Part 650 – Engineering Field Handbook

Chapter 14 – Water Management (Drainage)

APPENDIX G – TILE GUIDELINES TO PROTECT WETLAND HYDROLOGY

Background

To participate in the Farm Bill, wetlands must be minimally hydrologically impacted by new drainage systems or by improvements to pre-December 23, 1985 drainage systems. In order to ensure a minimal hydrologic effect to wetlands, any new or improved drainage systems must be located so that the inundation or saturation periods as specified by the applicable wetland hydrology criteria are not shortened.

Hydrological analytical techniques such as scope and effect equations can be used to evaluate the hydrologic impacts to wetlands and to ensure minimal impacts. According to 7 CFR 12.6, the NRCS can make a wetland determination using current Federal wetland delineation methodology in use at the time of the determination and that are consistent with current mapping conventions. *NFSAM criteria may be documented through use of indicators from the appropriate hydrology sections of the "Corps of Engineers Wetland Determination Manual" (Waterways Experiment Station Technical Engineers Report Y-87-1, January 1987) and the appropriate United States Army Corps of Engineers (COE) regional supplements to the Wetland Determination Manual. In addition, the following analytical techniques may be used to supplement indicators and procedures found in the COE 1987 Manual. These techniques are outlined in NRCS Engineering Field Handbook Chapter 19 - Hydrology Tools for Wetland Delineation:*

a. Use of Stream and Lake Gages
b. Runoff Volumes
c. Remote Sensing
d. DRAINMOD
e. Scope and Effect Equations
f. NRCS Drainage Guides
g. Observation Wells

In Nebraska, the scope and effect equation used to evaluate tile systems is the van Schilfgaarde equation by means of the DRAIN program. Lateral effects for tile sizes and depths with slope adjustments are available through the Nebraska State Office. It is recommended that slope adjustments for ground surface slope to the lateral effect distance be used as deemed necessary.

Introduction

Procedures outlined in this Engineering Field Handbook Nebraska Amendment No. 44 dated June 2016 entitled ***"Tile Guidelines to Protect Wetland Hydrology"*** are only **guidelines** to protect wetland hydrology. Whenever possible and/or practical, excavation and tile in and/or near wetlands should be minimized. The final determination of how to protect wetland hydrology from new and/or improved tiling systems must be done in consultation with any applicable Federal laws and regulations, the National Food Security Act Manual, professional judgment, and experience.

The protection of wetlands from tile drainage systems must be well documented. The many requirements and precautions when tiling near wetlands include requirements (if Clean Water Act is applicable) that the U.S. Army Corps of Engineers be contacted before tile installations to request permits for the activities, that all federal (non-Farm Bill), state, county, and other local regulations have been followed, and how to document that Farm Bill requirements have been met in connection with wetland protection.

The following sections illustrate wetland protection for typical scenarios that are encountered when tiling near wetlands. The topics covered include: tiling around wetlands, exceptions to the one lateral effect distance requirements, tiling through wetlands, outletting tile in wetlands, and outletting tile to Potential U.S. Waters. The basic requirement for all these typical scenarios is that wetlands be minimally hydrologically impacted by tiling. Note that **NGS** is an abbreviation for Natural Ground Surface for all cross sections in this document.

Tiling Around Wetlands

It is recommended that perforated tile be routed around wetlands instead of through wetlands. The perforated tile must be located one lateral effect distance away from any wetlands. No perforated tile is allowed within the lateral effect distance defined in Table 1 of this Appendix labeled “Nebraska Minimum Lateral Effects Distances by County” drainage charts” (pages 209 – 546). In connection with this recommendation, examples of what is and what is not allowed are shown on Figure 1 and Figure 2

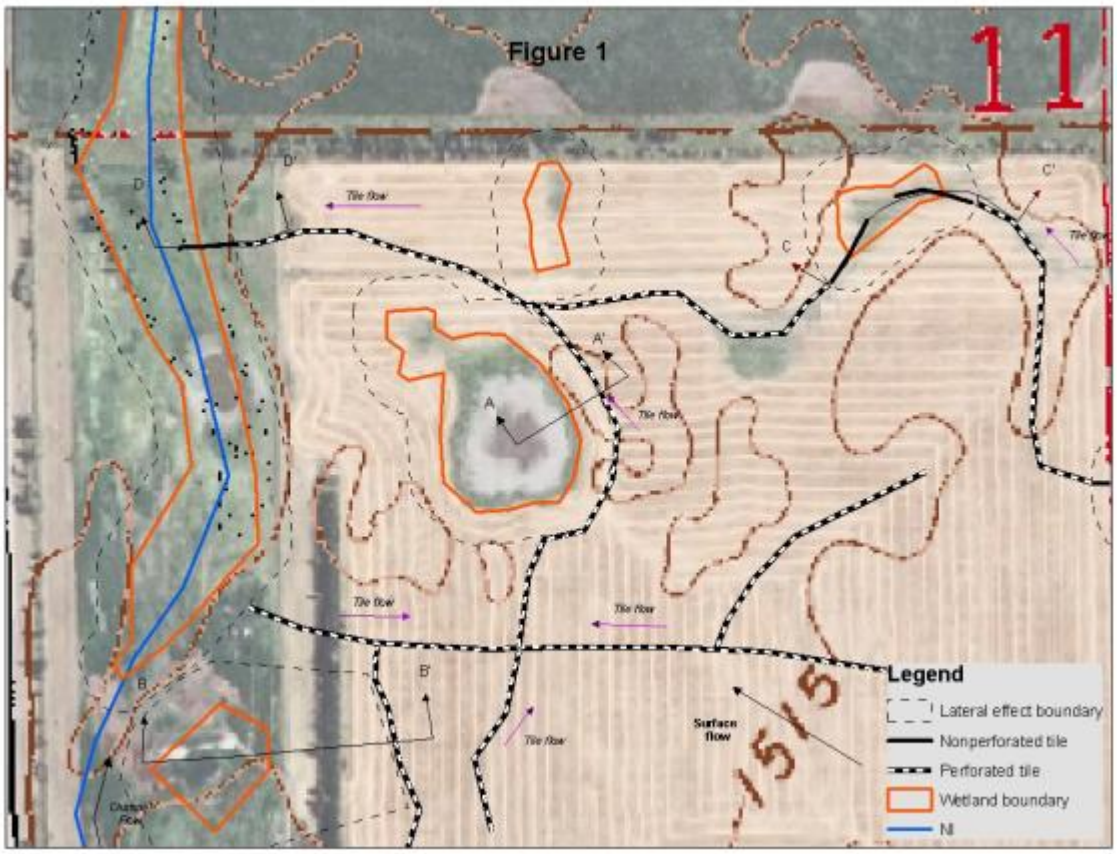

Figure 1

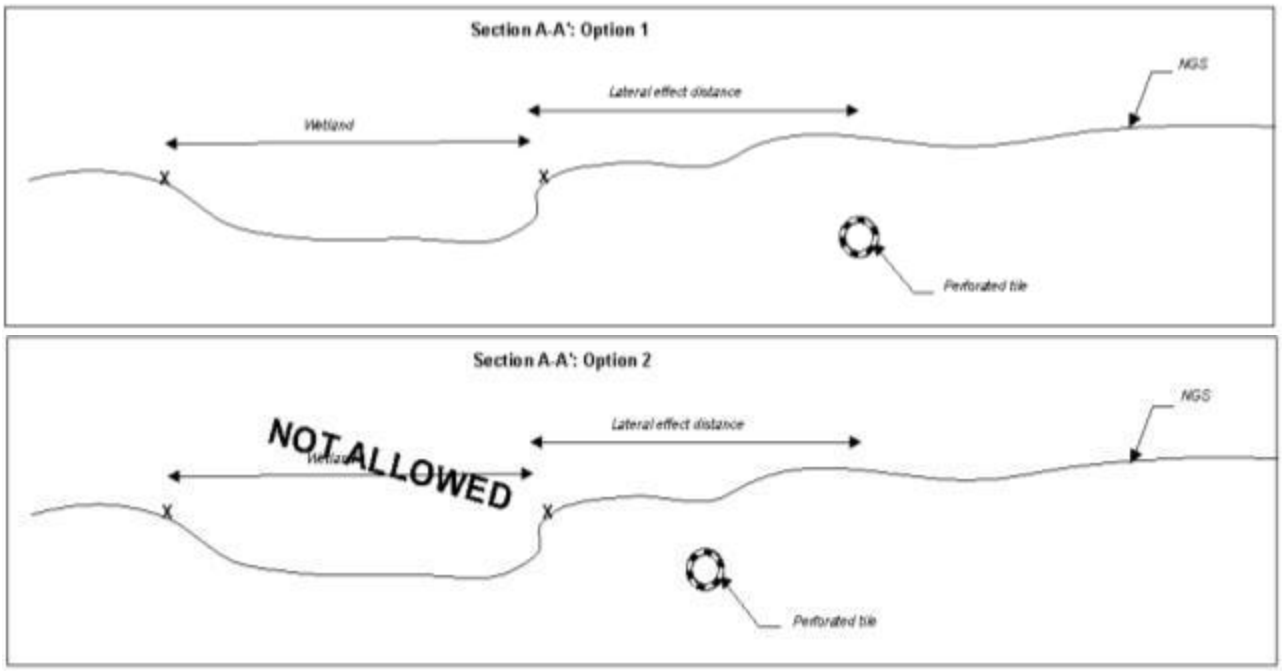

Figure 2

Additional restrictions for tile drainage systems with surface inlets are necessary to ensure surface runoff is not altered and water not diverted from downstream wetlands. If tile has surface inlets in the watershed draining to the wetland, the tile must outlet upstream of the downstream wetland. Examples of what is and what is not allowed are shown on Figure 3 and Figure 4.

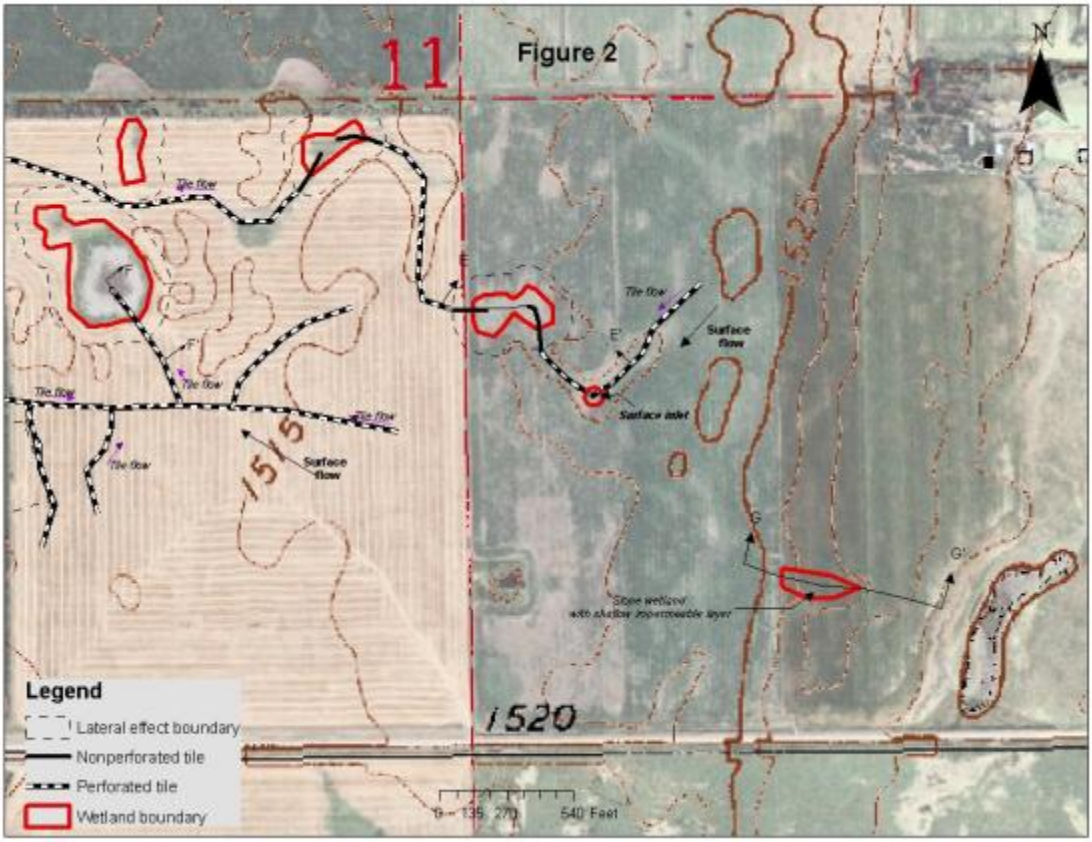

Figure 3

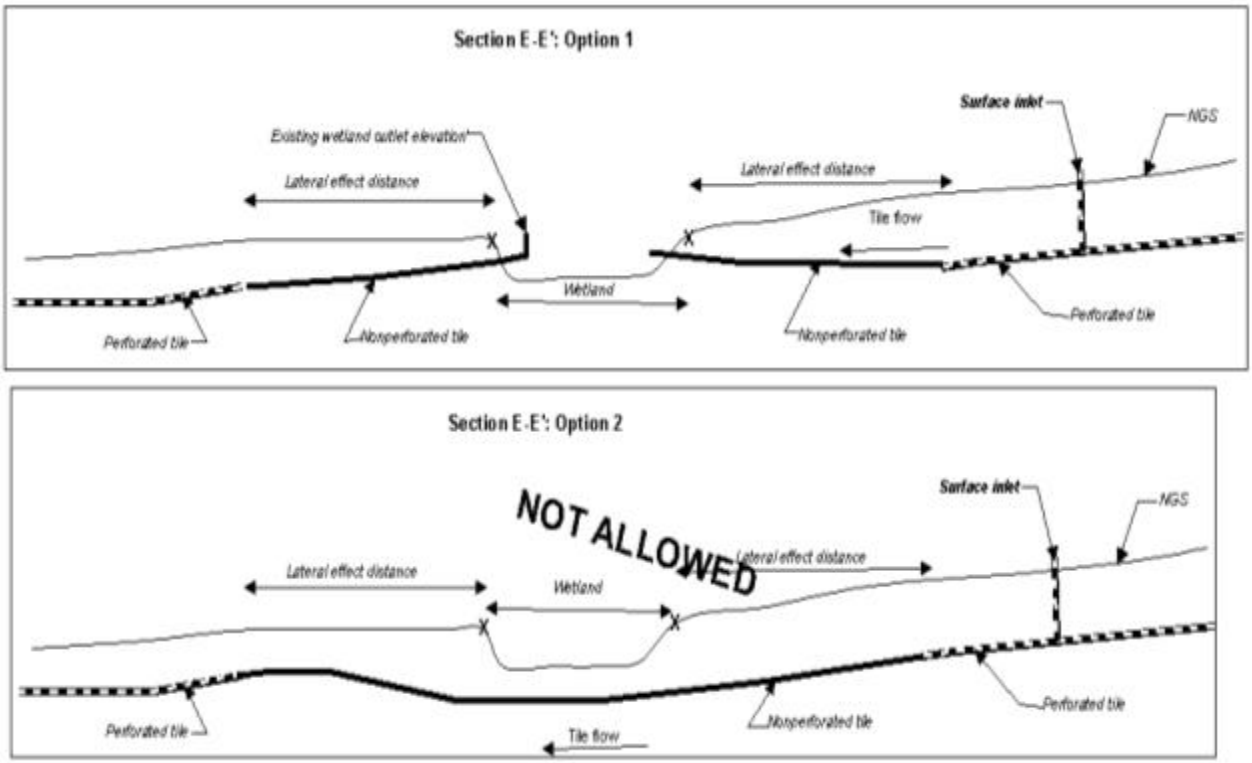

Figure 4

Exceptions to the One Lateral Effect Distance Requirements

Exceptions to the 1 x lateral effect distance requirement are for cases where significant groundwater interception by the tile system from the wetland can be substantiated and documented. Interception occurs when a tile or ditch placed on top of, or just into a restrictive layer can intercept the majority of the groundwater flow from an overlying porous soil layer. In these situations, it is possible to intercept the majority of the groundwater flow and divert it away from a down slope wetland area. For this case, the lateral effect distance is increased by magnitude of three on any side of the wetland where groundwater flow is being intercepted. Hydric soils and landscapes with a potential groundwater interception risk are included in Table 2 of this Appendix labeled "Nebraska Hydric Soils Components, Classes and assessment Groups" (pages 546 - 551). The 3 x lateral effect distance is more apt to be applicable in a landscape and geographic area subject to groundwater lateral flow as indicated by a "yes" in Groundwater Interpretation Risk column of Table 2. Please note that there are other soils not listed in this table that also may discharge water to wetlands.

The 3 x lateral effect distance requirement especially is also required where encirclement of the wetland by tile exists. Encirclement is the cutting off of the water supply to a wetland by interrupting flow of subsurface water to the wetland. If a tile or ditch completely encircles a wetland, it can cut off the subsurface water that provides the hydrology of the wetland, similar to a diversion above ground diverting surface water away from a wetland. Examples of what is and what is not allowed in connection with the 3 x lateral effect distance requirement are shown on Figure 1 and Figure 5.

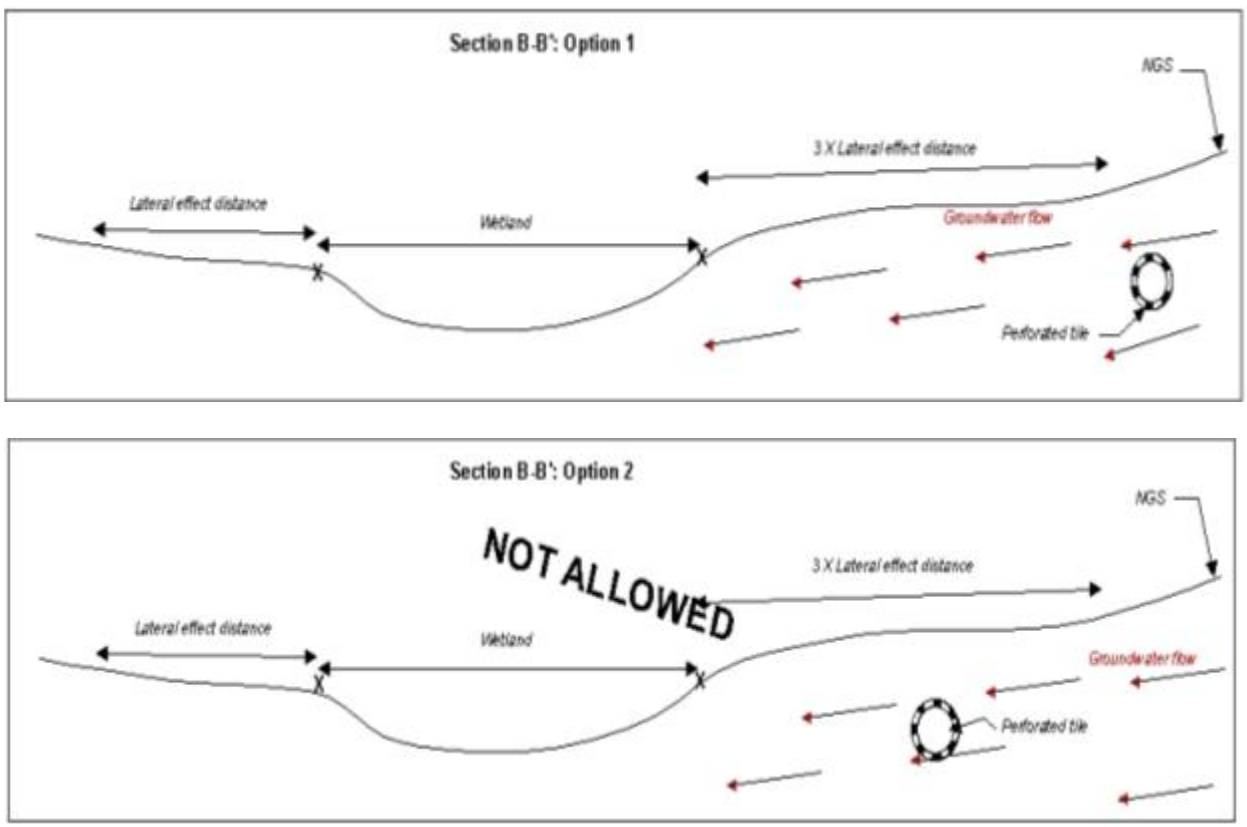

Figure 5

Another exception to the 1 x effect distance requirement is for cases where the wetland receives groundwater flow from a shallow perched water table from uphill slopes. A shallow impermeable layer (bedrock or a soil with a hydraulic conductivity that is considerably less than the layer above) causes the perched water table. The lateral effect distances calculated by the DRAIN program are not applicable for these cases as the van Schilfgaarde equation is only applicable to cases where the impermeable layer is at least 10 feet deep and the water table surface and impermeable layers are nearly horizontal. No perforated tile will be allowed across the hillside slope as the tile would significantly impact the hydrology of the wetland. Examples of what is and what is not allowed are shown on Figure 3 and Figure 6.

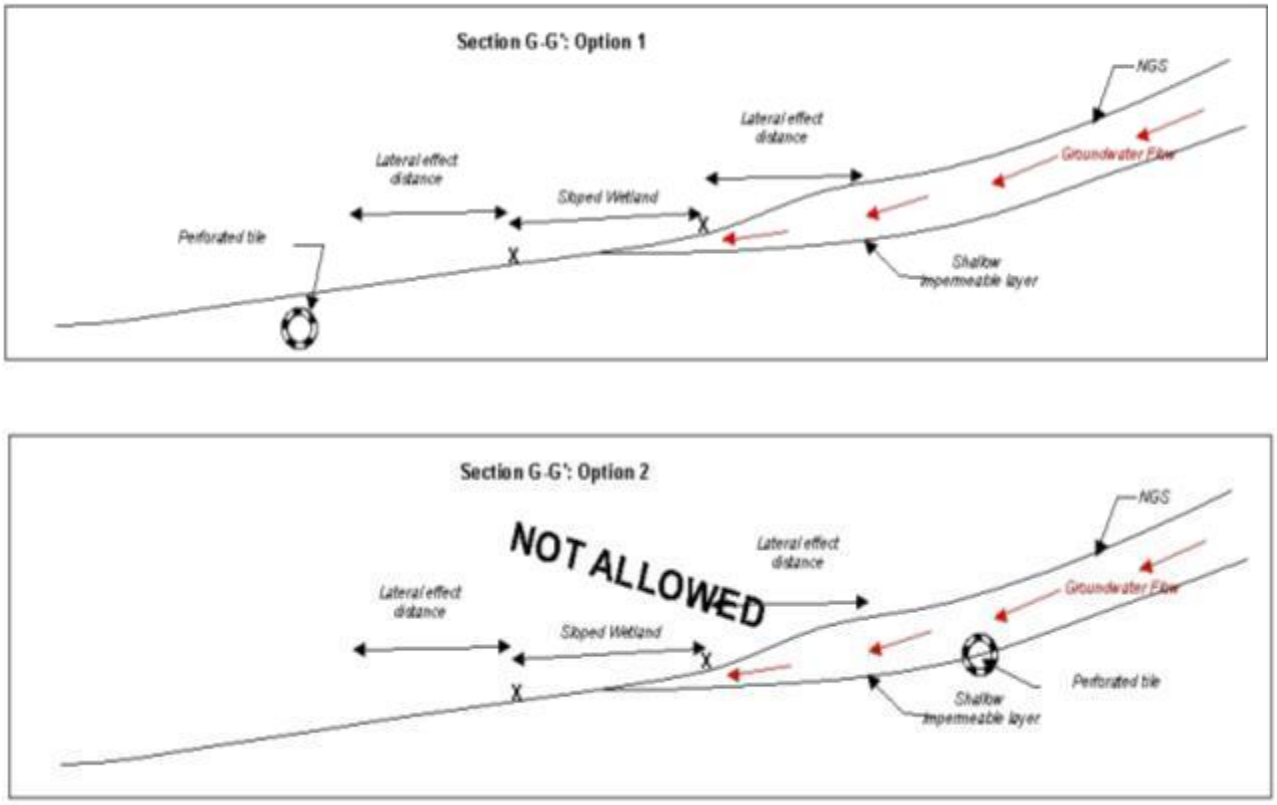

Figure 6

Tiling through Wetlands

It is preferred that tile not be run through wetlands. If tile must be run through a wetland, there are two options acceptable for running tile through wetlands. The first approved option is to run nonperforated tile through the wetland and the applicable (1 x or 3 x) lateral effect distance from the wetland. An example is shown on Figure 1 and Figure 7.

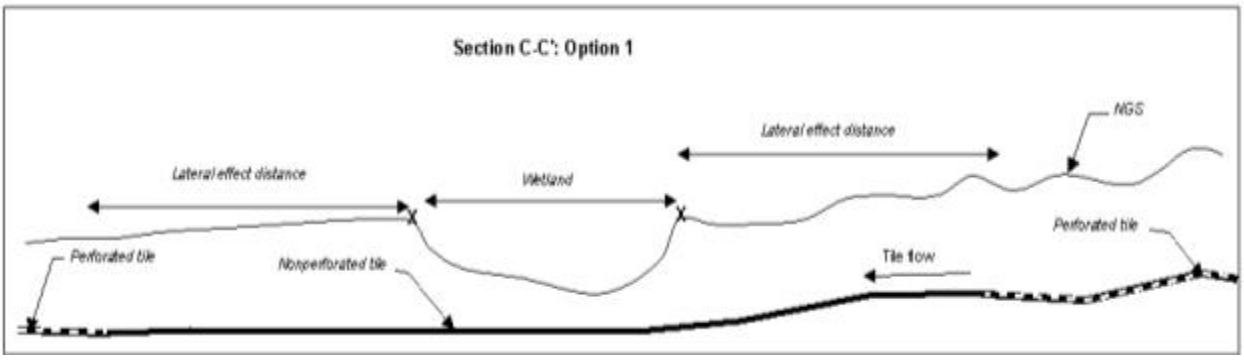

Figure 7

The second approved option is to outlet the tile (nonperforated or perforated) to the wetland on the upstream flow side. Nonperforated tile is used on the downstream flow side with the invert elevation set at the elevation of the existing wetland outlet. Again, if the tile system has surface inlets in the watershed draining to the wetland, the tile must outlet upstream of the downstream wetland. An example of what is allowed for this option is shown on Figure 1 and Figure 8. No perforated tile is allowed below the wetland bottom as illustrated by the example shown on Figure 1 and Figure 8.

