

Updated Hydrologic Soil Group Ratings for Vermont Soils

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Background

A Hydrologic Soil Group is a grouping of soils having the same runoff potential under similar storm and cover conditions. Hydrologic Soil Groups are used in equations that estimate runoff from rainfall. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen.

A Hydrologic Soil Group rating is assigned to each soil series when it is established. They are assigned based on criteria set forth in the National Soil Survey Handbook Part 618.35. There are four hydrologic soil groups: A, B, C, and D. The criteria for assigning groups are broadly defined. In the past, the hydrologic soil group was assigned by the state who had responsibility for the soil series. As a result, the hydrologic soil group criteria was not consistently applied to similar soils within a region.

Dual hydrologic soil groups, A/D, B/D, and C/D, have also been assigned for wet soils in hydrologic soil group D that can be adequately drained. The first letter applies to the drained condition and the second letter applies to the undrained condition.

Some soils that are shallow to bedrock have also been assigned to a dual hydrologic soil group. The first letter applies to areas where the bedrock is cracked and pervious and the second letter applies to areas where the bedrock is impervious.

Evaluation of Current Hydrologic Soil Group Ratings

This evaluation corrects the following:

1. Eliminate any inconsistency in the hydrologic soil group ratings of similar soils.
2. Eliminate dual hydrologic soil groups for wet soils where drainage is not feasible.
3. Eliminate dual hydrologic soil groups for soils that are very shallow or shallow to bedrock.

The current hydrologic soil group ratings were evaluated using the following criteria:

Hydrologic Soil Group A – Soils with low runoff potential, having high infiltration rates even when thoroughly wetted. Includes soils that are:

1. Well drained to excessively drained **and** moderately deep to very deep **and** sandy or sandy-skeletal, or
2. Well drained to excessively drained **and** moderately deep to very deep **and** loamy-skeletal with a sandy loam or fine sandy loam cap over a sandy or gravelly substratum.

Hydrologic Soil Group B – Soils having moderate infiltration rates even when thoroughly wetted. Includes soils that are:

1. Moderately well drained to somewhat poorly drained **and** moderately deep to very deep **and** sandy or sandy-skeletal or loamy-skeletal, or
2. Well drained to moderately well drained **and** deep to very deep to bedrock **and** do not have a densic contact **and** have permeability of moderate or moderately rapid and are coarse-loamy or coarse-silty, or
3. Well drained to moderately well drained **and** deep to very deep to bedrock **and** do not have a densic contact **and** have permeability of moderate or moderately rapid in the upper part **and** are coarse-loamy or coarse-silty over sandy or sandy-skeletal.

Hydrologic Soil Group C – Soils having slow infiltration rates even when thoroughly wetted. Includes soils that are:

1. Poorly drained *and* very deep *and* sandy or sandy-skeletal, or
2. Well drained or moderately well drained *and* have a fine or very fine particle size class substratum, or
3. Well drained to poorly drained *and* moderately deep (or shallow to moderately deep) to a densic contact or to a layer with moderately slow to slow permeability, or
4. Somewhat poorly drained to poorly drained *and* very deep *and* do not have a densic contact *and* are coarse-loamy, coarse-silty, or loamy-skeletal in at least the upper part, or
5. Well drained to moderately well drained *and* moderately deep to bedrock *and* do not have a densic contact *and* are coarse-loamy, coarse-silty, or loamy-skeletal in at least the upper part.

Hydrologic Soil Group D – Soils with high runoff potential, having very slow infiltration rates even when thoroughly wetted. Includes soils that are:

1. Very poorly drained, or
2. Very shallow or shallow to bedrock, or
3. In the fine or very fine particle size family class, or
4. Somewhat poorly drained or poorly drained *and* have textures in the substratum that are in the fine or very fine particle size class, or
5. Very shallow or shallow to a densic contact or to a layer with slow to very slow permeability.

Results of Evaluation

The following soils are assigned to a new hydrologic soil group based on the criteria listed above:

<u>Soil</u>	<u>Old</u>	<u>New</u>	<u>Soil</u>	<u>Old</u>	<u>New</u>
Adamant	B	C	Markey	A/D	D
Adrian	A/D	D	Muck and Peat	A/D	D
Amenia	B	C	Nassau	C	D
Balch	A/D	D	Nicholville	C	B
Binghamville	D	C	Palatine	B	C
Brayton	C	D	Pinnebog	A/D	D
Bucksport	A/.D	D	Pondicherry	A/D	D
Carbondale	A/D	D	Raynham Variant	D	C
Carlisle	A/D	D	Ricker	A	D
Duxbury	A	B	Rifle	A/D	D
Elvers	B/D	D	Salmon Variant	B	C
Farmington	C	D	Stetson	B	A
Farmington Variant	B	C	Stratton	C	D
Galoo	C/D	D	Swanton	C/D	D
Galway	B	C	Taconic	C/D	D
Hogback	C	D	Vergennes	C	D
Houghtonville	C	B	Vershire	B	C
Limerick Variant	D	C	Wallkill	C/D	D
Linwood	A/D	D			
Londonderry	C/D	D			
Lupton	A/D	D			
Lyman	C/D	D			

Vermont Hydrologic Soil Groups

The following list supercedes all hydrologic soil groups listed in the published soil surveys:

SOIL	HSG	SOIL	HSG
ADAMANT	C	ENOSBURG	C
ADAMS	A	FARMINGTON	D
ADAMS VARIANT	A	FARMINGTON VARIANT	C
ADRIAN	D	FREDON	C
AGAWAM	B	FRYEBURG	B
ALLAGASH	B	FULLAM	C
AMENIA	C	GALOO	D
AU GRES	B	GALWAY	C
BALCH	D	GEORGIA	C
BELGRADE	B	GLEBE	C
BENSON	D	GLOVER	D
BERKSHIRE	B	GRANGE	C
BIDDEFORD	D	GROTON	A
BINGHAMVILLE	C	HADLEY	B
BIRDSALL	D	HAMLIN	B
BOMOSEEN	C	HARTLAND	B
BOOTHBAY	C	HERO	B
BRAYTON	D	HINCKLEY	A
BUCKLAND	C	HINESBURG	C
BUCKSPORT	D	HITCHCOCK	B
BUXTON	D	HOGBACK	D
CABOT	D	HOUGHTONVILLE	B
CALAIS	C	HUBBARDTON	D
CANANDAIGUA	D	IRASBURG	C
CARBONDALE	D	KARS	A
CARLISLE	D	KENDAIA	C
CASTILE	B	KILLINGTON	D
CHARLES	C	KINGSBURY	D
COLONEL	C	LAMOINE	D
COLRAIN	B	LIMERICK	C
COLTON	A	LIMERICK VARIANT	C
COPAKE	B	LINWOOD	D
CORNISH	C	LIVINGSTON	D
COVINGTON	D	LONDONDERRY	D
CROGHAN	B	LORDSTOWN	C
DEERFIELD	B	LOVEWELL	B
DIXFIELD	C	LUPTON	D
DUANE	B	LYMAN	D
DUMMERSTON	B	LYME	C
DUTCHESS	B	LYONS	D
DUXBURY	B	MACHIAS	B
ELDRIDGE	C	MACOMBER	C
ELMRIDGE	C	MADAWASKA	B
ELMWOOD	C	MANSFIELD	D
ELMWOOD VARIANT	C	MARKEY	D
ELVERS	D	(continued on next page)	

SOIL	HSG	SOIL	HSG
MARLOW	C	SALMON VARIANT	C
MASSENA	C	SCANTIC	D
MEDOMAK	D	SCANTIC VARIANT	D
MELROSE	C	SCARBORO	D
MERRIMAC	A	SEARSPORT	D
MIDDLEBURY	B	SHEEPSCOT	B
MISSISQUOI	A	SHELBURNE	C
MONADNOCK	B	SISK	C
MOOSILAUKE	C	SKERRY	C
MUCK AND PEAT	D	ST. ALBANS	B
MUNDAL	C	STETSON	A
MUNSON	D	STOCKBRIDGE	C
NASMITH	C	STOWE	C
NASSAU	D	STRATTON	D
NELLIS	B	SUDBURY	B
NICHOLVILLE	B	SUNAPEE	B
NINIGRET	B	SUNDAY	A
OCCUM	B	SUNNY	C
ONDAWA	B	SWANTON	D
ONDAWA VARIANT	B	SWANVILLE	C
PALATINE	C	TACONIC	D
PANTON	D	TEAGO	A
PAWLING	B	TEEL	B
PAXTON	C	TIOGA	B
PEACHAM	D	TISBURY	B
PERU	C	TUNBRIDGE	C
PINNEBOG	D	UNADILLA	B
PITTSFIELD	B	VERGENNES	D
PITTSTOWN	C	VERGENNES VARIANT	D
PODUNK	B	VERSHIRE	C
PODUNK VARIANT	B	WAITSFIELD	B
POMFRET	A	WALLKILL	D
PONDICHERRY	D	WALPOLE	C
POOTATUCK	B	WAPPINGER	B
POTSDAM	C	WAREHAM	C
QUONSET	A	WARWICK	A
RAWSONVILLE	C	WEIDER	B
RAYNHAM	C	WESTBURY	C
RAYNHAM VARIANT	C	WHATELY	D
RICKER	D	WILMINGTON	D
RIFLE	D	WINDSOR	A
RIPPOWAM	C	WINOOSKI	B
ROUNDABOUT	C	WONSQUEAK	D
RUMNEY	C	WOODSTOCK	D
RUMNEY VARIANT	C	WORDEN	C
SACO	D		
SALMON	B		

