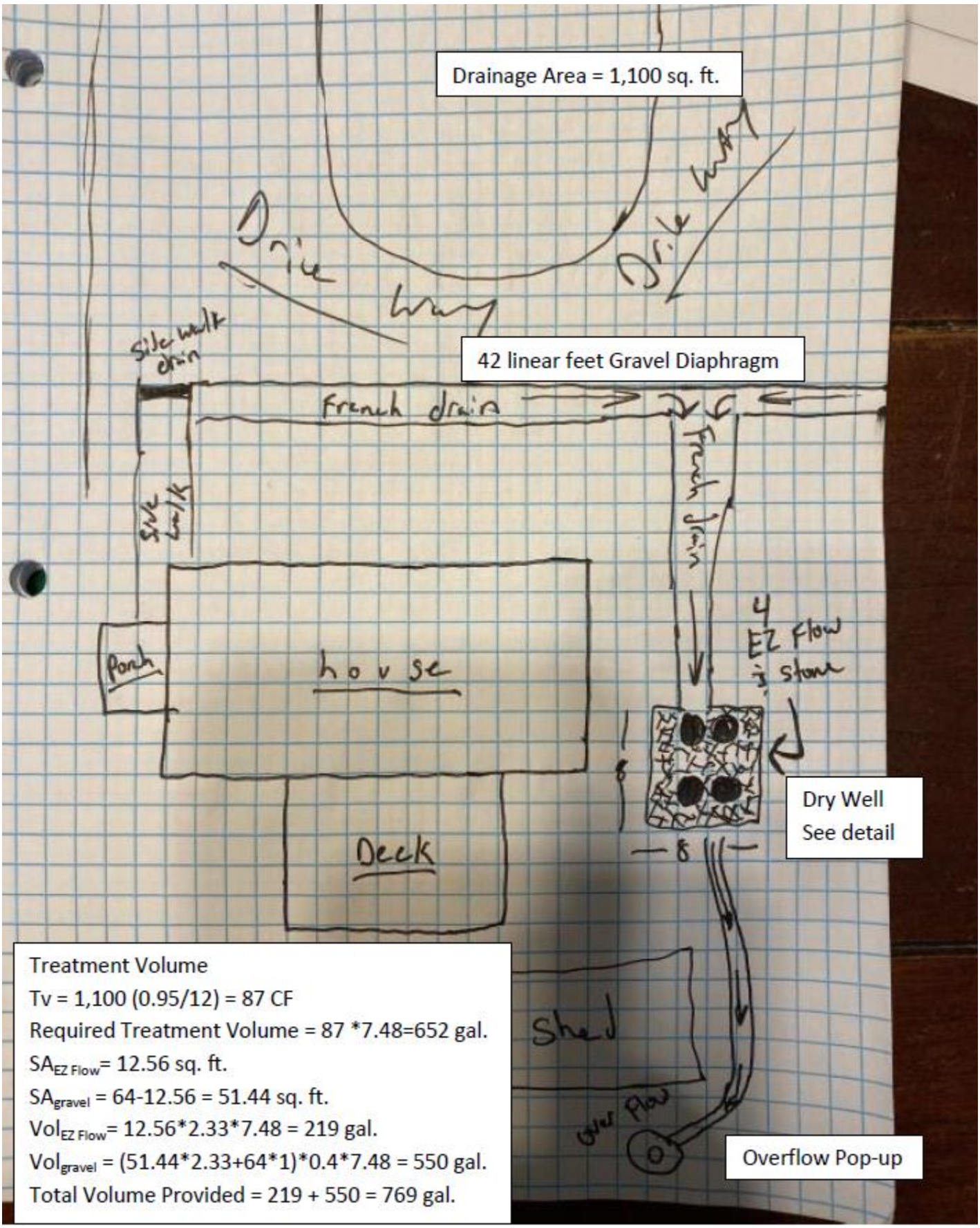
Driveway drains towards the house. Also shown is the partially completed excavation performed by a previous contractor.

View of house foundation. Runoff from driveway ponds next to the house.