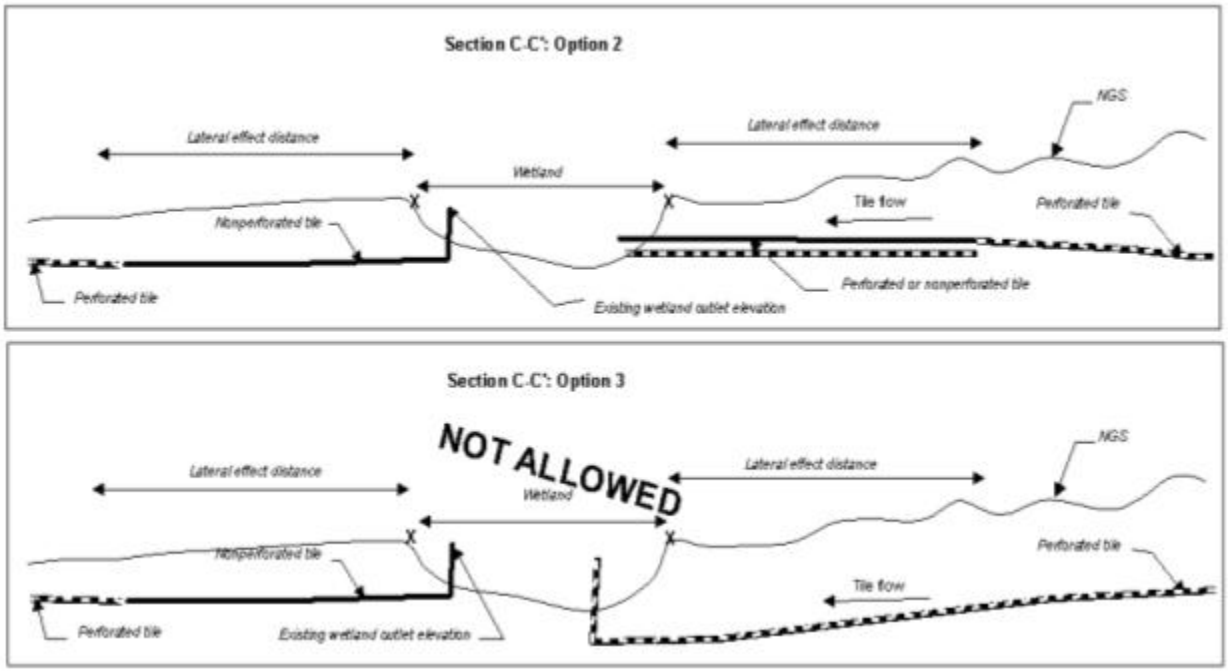

Figure 8

Outletting Tile in Wetlands

If tile is being outletted to a depressional wetland, nonperforated tile is preferred within the wetland and the appropriate (1 x or 3 x) lateral effect distance from the wetland. Examples are shown on Figure 3 and Figure 9.

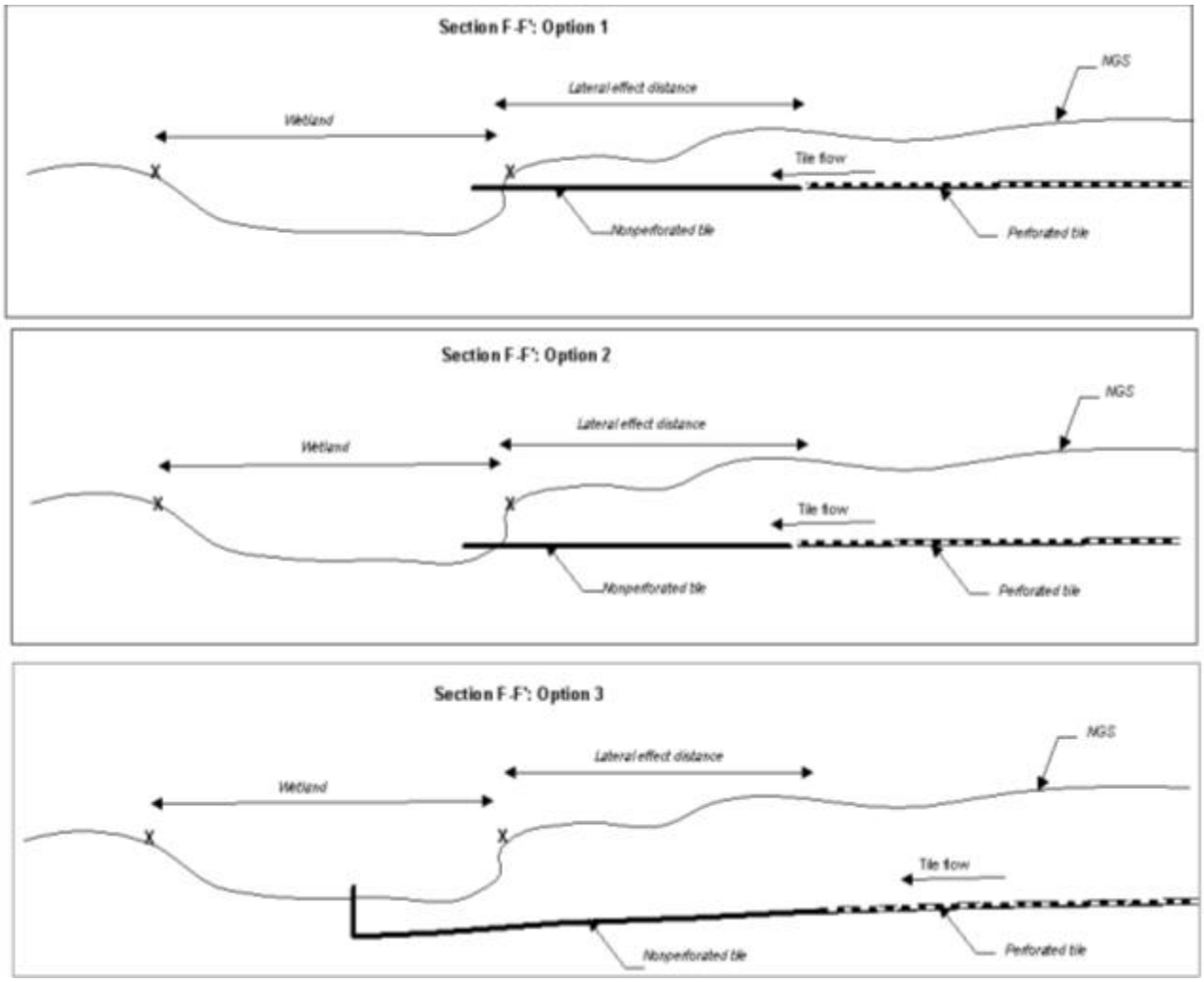

Figure 9

If using only nonperforated tile within and near the wetland in connection with outletting tile to a depressional wetland is not acceptable to the producer, perforated tile can be used for the tile flowing into the wetland. Examples are shown on Figure 3 and Figure 10.

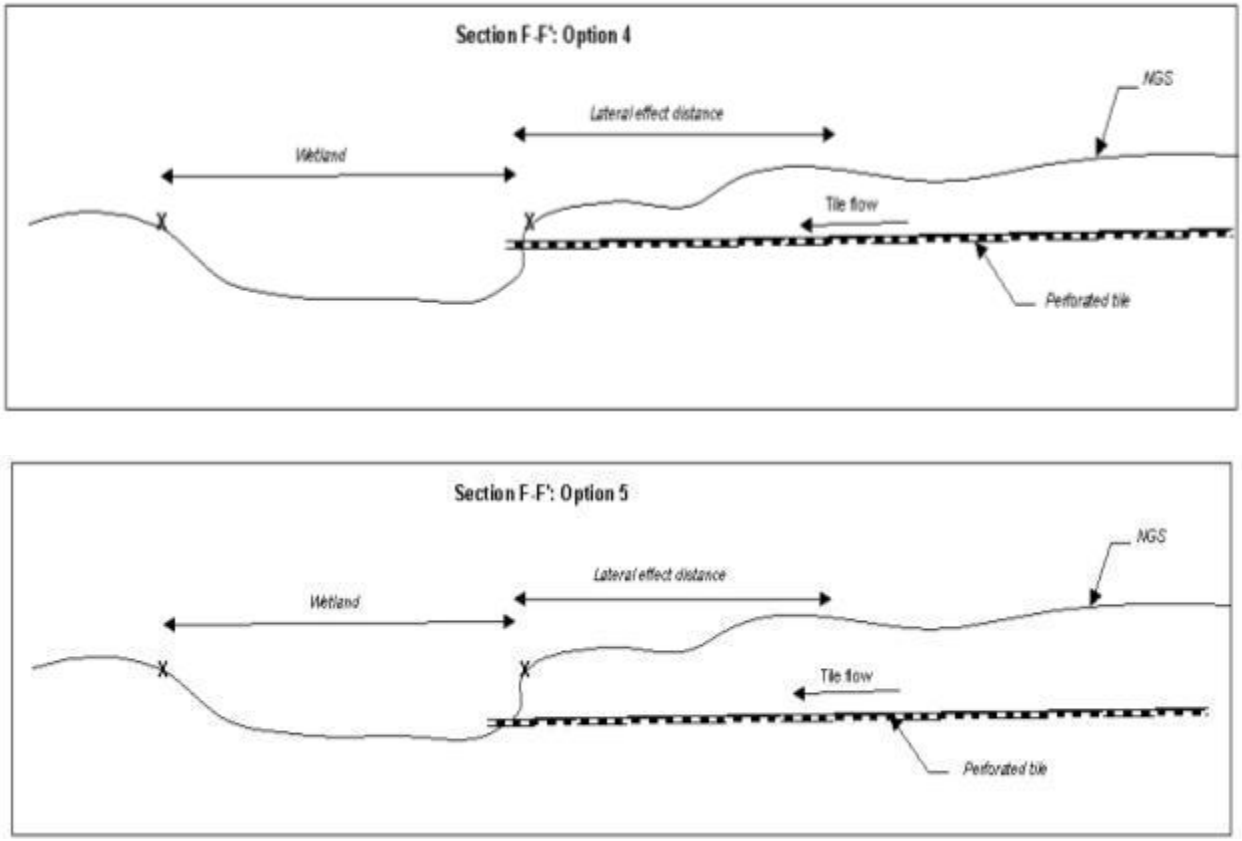

Figure 10

However, in connection with outletting tile to a depressional wetland, it is not acceptable to place perforated tile below the wetland bottom within the wetland and the appropriate lateral effect distance from the wetland. An example of what is not allowed is shown on Figure 3 and Figure 11.

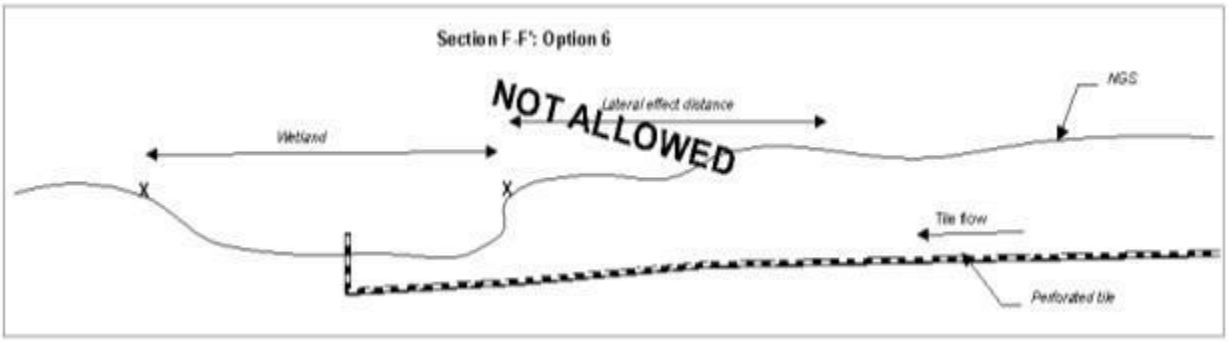

Figure 11

Outletting Tile to Potential U.S. Waters

If tile is being outletted through an associated (floodplain) wetland to potential U.S. Water, nonperforated tile is required within the wetland and the appropriate (1 x or 3 x) lateral effect distance from the wetland. Examples of what is allowed are shown on Figure 1 and Figure 12.

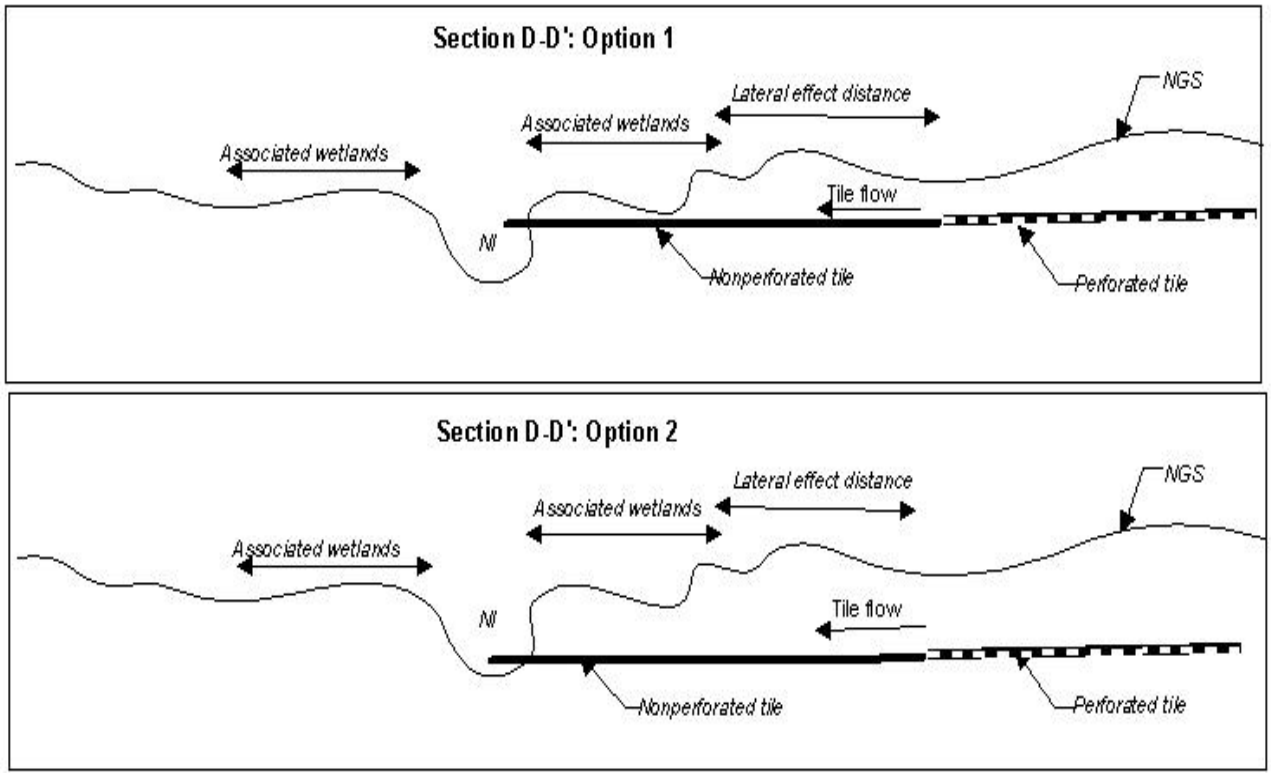

Figure 12

No perforated tile is allowed within the floodplain wetland and the appropriate (1 x or 3 x) lateral effect distance from the wetland. An example of what is not allowed is shown on Figure 1 and Figure 13.

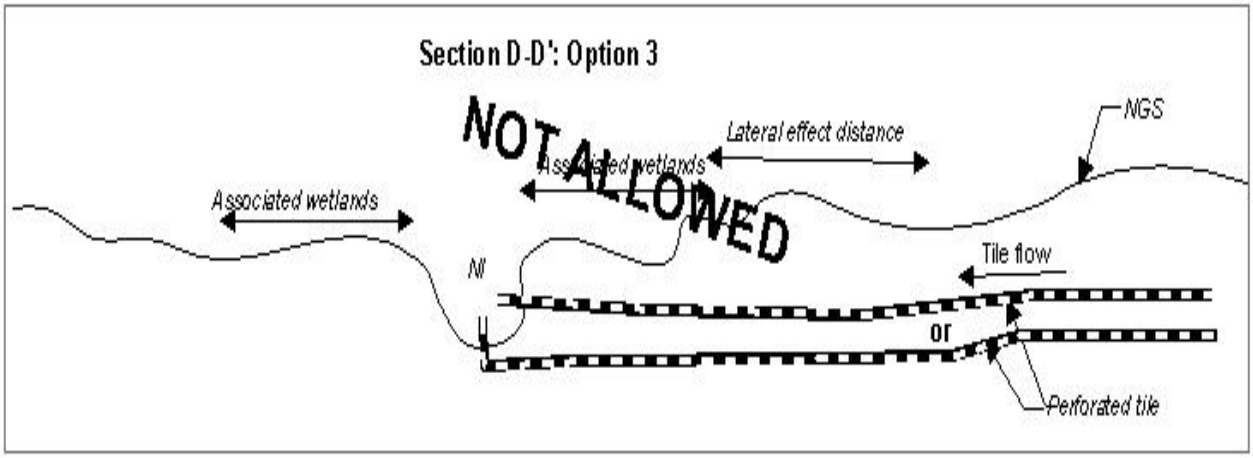

Figure 13

If the tile is being run through no associated wetlands and does not affect (not within the appropriate lateral effect distance) any associated wetlands, perforated tile can be used as shown on Figure 1 and Figure 14.

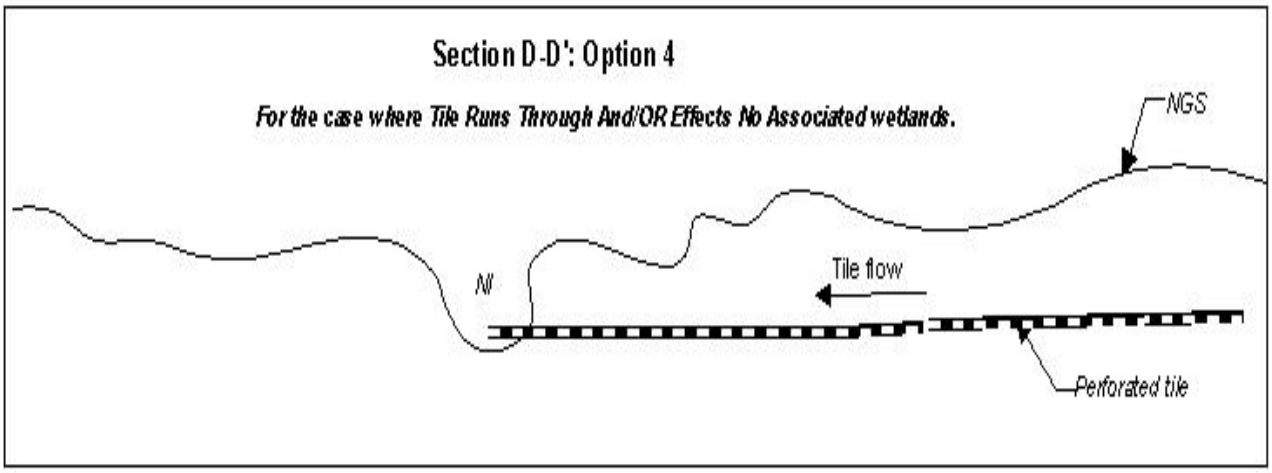

Figure 14

Tiling Near Potential U.S. Waters

Tiling near intermittent and perennial streams must not intercept the water that naturally flows to associated wetlands connected with the streams. If tiling is done above linear wetlands in and/or near major linear drainage features (channel), the water collected by the tile must be outletted to the stream area with associated wetlands as shown on Figure 15. The lateral effect distance that the perforated tile must stay outside of is either one or three lateral effect distances depending on if the wetland is recharge or discharge. Two potential field examples involving sloped wetlands are shown in Figure 16 and Figure 17.

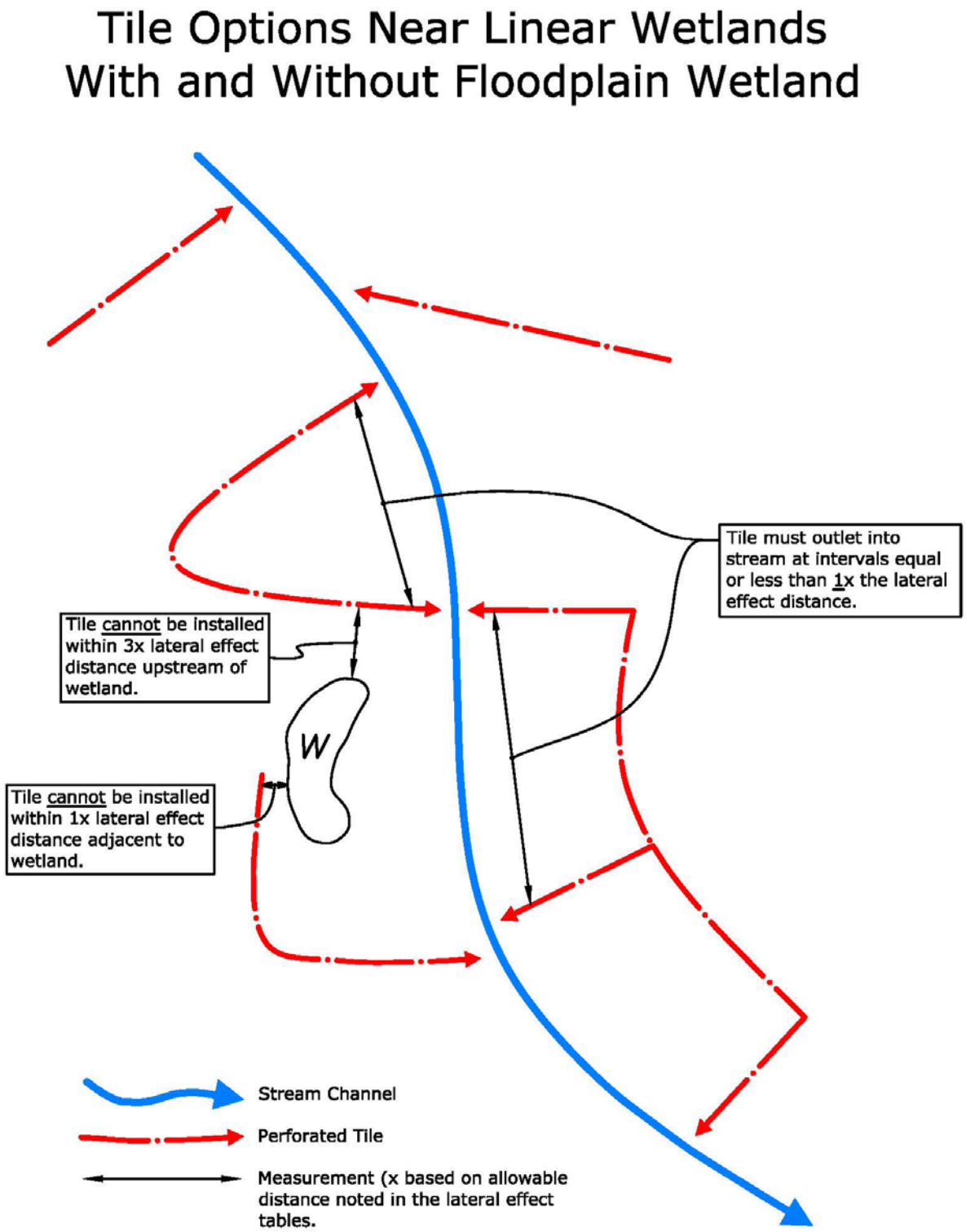
Tile Options Near Linear Wetlands
With and Without Floodplain Wetland
Tile must outlet into stream at intervals equal or less than 1x the lateral effect distance.
Tile cannot be installed within 3x lateral effect distance upstream of wetland.
W
Tile cannot be installed within 1x lateral effect distance adjacent to wetland.
Stream Channel
Perforated Tile
Measurement (x based on allowable distance noted in the lateral effect tables.

Figure 15

Scenario #1

Perforated tile throughout and adjacent to wetland not allowed because tile impacts hydrology to the FWP wetland.