Hydrologic Soil Group A

The following soils are in hydrologic soil group A:

ADAMS, ADAMS VARIANT,
COLTON, GROTON,
HINCKLEY, KARS,

MERRIMAC, MISSISQUOI,
POMFRET, QUONSET,

STETSON, SUNDAY, TEAGO,
WARWICK, WINDSOR

Hydrologic Soil Group B

The following soils are in hydrologic soil group B:

AGAWAM, ALLAGASH,
AU GRES, BELGRADE,
BERKSHIRE, CASTILE,
COLRAIN, COPAKE,
CROGHAN, DEERFIELD,
DUANE, DUMMERSTON,
DUTCHESS, DUXBURY,
FRYEBURG, HADLEY,
HAMLIN, HARTLAND, HERO,

HITCHCOCK,
HOUGHTONVILLE,
LOVEWELL, MACHIAS,
MADAWASKA, MIDDLEBURY,
MONADNOCK, NELLIS,
NICHOLVILLE, NINIGRET,
OCCUM, ONDAWA, ONDAWA
VARIANT, PAWLING,
PITTSFIELD, PODUNK,

PODUNK VARIANT,
POOTATUCK, SALMON,
SHEEPSCOT,
ST. ALBANS, SUDBURY,
SUNAPEE, TEEL, TIOGA,
TISBURY, UNADILLA,
WAITSFIELD, WAPPINGER,
WEIDER, WINOOSKI

Hydrologic Soil Group C

The following soils are in hydrologic soil group C:

ADAMANT, AMENIA,
BINGHAMVILLE, BOMOSEEN,
BOOTHBAY, BUCKLAND,
CALAIS, CHARLES,
COLONEL, CORNISH,
DIXFIELD, ELDRIDGE,
ELMRIDGE, ELMWOOD,
ELMWOOD VARIANT,
ENOSBURG,
FARMINGTON VARIANT,
FREDON, FULLAM, GALWAY,
GEORGIA, GLEBE, GRANGE,

HINESBURG, IRASBURG,
KENDAIA, LIMERICK,
LIMERICK VARIANT,
LORDSTOWN, LYME,
MACOMBER, MARLOW,
MASSENA, MELROSE,
MOOSILAUKE, MUNDAL,
NASMITH, PALATINE,
PAXTON, PERU,
PITTSTOWN, POTSDAM,
RAWSONVILLE, RAYNHAM,

RAYNHAM VARIANT,
RIPPOWAM, ROUNDABOUT,
RUMNEY,
RUMNEY VARIANT,
SALMON VARIANT,
SHELBURNE, SISK,
SKERRY, STOCKBRIDGE,
STOWE, SUNNY,
SWANVILLE, TUNBRIDGE,
VERSHIRE, WALPOLE,
WAREHAM, WESTBURY,
WORDEN

Hydrologic Soil Group D

The following soils are in hydrologic soil group D:

ADRIAN, BALCH, BENSON,
BIDDEFORD, BIRDSALL,
BRAYTON, BUCKSPORT,
BUXTON, CABOT,
CANANDAIGUA,
CARBONDALE, CARLISLE,
COVINGTON, ELVERS,
FARMINGTON, GALOO,
GLOVER, HOGBACK,
HUBBARDTON, KILLINGTON,

KINGSBURY, LAMOINE,
LINWOOD, LIVINGSTON,
LONDONDERRY, LUPTON,
LYMAN, LYONS,
MANSFIELD, MARKEY,
MEDOMAK, MUCK AND PEAT,
MUNSON, NASSAU, PANTON,
PEACHAM, PINNEBOG,
PONDICHERRY, RICKER,
RIFLE, SACO, SCANTIC,

SCANTIC VARIANT,
SCARBORO, SEARSPORT,
STRATTON, SWANTON,
TACONIC, VERGENNES,
VERGENNES VARIANT,
WALLKILL, WHATELY,
WILMINGTON, WONSQUEAK,
WOODSTOCK