Side yard view of possible Dry Well location. Also shown is the poorly done work by previous contractor.


Vicinity Map


Aerial Map



Treatment Volume

Tv = 1,100 (0.95/12) = 87 CF

Required Treatment Volume = 87 *7.48=652 gal.

$SA_{EZ\ Flow}$= 12.56 sq. ft.

SA_{gravel} = 64-12.56 = 51.44 sq. ft.

$Vol_{EZ\ Flow}$= 12.56*2.33*7.48 = 219 gal.

Vol_{gravel} = (51.44*2.33+64*1)*0.4*7.48 = 550 gal.

Total Volume Provided = 219 + 550 = 769 gal.

QTY.	MATERIAL	UNIT	AMOUNT
4	50 Gallon BASINS EZ FLOW!		$1200.00
1	150 Foot Pipe		$275.00
18	Ton Stone Delivered!		$700.00
1	Flow valve/Give Fittings/etc...		$300.00
4	Down Spout Guards	N/C	
		TOTAL MATERIALS	2475.00

DESCRIPTION OF WORK
Install exposed French drain w/4 EZ FLOW CATCH BASINS

MISCELLANEOUS CHARGES	
BACK Fill ditch	N/C
Install side walk drain to tie into System	N/C
TOTAL MISCELLANEOUS	

LABOR	HRS.	RATE	AMOUNT
$2800.00			
TOTAL LABOR			2800.00

ORDERED

RDERED

OMPLETED

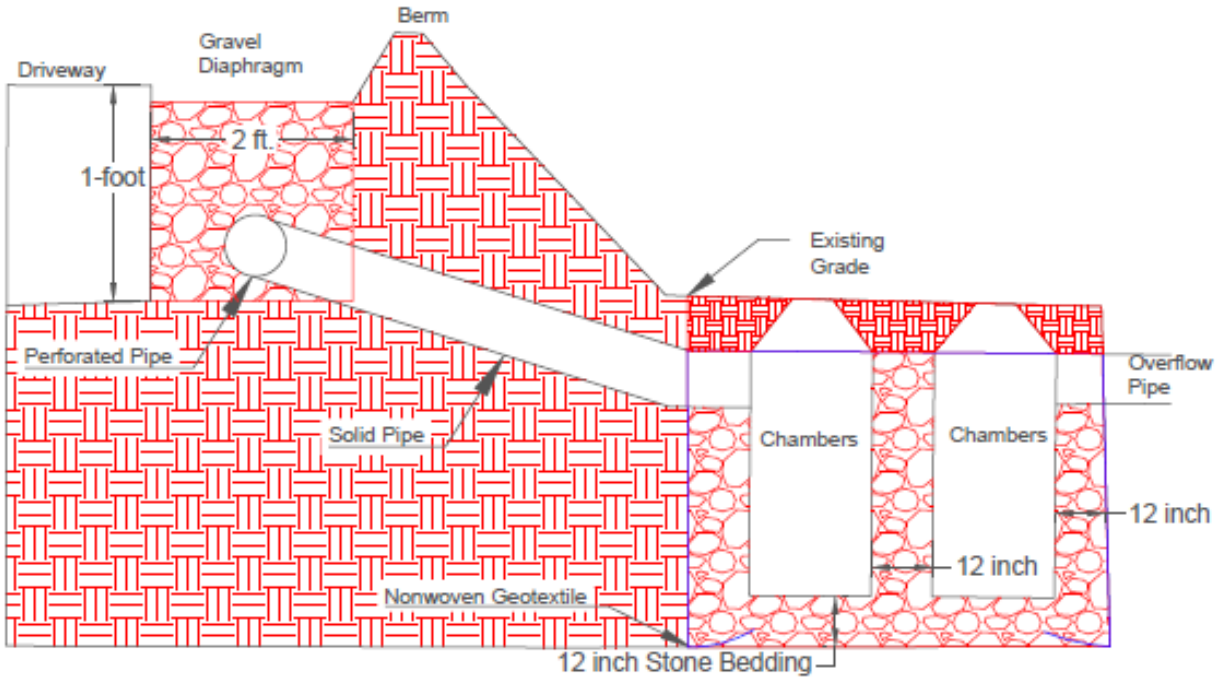
SIGNATURE

SIGNATURE

7 / T-3866

10-11

TOTAL LABOR	2800.00
TOTAL MATERIALS	2475.00
TOTAL MISCELLANEOUS	0
SUBTOTAL	5275.00
TAX	0
GRAND TOTAL	5275.00



DRY WELL NOTES

DESIGN NOTES:

1. DRY WELL SHOULD HAVE A MINIMUM WIDTH OF 3 FEET AND A DEPTH BETWEEN 1 AND 5 FEET.
2. SURFACE AREA = Rv* DA/(D*12*0.4), WHERE D IS THE DEPTH AND DA IS DRAINAGE AREA, AND Rv IS THE RUNOFF VALUE (TYPICALLY 0.95 FOR ROOFS)
3. MAXIMUM DEPTH 2 FEET ABOVE BEDROCK OR WATER TABLE.

CONSTRUCTION NOTES:

1. DIVERT STORMWATER AROUND FACILITY DURING CONSTRUCTION.
2. MINIMIZE COMPACTION OF THE SUBGRADE, DIRT TRACKING ONTO ANY LAYER OF THE FACILITY, AND STOCKPILING OF CONSTRUCTION MATERIALS THAT MAY CLOG THE SURFACE.
3. DURING EXCAVATION OF NATIVE SOILS TO THE BOTTOM OF THE FACILITY, RAINFALL MAY CAUSE FINES TO CLOG THE SURFACE OF THE FACILITY. IF THIS OCCURS DURING CONSTRUCTION, HAND RAKE THE SURFACE TO A DEPTH OF 3" TO RESTORE INFILTRATION CAPACITY.
4. SCARIFY THE BOTTOM AND WRAP CLEAN GRAVEL IN NONWOVEN GEOTEXTILE PER NRCS STANDARD.
5. SODDING THE FACILITY IS PREFERRED TO SEEDING & STRAW TO PREVENT THE WASHING OF SEED/STRAW. SOD ALSO PROVIDES IMMEDIATE COVER.

Gravel Diaphragm to Dry Well Detail

1 of 1

Scale: NTS

NDS

Flo-Well®

MANUFACTURED DRYWELL

Flo-Well Assembly and Installation Sheet

Thank you for purchasing the Flo-Well system by NDS, the following information can help you maximize the benefits Flo-Well has to offer.

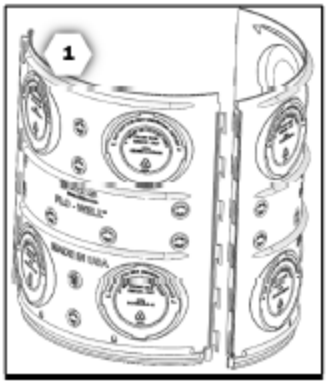
Form name LFWAS24WH

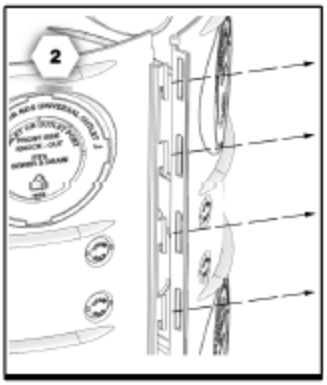
WARNING: Call before you dig. Contact your local utilities to create utility mark-out, and to avoid personal injury.
RECOMMENDED: For all Flo-Well configurations install at least an appropriate 10 feet from foundations or structures.

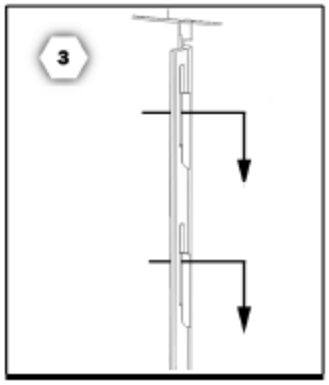
ASSEMBLY INSTRUCTIONS

BEFORE YOU DIG:
Contact the local utilities to create utility markout.