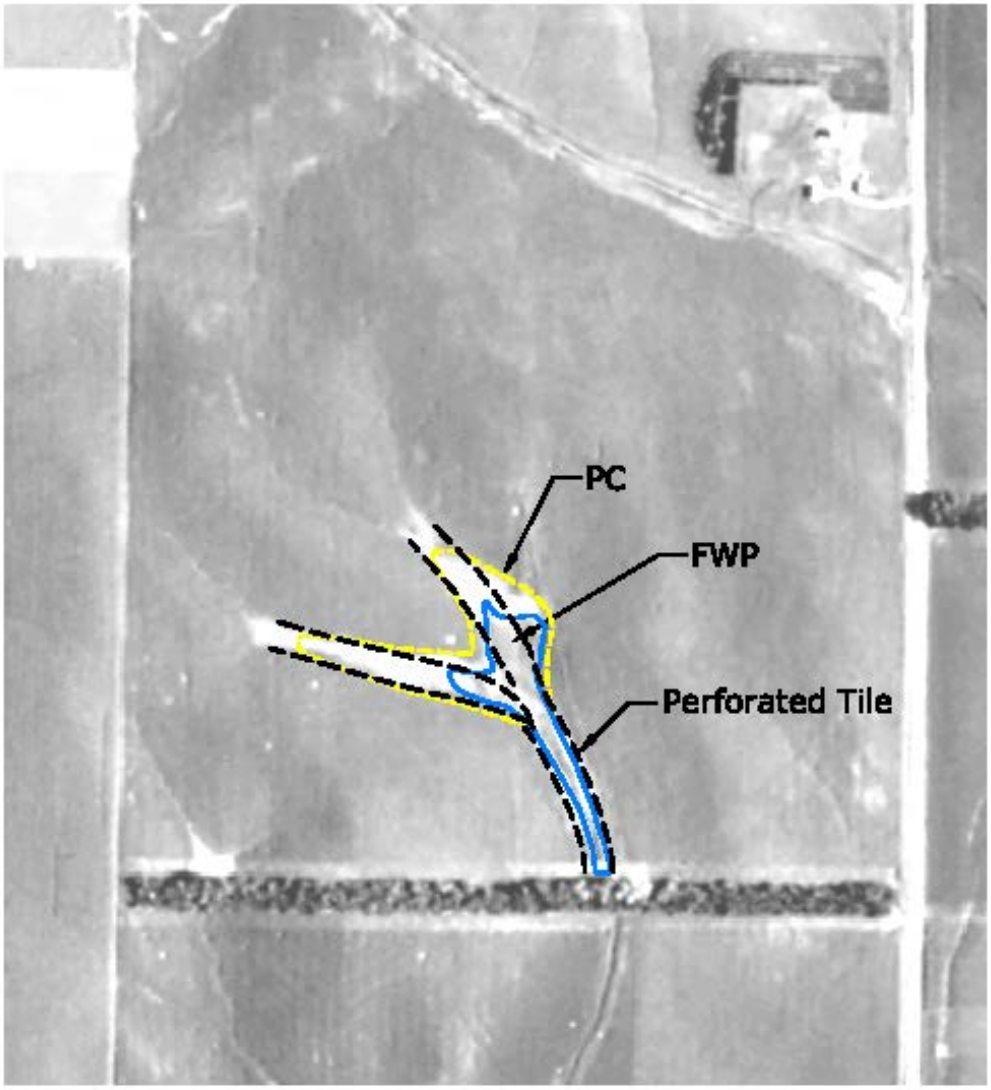

Figure 16

Scenario #2

Perforated tile only in PC area and outlet at boundary of FWP wetland is allowed.

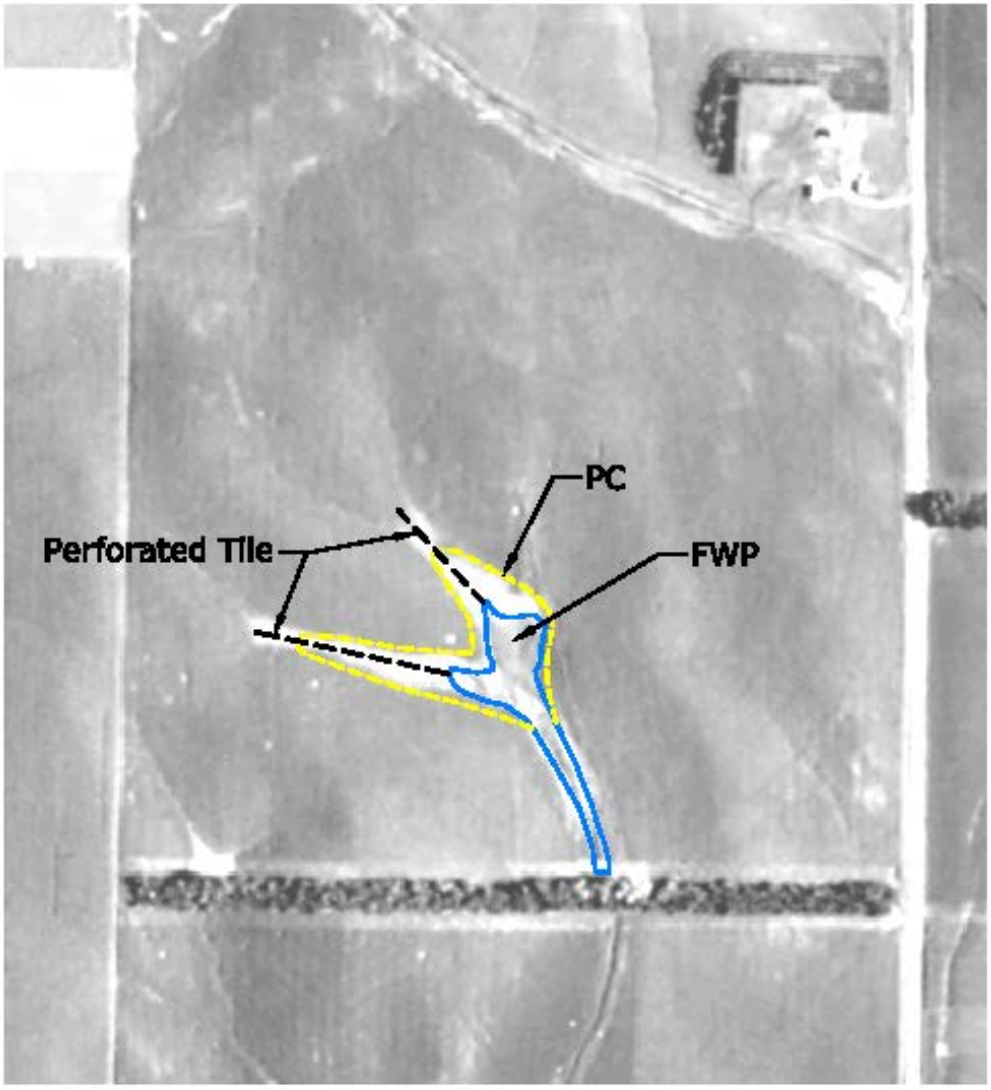

Figure 17

Summary

Wetlands can only be minimally hydrologically impacted by new drainage systems or by improvements to pre-December 23, 1985 drainage systems. The scope and effect equation used in Nebraska to evaluate tile systems is the van Schilfgaarde equation via the DRAIN program. The van Schilfgaarde equation is used to compute tile lateral effect distances.

It is always important to minimize excavation and tile in and near wetlands. All applicable laws and regulations beyond the Food Security Act Laws must also still be followed. When using this document use professional judgment, and experience. The procedures outlined in this technical note are only tile **guidelines** to protect wetland hydrology.

TABLE 1 – Nebraska Minimum Lateral Effects Distances by County

A. Tables provide guidance on minimum distance tile drainage must be kept from wetlands.

B. Tables are based on current soil data.

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Adams County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slopes %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	305	357	396	426
2328	Inavale	Inavale fine sandy loam, occasionally flooded	0 to 3	202	238	265	286
2331	Inavale	Inavale loamy fine sand, rarely flooded	0 to 2	293	343	380	409
2521	Coly	Coly-Hobbs silt loams, 0 to 30 percent slopes	2 to 30	128	152	171	185
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	136	161	180	195
2536	Coly	Coly silt loam, 30 to 60 percent slopes	30 to 60	136	161	180	195
2537	Coly	Coly silt loam, 6 to 11 percent slopes	7 to 11	136	161	180	195
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2558	Coly	Coly-Uly silt loams, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2595	Hersh	Hersh fine sandy loam, 0 to 3 percent slopes	0 to 3	153	181	202	219
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	126	150	168	183
2615	Hersh	Hersh-Kenesaw complex, undulating	0 to 3	126	150	168	183
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	94	114	128	140
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	94	114	128	140
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	94	114	128	140
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	94	114	128	140
2830	Uly	Uly-Coly silt loams, 11 to 30 percent slopes	9 to 30	136	161	181	196
2834	Uly	Uly-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	143	170	190	206
3252	Meadin	Meadin sandy loam, 0 to 2 percent slopes	0 to 3	344	401	444	478
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	158	187	209	227
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	167	197	220	238
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	108	130	146	159

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Adams County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slopes %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	217	255	284	306
3730	Massie	Massie silt loam, frequently ponded	0 to 1	125	150	168	182
3731	Massie	Massie silty clay loam, frequently ponded	0 to 1	97	117	132	144
3755	Hord	Hord silt loam, rarely flooded	0 to 1	125	149	168	182
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3835	Geary	Geary silt loam, 11 to 30 percent slopes	11 to 30	115	138	155	169
3838	Geary	Geary silt loam, 7 to 11 percent slopes	7 to 11	113	136	153	167
3840	Geary_variant	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	110	133	149	162
3844	Geary	Geary silt loam, 3 to 7 percent slopes	3 to 7	113	136	153	166
3846	Geary_variant	Geary silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	110	133	149	162
3851	Geary	Geary-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	112	135	151	164
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	153	180	202	219
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	153	181	203	220
3870	Hastings_ variant	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	127	151	169	183
3871	Hastings_ variant	Hastings silt loam, thin solum variant	0 to 1	130	155	173	188
3880	Holder	Holder silt loam, 1 to 3 percent slopes	1 to 3	131	156	174	189
3881	Holder	Holder loam, 0 to 3 percent slopes, overblown	0 to 3	96	117	132	143
3882	Holder	Holder silt loam, 3 to 7 percent slopes	3 to 7	91	110	124	136
3883	Holder	Holder silt loam, 3 to 7 percent slopes, eroded	3 to 7	88	107	121	132
3884	Holder	Holder silt loam, 7 to 11 percent slopes	7 to 11	89	108	122	133
3885	Holder	Holder silt loam, 0 to 1 percent slopes	0 to 1	130	154	173	188
3887	Holder_variant	Holder silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	296	346	384	413
3888	Holder_variant	Holder silty clay loam, 3 to 7 percent slopes, severely eroded	3 to 7	165	195	218	236
3889	Holder_variant	Holder silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	293	342	380	408
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
4114	Holder_variant	Holder silty clay loam, 7 to 11 percent slopes, severely eroded	7 to 11	162	191	214	231
4138	Holdrege	Holdrege silt loam, 7 to 11 percent slopes	6 to 11	93	113	127	139

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Adams County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slopes %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4147	Holdrege	Holdrege soils, 3 to 7 percent slopes, severely eroded	3 to 7	85	104	117	128
4148	Holdrege	Holdrege soils, 7 to 11 percent slopes, severely eroded	7 to 10	85	103	117	128
4222	Bolent	Bolent loam, occasionally flooded	0 to 2	592	687	759	813
4232	Calamus	Calamus loamy fine sand, rarely flooded	0 to 2	364	424	470	505
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	346	403	447	480
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	346	403	308	480
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	236	277	308	332
6571	Thurman	Thurman-Valentine loamy fine sands, undulating	0 to 5	274	321	357	384
6579	Ortello	Ortello loam, 0 to 1 percent slopes	0 to 1	463	538	596	639
7262	Deroin	Deroin soils, 6 to 11 percent slopes, severely eroded	7 to 10	96	116	131	142
8415	Boel	Boel fine sandy loam, rarely flooded	0 to 2	403	470	520	558
8434	Cass	Cass fine sandy loam, overwash, occasionally flooded	0 to 2	243	285	317	342
8435	Cass	Cass loam, rarely flooded	0 to 2	221	259	289	311
8436	Cass	Cass loam, occasionally flooded	0 to 2	203	239	266	287
8439	Cass	Cass silt loam, occasionally flooded	0 to 1	507	590	652	699
8491	Gothenburg	Gothenburg loam, frequently flooded	0 to 2	452	526	582	624
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	323	377	418	450
8506	Lex	Lex silt loam, rarely flooded	0 to 1	900	1041	1148	1229
8563	Platte	Platte loam, occasionally flooded	0 to 1	446	519	574	616
8570	Platte	Platte-Bolent complex, occasionally flooded	0 to 2	537	623	689	739
8808	Anselmo	Anselmo fine sandy loam, terrace, 0 to 1 percent slopes	0 to 1	182	214	239	258
8809	Anselmo	Anselmo fine sandy loam, terrace, 1 to 3 percent slopes	1 to 3	121	145	163	177
8812	Cozad	Cozad loam, sand substratum, 0 to 3 percent slopes	0 to 3	212	249	277	299
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	207	243	271	292
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	136	161	181	196
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	124	148	167	181
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	124	148	166	181
8932	Simeon	Simeon sandy loam, 0 to 3 percent slopes	0 to 3	300	350	389	418

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Adams County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slopes %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9025	Gates	Gates fine sandy loam, 0 to 3 percent slopes, hummocky	0 to 3	99	119	134	146
9026	Gates	Gates silt loam, 0 to 1 percent slopes	0 to 1	272	318	353	380
9027	Gates	Gates silt loam, 1 to 3 percent slopes	1 to 3	218	256	285	307
9063	Kenesaw	Kenesaw silt loam, 0 to 1 percent slopes	0 to 1	176	207	231	250
9064	Kenesaw	Kenesaw silt loam, 1 to 3 percent slopes	1 to 3	180	212	236	255
9066	Kenesaw	Kenesaw silt loam, 3 to 6 percent slopes	3 to 6	213	250	279	300
9080	Rusco	Rusco silt loam, 0 to 1 percent slopes	0 to 1	131	156	175	189
9830	Ustorthents	Spoil banks	0 to 60	112	134	151	164
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Antelope County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2322	Inavale	Inavale fine sand, channeled, frequently flooded	0 to 3	333	389	431	464
2327	Inavale	Inavale fine sandy loam, rarely flooded	0 to 2	400	466	516	554
2330	Inavale	Inavale fine sand, rarely flooded	0 to 2	331	387	429	461
3163	Doger	Doger fine sand, 0 to 6 percent slopes	0 to 6	366	427	473	508
3164	Doger	Doger loamy fine sand, 0 to 2 percent slopes	0 to 3	335	391	434	466
3165	Doger	Doger loamy fine sand, 2 to 6 percent slopes	3 to 6	335	391	434	466
3252	Meadin	Meadin sandy loam, 0 to 2 percent slopes	0 to 3	307	359	398	428
3255	Meadin	Meadin sandy loam, 2 to 30 percent slopes	3 to 30	307	359	398	428
3259	Meadin	Meadin-O'Neill complex, 2 to 30 percent slopes	3 to 30	305	356	396	425
3264	O'Neill	O'Neill loam, 0 to 2 percent slopes	0 to 2	660	765	844	905
3267	O'Neill	O'Neill sandy loam, 0 to 2 percent slopes	0 to 2	469	545	603	646
3268	O'Neill	O'Neill sandy loam, 2 to 6 percent slopes	2 to 6	469	545	603	646
3280	Paka	Paka complex, 0 to 2 percent slopes	0 to 3	67	82	94	103
3281	Paka	Paka complex, 2 to 6 percent slopes	3 to 6	67	82	94	103
3282	Paka	Paka complex, 6 to 11 percent slopes	6 to 11	67	82	94	103
3283	Paka	Paka fine sandy loam, 0 to 2 percent slopes	0 to 2	85	104	118	128
3284	Paka	Paka fine sandy loam, 2 to 6 percent slopes	2 to 6	85	104	118	128
3285	Paka	Paka loam, 0 to 2 percent slopes	0 to 2	110	133	149	162
3286	Paka	Paka loam, 2 to 6 percent slopes	2 to 6	108	131	147	160
3287	Paka	Paka loam, 6 to 11 percent slopes, eroded	6 to 11	118	141	159	172
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	159	188	210	227
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	159	188	210	227
3642	Kezan	Kezan silt loam, occasionally flooded	0 to 2	147	174	195	211
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	365	425	471	506
3951	Fillmore	Fillmore silt loam, occasionally ponded	0 to 1	130	155	174	188
4178	Longford	Longford complex, 1 to 7 percent slopes	1 to 4	79	96	109	119
4179	Longford	Longford loam, 1 to 7 percent slopes	1 to 5	90	109	123	134
4215	Blackloup	Blackloup loam, rarely flooded	0 to 1	296	346	385	414
4216	Blackloup	Blackloup loam, occasionally flooded	0 to 1	383	447	495	531
4236	Calamus	Calamus-Boel complex, channeled, rarely flooded	0 to 2	479	556	615	660
4240	Ord	Ord fine sandy loam, rarely flooded	0 to 2	284	332	369	397
4243	Ord	Ord loam, rarely flooded	0 to 2	363	423	469	504
4352	Elsmere	Elsmere fine sandy loam, rarely flooded	0 to 2	540	627	693	743

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Antelope County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4384	Nenzel	Nenzel loamy fine sand, very rarely flooded	0 to 3	349	408	452	485
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	340	396	439	472
4488	Dunday	Dunday loamy fine sand, 3 to 6 percent slopes	3 to 6	340	396	439	472
4498	Dunday	Dunday loamy sand, 0 to 3 percent slopes	0 to 3	334	389	432	464
4499	Dunday	Dunday loamy sand, 3 to 6 percent slopes	3 to 6	341	398	442	475
4550	Elsmere	Elsmere fine sand, 0 to 3 percent slopes	0 to 3	461	536	593	636
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	421	490	542	582
4560	Elsmere	Elsmere-Ipage loamy fine sands, 0 to 3 percent slopes	0 to 3	441	513	568	609
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	360	420	466	500
4665	Loup	Loup fine sandy loam, frequently ponded	0 to 2	448	521	577	619
4667	Loup	Loup fine sandy loam, drained, 0 to 3 percent slopes	0 to 2	470	547	605	649
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	541	628	694	745
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	363	423	469	504
4786	Valentine	Valentine fine sand, 0 to 6 percent slopes	0 to 6	363	423	469	504
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4807	Valentine	Valentine fine sand, rolling	9 to 24	363	423	469	504
4857	Valentine	Valentine-Dunday loamy fine sands, 3 to 9 percent slopes	3 to 9	346	404	448	481
4871	Valentine	Valentine-Dunday loamy fine sands, 0 to 3 percent slopes	0 to 3	346	404	448	481
4876	Valentine	Valentine-Simeon complex, 0 to 3 percent slopes	0 to 3	363	423	469	504
4878	Valentine	Valentine-Simeon complex, 3 to 6 percent slopes	3 to 6	363	423	469	504
4879	Valentine	Valentine-Simeon complex, 6 to 11 percent slopes	6 to 11	363	423	469	504
4881	Valentine	Valentine-Simeon sands, 3 to 9 percent slopes	3 to 9	338	395	438	471
6320	Barney	Barney-Boel-Calamus complex, channeled	0 to 1	484	563	622	668
6336	Lawet	Lawet silt loam, occasionally flooded	0 to 2	151	179	200	217
6343	Lawet	Lawet soils, wet, occasionally flooded	0 to 2	151	179	200	217
6346	Lawet	Lawet-Saltine complex, occasionally flooded	0 to 1	290	339	377	405
6366	Obert	Obert silt loam, occasionally flooded	0 to 2	136	162	181	196

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Antelope County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6369	Orwet	Orwet loam, rarely flooded	0 to 2	369	430	476	512
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	177	208	233	252
6459	Inglewood	Inglewood-Boel complex, channeled, occasionally flooded	0 to 2	374	436	483	519
6500	Bazile	Bazile loam, 0 to 2 percent slopes	0 to 2	424	494	547	587
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	418	487	539	578
6510	Blendon	Blendon fine sandy loam, 2 to 6 percent slopes	2 to 6	418	487	539	578
6533	Loretto	Loretto fine sandy loam, 0 to 2 percent slopes	0 to 2	65	79	91	100
6575	Trent	Trent silt loam, 0 to 2 percent slopes	0 to 2	155	183	205	222
6578	Ortello	Ortello fine sandy loam, 0 to 1 percent slopes	0 to 1	226	266	296	319
6579	Ortello	Ortello loam, 0 to 1 percent slopes	0 to 1	299	349	387	417
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	135	159	179	194
6603	Alcester	Alcester silty clay loam, 2 to 6 percent slopes	2 to 6	120	144	162	176
6604	Bazile	Bazile complex, 0 to 3 percent slopes	0 to 3	232	272	303	327
6605	Bazile	Bazile loam, 2 to 6 percent slopes	2 to 6	424	494	547	587
6606	Bazile	Bazile loam, 6 to 11 percent slopes	6 to 11	429	499	552	593
6607	Bazile	Bazile complex, 3 to 6 percent slopes	3 to 6	232	272	303	327
6608	Bazile	Bazile loamy fine sand, 0 to 2 percent slopes	0 to 2	222	261	290	313
6609	Bazile	Bazile loamy fine sand, 2 to 6 percent slopes	2 to 6	221	260	289	312
6611	Bazile	Bazile complex, 6 to 11 percent slopes	6 to 11	229	268	299	322
6613	Bazile	Bazile silt loam, 0 to 2 percent slopes	0 to 2	475	552	611	655
6635	Boelus	Boelus fine sand, 0 to 6 percent slopes	0 to 6	138	163	183	199
6636	Boelus	Boelus loamy fine sand, 0 to 3 percent slopes	0 to 3	110	133	149	162
6637	Boelus	Boelus loamy fine sand, 2 to 6 percent slopes	2 to 6	110	133	149	162
6640	Boelus	Boelus loamy sand, 0 to 3 percent slopes	0 to 3	110	133	149	162
6641	Boelus	Boelus loamy sand, 3 to 6 percent slopes	3 to 6	89	109	123	134
6642	Boelus	Boelus loamy sand, 6 to 11 percent slopes	6 to 11	89	109	123	134
6660	Brunswick	Brunswick-Paka complex, 11 to 30 percent slopes	11 to 30	211	248	277	298
6663	Brunswick	Brunswick-Paka complex, 17 to 30 percent slopes	15 to 30	121	145	163	176

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Antelope County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6665	Brunswick	Brunswick-Pivot complex, 11 to 30 percent slopes	11 to 30	216	254	282	305
6674	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
6681	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	231	271	301	325
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6689	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	231	271	301	325
6696	Crofton	Crofton-Nora silt loams, 11 to 17 percent slopes, eroded	11 to 17	231	271	301	325
6697	Crofton	Crofton-Nora silt loams, 17 to 30 percent slopes	17 to 30	230	270	300	324
6698	Crofton	Crofton-Nora silt loams, 2 to 6 percent slopes, eroded	2 to 6	231	271	301	325
6699	Crofton	Crofton-Nora silt loams, 6 to 11 percent slopes, eroded	6 to 11	231	271	301	325
6700	Thurman	Thurman loamy fine sand, 0 to 2 percent slopes	0 to 2	289	338	375	403
6701	Thurman	Thurman loamy fine sand, 1 to 3 percent slopes	1 to 3	298	349	387	417
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	289	338	375	403
6715	Thurman	Thurman-Valentine complex, undulating	2 to 6	296	346	384	413
6723	Thurman	Thurman fine sand, 0 to 2 percent slopes	0 to 3	319	373	413	444
6724	Thurman	Thurman fine sand, 2 to 6 percent slopes	3 to 6	319	373	413	444
6725	Thurman	Thurman fine sand, 6 to 11 percent slopes	6 to 11	319	373	413	444
6727	Thurman	Thurman fine sandy loam, 2 to 11 percent slopes	3 to 11	337	393	436	468
6733	Thurman	Thurman-Crofton complex, 11 to 30 percent slopes	11 to 30	289	338	375	403
6746	Nora	Nora silt loam, 0 to 2 percent slopes	0 to 2	125	149	167	182
6749	Nora	Nora silt loam, 11 to 17 percent slopes	11 to 17	123	148	166	180
6753	Nora	Nora silt loam, 2 to 6 percent slopes	2 to 6	124	148	167	181
6754	Nora_variant	Nora silt loam, 2 to 6 percent slopes, eroded	2 to 6	143	170	190	206
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	124	148	166	180
6756	Nora_variant	Nora silt loam, 6 to 11 percent slopes, eroded	6 to 11	148	175	196	212
6765	Nora	Nora silty clay loam, 2 to 6 percent slopes	2 to 6	112	135	152	165

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Antelope County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	112	135	151	165
6775	Nora_variant	Nora-Crofton complex, 2 to 6 percent slopes, eroded	2 to 6	136	161	181	196
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	229	268	299	322
6790	Loretto	Loretto fine sandy loam, 2 to 6 percent slopes	2 to 6	64	78	90	99
6791	Loretto	Loretto loam, 0 to 2 percent slopes	0 to 2	86	105	119	129
6792	Loretto	Loretto loam, 2 to 6 percent slopes	2 to 6	86	105	119	129
6798	Loretto	Loretto sandy loam, 0 to 3 percent slopes	0 to 3	63	77	89	97
6799	Loretto	Loretto sandy loam, 3 to 6 percent slopes	3 to 6	63	77	89	97
6804	Moody	Moody loam, 0 to 2 percent slopes	0 to 2	144	170	191	206
6805	Moody	Moody loam, 2 to 6 percent slopes	2 to 6	144	170	191	206
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	145	172	193	209
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	150	178	199	215
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	226	266	296	319
6847	Ortello	Ortello fine sandy loam, 6 to 11 percent slopes	6 to 11	226	266	296	319
6851	Ortello	Ortello loam, 1 to 6 percent slopes	2 to 6	299	349	387	417
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
8435	Cass	Cass loam, rarely flooded	0 to 2	555	644	712	763
8436	Cass	Cass loam, occasionally flooded	0 to 2	347	405	449	482
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	84	102	116	126
8472	Gibbon	Gibbon silt loam, saline, occasionally flooded	0 to 2	102	124	139	152
8542	Ovina	Ovina loamy fine sand, rarely flooded	0 to 2	161	190	212	230
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	165	195	218	235
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	117	141	158	172
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	116	139	157	170
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	116	139	156	170
8931	Simeon	Simeon sand, 6 to 30 percent slopes, eroded	6 to 30	281	329	365	393
8933	Simeon	Simeon sandy loam, 0 to 6 percent slopes	0 to 6	346	404	448	481
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	197	231	258	278