1. Place two panels side by side and align male tabs with female flange.
2. Push tabs and flange flush until panels interlock.
3. For final lock, slide male tabs downward until panel edges are leveled at top.
4. Repeat steps 1-3 for the third panel assembly.
5. Set cover over panel assembly and rotate until all three panel flanges are aligned with cover screw locations.







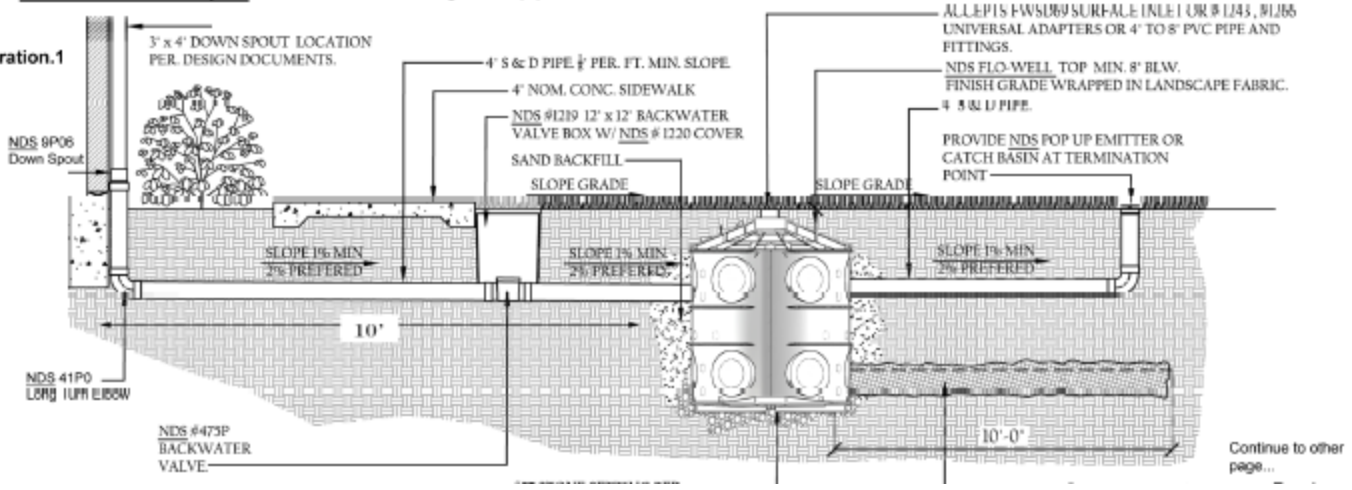
DRY WELL SETUP

Required items: Small hammer, tape, fabric pack, NDS Universal Adapter, shovel, sand or recommended 3/4" stone gravel, 4" PVC pipe, jig-saw, and catch basin or downspout adapter

1. Strategically plan Flo-Wells location at a minimum distance of 10' from foundations.
   a. Note: Take into consideration traffic and elevation conditions.
2. Once Flo-Well location is verified: dig a 4' wide by 4' deep hole.
3. Dig a trench from the end of the downspout at about 1' deep and 6" wide that slopes gradually towards the Flo-Well.
4. For pipe connection and leach direction, use small hammer to knock-out appropriate 1" and 4" panel ports or use jigsaw to cut out universal adapter port.
5. Wrap fabric around Flo-Well and secure with tape to prevent soil from entering drain holes.
6. Place Flo-Well assembly into ground and insert preferred 4" pipe into knocked-out port. Connect other end of 4" pipe to downspout either by catch basin or downspout adapter.
   a. Note: Use NDS Universal Adapter and lock within panel universal adapter cut out for 3" and 6" pipes.
7. Backfill evenly around the Flo-Well with sand or recommended 3/4" stone gravel.
8. Bury Flo-well assembly with top at least 8" below the surface grade.

Installation Example: Groundwater Recharge Hardpipe.

Ilustration.1



Continued...

Optional 1: *See Illustration #2*

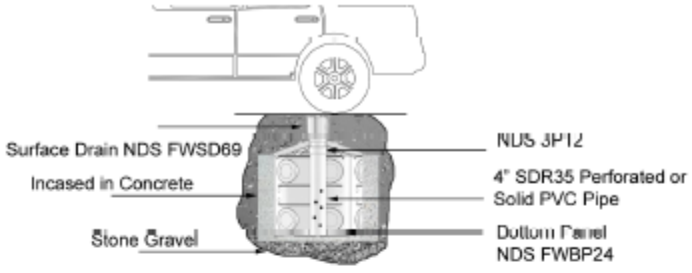
1. For light traffic applications:
Install perforated or slotted SDR35 Pipe to increase vertical loading strength as shown.

Optional 2: *See Illustration #1*

2. For water back up prevention:
Vent downspout and use surface drain to allow overflow of excess water away from Flow-Well.

3. To capture collected surface water:
Place the Flow-Well at the lowest elevation point and install surface drain directly on top of cover.

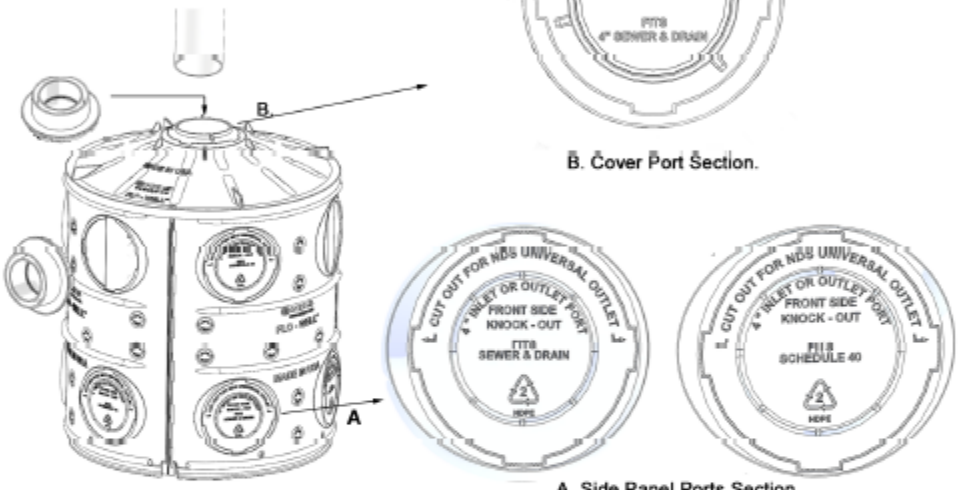
Illustration #2



New Flo-Well Features:

*Added center 4" cover knock-out
*Added center 8" cover cut-out
*Added center "Universal Adapter" cover cut-out
*Added sump "U" cover cut-out
*Added 1" SCH 40 and 1" SDR 26 panel knock out ports
*Added "Universal Adapter" panel cut-out

B. Cover Port Section.



A. Side Panel Ports Section

SUMP PUMP SETUP

Required items: Small hammer, tape, fabric pack, shovel, sand or recommended ¾" stone gravel, jig saw, and pump

1. Follow assembly instructions in section 1 then dig a 4' wide by 4' deep hole at a minimum distance of 10' from foundations.
2. For leach direction, use small hammer to knock-out appropriate 1" panel drain holes.
3. Wrap fabric around Flo-Well and secure with tape to prevent soil from entering drain holes.
4. Place Flo-Well assembly into ground and back fill around evenly up to cover with sand or recommended ¾" stone gravel.
5. For sump pumps there are (3) options:
6. a.) Knock-out the center 4"plug on the top cover if your pump has a center discharge.
   b.) Cut-out 8" circle template on cover with jigsaw for drop-in sump, cover with 8" S&D pipe, cap or install NDS 8" rnd. Grate part # 1040.
   c.) Cut out the "U" shaped section on the top of cover with a jig saw for pedestal pumps with cut-off floats.
7. Attach pump to cover to insure smooth operation of cut-off float.