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Antelope County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	201	237	264	285
9010	Anselmo	Anselmo loam, 0 to 1 percent slopes	0 to 1	289	338	375	403
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	108	131	147	160
9905	Fluvaquents, _sandy	Fluvaquents, sandy-Fluvaquents, loamy complex, frequently flooded	0 to 1	--	--	--	--
9966	Blownout_land	Blown-out land	3 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Arthur County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4242	Ord	Ord loam, 0 to 3 percent slopes	0 to 3	735	852	940	1006
4369	Ipage	Ipage calcareous-Hoffland complex, 0 to 3 percent slopes	0 to 3	425	494	547	587
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	150	177	198	214
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--
4455	Crowther	Crowther loam, 0 to 1 percent slopes	0 to 1	356	415	460	494
4456	Crowther	Crowther mucky peat	0 to 1	591	686	758	812
4462	Cullison	Cullison loam, 0 to 1 percent slopes	0 to 1	110	132	149	162
4463	Cullison	Cullison mucky peat	0 to 1	130	154	173	188
4467	Cutcomb	Cutcomb mucky peat	0 to 1	2500	2883	3171	3380
4470	Doughboy	Doughboy fine sandy loam, 0 to 3 percent slopes	0 to 3	119	142	160	174
4490	Dunday	Dunday loamy fine sand, 3 to 9 percent slopes	3 to 9	351	410	454	488
4518	Els	Ipage-Els complex, 0 to 3 percent slopes	0 to 3	450	524	580	622
4520	Hoffland	Els calcareous-Hoffland complex, 0 to 3 percent slopes	0 to 1	662	767	847	908
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	349	407	451	485
4556	Elsmere	Elsmere loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	450	524	579	622
4579	Gannett	Gannett mucky peat	0 to 1	708	820	905	970
4591	Gus	Gus mucky peat	0 to 1	117	141	158	172
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	399	465	514	552
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	488	567	627	673
4670	Loup	Loup mucky peat	0 to 1	490	569	630	675
4691	Marlake	Marlake mucky peat	0 to 1	663	769	849	909
4711	Nenzel	Nenzel loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	415	483	535	574
4712	Nenzel	Nenzel loamy fine sand, 0 to 3 percent slopes	0 to 3	364	424	470	505
4737	Clawhammer	Clawhammer-Ord complex, 0 to 3 percent slopes	0 to 1	170	201	225	--
4772	Valentine	Valentine-Tryon complex, 0 to 24 percent slopes	1 to 24	374	435	482	518
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	374	436	483	519
4800	Valentine	Valentine fine sand, hilly	17 to 60	380	443	490	527

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Arthur County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
4807	Valentine	Valentine fine sand, rolling	9 to 24	374	435	482	518
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	375	437	484	520
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	361	421	466	501
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	374	436	483	518
4865	Valentine	Valentine-Hoffland, complex, 0 to 24 percent slopes	3 to 24	376	438	485	521
4867	Valentine	Valentine-Libory complex, 0 to 9 percent slopes	0 to 9	373	434	481	517
4897	Wildhorse	Wildhorse-Hoffland complex, 0 to 3 percent slopes	0 to 3	423	492	544	584
9936	Medihemists	Medihemists	0 to 2	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Banner County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1001	Bankard	Bankard fine sand, channeled, frequently flooded	0 to 2	272	372	353	380
1034	Glenberg	Glenberg very fine sandy loam, 0 to 2 percent slopes	0 to 2	167	197	220	238
1114	Bankard	Bankard loamy fine sand, occasionally flooded	0 to 2	346	403	447	480
1301	Bayard	Bayard fine sandy loam, 3 to 6 percent slopes	3 to 6	88	107	121	132
1307	Bayard	Bayard very fine sandy loam, 1 to 3 percent slopes	1 to 3	158	186	208	225
1308	Bayard	Bayard very fine sandy loam, 3 to 6 percent slopes	3 to 6	158	186	208	225
1309	Bayard	Bayard very fine sandy loam, 6 to 9 percent slopes	6 to 9	158	186	208	225
1310	Bayard	Bayard very fine sandy loam, 9 to 20 percent slopes	9 to 20	158	186	208	225
1315	Bayard	Bayard-Dix complex, 3 to 9 percent slopes	3 to 9	157	185	207	224
1316	Bayard	Bayard-Dix complex, 9 to 20 percent slopes	9 to 20	157	185	207	224
1327	Bayard	Bayard fine sandy loam, 0 to 3 percent slopes	0 to 3	86	104	118	129
1361	Bridget	Bridget very fine sandy loam, 0 to 1 percent slopes	0 to 1	118	142	159	173
1362	Bridget	Bridget very fine sandy loam, 1 to 3 percent slopes	1 to 3	118	142	159	173
1363	Bridget	Bridget very fine sandy loam, 3 to 6 percent slopes	3 to 6	118	142	159	173
1364	Bridget	Bridget very fine sandy loam, 6 to 9 percent slopes	6 to 9	118	142	159	173
1365	Bridget	Bridget very fine sandy loam, 9 to 20 percent slopes	9 to 20	118	142	159	173
1368	Dix	Dix sandy loam, 0 to 3 percent slopes	0 to 3	250	293	326	351
1500	Altvan	Altvan fine sandy loam, 1 to 3 percent slopes	1 to 3	325	379	420	452
1503	Altvan	Altvan loam, 3 to 6 percent slopes	3 to 6	468	545	602	646
1508	Altvan	Altvan-Eckley complex, 3 to 9 percent slopes	3 to 9	465	540	598	641
1511	Altvan	Altvan-Satanta fine sandy loams, 1 to 3 percent slopes	1 to 3	337	393	436	468
1512	Altvan	Altvan-Satanta loams, 0 to 1 percent slopes	0 to 1	430	500	554	594
1577	Eckley	Eckley gravelly sandy loam, 3 to 30 percent slopes	3 to 20	493	573	633	679

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Banner County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1578	Eckley	Eckley and Altvan soils, 9 to 50 percent slopes	9 to 50	323	377	418	450
1585	Goshen	Goshen loam, 0 to 1 percent slopes	0 to 1	129	153	171	186
1617	Keith	Keith loam, 0 to 1 percent slopes	0 to 1	207	243	271	293
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	167	197	220	238
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	167	197	220	238
1661	Lodgepole	Lodgepole silt loam, frequently ponded	0 to 1	159	188	211	228
1704	Otero	Otero loamy very fine sand, 0 to 3 percent slopes	0 to 3	138	164	184	199
1707	Otero	Otero loamy very fine sand, 9 to 20 percent slopes	9 to 20	138	164	184	199
1718	Otero	Otero-Epping complex, 9 to 60 percent slopes	9 to 30	138	164	184	199
1719	Otero	Otero loamy very fine sand, 3 to 9 percent slopes	6 to 9	138	164	184	199
1726	Rosebud	Rosebud loam, 1 to 3 percent slopes	1 to 3	102	123	138	150
1735	Rosebud	Rosebud-Blanche complex , 1 to 3 percent slopes	1 to 3	82	99	113	123
1739	Rosebud	Rosebud-Canyon loams, 1 to 3 percent slopes	1 to 3	127	151	169	184
1740	Rosebud	Rosebud-Canyon loams, 3 to 6 percent slopes	3 to 6	102	123	139	151
1809	Satanta	Satanta fine sandy loam, 1 to 3 percent slopes	1 to 3	210	247	275	297
1817	Satanta	Satanta loam, gravelly substratum, 3 to 6 percent slopes	3 to 6	187	220	246	266
1820	Satanta	Satanta-Altvan complex, 3 to 6 percent slopes	3 to 6	147	173	194	210
1839	Sidney	Sidney-Canyon complex, 3 to 9 percent slopes	3 to 9	153	181	202	219
1842	Sidney	Sidney-Canyon loams, 3 to 6 percent slopes	3 to 6	251	295	328	353
1843	Sidney	Sidney-Canyon loams, 6 to 9 percent slopes, eroded	6 to 9	236	277	308	332
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	335	391	434	466
1889	Valent	Valent fine sand, rolling	9 to 24	335	392	434	466
1891	Valent	Valent loamy fine sand, 0 to 3 percent slopes	0 to 3	343	401	444	477
1892	Valent	Valent loamy fine sand, 3 to 9 percent slopes	3 to 9	343	401	444	477
5100	Alliance	Alliance loam, 0 to 1 percent slopes	0 to 1	117	140	158	171
5101	Alliance	Alliance loam, 1 to 3 percent slopes	1 to 3	117	140	158	171

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Banner County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5102	Alliance	Alliance loam, 3 to 6 percent slopes	3 to 6	117	140	158	171
5103	Alliance	Alliance loam, 6 to 9 percent slopes, eroded	6 to 9	111	134	151	164
5140	Busher	Busher-Tassel complex, 9 to 20 percent slopes	9 to 20	122	147	165	179
5144	Busher	Busher-Tassel loamy very fine sands, 9 to 20 percent slopes	9 to 20	153	181	202	219
5150	Canyon	Canyon fine sandy loam, 6 to 30 percent slopes	6 to 30	71	86	99	108
5151	Canyon	Canyon loam, 9 to 30 percent slopes	9 to 30	71	87	99	109
5158	Canyon	Canyon-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	92	111	125	137
5160	Canyon	Canyon-Sidney loams, 9 to 20 percent slopes, eroded	9 to 20	66	81	93	102
5282	Vetal	Vetal fine sandy loam, 3 to 6 percent slopes	3 to 6	153	180	202	219
5290	Vetal	Vetal very fine sandy loam, 0 to 3 percent slopes	0 to 3	163	192	215	233
5607	Broadwater	Broadwater loamy sand, channeled, occasionally flooded	0 to 2	256	300	333	359
5643	Janise	Janise loam, occasionally flooded	0 to 1	303	354	392	422
5655	Lisco	Lisco fine sandy loam, 0 to 2 percent slopes	0 to 2	130	154	173	187
5670	Yockey	Yockey loam, alkali, occasionally flooded	0 to 2	141	167	187	203
5800	Albinas	Albinas-Cheyenne loams, rarely flooded	0 to 1	394	459	509	546
5843	Mitchell	Mitchell very fine sandy loam, 0 to 1 percent slopes	0 to 1	133	158	177	192
5844	Mitchell	Mitchell very fine sandy loam, 1 to 3 percent slopes	1 to 3	133	158	177	192
5845	Mitchell	Mitchell very fine sandy loam, 3 to 6 percent slopes	3 to 6	133	158	177	192
5846	Mitchell	Mitchell very fine sandy loam, 6 to 9 percent slopes	6 to 9	133	158	177	192
5848	Mitchell	Mitchell-Epping complex, 3 to 9 percent slopes	3 to 9	134	159	178	193
5849	Mitchell	Mitchell-Epping complex, 9 to 30 percent slopes	9 to 30	134	159	178	193
5868	Tripp	Tripp loamy very fine sand, overblown, 0 to 3 percent slopes	0 to 3	92	112	126	137
5869	Tripp	Tripp loamy very fine sand, overblown, 3 to 6 percent slopes	3 to 6	92	112	126	137

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Banner County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5873	Tripp	Tripp very fine sandy loam, 0 to 1 percent slopes	0 to 1	88	107	120	131
5874	Tripp	Tripp very fine sandy loam, 1 to 3 percent slopes	1 to 3	88	107	120	131
5876	Tripp	Tripp very fine sandy loam, 3 to 6 percent slopes	3 to 6	88	107	120	131
5878	Tripp	Tripp very fine sandy loam, 6 to 9 percent slopes	6 to 9	88	107	120	131
5901	Alice	Alice fine sandy loam, 0 to 3 percent slopes	0 to 3	117	141	158	172
5902	Alice	Alice fine sandy loam, 3 to 6 percent slopes	3 to 6	117	141	158	172
5903	Alice	Alice fine sandy loam, 6 to 9 percent slopes, eroded	6 to 9	117	141	158	172
5934	Creighton	Creighton very fine sandy loam, 1 to 3 percent slopes	1 to 3	161	190	212	230
5935	Creighton	Creighton very fine sandy loam, 3 to 6 percent slopes	3 to 6	161	190	212	230
5942	Duroc	Duroc loam, 0 to 1 percent slopes	0 to 1	78	95	108	118
5943	Duroc	Duroc loam, 1 to 3 percent slopes	1 to 3	78	95	108	118
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	98	119	134	146
6010	Sarben	Sarben very fine sandy loam, 1 to 3 percent slopes	1 to 3	111	134	151	164
6030	Tassel	Tassel-Ashollow-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	84	103	116	127
6032	Tassel	Tassel-Blanche complex, 9 to 30 percent slopes	9 to 30	83	102	115	125
6034	Tassel	Tassel-Busher-Rock outcrop complex, 9 to 60 percent slopes	9 to 60	147	174	195	211
6035	Tassel	Tassel-Busher-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	123	148	166	180
6041	Tassel	Tassel-Blanche sandy loams, 3 to 9 percent slopes	3 to 9	85	104	117	128
6044	Tassel	Tassel-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	123	148	166	180
6050	Epping	Rock outcrop-Epping complex, 20 to 60 percent slopes	20 to 60	150	178	199	216
6102	Sarben	Sarben loamy very fine sand, 0 to 3 percent slopes	0 to 3	144	171	191	207
6105	Sarben	Sarben loamy very fine sand, 3 to 9 percent slopes	3 to 9	144	171	191	207

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Banner County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
6202	Epping	Epping silt loam, 9 to 30 percent slopes	9 to 30	147	173	194	210
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Blaine County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	% slopes	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2600	Hersh	Hersh loamy fine sand, 3 to 6 percent slopes	3 to 6	242	284	316	340
2604	Hersh	Hersh-Gates complex, 0 to 3 percent slopes	0 to 3	247	290	322	347
3180	Jansen	Jansen fine sandy loam, 0 to 2 percent slopes	0 to 2	383	446	494	531
3187	Jansen	Jansen loamy fine sand, 0 to 2 percent slopes	0 to 3	279	327	363	391
3207	Josburg	Josburg-Dunn loamy fine sands, 0 to 2 percent slopes	0 to 2	66	81	93	102
3251	Meadin	Meadin loamy sand, 2 to 30 percent slopes	2 to 30	281	329	365	393
4201	Almeria	Almeria fine sandy loam, occasionally flooded	0 to 2	337	393	436	469
4204	Almeria	Almeria loamy fine sand, occasionally flooded	0 to 2	257	301	334	360
4205	Almeria	Almeria loamy fine sand, channeled, frequently flooded	0 to 2	84	103	116	127
4206	Almeria	Almeria loamy fine sand, wet, occasionally flooded	0 to 2	236	277	308	332
4225	Bolent	Bolent loamy sand, occasionally flooded	0 to 2	286	334	371	399
4234	Calamus	Calamus loamy sand, rarely flooded	0 to 2	257	301	335	360
4270	Bolent	Bolent-Calamus loamy sands, rarely flooded	0 to 2	323	377	418	450
4364	Ipage	Ipage fine sand, terrace, 0 to 3 percent slopes	0 to 3	361	421	467	501
4365	Ipage	Ipage loamy fine sand, terrace, 0 to 3 percent slopes	0 to 3	345	402	446	479
4368	Ipage	Ipage sand, terrace, 0 to 3 percent slopes	0 to 3	347	405	448	482
4390	Natick	Natick sand, 0 to 3 percent slopes	0 to 3	309	361	401	431
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--
4510	Dunn	Dunn loamy fine sand, 0 to 3 percent slopes	0 to 3	123	147	165	179
4511	Dunn	Dunn loamy fine sand, 9 to 20 percent slopes	9 to 20	160	189	211	229
4513	Dunn	Dunn-Josburg loamy fine sands, 3 to 9 percent slopes	3 to 9	114	137	154	167
4533	Els	Els loamy sand, 0 to 3 percent slopes	0 to 2	406	473	523	562
4542	Els	Els-Ipage complex, 0 to 3 percent slopes	0 to 3	406	473	523	562
4545	Els	Els-Ipage fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	374	436	483	519

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Blaine County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	% slopes	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	378	440	488	524
4655	Ipage	Ipage-Tryon complex, 0 to 3 percent slopes	0 to 3	374	436	483	519
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	168	199	222	240
4687	Marlake	Marlake loamy fine sand, frequently ponded	0 to 1	454	528	584	627
4730	Sandose	Sandose loamy fine sand, 0 to 3 percent slopes	0 to 3	133	158	177	192
4746	Tryon	Tryon loamy fine sand, 0 to 3 percent slopes	0 to 2	365	426	472	507
4751	Tryon	Tryon loamy fine sand, frequently ponded	0 to 2	366	427	473	508
4754	Tryon	Tryon-Els complex, 0 to 3 percent slopes	0 to 2	364	425	471	506
4755	Tryon	Tryon-Els loamy fine sands, 0 to 3 percent slopes	0 to 2	366	427	473	508
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	282	330	366	394
4807	Valentine	Valentine fine sand, rolling	9 to 24	282	330	366	394
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	281	329	365	393
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	268	314	349	375
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	268	314	349	375
4858	Valentine	Valentine-Els complex, 0 to 9 percent slopes	0 to 9	282	330	366	394
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	282	330	366	394
4867	Valentine	Valentine-Libory complex, 0 to 9 percent slopes	0 to 9	373	434	481	517
4873	Valentine	Valentine-Sandose loamy fine sands, 0 to 9 percent slopes	3 to 9	268	314	349	375
4875	Valentine	Valentine-Dunday complex, 0 to 9 percent slopes	3 to 9	377	439	486	522
4877	Valentine	Valentine-Simeon complex, 0 to 9 percent slopes	3 to 9	283	331	367	395
5289	Vetal	Vetal loamy fine sand, 3 to 6 percent slopes	3 to 6	261	305	339	365
5290	Vetal	Vetal very fine sandy loam, 0 to 3 percent slopes	0 to 3	257	301	335	361
8929	Simeon	Simeon sand, 0 to 3 percent slopes	0 to 3	246	288	320	345
8930	Simeon	Simeon sand, 3 to 30 percent slopes	3 to 30	246	288	320	345
8939	Simeon	Simeon-Valentine complex, 0 to 9 percent slopes	0 to 3	281	329	365	393

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Blaine County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**% slopes**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9036	Gates	Gates very fine sandy loam, 3 to 6 percent slopes	3 to 6	160	189	212	229
9039	Gates	Gates very fine sandy loam, 11 to 17 percent slopes	11 to 15	169	200	223	241
9043	Gates	Gates-Hersh complex, 20 to 60 percent slopes	30 to 60	160	189	211	228
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	159	188	210	227
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Boone County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2115	Inavale	Inavale soils, frequently flooded	0 to 2	270	316	351	378
2288	Wann	Wann loam, occasionally flooded	0 to 2	141	166	187	202
2332	Inavale	Inavale fine sand, occasionally flooded	0 to 1	325	380	421	453
2349	Inavale	Inavale soils, 0 to 3 percent slopes	0 to 3	148	175	196	212
2534	Coly	Coly silt loam, 17 to 30 percent slopes	17 to 30	128	152	171	185
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	128	152	171	185
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	104	125	141	154
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	104	125	141	154
2672	Holdrege_ variant	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	6	8	10	12
2812	Uly	Uly and Coly silt loams, 11 to 30 percent slopes	9 to 31	143	170	190	206
2817	Uly	Uly silt loam, 3 to 6 percent slopes	3 to 6	136	161	181	196
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	135	160	180	195
2828	Uly	Uly, eroded-Hersh complex, 11 to 60 percent slopes	11 to 60	148	171	196	212
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	136	161	181	196
2833	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded, moist	17 to 30	148	175	196	212
2844	Uly	Uly-Coly silt loams, 6 to 11 percent slopes, eroded	6 to 11	135	160	180	195
2845	Uly	Uly-Coly silt loams, 11 to 17 percent slopes, eroded	11 to 17	148	175	196	212
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	97	117	132	144
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	159	188	210	227
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	107	129	145	158
3775	Muir	Muir silt loam, rarely flooded	0 to 1	109	131	148	161
3912	Scott	Scott silty clay loam, frequently ponded	0 to 1	95	115	129	141
3951	Fillmore	Fillmore silt loam, occasionally ponded	0 to 1	141	167	188	203
4243	Ord	Ord loam, rarely flooded	0 to 2	363	423	469	504
4266	Loup	Loup loam, occasionally flooded	0 to 1	268	314	348	375
4376	Loup	Loup fine sandy loam, rarely flooded	0 to 2	443	515	570	612
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Boone County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	340	396	439	472
4488	Dunday	Dunday loamy fine sand, 3 to 6 percent slopes	3 to 6	340	396	439	472
4550	Elsmere	Elsmere fine sand, 0 to 3 percent slopes	0 to 3	205	240	268	289
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	223	261	291	314
4575	Gannett	Gannett fine sandy loam, 0 to 1 percent slopes	0 to 1	189	222	248	268
4786	Valentine	Valentine fine sand, 0 to 6 percent slopes	0 to 6	363	423	469	504
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4807	Valentine	Valentine fine sand, rolling	9 to 24	171	202	226	244
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	366	427	473	508
4835	Valentine	Valentine loamy fine sand, undulating	7 to 12	177	208	233	251
4857	Valentine	Valentine-Dunday loamy fine sands, 3 to 9 percent slopes	3 to 9	346	404	448	481
6314	Barney	Barney silt loam, channeled, frequently flooded	0 to 1	535	621	686	736
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	117	141	158	172
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	177	208	233	252
6459	Inglewood	Inglewood-Boel complex, channeled, occasionally flooded	0 to 2	374	436	483	519
6534	Loretto	Loretto fine sandy loam, 0 to 2 percent slopes, eroded	0 to 3	73	89	102	111
6555	Shell	Shell silty clay loam, 0 to 1 percent slopes	0 to 1	151	178	200	216
6556	Shell	Shell silt loam, rarely flooded	0 to 2	179	211	235	254
6570	Thurman	Thurman loamy fine sand, terrace, 0 to 3 percent slopes	0 to 3	321	375	415	447
6603	Alcester	Alcester silty clay loam, 2 to 6 percent slopes	2 to 6	120	144	162	176
6623	Belfore	Belfore silt loam, 0 to 1 percent slopes	0 to 1	103	124	140	152
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	92	112	126	137
6636	Boelus	Boelus loamy fine sand, 0 to 3 percent slopes	0 to 3	89	108	122	133
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	231	271	301	325
6681	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	228	268	298	321
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	221	260	289	312

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Boone County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6696	Crofton	Crofton-Nora silt loams, 11 to 17 percent slopes, eroded	11 to 17	228	268	298	321
6697	Crofton	Crofton-Nora silt loams, 17 to 30 percent slopes	17 to 30	228	268	298	321
6699	Crofton	Crofton-Nora silt loams, 6 to 11 percent slopes, eroded	6 to 11	229	269	299	322
6700	Thurman	Thurman loamy fine sand, 0 to 2 percent slopes	0 to 2	130	154	173	187
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	130	154	173	187
6706	Thurman	Thurman loamy fine sand, 6 to 11 percent slopes	6 to 11	128	152	170	185
6714	Thurman	Thurman-Valentine complex, 0 to 2 percent slopes	0 to 3	155	183	205	221
6754	Nora_variant	Nora silt loam, 2 to 6 percent slopes, eroded	2 to 6	143	170	190	206
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	127	151	170	184
6756	Nora_variant	Nora silt loam, 6 to 11 percent slopes, eroded	6 to 11	148	175	196	212
6766	Nora_variant	Nora silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	135	160	180	195
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	112	135	151	165
6774	Nora	Nora-Crofton complex, 11 to 17 percent slopes, eroded	11 to 17	112	135	152	165
6775	Nora_variant	Nora-Crofton complex, 2 to 6 percent slopes, eroded	2 to 6	136	161	181	196
6776	Nora	Nora-Crofton silt loams, 11 to 17 percent slopes	12 to 17	125	150	168	182
6778	Nora_variant	Nora-Crofton complex, 6 to 11 percent slopes, eroded	6 to 11	136	161	181	196
6780	Nora	Nora-Moody complex, 2 to 6 percent slopes, eroded	3 to 7	128	152	170	185
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	229	268	299	322
6793	Loretto	Loretto loam, 3 to 6 percent slopes, eroded	3 to 7	95	115	129	141
6796	Loretto	Loretto fine sandy loam, 3 to 6 percent slopes, eroded	3 to 7	73	89	102	111
6799	Loretto	Loretto sandy loam, 3 to 6 percent slopes	3 to 6	63	77	89	97
6800	Loretto	Loretto-Nora fine sandy loams, 6 to 12 percent slopes, eroded	7 to 12	69	84	97	106

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Boone County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	145	172	193	209
6809	Moody	Moody silty clay loam, 1 to 3 percent slopes	1 to 3	142	168	188	204
6810	Moody	Moody silty clay loam, 1 to 3 percent slopes, eroded	1 to 2	143	170	190	206
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	150	178	199	215
6812	Moody	Moody silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	144	171	191	207
6843	Ortello	Ortello fine sandy loam, 1 to 3 percent slopes	1 to 3	326	380	422	453
6847	Ortello	Ortello fine sandy loam, 6 to 11 percent slopes	6 to 11	226	266	296	319
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
8426	Boel	Boel fine sandy loam, occasionally flooded	0 to 2	208	245	273	294
8439	Cass	Cass silt loam, occasionally flooded	0 to 1	425	495	548	588
8440	Cass	Cass soils, rarely flooded	0 to 1	229	268	298	322
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	84	102	116	126
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	344	401	445	478
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	128	151	170	184
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	128	152	171	185
8844	Hall	Hall silt loam, 3 to 6 percent slopes, eroded	3 to 6	131	156	175	189
8851	Hall	Hall-Gayville complex, 1 to 3 percent slopes	1 to 3	127	151	169	183
8862	Hord	Hord and Ortello fine sandy loams, 1 to 3 percent slopes	1 to 3	77	94	106	116
8864	Hord	Hord-Hastings complex, 3 to 6 percent slopes	3 to 6	115	138	155	169
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	116	140	157	171
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	116	139	157	170
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	113	136	153	167
9038	Gates	Gates very fine sandy loam, 6 to 11 percent slopes, eroded	6 to 11	160	189	212	229
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	108	131	147	160
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	324	379	420	452
9966	Blownout_land	Blown-out land	3 to 30	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Boone County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Box Butte County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1001	Bankard	Bankard fine sand, channeled, frequently flooded	0 to 2	230	270	301	324
1006	Bankard	Bankard loamy fine sand, channeled, frequently flooded	0 to 2	81	99	112	122
1012	Bankard	Bankard very fine sandy loam, 0 to 3 percent slopes	0 to 3	381	444	491	528
1013	Bankard	Bankard loamy coarse sand, frequently flooded	0 to 2	74	90	103	113
1188	Las_Animas	Las Animas-Lisco complex, occasionally flooded	0 to 2	91	110	125	136
1189	Las_Animas	Las Animas-Lisco very fine sandy loams, occasionally flooded	0 to 2	471	548	606	650
1320	Beckton	Beckton silt loam, 0 to 2 percent slopes	0 to 2	96	117	132	143
1361	Bridget	Bridget very fine sandy loam, 0 to 1 percent slopes	0 to 1	101	122	138	150
1362	Bridget	Bridget very fine sandy loam, 1 to 3 percent slopes	1 to 3	101	122	138	150
1363	Bridget	Bridget very fine sandy loam, 3 to 6 percent slopes	3 to 6	103	124	140	152
1545	Dailey	Dailey loamy fine sand, 0 to 3 percent slopes	0 to 3	89	108	123	134
1546	Dailey	Dailey loamy fine sand, 3 to 9 percent slopes	3 to 9	89	108	123	134
1547	Dailey	Dailey loamy sand, 0 to 3 percent slopes	0 to 3	92	112	126	137
1548	Dailey	Dailey loamy sand, 3 to 9 percent slopes	3 to 9	92	112	126	137
1585	Goshen	Goshen loam, 0 to 1 percent slopes	0 to 1	161	190	212	230
1617	Keith	Keith loam, 0 to 1 percent slopes	0 to 1	173	204	228	247
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	186	219	245	264
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	173	204	228	247
1659	Lodgepole	Lodgepole loam, frequently ponded	0 to 1	101	122	138	150
1683	Manter	Manter-Satanta fine sandy loams, 0 to 3 percent slopes	1 to 3	194	228	254	274
1684	Manter	Manter-Satanta fine sandy loams, 3 to 6 percent slopes	3 to 6	121	145	163	177
1704	Otero	Otero loamy very fine sand, 0 to 3 percent slopes	0 to 3	94	114	128	140
1725	Rosebud	Rosebud loam, 0 to 1 percent slopes	0 to 1	154	182	203	220
1726	Rosebud	Rosebud loam, 1 to 3 percent slopes	1 to 3	154	182	203	220
1736	Rosebud	Rosebud-Canyon complex, 3 to 9 percent slopes	3 to 9	154	182	203	220
1737	Rosebud	Rosebud-Canyon complex, 9 to 30 percent slopes	9 to 30	154	182	203	220