For Installation details, please visit our website www.NDSPRO.com

Ndspro.com > Products and Solutions > Drainage Solutions > Flo-Well Drywell. The detail drawings will be under the 'Specify Flo-Well' category.

IMPORTANT NOTICE: It is your obligation to determine whether this product is suitable for your intended use and particular method of application. CONSULT YOUR LOCAL BUILDING OFFICIALS TO INSURE COMPLIANCE WITH ALL BUILDING CODES AND REQUIREMENTS.

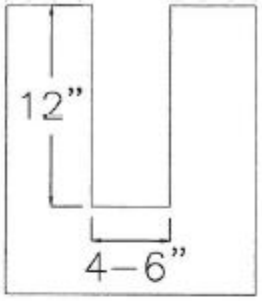
CAUTION: The step by step installation instructions provided reflect mechanical assembly only. Additional information may be necessary to insure proper results for all applications. Consult with professionals to determine special soils conditions and structural requirements.

NDS™ WE PUT WATER IN ITS PLACE

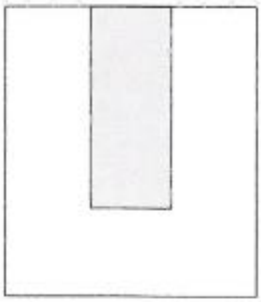
Another Quality Product brought to you by NDS. Inc.
851 N. Harvard Avenue, Lindsay CA 93247
If you have any questions or comments about this product, please call us at (800) 726-1994

Map Unit Legend

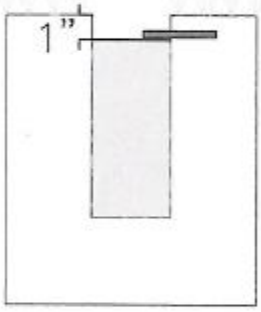
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NsC	Nason silt loam, 7 to 15 percent slopes	0.4	100.0%
Totals for Area of Interest		**0.4**	**100.0%**



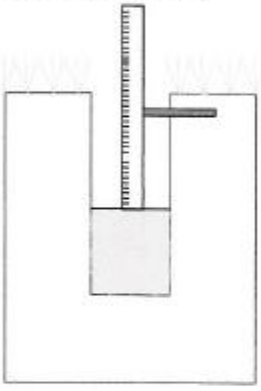
1. Dig a hole in the proposed location, approximately 12 inches in depth and four to six inches in diameter. A standard post hole digger is the typical tool of choice.



2. Presoak the hole. Fill with water to saturate the soil and then let stand until all the water has drained into the soil. If presoak drains away within 1 hour, repeat presoak.



3. Once the water has drained, refill the empty hole again with water so that the water level is about one inch from the top of the hole. Use a stick to indicate the location of the starting water level. Record the time using a watch. Measure the depth of water with a ruler.



4. Check the depth of water with a ruler every hour for at least four hours. If presoak drains within 1 hour, measure every 10 minutes or less.

5. Record Measurements. Depth, d is the difference between measurements. Infiltration Rate is the depth, d divided by the time interval, usually 1 hour. Use the lowest steady state infiltration rate.

Time (hours)	Measurement, m (inches)	Depth, d (inches)	Infiltration Rate, I (inches/hour)
0	~~5 0.00~~	~~[illegible]~~ 0.00	0
1	3.75	1.25	1.25 iph
2	2.75	1.0	1 iph
3	2.00	0.75	0.75 iph
4	1.25	0.75	0.75 iph
5	0.50	0.75	0.75 iph
6	0	0.5	0.5 iph

Falling Head Infiltration Test

This is the approved infiltration test for the Virginia Conservation Assistance Program.
Use this method for Rain Gardens, Dry Wells and any practice without an underdrain.
This is a 3-dimensional flow percolation test, actual vertical infiltration rates may be less, divide the rate by 2 if the failure of the practice will exasperate existing resource concerns or create new ones.
Infiltration rates should be greater than 0.5 inches per hour.

VCAP Practice Ranking Sheet (VCAP Form - 6)

This form is to be filled out by District Staff for each application submitted for funding approval to the VCAP Steering Committee.
Include the Contract Number (District## - CY## - Application Number###), Practice Code (abbreviation), Estimated Cost (If applicable), Cost Share Requested and Resource Concern.

Contract #	
Practice	DW
Estimated Cost	$5,275.00
Cost Share Requested	$3,500.00
What is the Resource of Concern?	Too Much Impervious Runoff

Please only enter data in the "Input" column. "Points Earned" will be automatically generated.

RANKING CRITERIA	Input (1/0)	POINT VALUE	TOTAL POINTS EARNED	NOTE
Site Assessment				
Resource Concern Identified and Addressed by the Selected BMP - Select One				
Erosion Impact Area (visible erosion and/or deposition); or	0	20	0	
Poor Vegetative Cover (Density <=75%); or	0	15	0	
Impervious surface runoff; or	1	10	10	*Driveway Runoff floods house foundation*
managed turf runoff.	0	5	0	
Ownership - Select One				
The practice is for an individual Private Residence; or	1	10	10	
The practice is for a HOA or Business or Non-Profit ; or	0	7	0	
The practice is for a Public Park or School or Facility.	0	5	0	
Presence of Stormwater Management Facilities Downstream of the Site				
The site runoff is currently untreated	1	10	10	
Proximity to Stormwater Conveyance System or Waterway - Select One if applicable				
Resource Concern within 40 feet; or	0	20	0	
Resource Concern within 100 feet; or	0	10	0	
Slope - Select One if applicable				
The practice treats poorly vegetated or eroding slope equal to or greater than 15 %	0	10	0	
The practice mitigates concentrated runoff to a slope equal to or greater than 15 %	1	5	5	*Practice intercepts driveway runoff above a 15% slope*
TMDL Implementation Plan, MS4 Locality, or Comprehensive Stormwater Management Plan				
Practice addresses local sediment or nutrient goals	0	10	0	
BMP Selection				
BMP Type - Select One if applicable				
Is the proposed BMP structural (e.g. RG, DW, CW, VSC, RH, BR, IF, PP, GR)?, or	1	10	10	
Converting Impervious Surface to Conservation Landscaping, or	0	10	0	
Impervious Surface Removed, or	0	5	0	
Living Shoreline proposed on unprotected lands, or	0	10	0	
Living Shoreline replaces failing stabilization practices, or	0	5	0	
Forested Riparian Buffer (minimum 35 feet wide); or	0	10	0	
Vegetated Filter Strip (minimum 35 feet wide)	0	5	0	
Proposed BMP provides Alternative Disconnection				
Selected BMP disconnects and disperses impervious runoff	0	10	0	
Treatment Area (Does Not apply to LS or CL unless configured as Filter Strip with 35 feet minimum length)				
Input Impervious Area Treated in square feet; and	1100	1.1	1.1	
Input Total Contributing Drainage Area in square feet	1100	20.0	20.0	
Installed Area - Select One (Does Not apply to ISR or GR)				
Input Surface Area of the Practice Installed; or	0	0.0	0.0	
Input Gallons Storage, or	652	0.7	0.7	
Input Linear Foot of Practice Installed	0	0.0	0.0	
Application Strength				
Partnership				
Applicant is working with a partner agency or NonProfit	0	5	0	
Educational Value				
Practice is publicly accessible; or is part of an educational program	0	10	0	
Cost Effectiveness				
Cost per Impervious Area Treated ($/SF), and	4.80	12.5	12.5	
Cost per Installed Area ($/SF or $/Gal or $/LF)	8.09	4.6	4.6	
Pollutant Removal				
BMP Pollutant Removal Effecency (EFF)	0.5			
Contributing Drainage Area Weighted Runoff Value (Rv)	0.95			
Pollutant Load (PL), Lbs Phosphorus per year	0.05	0.5	0.5	
		TOTAL RANKING POINTS	84.4	