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Box Butte County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1760	Richfield	Richfield loam, 0 to 1 percent slopes	0 to 1	81	98	111	121
1809	Satanta	Satanta fine sandy loam, 1 to 3 percent slopes	1 to 3	128	152	170	185
1812	Satanta	Satanta fine sandy loam, 3 to 6 percent slopes	3 to 6	128	152	170	185
1813	Satanta	Satanta fine sandy loam, 6 to 9 percent slopes	6 to 9	128	152	170	185
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	335	391	434	466
1887	Valent	Valent fine sand, 9 to 20 percent slopes	9 to 17	335	391	434	466
1889	Valent	Valent fine sand, rolling	9 to 24	336	392	435	468
1891	Valent	Valent loamy fine sand, 0 to 3 percent slopes	0 to 3	331	387	429	461
1892	Valent	Valent loamy fine sand, 3 to 9 percent slopes	3 to 9	331	387	429	461
1894	Valent	Valent loamy fine sand, 9 to 20 percent slopes	9 to 17	331	387	429	461
2176	McCook	McCook loam, occasionally flooded	0 to 2	123	148	166	180
3228	Lute	Lute loam, 0 to 2 percent slopes	0 to 2	326	381	422	454
3522	Lamo_variant	Lamo variant loam, 0 to 1 percent slopes	0 to 1	157	186	208	225
4264	Hoffland	Hoffland fine sandy loam, occasionally flooded	0 to 1	404	471	521	560
4456	Crowther	Crowther mucky peat	0 to 1	253	297	330	355
4521	Els	Els fine sand, 0 to 3 percent slopes	0 to 3	426	496	549	589
4636	Hoffland	Hoffland fine sandy loam, frequently ponded	0 to 1	432	503	557	598
4649	Ipage	Ipage loamy fine sand, alkali substratum, 0 to 3 percent slopes	0 to 3	172	203	226	245
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	548	636	703	753
4693	Marlake	Marlake very fine sandy loam, frequently ponded	0 to 1	594	690	762	817
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	344	401	445	478
4794	Valentine	Valentine fine sand, 9 to 17 percent slopes	9 to 17	344	401	445	478
4800	Valentine	Valentine fine sand, hilly	17 to 60	344	401	445	478
4807	Valentine	Valentine fine sand, rolling	9 to 24	342	399	442	475
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	348	405	449	483
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	127	150	169	183
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	322	376	417	448

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Box Butte County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4895	Wildhorse	Wildhorse loamy fine sand, 0 to 3 percent slopes	0 to 3	354	413	458	492
4897	Wildhorse	Wildhorse-Hoffland complex, 0 to 3 percent slopes	0 to 3	343	400	443	477
4898	Wildhorse	Wildhorse-Ipage, calcareous complex, 0 to 3 percent slopes	0 to 3	343	400	443	477
5100	Alliance	Alliance loam, 0 to 1 percent slopes	0 to 1	145	172	192	208
5101	Alliance	Alliance loam, 1 to 3 percent slopes	1 to 3	145	172	192	208
5102	Alliance	Alliance loam, 3 to 6 percent slopes	3 to 6	145	172	192	208
5108	Alliance	Alliance-Rosebud loams, 1 to 3 percent slopes	1 to 3	143	169	189	205
5109	Alliance	Alliance-Rosebud loams, 3 to 6 percent slopes	3 to 6	143	169	189	205
5110	Rosebud	Alliance-Rosebud loams, 6 to 11 percent slopes	6 to 11	153	181	203	219
5119	Busher	Busher fine sandy loam, 0 to 3 percent slopes	0 to 3	210	246	274	296
5120	Busher	Busher fine sandy loam, 3 to 6 percent slopes	3 to 6	210	246	274	296
5121	Busher	Busher fine sandy loam, 6 to 9 percent slopes	6 to 9	210	246	274	296
5123	Busher	Busher loamy very fine sand, 1 to 6 percent slopes	1 to 5	150	177	198	215
5133	Busher	Busher-Jayem loamy very fine sands, 0 to 3 percent slopes	0 to 3	161	190	212	229
5134	Busher	Busher-Jayem loamy very fine sands, 3 to 6 percent slopes	3 to 6	161	190	212	229
5135	Busher	Busher-Jayem loamy very fine sands, 6 to 9 percent slopes	6 to 9	161	190	212	229
5137	Busher	Busher-Tassel complex, 0 to 6 percent slopes	0 to 6	149	177	198	214
5139	Busher	Busher-Tassel complex, 6 to 30 percent slopes	6 to 30	151	178	200	216
5142	Busher	Busher-Tassel loamy very fine sands, 0 to 6 percent slopes	3 to 6	160	189	211	228
5143	Busher	Busher-Tassel loamy very fine sands, 6 to 30 percent slopes	6 to 30	160	189	211	228
5145	Busher	Busher-Tassel loamy very fine sand, 3 to 9 percent slopes	3 to 9	151	179	200	217
5154	Canyon	Canyon very fine sandy loam, 3 to 30 percent slopes	3 to 30	74	90	103	112
5179	Hemingford	Hemingford loam, 0 to 1 percent slopes	0 to 1	169	199	222	241

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Box Butte County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5180	Hemingford	Hemingford loam, 1 to 3 percent slopes	1 to 3	169	199	222	241
5181	Hemingford	Hemingford loam, 3 to 6 percent slopes	3 to 6	169	199	222	241
5187	Imlay	Imlay-Rock outcrop complex, 9 to 60 percent slopes	11 to 40	114	137	154	168
5193	Norrest	Norrest loam, 9 to 30 percent slopes	11 to 30	98	118	133	145
5194	Norrest	Norrest loam, 6 to 11 percent slopes	6 to 11	98	118	133	145
5198	Norrest	Norrest-Canyon complex, 9 to 30 percent slopes	11 to 30	98	119	134	146
5206	Oglala	Oglala-Canyon complex, 3 to 9 percent slopes	3 to 9	135	160	180	195
5210	Oglala	Oglala-Canyon complex, 9 to 30 percent slopes	9 to 20	140	165	185	201
5212	Oglala	Oglala-Canyon very fine sandy loams, 3 to 9 percent slopes	6 to 9	145	171	192	208
5215	Oglala	Oglala-Canyon very fine sandy loams, 9 to 30 percent slopes	9 to 30	145	171	192	208
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	251	294	327	352
5282	Vetal	Vetal fine sandy loam, 3 to 6 percent slopes	3 to 6	251	294	327	352
5600	Bigwinder	Bigwinder fine sandy loam, frequently flooded	0 to 3	452	526	582	625
5616	Craft	Craft very fine sandy loam, occasionally flooded	0 to 3	152	179	201	217
5625	Duroc	Duroc loam, occasionally flooded	0 to 2	148	175	195	212
5643	Janise	Janise loam, occasionally flooded	0 to 1	133	158	177	192
5644	Janise	Janise loam, drained, 0 to 3 percent slopes	0 to 2	243	284	316	341
5645	Janise	Janise loamy fine sand, drained, overblown, 0 to 3 percent slopes	0 to 3	128	152	171	185
5646	Janise	Janise loamy fine sand, overblown, 0 to 3 percent slopes	0 to 3	103	125	140	153
5656	Lisco	Lisco very fine sandy loam, occasionally flooded	0 to 2	194	228	255	275
5657	Lisco	Lisco very fine sandy loam, wet, occasionally flooded	0 to 1	253	296	329	354
5815	Creighton	Creighton very fine sandy loam, 0 to 1 percent slopes	0 to 1	142	168	188	204
5934	Creighton	Creighton very fine sandy loam, 1 to 3 percent slopes	1 to 3	142	168	188	204
5935	Creighton	Creighton very fine sandy loam, 3 to 6 percent slopes	3 to 6	142	168	188	204

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Box Butte County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5936	Creighton	Creighton very fine sandy loam, 6 to 11 percent slopes	6 to 11	142	168	188	204
5937	Creighton	Creighton-Norrest complex, 11 to 30 percent slopes	11 to 20	142	168	189	204
5938	Creighton	Creighton-Norrest complex, 6 to 11 percent slopes	6 to 11	142	168	189	204
5943	Duroc	Duroc loam, 1 to 3 percent slopes	1 to 3	75	91	104	114
5965	Jayem	Jayem fine sandy loam, 0 to 3 percent slopes	0 to 3	150	177	198	215
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	234	274	305	329
5970	Jayem	Jayem loamy fine sand, 0 to 3 percent slopes	0 to 3	153	181	203	219
5974	Jayem	Jayem loamy sand, overblown, 0 to 3 percent slopes	0 to 3	96	116	131	143
5976	Jayem	Jayem loamy very fine sand, 0 to 3 percent slopes	0 to 3	119	143	160	174
5983	Rock_outcrop	Rock outcrop-Tassel complex, 9 to 70 percent slopes	9 to 70	--	--	--	--
6012	Sarben	Sarben-Busher complex, 0 to 3 percent slopes	0 to 3	103	124	140	152
6013	Sarben	Sarben-Busher complex, 3 to 9 percent slopes	3 to 9	101	122	137	149
6014	Sarben	Sarben-Busher loamy very fine sands, 0 to 3 percent slopes	0 to 3	151	178	199	216
6015	Sarben	Sarben-Busher loamy very fine sands, 3 to 9 percent slopes	3 to 6	154	183	204	221
6026	Tassel	Tassel loamy very fine sand, 3 to 30 percent slopes	3 to 30	81	99	112	123
6031	Tassel	Tassel-Ashollow-Rock outcrop complex, 9 to 60 percent slopes	9 to 60	83	101	114	124
6033	Tassel	Tassel-Busher loamy very fine sands, 3 to 30 percent slopes	3 to 30	122	147	165	179
6036	Tassel	Tassel-Busher-Rock outcrop complex, 6 to 30 percent slopes	6 to 30	86	104	118	128
6052	Rock_outcrop	Rock outcrop-Tassel complex, 11 to 60 percent slopes	11 to 60	--	--	--	--
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Box Butte County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Boyd County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1039	Grigston	Grigston silt loam, occasionally flooded	0 to 2	110	132	148	161
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	294	344	382	411
2118	Inavale	Inavale fine sand, channeled, frequently flooded, wet	0 to 3	295	345	383	412
2121	Inavale	Inavale loamy fine sand, rarely flooded, wet	0 to 2	317	370	410	441
2322	Inavale	Inavale fine sand, channeled, frequently flooded	0 to 3	312	365	405	435
2325	Inavale	Inavale fine sand, 3 to 11 percent slopes	3 to 11	312	365	405	435
2328	Inavale	Inavale fine sandy loam, occasionally flooded	0 to 3	375	437	484	520
2331	Inavale	Inavale loamy fine sand, rarely flooded	0 to 2	309	361	401	431
2561	Eltree	Eltree silt loam, 0 to 3 percent slopes	0 to 2	136	161	180	196
3150	Bristow	Bristow silty clay, 20 to 40 percent slopes	20 to 40	81	98	111	122
3151	Bristow	Bristow silty clay, 30 to 60 percent slopes	30 to 60	80	98	111	121
3152	Boyd	Boyd silty clay, 6 to 11 percent slopes	6 to 11	80	98	111	121
3155	Brocksburg	Brocksburg fine sandy loam, 0 to 2 percent slopes	0 to 2	444	517	572	613
3156	Brocksburg	Brocksburg loam, 0 to 2 percent slopes	0 to 1	619	718	792	849
3183	Jansen	Jansen loam, 0 to 2 percent slopes	0 to 2	504	585	647	694
3184	Jansen	Jansen loam, 2 to 6 percent slopes	2 to 6	504	585	647	694
3186	Jansen	Jansen loam, 6 to 11 percent slopes	6 to 11	504	585	647	694
3221	Labu	Labu silty clay, 6 to 11 percent slopes	6 to 11	97	117	132	144
3225	Labu	Labu-Sansarc silty clays, 11 to 30 percent slopes	11 to 30	97	117	132	144
3227	Labu	Labu-Sansarc complex, 11 to 30 percent slopes	11 to 30	82	100	113	123
3230	Lynch	Lynch silty clay, 2 to 6 percent slopes	2 to 6	73	88	101	111
3231	Lynch	Lynch silty clay, 6 to 11 percent slopes	6 to 11	73	88	101	111

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Boyd County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3232	Lynch	Lynch-Bristow complex, 11 to 30 percent slopes	11 to 30	71	86	99	108
3233	Lynch	Lynch-Bristow silty clays, 6 to 11 percent slopes	6 to 11	73	88	101	111
3234	Lynch	Lynch-Bristow silty clays, 11 to 30 percent slopes	11 to 30	73	88	101	111
3235	Lynch	Lynch-Verdel complex, 6 to 11 percent slopes	6 to 11	71	86	99	108
3240	Mariaville	Mariaville-Paka loams, 11 to 40 percent slopes	15 to 40	138	163	183	198
3244	Meadin	Meadin gravelly sandy loam, 2 to 30 percent slopes	3 to 30	307	358	398	428
3254	Meadin	Meadin sandy loam, 2 to 20 percent slopes	3 to 17	302	353	392	421
3260	O'Neill	O'Neill fine sandy loam, 0 to 2 percent slopes	0 to 2	467	544	601	645
3261	O'Neill	O'Neill fine sandy loam, 2 to 6 percent slopes	2 to 6	467	544	601	645
3272	O'Neill	O'Neill-Meadin fine sandy loams, 2 to 11 percent slopes	3 to 9	467	544	601	645
3284	Paka	Paka fine sandy loam, 2 to 6 percent slopes	2 to 6	85	104	118	128
3285	Paka	Paka loam, 0 to 2 percent slopes	0 to 2	110	133	149	162
3286	Paka	Paka loam, 2 to 6 percent slopes	2 to 6	108	131	147	160
3287	Paka	Paka loam, 6 to 11 percent slopes, eroded	6 to 11	118	141	159	172
3295	Promise	Promise silty clay, 2 to 6 percent slopes	2 to 6	113	136	152	166
3300	Ree	Ree silt loam, 11 to 20 percent slopes	11 to 15	166	196	219	236
3301	Ree	Ree silt loam, 2 to 6 percent slopes	2 to 6	197	231	258	278
3302	Ree	Ree silt loam, 6 to 11 percent slopes	6 to 11	197	231	258	278
3305	Reliance	Reliance silt loam, 2 to 6 percent slopes	2 to 6	136	162	181	197
3306	Reliance	Reliance silt loam, 6 to 11 percent slopes	6 to 11	136	162	181	197

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Boyd County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3307	Reliance	Reliance silty clay loam, 2 to 6 percent slopes	2 to 6	119	143	160	174
3311	Ronson	Ronson-Anselmo fine sandy loams, 6 to 11 percent slopes	6 to 9	127	151	170	184
3312	Ronson	Ronson-Anselmo fine sandy loams, 6 to 30 percent slopes	9 to 30	127	151	170	184
3320	Sansarc	Sansarc silty clay, 20 to 40 percent slopes	30 to 40	92	112	126	137
3321	Sansarc	Sansarc silty clay, 30 to 60 percent slopes	30 to 60	99	119	135	147
3327	Verdel	Verdel silty clay, 0 to 2 percent slopes	0 to 1	64	78	90	99
3328	Verdel	Verdel silty clay, 2 to 6 percent slopes	2 to 6	65	80	91	100
3341	Wewela	Wewela fine sandy loam, 2 to 6 percent slopes	2 to 6	78	96	109	119
3521	Cass	Cass fine sandy loam, occasionally flooded	0 to 2	318	371	412	443
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
4241	Ord	Ord fine sandy loam, occasionally flooded	0 to 2	303	354	393	422
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	340	396	439	472
4488	Dunday	Dunday loamy fine sand, 3 to 6 percent slopes	3 to 6	340	396	439	472
4493	Dunday	Dunday loamy fine sand, 6 to 11 percent slopes	6 to 11	339	395	438	471
4496	Dunday	Dunday loamy fine sand, loamy substratum, 0 to 3 percent slopes	0 to 3	215	252	281	303
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4794	Valentine	Valentine fine sand, 9 to 17 percent slopes	9 to 17	344	401	445	478
4807	Valentine	Valentine fine sand, rolling	9 to 24	363	423	469	504
4838	Valentine	Valentine loamy sand, 0 to 3 percent slopes	0 to 3	339	395	438	471
5220	Onita	Onita silt loam, 0 to 1 percent slopes	0 to 1	129	154	172	187

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Boyd County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6300	Aowa	Aowa silt loam, occasionally flooded	0 to 2	158	187	209	226
6301	Aowa	Aowa silt loam, channeled, frequently flooded	0 to 2	156	184	206	223
6302	Aowa	Aowa silt loam, channeled, frequently flooded, wet	0 to 2	112	135	152	165
6303	Aowa	Aowa silt loam, occasionally flooded, wet	0 to 2	110	132	148	161
6304	Barney	Barney loam, frequently flooded, wet	0 to 2	675	783	864	926
6312	Barney	Barney loam, frequently flooded	0 to 1	387	451	500	537
6314	Barney	Barney silt loam, channeled, frequently flooded	0 to 1	363	424	469	504
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	118	141	159	173
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	418	487	539	578
6510	Blendon	Blendon fine sandy loam, 2 to 6 percent slopes	2 to 6	418	487	539	578
6551	Sardak	Sardak loamy fine sand, 2 to 11 percent slopes, very rare flooding, wet	2 to 9	463	538	595	639
6575	Trent	Trent silt loam, 0 to 2 percent slopes	0 to 2	155	183	205	222
6605	Bazile	Bazile loam, 2 to 6 percent slopes	2 to 6	424	494	547	587
6606	Bazile	Bazile loam, 6 to 11 percent slopes	6 to 11	429	499	552	593
6673	Crofton	Crofton silt loam, 11 to 17 percent slopes, eroded	11 to 15	230	270	300	324
6727	Thurman	Thurman fine sandy loam, 2 to 11 percent slopes	3 to 11	337	393	436	468
6753	Nora	Nora silt loam, 2 to 6 percent slopes	2 to 6	124	148	167	181
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	124	148	166	180
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	229	268	299	322
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	72	88	101	110
7722	Blake	Blake silty clay loam, occasionally flooded	0 to 2	187	220	245	265
7741	Haynie	Haynie silt loam, occasionally flooded	0 to 1	202	237	264	285

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Boyd County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	88	107	121	132
8425	Boel	Boel-Inavale complex, channeled, frequently flooded	0 to 3	436	508	562	603
8435	Cass	Cass loam, rarely flooded	0 to 2	324	379	420	451
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	92	112	126	138
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	288	336	373	402
8940	Simeon	Simeon-Valentine complex, 3 to 30 percent slopes, eroded	3 to 30	270	316	351	378
8946	Simeon	Simeon-Valentine loamy sands, 0 to 6 percent slopes	0 to 6	270	316	351	378
9003	Anselmo	Anselmo fine sandy loam, 11 to 20 percent slopes	11 to 17	192	225	251	272
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	201	237	264	285
9006	Anselmo	Anselmo fine sandy loam, 6 to 11 percent slopes	6 to 11	192	225	251	272
9021	Anselmo	Anselmo-Rock outcrop complex, 11 to 17 percent slopes	11 to 17	192	225	251	272
9810	Riverwash	Riverwash	0 to 3	364	425	471	506
9911	Fluvaquents	Fluvaquents, frequently flooded, wet	0 to 2	215	252	281	303
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Brown County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2331	Inavale	Inavale loamy fine sand, rarely flooded	0 to 2	297	347	385	414
2348	Inavale	Inavale sand, channeled, occasionally flooded	0 to 3	311	363	402	433
2350	Inavale	Inavale-Barney complex, channeled, occasionally flooded	0 to 2	293	343	380	409
3156	Brocksburg	Brocksburg loam, 0 to 2 percent slopes	0 to 1	619	718	792	849
3180	Jansen	Jansen fine sandy loam, 0 to 2 percent slopes	0 to 2	383	446	494	531
3181	Jansen	Jansen fine sandy loam, 2 to 6 percent slopes	2 to 6	486	565	625	670
3183	Jansen	Jansen loam, 0 to 2 percent slopes	0 to 2	504	585	647	694
3184	Jansen	Jansen loam, 2 to 6 percent slopes	2 to 6	504	585	647	694
3189	Jansen	Jansen-Meadin complex, 0 to 2 percent slopes	0 to 2	535	621	687	736
3194	Sandose	Jansen-Sandose complex, 0 to 2 percent slopes	0 to 2	92	112	126	138
3200	Johnstown	Johnstown fine sandy loam, 0 to 2 percent slopes	0 to 1	258	302	336	361
3201	Johnstown	Johnstown loam, 0 to 2 percent slopes	0 to 1	383	447	495	531
3202	Johnstown	Johnstown loam, 2 to 6 percent slopes	3 to 6	199	234	261	281
3226	Labu	Labu-Sansarc silty clays, 11 to 40 percent slopes	11 to 40	78	96	108	119
3252	Meadin	Meadin sandy loam, 0 to 2 percent slopes	0 to 3	344	401	444	478
3255	Meadin	Meadin sandy loam, 2 to 30 percent slopes	3 to 30	307	359	398	428
3260	O'Neill	O'Neill fine sandy loam, 0 to 2 percent slopes	0 to 2	467	544	601	645
3264	O'Neill	O'Neill loam, 0 to 2 percent slopes	0 to 2	660	765	844	905
3274	O'Neill	O'Neill-Meadin sandy loams, 2 to 6 percent slopes	2 to 6	472	549	607	651
3275	O'Neill	O'Neill-Meadin sandy loams, 6 to 11 percent slopes	6 to 11	472	549	607	651
3313	Ronson	Ronson-Longpine fine sandy loams, 0 to 2 percent slopes	0 to 3	130	154	173	188
3314	Ronson	Ronson-Longpine fine sandy loams, 2 to 6 percent slopes	3 to 6	134	159	179	194
3315	Ronson	Ronson-Longpine fine sandy loams, 6 to 11 percent slopes	6 to 11	128	152	171	185
4201	Almeria	Almeria fine sandy loam, occasionally flooded	0 to 2	337	393	436	469
4204	Almeria	Almeria loamy fine sand, occasionally flooded	0 to 2	257	301	334	360

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Brown County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4205	Almeria	Almeria loamy fine sand, channeled, frequently flooded	0 to 2	84	103	116	127
4208	Almeria	Almeria-Histosols complex, channeled, frequently flooded	0 to 2	337	393	436	469
4220	Bolent	Bolent fine sandy loam, occasionally flooded	0 to 2	432	502	556	597
4233	Calamus	Calamus loamy fine sand, calcareous, rarely flooded	0 to 2	342	400	443	476
4351	Elsmere	Elsmere loamy fine sand, rarely flooded	0 to 2	443	515	570	611
4364	Ipage	Ipage fine sand, terrace, 0 to 3 percent slopes	0 to 3	361	421	467	501
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	150	177	198	214
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	340	396	439	472
4490	Dunday	Dunday loamy fine sand, 3 to 9 percent slopes	3 to 9	351	410	454	488
4521	Els	Els fine sand, 0 to 3 percent slopes	0 to 3	426	496	549	589
4533	Els	Els loamy sand, 0 to 3 percent slopes	0 to 2	406	473	523	562
4545	Els	Els-Ipage fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589
4561	Elsmere	Elsmere-Loup complex, 0 to 3 percent slopes	0 to 2	430	501	554	595
4563	Els	Els-Tryon complex, 0 to 3 percent slopes	0 to 2	426	496	549	589
4575	Gannett	Gannett fine sandy loam, 0 to 1 percent slopes	0 to 1	189	222	248	268
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	374	436	483	519
4650	Ipage	Ipage loamy sand, 0 to 3 percent slopes	0 to 3	375	437	484	520
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	360	420	466	500
4669	Loup	Loup fine sandy loam, frequently ponded	0 to 2	465	540	598	641
4675	Els	Loup-Els complex, 0 to 3 percent slopes	0 to 3	411	478	529	568
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	541	628	694	745
4704	McKelvie	McKelvie-Fishberry-Rock outcrop complex, 11 to 60 percent slopes	11 to 60	270	316	352	378
4706	McKelvie	McKelvie-Longpine-Ronson complex, 17 to 70 percent slopes	15 to 70	311	364	403	434
4721	Pivot	Pivot loamy sand, 0 to 3 percent slopes	0 to 3	263	308	342	368
4730	Sandose	Sandose loamy fine sand, 0 to 3 percent slopes	0 to 3	133	158	177	192
4740	Tryon	Tryon fine sandy loam, 0 to 3 percent slopes	0 to 1	470	546	604	648

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Brown County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4743	Tryon	Tryon fine sandy loam, frequently ponded	0 to 1	492	572	633	679
4746	Tryon	Tryon loamy fine sand, 0 to 3 percent slopes	0 to 2	365	426	472	507
4751	Tryon	Tryon loamy fine sand, frequently ponded	0 to 2	366	427	473	508
4754	Tryon	Tryon-Els complex, 0 to 3 percent slopes	0 to 2	364	425	471	506
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	363	423	469	504
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4807	Valentine	Valentine fine sand, rolling	9 to 24	363	423	469	504
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	375	437	484	520
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	346	403	447	480
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	346	403	308	480
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	374	436	483	518
4867	Valentine	Valentine-Libory complex, 0 to 9 percent slopes	0 to 9	373	434	481	517
4868	Valentine	Valentine-Pivot complex, 0 to 9 percent slopes	3 to 9	328	382	424	456
4872	Valentine	Valentine-Sandose complex, 0 to 9 percent slopes	3 to 9	342	399	442	475
4873	Valentine	Valentine-Sandose loamy fine sands, 0 to 9 percent slopes	3 to 9	268	314	349	375
4880	Valentine	Valentine-Simeon complex, 9 to 40 percent slopes, eroded	9 to 40	340	397	340	473
4883	Valentine	Valentine-Longpine complex, 3 to 17 percent slopes	3 to 17	320	373	414	445
4887	Valentine	Valentine-Tryon complex, 0 to 17 percent slopes	3 to 17	331	386	428	460
4889	Valentine	Valentine-Tryon fine sands, 0 to 24 percent slopes	1 to 24	342	399	442	475
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	151	179	200	216
5286	Vetal	Vetal loam, 1 to 3 percent slopes	1 to 3	286	334	371	399
6311	Barney	Barney fine sandy loam, frequently flooded	0 to 2	271	317	352	379
6658	Brunswick	Brunswick fine sandy loam, 3 to 11 percent slopes	3 to 9	313	366	406	436
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	255	298	332	357
8928	Simeon	Simeon loamy sand, 3 to 11 percent slopes	3 to 9	255	298	332	357
8939	Simeon	Simeon-Valentine complex, 0 to 9 percent slopes	0 to 3	281	329	365	393

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Brown County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
8942	Simeon	Simeon-Valentine fine sands, 0 to 11 percent slopes	0 to 3	247	290	322	347
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	197	231	258	278
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	201	237	264	285
9006	Anselmo	Anselmo fine sandy loam, 6 to 11 percent slopes	6 to 11	192	225	251	272
9016	Anselmo	Anselmo-Brunswick fine sandy loams, 11 to 30 percent slopes	11 to 30	259	303	337	363
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	159	188	210	227
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Vlaues below are in feet**

Buffalo County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1021	Caruso	Caruso loam, rarely flooded	0 to 2	346	403	447	481
1038	Grigston	Grigston silt loam	0 to 1	385	448	496	533
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	566	657	726	778
2326	Inavale	Inavale fine sandy loam, 0 to 3 percent slopes	0 to 3	339	396	438	471
2338	Inavale	Inavale loamy fine sand, very rarely flooded	0 to 3	255	298	332	357
2344	Inavale	Inavale loamy sand, 3 to 11 percent slopes, very rarely flooded	3 to 9	314	366	406	437
2521	Coly	Coly-Hobbs silt loams, 0 to 30 percent slopes	2 to 30	128	152	171	185
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	136	161	180	195
2536	Coly	Coly silt loam, 30 to 60 percent slopes	30 to 60	136	161	180	195
2537	Coly	Coly silt loam, 6 to 11 percent slopes	7 to 11	136	161	180	195
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2541	Coly	Coly silt loam, 11 to 17 percent slopes, eroded	11 to 20	136	161	180	195
2544	Coly	Coly, Uly, and Hobbs soils, 3 to 30 percent slopes	3 to 31	128	152	171	185
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	128	152	171	185
2558	Coly	Coly-Uly silt loams, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	126	150	168	183
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	117	141	158	172
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	108	130	147	160
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	108	130	147	160
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	111	133	150	163
2672	Holdrege	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	116	140	157	170
2813	Holdrege	Uly and Holdrege silt loams, 6 to 11 percent slopes	5 to 11	93	112	127	138
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	145	171	192	208
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	137	162	182	197

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Vlaues below are in feet**

Buffalo County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2825	Uly	Uly, eroded-Coly silt loams, 6 to 11 percent slopes	6 to 11	143	169	189	205
2826	Uly	Uly, eroded-Hobbs silt loams, 2 to 40 percent slopes	8 to 17	143	170	190	206
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	137	162	182	197
2837	Uly	Uly-Holdrege silt loams, 6 to 11 percent slopes	6 to 11	137	162	182	197
2838	Holdrege	Uly-Holdrege-Coly silt loams, 6 to 11 percent slopes, eroded	6 to 11	115	138	155	168
2841	Uly	Uly, eroded-Coly silt loams, 11 to 17 percent slopes	11 to 17	143	170	190	206
2843	Uly	Uly, Holdrege, and Coly soils, 6 to 11 percent slopes, eroded	5 to 11	137	162	182	197
3110	O'Neill	O'Neill and Pivot loams, 0 to 2 percent slopes	0 to 1	578	671	741	794
3515	Lamo	Lamo silt loam, sand substratum, 0 to 1 percent slope	0 to 1	718	832	918	984
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	196	230	257	277
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	165	195	218	236
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	308	360	400	430
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	112	134	151	164
3755	Hord	Hord silt loam, rarely flooded	0 to 1	123	147	165	179
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3917	Scott	Scott silt loam, drained, frequently ponded	0 to 1	111	134	151	164
4131	Holdrege	Holdrege silt loam, 1 to 3 percent slopes, overblown	1 to 3	117	140	157	171
4146	Holdrege_ variant	Holdrege silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	50	62	72	79
4153	Holdrege	Holdrege-Hall silt loams, 0 to 1 percent slopes	0 to 1	108	130	147	160
4220	Bolent	Bolent fine sandy loam, occasionally flooded	0 to 2	432	502	556	597
4225	Bolent	Bolent loamy sand, occasionally flooded	0 to 2	286	334	371	399
4232	Calamus	Calamus loamy fine sand, rarely flooded	0 to 2	364	424	470	505
4386	Dunday	Dunday fine sandy loam, terrace, 0 to 2 percent slopes	0 to 3	421	490	542	582
4507	Dunday	Dunday-Valentine loamy fine sands, loamy substratum, 0 to 2 percent slopes	0 to 3	344	401	445	478
4672	Loup	Loup loam, 0 to 3 percent slopes	0 to 1	544	631	698	748
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Vlaues below are in feet**

Buffalo County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4807	Valentine	Valentine fine sand, rolling	9 to 24	363	423	469	504
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	375	437	484	520
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	346	403	308	480
4822	Valentine	Valentine loamy fine sand, 3 to 17 percent slopes	3 to 17	356	416	460	495
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	236	277	308	332
5632	Platte	Platte soils, occasionally flooded	0 to 3	330	385	427	459
6312	Barney	Barney loam, frequently flooded	0 to 1	554	644	711	762
6350	Leshara	Leshara and Gibbon silt loams	0 to 1	208	244	272	294
6351	Leshara	Leshara fine sandy loam	0 to 1	196	231	257	278
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	418	487	539	578
6513	Blendon	Blendon loam, 0 to 2 percent slopes	0 to 2	751	870	960	1028
6527	Janude	Janude loam, calcareous, rarely flooded	0 to 1	430	500	554	594
6572	Dunday	Thurman-Valentine loamy fine sands, terrace, 0 to 2 percent slopes	0 to 3	325	380	421	453
6716	Dunday	Thurman-Valentine loamy fine sands, 0 to 2 percent slopes	0 to 3	325	380	421	453
6717	Dunday	Thurman-Valentine loamy fine sands, 2 to 6 percent slopes	3 to 6	325	380	421	453
8400	Alda	Alda fine sandy loam, rarely flooded	0 to 1	393	458	507	544
8402	Alda	Alda loam, rarely flooded	0 to 1	753	872	962	1030
8418	Boel	Boel loam, occasionally flooded	0 to 2	824	955	1053	1127
8435	Cass	Cass loam, rarely flooded	0 to 2	508	590	653	700
8465	Gibbon	Gibbon loam, rarely flooded	0 to 2	303	354	393	423
8469	Gibbon	Gibbon silt loam, rarely flooded	0 to 2	551	640	707	758
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	109	131	147	160
8471	Gibbon	Gibbon silt loam, saline, rarely flooded	0 to 1	121	145	163	177
8491	Gothenburg	Gothenburg loam, frequently flooded	0 to 2	452	526	582	624
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	323	377	418	450
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	676	784	865	927
8506	Lex	Lex silt loam, rarely flooded	0 to 1	706	818	903	968
8553	Silver_Creek	Silver Creek silt loam, rarely flooded	0 to 2	244	287	319	343
8563	Platte	Platte loam, occasionally flooded	0 to 1	613	711	785	841
8567	Platte	Platte-Alda complex, occasionally flooded	0 to 2	330	385	427	459
8570	Platte	Platte-Bolent complex, occasionally flooded	0 to 2	537	623	689	739
8575	Platte	Platte-Wann complex, channeled, occasionally flooded	0 to 2	286	334	371	400

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Vlaues below are in feet**

Buffalo County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8581	Wann	Wann fine sandy loam, rarely flooded	0 to 2	103	124	139	152
8585	Wann	Wann loam, rarely flooded	0 to 2	136	161	180	195
8811	Cozad	Cozad loam, 0 to 1 percent slopes	0 to 1	508	590	652	699
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	179	210	235	254
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	179	210	235	254
8818	Cozad	Cozad silt loam, 3 to 6 percent slopes, eroded	3 to 5	176	208	232	251
8819	Cozad	Cozad silt loam, 6 to 11 percent slopes, eroded	6 to 11	183	216	241	260
8824	Cozad	Cozad fine sandy loam, calcareous variant, 0 to 1 percent slopes	0 to 1	111	134	150	163
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	135	160	180	195
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	134	159	179	194
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	120	144	162	176
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	120	144	162	176
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	123	147	165	179
8932	Simeon	Simeon sandy loam, 0 to 3 percent slopes	0 to 3	346	404	448	481
8960	Wood_River	Wood River silt loam, 0 to 1 percent slopes	0 to 1	175	207	231	249
8961	Wood_River	Wood River silt loam, 1 to 3 percent slopes	1 to 3	177	208	233	251
8964	Wood_River	Wood River-Gayville variant complex, 0 to 1 percent slopes	0 to 1	175	207	231	249
8965	Wood_River	Wood River-Gayville complex, 0 to 1 percent slopes	0 to 2	185	218	243	263
9002	Anselmo	Anselmo fine sandy loam, 1 to 3 percent slopes	1 to 3	204	240	267	289
9006	Anselmo	Anselmo fine sandy loam, 6 to 11 percent slopes	6 to 11	192	225	251	272
9007	Anselmo	Anselmo fine sandy loam, 0 to 3 percent slopes	0 to 3	189	223	248	268
9008	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes, eroded	3 to 5	189	223	248	268
9022	Anselmo	Anselmo loam, 1 to 3 percent slopes	1 to 3	347	405	449	482
9027	Gates	Gates silt loam, 1 to 3 percent slopes	1 to 3	218	256	285	307
9028	Gates	Gates silt loam, 3 to 6 percent slopes	3 to 6	268	314	349	376
9063	Kenesaw	Kenesaw silt loam, 0 to 1 percent slopes	0 to 1	176	207	231	250
9064	Kenesaw	Kenesaw silt loam, 1 to 3 percent slopes	1 to 3	180	212	236	255
9066	Kenesaw	Kenesaw silt loam, 3 to 6 percent slopes	3 to 6	213	250	279	300
9071	Kenesaw	Kenesaw-Coly silt loams, 3 to 6 percent slopes	3 to 5	196	231	257	278
9080	Rusco	Rusco silt loam, 0 to 1 percent slopes	0 to 1	131	156	175	189
9810	Riverwash	Riverwash	0 to 3	364	425	471	506

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Vlaues below are in feet**

Buffalo County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	108	131	147	160
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Burt County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2105	Carr	Carr silt loam, occasionally flooded	0 to 2	284	332	369	397
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	158	187	209	227
3617	Solomon	Solomon silty clay, occasionally flooded	0 to 2	64	78	90	98
3642	Kezan	Kezan silt loam, occasionally flooded	0 to 2	135	161	180	195
3643	Kennebec	Kezan-Kennebec silt loams, drained, occasionally flooded	0 to 2	127	151	169	184
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	105	127	143	155
6401	Calco	Calco silty clay loam, occasionally flooded	0 to 2	119	143	161	175
6403	Calco	Calco silty clay loam, wet, occasionally flooded	0 to 2	120	143	161	175
6505	Belfore	Belfore silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	89	108	122	133
6545	Moody	Moody silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	142	169	189	204
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	121	145	163	176
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	89	108	122	133
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6756	Nora_variant	Nora silt loam, 6 to 11 percent slopes, eroded	6 to 11	148	175	196	212
6758	Nora	Nora silty clay loam, 11 to 17 percent slopes	11 to 17	112	134	151	164
6759	Nora_variant	Nora silty clay loam, 11 to 17 percent slopes, eroded	11 to 15	136	161	180	195
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	112	134	151	164
6768	Nora_variant	Nora silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	112	134	151	164
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	142	169	189	204
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	142	169	189	204
6812	Moody	Moody silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	118	142	159	173

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Burt County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6813	Moody	Moody silty clay loam, 6 to 11 percent slopes	6 to 11	142	169	189	204
6814	Moody	Moody silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	142	169	189	204
6835	Nora_variant	Nora variant silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	134	159	178	193
6836	Nora_variant	Nora variant silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	134	159	178	193
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	129	153	172	186
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	81	99	112	122
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	125	150	168	182
7219	Burchard	Burchard clay loam, 11 to 17 percent slopes, eroded	11 to 17	61	74	86	94
7228	Burchard	Burchard clay loam, 6 to 11 percent slopes, eroded	6 to 11	61	74	86	94
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	102	123	138	150
7234	Judson	Judson silty clay loam, 2 to 6 percent slopes	2 to 6	94	114	129	141
7266	Burchard	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	68	83	95	104
7612	Steinauer	Steinauer clay loam, 11 to 30 percent slopes, eroded	11 to 30	71	86	99	108
7618	Steinauer	Steinauer soils, 11 to 30 percent slopes	11 to 30	66	81	93	101
7703	Grable	Grable silt loam, occasionally flooded	0 to 2	715	828	914	979
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	60	73	84	92
7711	Albaton	Albaton silty clay, frequently flooded	0 to 1	84	102	116	126
7715	Holly_Springs	Holly Springs silty clay loam, occasionally flooded	0 to 1	88	107	121	132
7728	Blencoe	Blencoe silty clay loam, rarely flooded	0 to 1	97	117	132	144
7729	Blencoe	Blencoe silty clay, rarely flooded	0 to 1	87	106	119	130
7741	Haynie	Haynie silt loam, occasionally flooded	0 to 1	202	237	264	285
7744	Haynie	Haynie silt loam, rarely flooded	0 to 2	202	237	264	285

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Burt County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7747	Udorthents	Udorthents silt loam, channeled, occasionally flooded	20 to 50	91	110	124	136
7748	Haynie_variant	Haynie variant silt loam, rarely flooded	0 to 1	111	133	150	163
7758	Modale	Modale silt loam, occasionally flooded	0 to 2	143	170	190	206
7765	Blyburg	Blyburg silt loam, rarely flooded	0 to 2	176	207	232	250
7770	Colo	Colo silty clay loam, occasionally flooded	0 to 2	115	138	155	169
7771	Colo	Colo silt loam, overwash, occasionally flooded	0 to 1	128	152	171	185
7781	Forney	Forney silty clay, rarely flooded	0 to 2	60	73	84	93
7791	Luton	Luton silty clay, rarely flooded	0 to 1	68	83	95	104
7800	Owego	Owego silty clay, occasionally flooded	0 to 1	69	84	96	106
7802	Percival	Percival silty clay, occasionally flooded	0 to 2	322	376	417	448
7808	Salix	Salix silty clay loam, rarely flooded	0 to 2	125	149	167	182
7820	Wathena	Wathena fine sandy loam, occasionally flooded	0 to 2	307	359	398	428
7826	Woodbury	Woodbury silty clay, occasionally flooded	0 to 2	88	106	120	131
7849	Sarpy	Sarpy fine sand, 0 to 6 percent slopes, occasionally flooded	0 to 6	415	483	535	574
7857	Sarpy	Sarpy-Grable variant complex, occasionally flooded	0 to 6	415	483	535	574
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	149	176	197	213
7874	Omadi	Omadi silt loam, rarely flooded	0 to 2	169	199	223	241
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	90	109	123	134
7891	Zook	Zook silt loam, overwash, occasionally flooded	0 to 2	101	122	137	149
7892	Zook	Zook silty clay, occasionally flooded	0 to 2	73	89	102	112
8000	Boone	Boone-Rock outcrop complex, 20 to 60 percent slopes	20 to 40	442	514	569	611
8005	Ida	Ida silt loam, 11 to 17 percent slopes	11 to 17	184	217	242	261
8006	Ida	Ida silt loam, 11 to 17 percent slopes, eroded	11 to 17	184	217	242	261
8007	Ida	Ida silt loam, 17 to 30 percent slopes	17 to 30	184	217	242	261
8008	Ida	Ida silt loam, 17 to 30 percent slopes, eroded	17 to 30	184	217	242	261

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Burt County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
8009	Ida	Ida silt loam, 30 to 60 percent slopes	30 to 60	184	217	242	261
8010	Ida	Ida silt loam, 6 to 11 percent slopes, eroded	6 to 11	184	217	242	261
8016	Marshall	Marshall silty clay loam, 0 to 2 percent slopes	0 to 2	110	132	149	162
8019	Marshall	Marshall silty clay loam, 2 to 6 percent slopes	2 to 6	110	132	149	162
8020	Marshall	Marshall silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	110	132	149	162
8027	Marshall	Marshall silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	110	132	149	162
8032	Marshall	Marshall-Pohocco silty clay loams, 6 to 11 percent slopes, eroded	5 to 11	106	128	144	156
8070	Monona	Monona silt loam, 11 to 17 percent slopes	11 to 17	134	159	178	193
8073	Monona	Monona silt loam, 17 to 30 percent slopes	17 to 30	134	159	179	194
8078	Monona	Monona silt loam, 6 to 11 percent slopes	6 to 11	134	159	178	193
8079	Monona	Monona silt loam, 6 to 11 percent slopes, eroded	5 to 11	133	157	176	191
8083	Monona	Monona silt loam, bench, 0 to 2 percent slopes	0 to 2	118	142	159	173
8097	Monona	Monona-Pohocco complex, 6 to 11 percent slopes, eroded	5 to 11	118	142	159	173
8108	Napier	Napier-Nodaway-Gullied land complex, 0 to 60 percent slopes	5 to 11	147	174	195	211
8114	Pohocco	Pohocco silt loam, 11 to 17 percent slopes, eroded	11 to 17	121	145	163	177
8118	Pohocco	Pohocco silt loam, 6 to 11 percent slopes, eroded	6 to 11	121	145	163	177
8136	Pohocco	Pohocco-Ida complex, 11 to 17 percent slopes, eroded	11 to 17	112	134	151	164
8142	Pohocco	Pohocco-Monona complex, 11 to 17 percent slopes, eroded	11 to 17	112	134	151	164
9971	Arents,_ earthen_dam	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Miscellaneous_water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Butler County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1438	Grigston	Grigston silt loam, rarely flooded	0 to 2	116	139	156	170
2342	Inavale	Inavale loamy sand, 3 to 6 percent slopes, rarely flooded	2 to 6	296	346	384	413
2351	Inavale	Inavale-Boel complex, 0 to 6 percent slopes, occasionally flooded	0 to 6	296	346	384	413
2536	Coly	Coly silt loam, 30 to 60 percent slopes	30 to 60	136	161	180	195
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	136	162	181	196
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	136	161	181	196
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	136	161	181	196
2835	Uly	Uly-Hobbs silt loams, 0 to 30 percent slopes, eroded	3 to 30	136	161	181	196
2840	Uly_variant	Uly variant silty clay loam, 3 to 6 percent slopes, eroded	3 to 6	135	159	179	194
3157	Brocksburg	Brocksburg sandy loam, 0 to 2 percent slopes	0 to 2	415	483	535	575
3404	Longford	Longford silty clay loam, 3 to 7 percent slopes, eroded	2 to 6	88	107	121	132
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	92	111	125	137
3537	Gibbon	Gibbon silty clay loam, occasionally flooded	0 to 2	103	124	140	152
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	159	188	210	228
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	159	188	210	228
3640	Kezan	Kezan silt loam, frequently flooded	0 to 2	129	153	171	186
3775	Muir	Muir silt loam, rarely flooded	0 to 1	110	132	149	161
3776	Muir	Muir silt loam, 1 to 3 percent slopes	1 to 3	110	132	149	161
3777	Muir	Muir silt loam, 3 to 7 percent slopes	3 to 7	106	128	144	157
3812	Olbut	Olbut-Butler silt loams, 0 to 1 percent slopes	0 to 1	96	116	131	143
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	153	180	202	219
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	153	181	203	220
3868	Hastings	Hastings silt loam, 3 to 7 percent slopes	3 to 7	124	149	167	181
3869	Hastings	Hastings silt loam, 7 to 11 percent slopes	6 to 11	124	149	167	181
3870	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	127	151	169	183
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Butler County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3962	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	87	106	120	131
4182	Longford	Longford silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	88	107	121	132
6312	Barney	Barney loam, frequently flooded	0 to 1	538	625	690	740
6315	Barney	Barney silty clay loam, frequently flooded	0 to 2	460	535	592	635
6353	Leshara	Leshara silt loam, drained, rarely flooded	0 to 1	182	214	239	258
6381	Saltine	Saltine-Gibbon silt loams, occasionally flooded	0 to 1	105	127	143	155
6457	Inglewood	Inglewood loamy fine sand, rarely flooded	0 to 3	377	439	487	523
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	418	487	539	578
6510	Blendon	Blendon fine sandy loam, 2 to 6 percent slopes	2 to 6	418	487	539	578
6518	Blendon	Blendon-Muir complex, 0 to 2 percent slopes	0 to 2	373	435	482	517
6681	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	231	271	301	325
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	221	260	289	312
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	289	338	375	403
6737	Thurman	Thurman-Monona complex, 6 to 11 percent slopes	6 to 11	298	348	386	416
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7049	Kenridge	Kenridge silty clay loam, occasionally flooded	0 to 2	108	130	146	159
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	77	94	106	116
7204	Aksarben	Sarpy loamy fine sand, rarely flooded	0 to 3	66	81	93	102
7205	Aksarben	Aksarben silty clay loam, 0 to 2 percent slopes	0 to 2	100	121	137	149
7206	Aksarben	Aksarben silty clay loam, 2 to 6 percent slopes	2 to 6	66	81	93	102
7215	Burchard	Burchard loam, 6 to 11 percent slopes	6 to 11	71	87	99	109
7216	Burchard	Burchard loam, 11 to 17 percent slopes	11 to 15	71	87	99	109
7230	Judson	Judson silt loam, 0 to 2 percent slopes	0 to 2	111	134	150	163
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	102	123	138	150
7266	Steinauer	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	68	83	95	104

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Butler County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7268	Burchard	Burchard-Steinauer clay loams, 6 to 11 percent slopes, eroded	6 to 12	60	73	84	92
7280	Tomek	Tomek silt loam, 0 to 2 percent slopes	0 to 2	124	148	167	181
7353	Malmo	Malmo clay loam, 6 to 11 percent slopes, eroded	6 to 12	70	85	98	107
7501	Pawnee	Pawnee clay loam, 4 to 8 percent slopes, eroded	4 to 8	71	86	99	108
7507	Pawnee	Pawnee clay loam, 6 to 11 percent slopes, eroded	6 to 11	58	71	82	91
7611	Steinauer	Steinauer clay loam, 11 to 30 percent slopes	11 to 30	69	84	96	105
7614	Steinauer	Steinauer clay loam, 6 to 11 percent slopes, eroded	6 to 11	69	84	96	105
7619	Steinauer	Steinauer clay loam, 30 to 50 percent slopes	30 to 50	69	84	96	105
7641	Yutan	Yutan silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	93	112	127	138
7644	Yutan	Yutan silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	93	113	128	139
7645	Yutan	Yutan silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	97	117	132	144
7646	Yutan	Yutan, eroded-Judson complex, 6 to 11 percent slopes	5 to 11	97	117	132	144
7647	Yutan	Yutan, eroded-Aksarben silty clay loams, 2 to 6 percent slopes	2 to 5	97	117	132	144
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	150	118	199	216
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	148	175	196	212
7868	Nodaway	Nodaway silt loam, channeled, occasionally flooded	0 to 2	150	178	199	216
7891	Zook	Zook silt loam, overwash, occasionally flooded	0 to 2	96	117	131	143
8013	Ida	Ida-Steinauer complex, 17 to 60 percent slopes	17 to 60	181	213	238	257
8070	Monona	Monona silt loam, 11 to 17 percent slopes	11 to 17	134	159	178	193
8073	Monona	Monona silt loam, 17 to 30 percent slopes	17 to 30	134	159	179	194
8075	Monona	Monona silt loam, 2 to 6 percent slopes	2 to 6	134	159	179	194
8118	Pohocco	Pohocco silt loam, 6 to 11 percent slopes, eroded	6 to 11	120	144	161	175
8119	Pohocco	Pohocco silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	107	128	145	157

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Butler County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
8123	Pohocco	Pohocco silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	107	128	145	157
8125	Pohocco	Pohocco silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	107	128	145	157
8127	Pohocco	Pohocco, eroded-Crofton complex, 11 to 17 percent slopes	11 to 17	107	128	145	157
8128	Pohocco	Pohocco, eroded-Crofton complex, 17 to 30 percent slopes	17 to 30	107	128	145	157
8130	Pohocco	Pohocco, eroded-Crofton complex, 6 to 11 percent slopes	6 to 11	107	128	145	157
8401	Alda	Alda fine sandy loam, occasionally flooded	0 to 1	367	428	474	509
8418	Boel	Boel loam, occasionally flooded	0 to 2	774	897	989	1059
8420	Boel	Boel loamy fine sand, occasionally flooded	0 to 2	434	506	559	600
8424	Boel	Boel-Alda complex, occasionally flooded	0 to 2	760	880	971	1040
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	106	128	144	157
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	219	257	287	309
8503	Lex	Lex loam, occasionally flooded	0 to 2	448	521	577	619
8542	Ovina	Ovina loamy fine sand, rarely flooded	0 to 2	125	150	168	182
8550	Silver_Creek	Silver Creek complex, rarely flooded	0 to 2	238	280	311	335
8562	Platte	Platte fine sandy loam, occasionally flooded	0 to 2	451	524	580	623
8569	Platte	Platte-Barney complex, channeled, frequently flooded	0 to 2	387	451	500	537
8573	Platte	Platte-Inavale complex, channeled, frequently flooded	0 to 2	437	509	563	604
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	194	228	254	274
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	223	262	292	315
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	132	157	176	191
8909	Thurman	Ovina-Thurman complex, 0 to 6 percent slopes	0 to 6	298	348	386	416
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	245	287	320	344
8961	Wood_River	Wood River silt loam, 1 to 3 percent slopes	1 to 3	171	202	226	244
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cass County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3840	Geary	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	110	133	149	162
3921	Sogn	Sogn-Rock outcrop complex, 11 to 30 percent slopes	11 to 30	70	85	98	107
3948	Fillmore	Fillmore silt loam, terrace, occasionally ponded	0 to 1	170	201	224	242
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
4111	Hedville	Hedville sandy loam, 7 to 20 percent slopes	6 to 20	66	81	93	102
6460	Inglewood	Inglewood-Novina complex, occasionally flooded	0 to 2	573	665	735	787
6708	Thurman	Thurman loamy fine sand, 11 to 20 percent slopes	9 to 20	291	340	377	406
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	112	135	151	164
7087	Sarpy	Sarpy-Haynie complex, occasionally flooded	0 to 3	445	518	573	615
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	77	94	106	116
7155	Aksarben	Aksarben silty clay loam, terrace, 0 to 1 percent slopes	0 to 1	66	81	93	102
7156	Aksarben	Aksarben silty clay loam, terrace, 1 to 3 percent slopes	1 to 3	66	81	93	102
7205	Aksarben	Aksarben silty clay loam, 0 to 2 percent slopes	0 to 2	66	81	93	102
7206	Aksarben	Aksarben silty clay loam, 2 to 6 percent slopes	2 to 6	66	81	93	102
7207	Aksarben	Aksarben silty clay loam, 2 to 6 percent slopes	2 to 6	66	81	93	102
7212	Morrill	Burchard-Morrill clay loams, 6 to 11 percent slopes	6 to 11	88	107	120	131
7230	Judson	Judson silt loam, 0 to 2 percent slopes	0 to 2	105	126	142	154
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	102	123	138	150
7280	Tomek	Tomek silt loam, 0 to 2 percent slopes	0 to 2	124	148	167	181
7340	Filbert	Filbert silt loam, 0 to 1 percent slopes	0 to 1	184	217	242	261
7422	Morrill	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	114	137	154	167
7464	Otoe	Otoe silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	78	95	108	117
7507	Pawnee	Pawnee clay loam, 6 to 11 percent slopes, eroded	6 to 11	63	77	88	97
7530	Sharpsburg_ variant	Sharpsburg variant silty clay loam, 1 to 3 percent slopes	1 to 4	69	84	96	105

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cass County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7641	Yutan	Yutan silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	95	115	130	141
7644	Yutan	Yutan silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	78	95	108	117
7645	Yutan	Yutan silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	95	115	130	141
7646	Yutan	Yutan, eroded-Judson complex, 6 to 11 percent slopes	5 to 11	97	117	132	144
7647	Yutan	Yutan, eroded-Aksarben silty clay loams, 2 to 6 percent slopes	2 to 5	97	117	132	144
7668	Mayberry	Mayberry silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	90	109	123	134
7684	Wymore	Wymore silty clay loam, 3 to 6 percent slopes, eroded	3 to 6	77	94	106	116
7689	Wymore	Wymore silty clay loam, 0 to 2 percent slopes	0 to 2	76	94	106	116
7693	Wymore	Wymore silty clay loam, 2 to 6 percent slopes	2 to 7	76	94	106	116
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	59	73	84	92
7741	Haynie	Haynie silt loam, occasionally flooded	0 to 1	202	237	264	285
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	154	183	204	221
7770	Colo	Colo silty clay loam, occasionally flooded	0 to 2	59	73	84	92
7773	Colo	Colo-Nodaway complex, frequently flooded	0 to 2	97	118	133	144
7852	Sarpy	Sarpy loamy fine sand, frequently flooded	0 to 4	437	508	562	603
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	154	183	204	221
7868	Nodaway	Nodaway silt loam, channeled, occasionally flooded	0 to 2	150	178	199	216
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	89	108	122	133
7892	Zook	Zook silty clay, occasionally flooded	0 to 2	73	89	102	112
8007	Ida	Ida silt loam, 17 to 30 percent slopes	17 to 30	184	217	242	261
8013	Ida	Ida-Steinauer complex, 17 to 60 percent slopes	17 to 60	95	115	130	141
8019	Marshall	Marshall silty clay loam, 2 to 6 percent slopes	2 to 6	78	95	108	117
8020	Marshall	Marshall silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	95	115	130	141
8024	Marshall	Marshall silty clay loam, 6 to 11 percent slopes	5 to 11	97	117	132	144
8025	Marshall	Marshall silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	97	117	132	144

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cass County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8028	Marshall	Marshall silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	90	109	123	134
8071	Monona	Monona silt loam, 11 to 17 percent slopes, eroded	11 to 17	77	94	106	116
8073	Monona	Monona silt loam, 17 to 30 percent slopes	17 to 30	76	94	106	116
8075	Monona	Monona silt loam, 2 to 6 percent slopes	2 to 6	76	94	106	116
8079	Monona	Monona silt loam, 6 to 11 percent slopes, eroded	5 to 11	59	73	84	92
8092	Monona	Monona-Ida silt loams, 11 to 17 percent slopes, eroded	11 to 17	202	237	264	285
8094	Monona	Monona-Ida silt loams, 30 to 60 percent slopes	30 to 40	154	183	204	221
8119	Pohocco	Pohocco silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	59	73	84	92
8125	Pohocco	Pohocco silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	97	118	133	144
8145	Pohocco	Pohocco-Pahuk complex, 6 to 11 percent slopes, eroded	5 to 11	437	508	562	603
8146	Pohocco	Pohocco-Pahuk complex, 11 to 17 percent slopes, eroded	11 to 17	154	183	204	221
8408	Alda	Alda-Platte complex, occasionally flooded	0 to 2	150	178	199	216
8442	Cass	Cass-Novina complex, occasionally flooded	0 to 2	89	108	122	133
8510	Lex	Lex-Platte complex, occasionally flooded	0 to 2	73	89	102	112
9705	Udorthents	Udorthents, silty	0 to 2	63	77	88	97
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cedar County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2320	Inavale	Inavale coarse sand, channeled, frequently flooded	0 to 3	285	333	370	398
2561	Eltree	Eltree silt loam, 0 to 3 percent slopes	0 to 2	136	161	180	196
2563	Eltree	Eltree silt loam, 3 to 6 percent slopes	2 to 6	136	162	181	196
2564	Eltree	Eltree silt loam, 6 to 11 percent slopes	6 to 11	135	160	179	194
3050	Nimbro	Nimbro silt loam, occasionally flooded	0 to 2	129	153	172	186
3152	Boyd	Boyd silty clay, 6 to 11 percent slopes	6 to 11	80	98	111	121
3153	Boyd	Boyd silty clay, 11 to 15 percent slopes	11 to 15	68	83	96	105
3221	Labu	Labu silty clay, 6 to 11 percent slopes	6 to 11	97	117	132	144
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	91	111	125	136
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	165	195	218	236
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	161	190	212	230
3640	Kezan	Kezan silt loam, frequently flooded	0 to 2	129	153	172	186
3642	Kezan	Kezan silt loam, occasionally flooded	0 to 2	147	174	195	211
3755	Hord	Hord silt loam, rarely flooded	0 to 1	112	134	151	164
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
5476	Betts	Betts clay loam, 15 to 30 percent slopes	15 to 30	73	89	102	111
5479	Betts	Betts clay loam, 6 to 15 percent slopes	6 to 15	73	89	102	111
6300	Aowa	Aowa silt loam, occasionally flooded	0 to 2	141	168	188	203
6301	Aowa	Aowa silt loam, channeled, frequently flooded	0 to 2	139	165	185	200
6305	Baltic	Baltic silty clay loam, occasionally flooded	0 to 2	99	119	134	146
6317	Barney_variant	Barney variant fine sand, frequently flooded	0 to 2	1299	1501	1652	1767
6323	Coleridge	Coleridge silt loam, occasionally flooded	0 to 2	123	148	166	180
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	99	119	134	146
6366	Obert	Obert silt loam, occasionally flooded	0 to 2	136	162	181	196
6367	Obert	Obert silty clay loam, occasionally flooded	0 to 2	112	134	151	164
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	172	202	226	244
6500	Bazile	Bazile loam, 0 to 2 percent slopes	0 to 2	424	494	547	587
6510	Blendon	Blendon fine sandy loam, 2 to 6 percent slopes	2 to 6	418	487	539	578
6513	Blendon	Blendon loam, 0 to 2 percent slopes	0 to 2	751	870	960	1028
6520	Dudley	Dudley-Moody complex, 0 to 2 percent slopes	0 to 2	96	116	131	142

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cedar County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6540	Maskell	Maskell loam, 0 to 2 percent slopes	0 to 2	36	46	53	60
6541	Maskell	Maskell loam, 2 to 6 percent slopes	2 to 6	36	46	53	60
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	135	159	179	194
6601	Alcester	Alcester silt loam, 6 to 11 percent slopes	6 to 11	131	156	175	189
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	221	260	289	312
6693	Crofton	Crofton-Nora complex, 2 to 6 percent slopes, eroded	2 to 6	230	270	300	324
6694	Crofton	Crofton-Nora complex, 6 to 11 percent slopes, eroded	6 to 11	231	271	301	325
6696	Crofton	Crofton-Nora silt loams, 11 to 17 percent slopes, eroded	11 to 17	231	271	301	325
6699	Crofton	Crofton-Nora silt loams, 6 to 11 percent slopes, eroded	6 to 11	231	271	301	325
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	289	338	375	403
6727	Thurman	Thurman fine sandy loam, 2 to 11 percent slopes	3 to 11	337	393	436	468
6736	Thurman	Thurman-Loretto complex, 2 to 6 percent slopes	2 to 6	291	341	378	407
6743	Thurman	Thurman-Ortello complex, 6 to 11 percent slopes	6 to 11	291	340	377	406
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	124	148	166	180
6756	Nora_variant	Nora silt loam, 6 to 11 percent slopes, eroded	6 to 11	148	175	196	212
6760	Gavins	Gavins silt loam, 17 to 30 percent slopes	25 to 30	165	194	217	235
6761	Gavins	Gavins silt loam, 30 to 60 percent slopes	30 to 60	165	194	217	235
6762	Gavins	Gavins silt loam, 6 to 17 percent slopes	6 to 15	168	199	222	240
6768	Nora	Nora silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	112	134	151	164
6787	Crofton	Crofton-Alcester silt loams, 20 to 60 percent slopes	20 to 60	231	271	301	325
6788	Crofton	Crofton-Gavins silt loams, 30 to 60 percent slopes	30 to 60	231	271	301	325
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	229	268	299	322
6794	Loretto	Loretto loam, sand substratum, 2 to 6 percent slopes	2 to 6	296	346	384	413

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cedar County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6797	Loretto	Loretto loam, sand substratum, 6 to 11 percent slopes	6 to 11	296	346	384	413
6805	Moody	Moody loam, 2 to 6 percent slopes	2 to 6	144	170	191	206
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	145	172	193	209
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	150	178	199	215
6812	Moody	Moody silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	144	171	191	207
6814	Moody	Moody silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	142	169	189	204
6826	Redstoe	Redstoe silt loam, 0 to 2 percent slopes	0 to 2	166	196	219	237
6827	Redstoe	Redstoe silt loam, 2 to 6 percent slopes	2 to 6	168	198	221	239
6828	Redstoe	Redstoe silt loam, 6 to 11 percent slopes	6 to 11	168	198	221	239
6829	Redstoe	Redstoe-Gavins complex, 11 to 30 percent slopes	11 to 25	172	203	227	246
6830	Talmo	Talmo-Loretto complex, 3 to 11 percent slopes	3 to 9	448	521	577	619
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	300	351	389	419
6854	Ortello	Ortello sandy loam, 11 to 17 percent slopes	11 to 15	325	379	421	452
6855	Ortello	Ortello sandy loam, 2 to 6 percent slopes	2 to 6	325	379	421	452
6856	Ortello	Ortello sandy loam, 6 to 11 percent slopes	6 to 11	321	375	416	447
7180	Sarpy	Sarpy loamy fine sand, rarely flooded	0 to 3	437	508	562	603
7707	Grable	Grable silt loam, rarely flooded	0 to 2	690	800	883	946
7711	Albaton	Albaton silty clay, frequently flooded	0 to 1	57	70	81	89
7712	Albaton	Albaton silty clay, rarely flooded	0 to 2	59	73	84	92
7724	Blake	Blake silty clay loam, rarely flooded	0 to 2	155	183	205	222
7759	Modale	Modale silt loam, rarely flooded	0 to 2	153	181	203	220
7804	Percival	Percival silty clay, rarely flooded	0 to 2	499	580	642	688
7847	Sarpy	Sarpy-Riverwash complex, frequently flooded	0 to 3	445	518	573	615
7850	Sarpy	Sarpy fine sand, 3 to 11 percent slopes	3 to 11	415	483	535	574
7883	Onawa	Onawa silty clay, rarely flooded	0 to 2	90	110	124	135
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	106	128	144	157
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	122	147	165	179

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cedar County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
8873	Hord	Hord silt loam, bedrock substratum, 0 to 1 percent slopes	0 to 2	111	134	151	164
8931	Simeon	Simeon sand, 6 to 30 percent slopes, eroded	6 to 30	281	329	365	393
8937	Simeon	Simeon-Talmo-Ortello complex, 11 to 30 percent slopes	9 to 30	346	404	448	481
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Chase County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1138	Caruso	Caruso loam, occasionally flooded	0 to 2	119	143	161	175
1355	Bridget	Bridget silt loam, 0 to 1 percent slopes	0 to 1	191	224	250	270
1356	Bridget	Bridget silt loam, 1 to 3 percent slopes	1 to 3	191	224	250	270
1501	Altvan	Altvan loam, 0 to 1 percent slopes	0 to 1	473	550	608	652
1502	Altvan	Altvan loam, 1 to 3 percent slopes	1 to 3	473	550	608	652
1503	Altvan	Altvan loam, 3 to 6 percent slopes	3 to 6	473	550	608	652
1520	Ascalon	Ascalon fine sandy loam, 1 to 3 percent slopes	1 to 3	116	139	156	170
1521	Ascalon	Ascalon fine sandy loam, 3 to 6 percent slopes	3 to 6	260	304	338	364
1523	Bushman	Bushman very fine sandy loam, 1 to 3 percent slopes	1 to 4	127	151	170	184
1525	Blanche	Blanche fine sandy loam, 1 to 3 percent slopes	0 to 3	130	155	173	188
1529	Blanche	Blanche very fine sandy loam, 1 to 3 percent slopes	0 to 3	124	148	166	181
1531	Sulco	Sulco silt loam, 6 to 9 percent slopes	6 to 9	232	272	303	326
1532	Sulco	Sulco silt loam, 9 to 30 percent slopes	9 to 30	232	272	303	326
1534	Sulco	Sulco silt loam, 30 to 60 percent slopes	30 to 60	232	272	303	326
1547	Dailey	Dailey loamy sand, 0 to 3 percent slopes	0 to 3	92	112	126	137
1556	Blackwood	Blackwood loam, 0 to 1 percent slopes	0 to 1	78	95	108	118
1559	Blackwood	Blackwood loam, 1 to 3 percent slopes	1 to 3	81	98	111	121
1584	Goshen	Goshen silt loam, 0 to 1 percent slopes	0 to 1	152	180	201	218
1586	Blackwood	Blackwood silt loam, 3 to 6 percent slopes	3 to 6	141	166	187	202
1588	Blackwood	Blackwood silt loam, 0 to 1 percent slopes	0 to 1	143	169	189	205
1589	Blackwood	Blackwood silt loam, 1 to 3 percent slopes	1 to 3	142	168	188	204
1590	Haxtun	Haxtun fine sandy loam, 0 to 3 percent slopes	0 to 3	152	180	201	218
1591	Haxtun	Haxtun loamy fine sand, 0 to 3 percent slopes	0 to 3	109	132	148	161
1620	Keith	Keith silt loam, 1 to 3 percent slopes	1 to 3	191	225	251	271
1630	Keith	Keith silt loam, 3 to 6 percent slopes, eroded	3 to 6	191	225	251	271
1652	Kuma	Kuma silt loam, 0 to 1 percent slopes	0 to 1	147	174	195	211
1653	Kuma	Kuma silt loam, 1 to 3 percent slopes	1 to 3	147	174	195	211
1654	Kuma	Kuma silt loam, 3 to 6 percent slopes	3 to 6	147	174	195	211

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Chase County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1656	Laird	Laird fine sandy loam, 0 to 2 percent slopes	0 to 2	133	157	176	191
1661	Lodgepole	Lodgepole silt loam, frequently ponded	0 to 1	108	130	147	159
1663	Lodgepole	Lodgepole silty clay loam, frequently ponded	0 to 1	89	108	122	133
1670	Mace	Mace silt loam, 0 to 1 percent slopes	0 to 1	135	160	179	194
1671	Mace	Mace silt loam, 1 to 3 percent slopes	1 to 3	134	158	178	193
1675	Mace	Mace-Alliance silt loams, 0 to 1 percent slopes	0 to 1	138	163	183	198
1676	Mace	Mace-Alliance silt loams, 1 to 3 percent slopes	1 to 3	172	203	227	245
1695	McCash	McCash very fine sandy loam, 0 to 1 percent slopes	0 to 1	174	205	229	248
1716	Sulco	Sulco-Canyon loams, 20 to 45 percent slopes	30 to 45	168	198	222	240
1717	Otero	Otero-Canyon loams, 6 to 20 percent slopes	6 to 20	136	161	181	196
1720	Overlake	Overlake sand, 0 to 3 percent slopes	0 to 3	205	241	268	289
1725	Rosebud	Rosebud loam, 0 to 1 percent slopes	0 to 1	98	118	134	145
1726	Rosebud	Rosebud loam, 1 to 3 percent slopes	1 to 3	158	187	209	226
1738	Rosebud	Rosebud-Canyon loams, 0 to 1 percent slopes	0 to 1	144	170	191	207
1739	Rosebud	Rosebud-Canyon loams, 1 to 3 percent slopes	1 to 3	139	165	185	201
1740	Rosebud	Rosebud-Canyon loams, 3 to 6 percent slopes	3 to 6	157	185	207	224
1743	Rosebud	Rosebud-Canyon loams, 6 to 12 percent slopes, eroded	6 to 11	157	185	207	224
1797	Sarben	Sarben loamy sand, 3 to 6 percent slopes	3 to 6	103	125	141	153
1809	Satanta	Satanta fine sandy loam, 1 to 3 percent slopes	1 to 3	99	120	135	147
1811	Satanta	Satanta loam, 1 to 3 percent slopes	1 to 3	144	171	191	207
1814	Satanta	Satanta loam, 3 to 6 percent slopes	3 to 6	144	170	190	206
1818	Satanta	Satanta very fine sandy loam, 1 to 3 percent slopes	1 to 3	149	177	198	214
1819	Satanta	Satanta very fine sandy loam, 3 to 6 percent slopes	3 to 6	149	177	198	214
1826	Sulco	Sulco complex, 9 to 60 percent slopes	30 to 60	108	130	146	159

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Chase County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1828	Sulco	Sulco fine sandy loam, 3 to 6 percent slopes	3 to 6	109	131	148	161
1833	Sulco	Sulco-Ulysses silt loams, 9 to 30 percent slopes, eroded	9 to 30	232	272	303	326
1849	Sulco	Sulco loam, 9 to 30 percent slopes	9 to 30	105	127	142	155
1854	Ulysses	Ulysses loam, 1 to 3 percent slopes	1 to 3	121	145	163	177
1855	Ulysses	Ulysses loam, 3 to 6 percent slopes	3 to 6	85	103	117	128
1860	Ulysses	Ulysses silt loam, 3 to 6 percent slopes, eroded	3 to 6	161	190	213	230
1861	Ulysses	Ulysses silt loam, 6 to 9 percent slopes, eroded	6 to 9	161	190	213	230
1869	Ulysses	Ulysses-Sulco silt loams, 6 to 9 percent slopes, eroded	6 to 9	163	193	216	233
1875	Woodly	Woodly fine sandy loam, 0 to 3 percent slopes	0 to 3	137	163	182	198
1876	Woodly	Woodly loamy fine sand, 0 to 3 percent slopes	0 to 3	116	139	156	170
1884	Valent	Valent complex, rolling and hilly	9 to 60	326	381	422	454
1895	Valent	Valent loamy sand, 0 to 3 percent slopes	0 to 3	318	371	411	442
1896	Valent	Valent loamy sand, 3 to 9 percent slopes	3 to 9	327	381	423	455
1897	Valent	Valent sand, 0 to 3 percent slopes	0 to 3	323	378	419	450
1898	Valent	Valent sand, 3 to 9 percent slopes	3 to 9	342	399	443	476
1899	Valent	Valent sand, rolling	9 to 24	339	396	439	472
1900	Valent	Valent sand, rolling and hilly	17 to 60	339	396	439	472
2109	McCook	McCook silt loam, channeled, occasionally flooded	0 to 3	173	204	228	246
2177	McCook	McCook silt loam, occasionally flooded	0 to 2	173	204	228	246
2347	McCook	McCook silt loam, rarely flooded	0 to 2	192	226	252	272
4263	Gannett_ variant	Gannett variant silt loam, occasionally flooded	0 to 2	500	581	642	689
4477	Duda	Duda-Tassel complex, 3 to 6 percent slopes	3 to 6	165	195	218	235
4478	Duda	Duda-Tassel loamy sands, 3 to 6 percent slopes	3 to 6	261	305	339	366
4583	Gannett	Gannett silt loam, overwash, frequently ponded	0 to 2	198	233	259	280
5104	Alliance	Alliance silt loam, 0 to 1 percent slopes	0 to 1	177	209	233	252
5161	Canyon	Canyon-Sulco-Rock outcrop complex, 17 to 60 percent slopes	30 to 60	71	86	99	108

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Chase County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	156	184	206	223
5934	Creighton	Creighton very fine sandy loam, 1 to 3 percent slopes	1 to 3	158	186	208	225
5935	Creighton	Creighton very fine sandy loam, 3 to 6 percent slopes	3 to 6	158	186	208	225
5936	Creighton	Creighton very fine sandy loam, 6 to 11 percent slopes	6 to 11	158	186	208	225
5942	Duroc	Duroc loam, 0 to 1 percent slopes	0 to 1	85	103	116	127
5965	Jayem	Jayem fine sandy loam, 0 to 3 percent slopes	0 to 3	241	283	314	339
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	241	283	314	339
5970	Jayem	Jayem loamy fine sand, 0 to 3 percent slopes	0 to 3	114	136	153	167
5972	Jayem	Jayem loamy fine sand, 3 to 6 percent slopes	3 to 6	114	136	153	167
5973	Jayem	Jayem loamy sand, 0 to 3 percent slopes	0 to 3	88	106	120	131
5976	Jayem	Jayem loamy very fine sand, 0 to 3 percent slopes	0 to 3	172	202	226	244
5979	Jayem	Jayem loamy very fine sand, 3 to 6 percent slopes	3 to 6	185	218	243	263
6038	Tassel	Tassel-Duda loamy sands, 0 to 3 percent slopes	0 to 3	80	98	110	121
6039	Tassel	Tassel-Duda loamy sands, 3 to 30 percent slopes	3 to 30	80	98	110	121
6040	Tassel	Tassel-Duda loamy sands, 6 to 30 percent slopes	6 to 30	82	100	114	124
6104	Sarben	Sarben loamy very fine sand, 3 to 6 percent slopes	3 to 6	128	152	170	185
6106	Sarben	Sarben loamy very fine sand, 6 to 9 percent slopes	6 to 9	128	152	170	185
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	109	131	147	160
8580	Wann	Wann fine sandy loam, occasionally flooded	0 to 2	101	122	137	149
9906	Fluvaquents	Fluvaquents, silty, frequently flooded	0 to 1	69	84	96	107
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Chase County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet

Values below are in feet

Cherry County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1545	Dailey	Dailey loamy fine sand, 0 to 3 percent slopes	0 to 3	91	110	124	135
1546	Dailey	Dailey loamy fine sand, 3 to 9 percent slopes	3 to 9	90	109	123	134
1661	Lodgepole	Lodgepole silt loam, frequently ponded	0 to 1	113	135	152	165
1809	Satanta	Satanta fine sandy loam, 1 to 3 percent slopes	1 to 3	204	239	267	288
3167	Hennings	Hennings fine sandy loam, 0 to 3 percent slopes	0 to 2	205	240	268	289
3170	Holt	Holt fine sandy loam, 0 to 2 percent slopes	0 to 2	129	153	171	186
3172	Holt	Holt-Longpine fine sandy loams, 2 to 6 percent slopes	2 to 6	233	273	304	328
3173	Holt	Holt-Longpine fine sandy loams, 6 to 11 percent slopes	6 to 11	118	142	160	173
3176	Holt	Holt-Vetal fine sandy loams, 0 to 6 percent slopes	2 to 6	118	141	159	172
3180	Jansen	Jansen fine sandy loam, 0 to 2 percent slopes	0 to 2	348	405	449	483
3249	Meadin	Meadin loamy sand, 0 to 2 percent slopes	0 to 2	273	319	354	381
3251	Meadin	Meadin loamy sand, 2 to 30 percent slopes	2 to 30	281	328	365	392
3351	Fishberry	Fishberry fine sandy loam, 0 to 6 percent slopes	0 to 6	95	115	130	142
3352	Fishberry	Fishberry-Duda loamy fine sands, 6 to 30 percent slopes	6 to 30	96	116	131	143
3353	Fishberry	Fishberry-Rock outcrop complex, 30 to 60 percent slopes	20 to 60	96	116	131	143
4201	Almeria	Almeria fine sandy loam, occasionally flooded	0 to 2	346	404	447	481
4203	Almeria	Almeria fine sandy loam, wet, occasionally flooded	0 to 2	343	400	443	476
4205	Almeria	Almeria loamy fine sand, channeled, frequently flooded	0 to 2	268	313	348	375
4221	Bolent	Bolent fine sandy loam, rarely flooded	0 to 2	96	117	132	143
4224	Bolent	Bolent loamy fine sand, channeled, occasionally flooded	0 to 2	90	109	123	134
4226	Bolent	Bolent-Almeria complex, channeled, frequently flooded	0 to 2	295	345	383	412
4228	Bolent	Bolent-Calamus, calcareous loamy fine sands, occasionally flooded	0 to 2	89	108	122	133
4231	Calamus	Calamus fine sand, calcareous	0 to 2	245	288	320	345

van Schilfgaarde (ND DRAIN) - barrier at 10 feet

Values below are in feet

Cherry County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4233	Calamus	Calamus loamy fine sand, calcareous, rarely flooded	0 to 2	342	400	443	476
4237	Calamus	Calamus-Bolent loamy fine sands, channeled, occasionally flooded	0 to 2	324	378	419	451
4243	Ord	Ord loam, rarely flooded	0 to 2	344	401	444	477
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	144	171	191	207
4390	Natick	Natick sand, 0 to 3 percent slopes	0 to 3	309	361	401	431
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--
4455	Crowther	Crowther loam, 0 to 1 percent slopes	0 to 1	293	343	381	410
4456	Crowther	Crowther mucky peat	0 to 1	459	534	591	634
4462	Cullison	Cullison loam, 0 to 1 percent slopes	0 to 1	110	132	149	162
4463	Cullison	Cullison mucky peat	0 to 1	125	149	168	182
4467	Cutcomb	Cutcomb mucky peat	0 to 1	2500	2883	3171	3388
4470	Doughboy	Doughboy fine sandy loam, 0 to 3 percent slopes	0 to 3	128	152	171	185
4471	Doughboy	Doughboy loamy fine sand, 0 to 3 percent slopes	0 to 3	210	296	275	296
4476	Duda	Duda-Fishberry loamy fine sands, 0 to 3 percent slopes	0 to 3	182	214	239	258
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	335	391	433	465
4490	Dunday	Dunday loamy fine sand, 3 to 9 percent slopes	3 to 9	335	391	433	465
4520	Hoffland	Els calcareous-Hoffland complex, 0 to 3 percent slopes	0 to 1	662	767	847	908
4521	Els	Els fine sand, 0 to 3 percent slopes	0 to 3	426	496	549	589
4536	Els	Els, calcareous-Hoffland complex, 0 to 3 percent slopes	0 to 2	334	389	432	464
4540	Els	Els, calcareous-Selia fine sands, 0 to 3 percent slopes	0 to 2	331	386	428	460
4545	Els	Els-Ipage fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	434	505	559	600
4556	Elsmere	Elsmere loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	436	508	562	603
4561	Elsmere	Elsmere-Loup complex, 0 to 3 percent slopes	0 to 2	430	501	554	595
4563	Els	Els-Tryon complex, 0 to 3 percent slopes	0 to 2	426	496	549	589

van Schilfgaarde (ND DRAIN) - barrier at 10 feet

Values below are in feet

Cherry County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4576	Gannett	Gannett loam, 0 to 1 percent slopes	0 to 1	601	698	771	826
4579	Gannett	Gannett mucky peat	0 to 1	593	688	759	814
4590	Gus	Gus clay loam, 0 to 1 percent slopes	0 to 1	112	135	152	165
4591	Gus	Gus mucky peat	0 to 1	81	99	112	123
4596	Hennings	Hennings fine sandy loam, 3 to 6 percent slopes	2 to 6	205	240	268	289
4597	Hennings	Hennings fine sandy loam, 6 to 11 percent slopes	6 to 11	205	240	268	289
4598	Hennings	Hennings-Anselmo fine sandy loams, 11 to 20 percent slopes	11 to 20	203	239	267	288
4635	Hoffland	Hoffland fine sandy loam, 0 to 1 percent slopes	0 to 1	449	522	578	620
4636	Hoffland	Hoffland fine sandy loam, frequently ponded	0 to 1	416	485	537	576
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	376	438	485	521
4643	Ipage	Ipage fine sand, calcareous, 0 to 3 percent slopes	0 to 3	375	437	484	520
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	359	418	464	498
4655	Ipage	Ipage-Tryon complex, 0 to 3 percent slopes	0 to 3	375	437	484	520
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	468	544	602	646
4670	Loup	Loup mucky peat	0 to 1	448	521	577	619
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	524	608	672	721
4700	McKelvie	McKelvie loamy fine sand, 0 to 3 percent slopes	0 to 3	270	316	352	378
4701	McKelvie	McKelvie loamy fine sand, 3 to 9 percent slopes	3 to 9	270	316	352	378
4702	McKelvie	McKelvie loamy fine sand, 9 to 30 percent slopes	9 to 30	270	316	352	378
4703	McKelvie	McKelvie-Fishberry loamy fine sands, 9 to 30 percent slopes	9 to 17	270	316	352	378
4704	McKelvie	McKelvie-Fishberry-Rock outcrop complex, 11 to 60 percent slopes	11 to 60	270	316	352	378
4705	McKelvie	McKelvie-Rock outcrop complex, 30 to 60 percent slopes	20 to 60	270	316	352	378
4707	McKelvie	McKelvie-Ustorthents complex, 30 to 60 percent slopes	20 to 60	270	316	352	378

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cherry County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4711	Nenzel	Nenzel loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	322	376	417	448
4712	Nenzel	Nenzel loamy fine sand, 0 to 3 percent slopes	0 to 3	302	352	391	421
4713	Orpha	Orpha loamy fine sand, 3 to 9 percent slopes	3 to 9	403	470	520	558
4717	Orpha	Orpha-Niobrara loamy fine sands, 9 to 30 percent slopes	9 to 30	365	423	468	503
4718	Orpha	Orpha-Rock outcrop complex, 30 to 60 percent slopes	20 to 45	390	454	503	540
4720	Pivot	Pivot loamy fine sand, 0 to 3 percent slopes	0 to 3	251	295	328	353
4730	Sandose	Sandose loamy fine sand, 0 to 3 percent slopes	0 to 3	86	105	118	129
4733	Sandose	Sandose-Hennings loamy fine sands, 0 to 3 percent slopes	0 to 2	89	108	122	133
4734	Sandose	Sandose-Hennings loamy fine sands, 3 to 6 percent slopes	3 to 6	89	108	122	133
4735	Sandose	Sandose-Hennings loamy fine sands, 6 to 11 percent slopes	6 to 11	89	108	122	133
4740	Tryon	Tryon fine sandy loam, 0 to 3 percent slopes	0 to 1	470	546	604	648
4743	Tryon	Tryon fine sandy loam, frequently ponded	0 to 1	492	572	633	679
4771	Valentine	Valentine-Mullen complex, 0 to 9 percent slopes	0 to 9	373	434	481	517
4780	Valentine	Valentine complex, rolling and hilly	9 to 24	363	423	469	504
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	363	423	469	504
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4800	Valentine	Valentine fine sand, hilly	17 to 60	364	425	471	506
4807	Valentine	Valentine fine sand, rolling	9 to 24	363	423	469	504
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	344	401	445	478
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	127	150	169	183
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	322	376	417	448
4851	Valentine	Valentine-Birdwood complex, 9 to 80 percent slopes	9 to 80	372	433	480	515
4856	Valentine	Valentine-Duda complex, 3 to 9 percent slopes	3 to 9	364	424	470	505

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cherry County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	374	436	483	518
4867	Valentine	Valentine-Libory complex, 0 to 9 percent slopes	0 to 9	343	400	443	476
4870	Valentine	Valentine-Duda complex, 9 to 24 percent slopes	9 to 24	363	423	469	504
4872	Valentine	Valentine-Sandose complex, 0 to 9 percent slopes	3 to 9	342	399	442	475
4875	Valentine	Valentine-Dunday complex, 0 to 9 percent slopes	3 to 9	377	439	486	522
4889	Valentine	Valentine-Tryon fine sands, 0 to 24 percent slopes	1 to 24	342	399	442	475
4894	Wildhorse	Wildhorse fine sand, 0 to 3 percent slopes	0 to 3	339	396	439	471
5121	Busher	Busher fine sandy loam, 6 to 9 percent slopes	6 to 9	127	151	169	184
5141	Busher	Busher-Tassel fine sandy loams, 9 to 30 percent slopes	9 to 15	126	150	168	183
5188	Keya	Keya loam, 0 to 2 percent slopes	0 to 2	111	133	150	163
5266	Tuthill	Tuthill fine sandy loam, 3 to 6 percent slopes	3 to 6	339	396	439	472
5267	Tuthill	Tuthill fine sandy loam, 6 to 9 percent slopes	6 to 11	339	396	439	472
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	151	179	200	216
5288	Vetal	Vetal loamy fine sand, 0 to 3 percent slopes	0 to 3	171	202	226	244
8929	Simeon	Simeon sand, 0 to 3 percent slopes	0 to 3	281	329	365	393
8939	Simeon	Simeon-Valentine complex, 0 to 9 percent slopes	0 to 3	281	329	365	393
8941	Simeon	Simeon-Valentine complex, 11 to 30 percent slopes	11 to 30	280	327	364	391
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	265	310	345	371
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	265	310	345	371
9006	Anselmo	Anselmo fine sandy loam, 6 to 11 percent slopes	6 to 11	265	310	345	371
9012	Anselmo	Anselmo loamy fine sand, 0 to 3 percent slopes	0 to 3	238	280	311	335
9013	Anselmo	Anselmo loamy fine sand, 3 to 6 percent slopes	3 to 6	238	280	311	335

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cherry County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9019	Anselmo	Anselmo-Longpine fine sandy loams, 9 to 30 percent slopes	9 to 17	265	310	345	371
9903	Fluvaquents,_ sandy	Fluvaquents, sandy, frequently flooded	0 to 1	261	306	340	366
9936	Medihemists	Medihemists	0 to 2	304	356	395	424
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cheyenne County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1006	Bankard	Bankard loamy fine sand, channeled, frequently flooded	0 to 2	87	106	120	131
1030	Glenberg	Glenberg fine sandy loam, 0 to 2 percent slopes	0 to 2	81	99	112	122
1076	Ralton	Ralton loam, very rarely flooded	0 to 1	230	269	300	323
1118	Bankard	Bankard loamy sand, occasionally flooded	0 to 2	155	183	205	222
1183	Las_Animas	Las Animas loam, channeled, frequently flooded	0 to 1	196	231	257	277
1184	Las_Animas	Las Animas loam, frequently flooded	0 to 2	97	117	132	144
1196	Las	Las loam, occasionally flooded	0 to 1	84	103	116	127
1300	Bayard	Bayard fine sandy loam, 1 to 3 percent slopes	1 to 3	155	183	205	222
1301	Bayard	Bayard fine sandy loam, 3 to 6 percent slopes	3 to 6	155	184	206	222
1302	Bayard	Bayard fine sandy loam, 6 to 9 percent slopes	6 to 9	155	184	206	222
1303	Bayard	Bayard fine sandy loam, 9 to 20 percent slopes	9 to 20	155	183	205	222
1326	Bayard	Bayard fine sandy loam, 0 to 1 percent slopes	0 to 1	155	184	206	222
1327	Bayard	Bayard fine sandy loam, 0 to 3 percent slopes	0 to 3	86	104	118	129
1361	Bridget	Bridget very fine sandy loam, 0 to 1 percent slopes	0 to 1	117	141	158	172
1362	Bridget	Bridget very fine sandy loam, 1 to 3 percent slopes	1 to 3	116	140	157	171
1363	Bridget	Bridget very fine sandy loam, 3 to 6 percent slopes	3 to 6	118	141	159	172
1364	Bridget	Bridget very fine sandy loam, 6 to 9 percent slopes	6 to 9	118	141	159	172
1371	Chappell	Chappell-Alice-Broadwater complex, 0 to 3 percent slopes	0 to 3	274	320	356	383
1372	Chappell	Chappell-Bayard-Broadwater complex, 0 to 2 percent slopes	0 to 2	281	329	366	393
1500	Altvan	Altvan fine sandy loam, 1 to 3 percent slopes	1 to 3	325	379	420	452
1502	Altvan	Altvan loam, 1 to 3 percent slopes	1 to 3	630	731	807	865
1503	Altvan	Altvan loam, 3 to 6 percent slopes	3 to 6	625	725	801	858
1506	Altvan	Altvan-Dix complex, 3 to 9 percent slopes	3 to 9	610	708	781	837
1508	Altvan	Altvan-Eckley complex, 3 to 9 percent slopes	3 to 9	278	325	361	388

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cheyenne County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1509	Altvan	Altvan-Eckley-Satanta complex, 3 to 9 percent slopes	3 to 9	277	324	360	387
1510	Altvan	Altvan-Eckley-Tassel complex, 3 to 9 percent slopes	3 to 9	278	325	361	388
1571	Dix	Dix gravelly loam, 9 to 50 percent slopes	11 to 50	339	396	439	471
1572	Dix	Dix gravelly loam, 3 to 9 percent slopes	3 to 11	324	379	420	451
1578	Eckley	Eckley and Altvan soils, 9 to 50 percent slopes	9 to 50	323	377	418	450
1584	Goshen	Goshen silt loam, 0 to 1 percent slopes	0 to 1	143	169	189	205
1617	Keith	Keith loam, 0 to 1 percent slopes	0 to 1	173	204	227	246
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	173	204	227	246
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	177	209	233	252
1650	Kuma	Kuma loam, 0 to 1 percent slopes	0 to 1	155	183	205	221
1661	Lodgepole	Lodgepole silt loam, frequently ponded	0 to 1	159	188	210	227
1725	Rosebud	Rosebud loam, 0 to 1 percent slopes	0 to 1	146	173	193	209
1726	Rosebud	Rosebud loam, 1 to 3 percent slopes	1 to 3	151	179	200	217
1727	Rosebud	Rosebud loam, 3 to 6 percent slopes	3 to 6	148	175	196	213
1736	Rosebud	Rosebud-Canyon complex, 3 to 9 percent slopes	3 to 9	152	180	201	218
1739	Rosebud	Rosebud-Canyon loams, 1 to 3 percent slopes	1 to 3	127	151	169	184
1744	Rosebud	Rosebud-Hemingford loams, 0 to 1 percent slopes	0 to 1	82	99	113	123
1815	Satanta	Satanta loam, gravelly substratum, 0 to 1 percent slopes	0 to 1	186	219	244	264
1816	Satanta	Satanta loam, gravelly substratum, 1 to 3 percent slopes	1 to 3	187	220	246	266
1817	Satanta	Satanta loam, gravelly substratum, 3 to 6 percent slopes	3 to 6	187	220	246	266
1820	Satanta	Satanta-Altvan complex, 3 to 6 percent slopes	3 to 6	146	173	194	210
1825	Satanta	Satanta-Johnstown-Altvan loams, 1 to 3 percent slopes	1 to 3	475	552	611	655
1838	Sidney	Sidney loam, 3 to 6 percent slopes	3 to 6	148	175	196	212
1839	Sidney	Sidney-Canyon complex, 3 to 9 percent slopes	3 to 9	153	181	202	219
1840	Sidney	Sidney-Canyon loams, 3 to 9 percent slopes	6 to 9	134	159	178	193
1854	Ulysses	Ulysses loam, 1 to 3 percent slopes	1 to 3	129	153	171	186
1855	Ulysses	Ulysses loam, 3 to 6 percent slopes	3 to 6	135	160	179	194

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cheyenne County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1893	Valent	Valent loamy fine sand, 6 to 9 percent slopes	8 to 9	348	405	449	483
2306	McCook	McCook very fine sandy loam, 0 to 1 percent slopes	0 to 1	149	176	197	214
3201	Johnstown	Johnstown loam, 0 to 2 percent slopes	0 to 1	383	447	495	531
5100	Alliance	Alliance loam, 0 to 1 percent slopes	0 to 1	141	167	187	203
5101	Alliance	Alliance loam, 1 to 3 percent slopes	1 to 3	142	168	189	204
5102	Alliance	Alliance loam, 3 to 6 percent slopes	3 to 6	138	163	183	198
5108	Alliance	Alliance-Rosebud loams, 1 to 3 percent slopes	1 to 3	168	199	222	240
5120	Busher	Busher fine sandy loam, 3 to 6 percent slopes	3 to 6	193	227	254	274
5138	Busher	Busher-Tassel complex, 3 to 9 percent slopes	3 to 9	181	214	239	258
5140	Busher	Busher-Tassel complex, 9 to 20 percent slopes	9 to 20	181	214	238	258
5150	Canyon	Canyon fine sandy loam, 6 to 30 percent slopes	6 to 30	71	86	99	108
5155	Canyon	Canyon-Bayard complex, 6 to 20 percent slopes	6 to 20	71	86	99	108
5157	Canyon	Canyon-Rock outcrop complex, 12 to 60 percent slopes	11 to 45	75	91	104	113
5605	Broadwater	Broadwater loamy sand, frequently flooded	0 to 1	254	298	331	356
5606	Broadwater	Broadwater loamy sand, channeled, frequently flooded	0 to 2	240	282	313	338
5607	Broadwater	Broadwater loamy sand, channeled, occasionally flooded	0 to 2	256	300	333	359
5626	Duroc	Duroc silt loam, terrace, 0 to 1 percent slopes	0 to 1	90	109	123	134
5824	Duroc	Duroc loam, terrace, gravelly substratum, 0 to 1 percent slopes	0 to 1	583	677	747	801
5845	Mitchell	Mitchell very fine sandy loam, 3 to 6 percent slopes	3 to 6	100	120	136	148
5846	Mitchell	Mitchell very fine sandy loam, 6 to 9 percent slopes	6 to 9	105	127	143	156
5847	Mitchell	Mitchell very fine sandy loam, 9 to 20 percent slopes	9 to 20	105	127	143	156
5917	Ashollow	Ashollow-Tassel complex, 9 to 30 percent slopes	9 to 30	117	141	158	172
5927	Blueridge	Blueridge-Altvan complex, 6 to 30 percent slopes	6 to 30	251	294	327	352

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Cheyenne County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
5934	Creighton	Creighton very fine sandy loam, 1 to 3 percent slopes	1 to 3	158	187	209	226
5935	Creighton	Creighton very fine sandy loam, 3 to 6 percent slopes	3 to 6	158	187	209	226
5942	Duroc	Duroc loam, 0 to 1 percent slopes	0 to 1	84	102	115	126
5943	Duroc	Duroc loam, 1 to 3 percent slopes	1 to 3	84	102	115	126
5949	Dwyer	Dwyer loamy fine sand, 9 to 17 percent slopes	9 to 17	167	197	220	237
5965	Jayem	Jayem fine sandy loam, 0 to 3 percent slopes	0 to 3	150	178	199	215
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	151	179	200	217
6022	Tassel	Tassel-Busher complex, 3 to 30 percent slopes	3 to 30	83	101	114	125
6030	Tassel	Tassel-Ashollow-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	84	103	116	127
6032	Tassel	Tassel-Blanche complex, 9 to 30 percent slopes	9 to 30	83	102	115	125
6034	Tassel	Tassel-Busher-Rock outcrop complex, 9 to 60 percent slopes	9 to 60	83	101	114	125
6041	Tassel	Tassel-Blanche sandy loams, 3 to 9 percent slopes	3 to 9	88	107	121	132
6049	Rock_outcrop	Rock outcrop-Epping complex, 9 to 60 percent slopes		--	--	--	--
6053	Rock_outcrop	Rock outcrop-Tassel complex, 20 to 60 percent slopes	20 to 60	--	--	--	--
6105	Sarben	Sarben loamy very fine sand, 3 to 9 percent slopes	3 to 9	144	171	191	207
6205	Epping	Epping-Mitchell complex, 3 to 20 percent slopes	3 to 20	120	144	151	175
9967	Sanitary_landfill	Sanitary landfill	0 to 30	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Clay County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	99	120	135	147
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	144	171	191	207
2824	Uly	Uly silt loam, 11 to 30 percent slopes, eroded	11 to 30	136	162	181	197
2834	Uly	Uly-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	144	171	191	207
3255	Meadin	Meadin sandy loam, 2 to 30 percent slopes	3 to 30	307	359	398	428
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	158	187	209	227
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	158	187	209	227
3731	Massie	Massie silty clay loam, frequently ponded	0 to 1	97	117	132	144
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3825	Crete	Crete silt loam, 1 to 3 percent slopes	1 to 3	116	139	156	170
3835	Geary	Geary silt loam, 11 to 30 percent slopes	11 to 30	115	138	155	169
3837	Geary_variant	Geary silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	107	129	146	158
3838	Geary	Geary silt loam, 7 to 11 percent slopes	7 to 11	113	136	153	167
3840	Geary_variant	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	110	133	149	162
3844	Geary	Geary silt loam, 3 to 7 percent slopes	3 to 7	113	136	153	166
3846	Geary_variant	Geary silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	110	133	149	162
3851	Geary	Geary-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	112	135	151	164
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	153	180	202	219
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	153	181	203	220
3868	Hastings	Hastings silt loam, 3 to 7 percent slopes	3 to 7	124	149	167	181
3870	Hastings_ variant	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	127	151	169	183
3882	Holder	Holder silt loam, 3 to 7 percent slopes	3 to 7	91	110	124	136
3884	Holder	Holder silt loam, 7 to 11 percent slopes	7 to 11	89	108	122	133
3887	Holder_variant	Holder silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	296	346	384	413
3889	Holder_variant	Holder silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	293	342	380	408
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
3953	Fillmore	Fillmore silt loam, drained, 0 to 1 percent slopes	0 to 1	156	185	207	224

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Clay County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
3962	Hastings_ variant	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	87	106	120	131
4100	Crete	Crete silt loam, thick solum, 0 to 1 percent slopes	0 to 1	129	153	171	186
8434	Cass	Cass fine sandy loam, overwash, occasionally flooded	0 to 2	243	285	317	342
8436	Cass	Cass loam, occasionally flooded	0 to 2	203	239	266	287
8439	Cass	Cass silt loam, occasionally flooded	0 to 1	507	590	652	699
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	123	147	165	179
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	122	147	165	179
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	123	147	165	179
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Colfax County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	549	637	704	755
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	297	347	385	414
2288	Wann	Wann loam, occasionally flooded	0 to 2	144	171	191	207
2331	Inavale	Inavale loamy fine sand, rarely flooded	0 to 2	302	353	392	422
2340	Inavale	Inavale loamy fine sand, 3 to 11 percent slopes, rarely flooded	3 to 9	297	347	385	414
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	157	186	208	225
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	157	186	208	225
3640	Kezan	Kezan silt loam, frequently flooded	0 to 2	132	157	176	191
3837	Geary	Geary silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	107	129	146	158
3839	Geary	Geary silty clay loam, 11 to 30 percent slopes	11 to 30	109	132	148	161
3840	Geary_ variant	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	110	133	149	162
3951	Fillmore	Fillmore silt loam, occasionally ponded	0 to 1	130	155	174	188
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
4106	Geary_ variant	Geary variant silty clay loam, 11 to 30 percent slopes, eroded	11 to 30	104	125	141	154
4241	Ord	Ord fine sandy loam, occasionally flooded	0 to 2	303	354	393	422
6312	Barney	Barney loam, frequently flooded	0 to 1	307	358	397	427
6323	Coleridge	Coleridge silt loam, occasionally flooded	0 to 2	112	134	151	164
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	101	122	137	149
6335	Lawet	Lawet silt loam, rarely flooded	0 to 1	171	201	225	243
6336	Lawet	Lawet silt loam, occasionally flooded	0 to 2	165	195	218	235
6341	Lawet	Lawet silty clay loam, occasionally flooded	0 to 1	152	179	201	217
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	182	215	240	259
6386	Shell	Shell silt loam, clayey substratum, occasionally flooded	0 to 1	150	177	198	215
6405	Napa	Napa-Luton complex, occasionally flooded	0 to 1	102	123	139	151

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Colfax County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6505	Belfore	Belfore silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	89	108	122	133
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	418	487	539	578
6515	Blendon	Blendon loam, 2 to 6 percent slopes	2 to 6	563	653	722	774
6545	Moody	Moody silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	142	169	189	204
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	135	159	179	194
6603	Alcester	Alcester silty clay loam, 2 to 6 percent slopes	2 to 6	120	144	162	176
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	92	112	126	137
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
6681	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	231	271	301	325
6685	Crofton	Crofton silt loam, 2 to 6 percent slopes, eroded	2 to 6	230	270	300	324
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6693	Crofton	Crofton-Nora complex, 2 to 6 percent slopes, eroded	2 to 6	230	270	300	324
6740	Thurman	Thurman-Moody complex, 2 to 6 percent slopes, eroded	2 to 6	284	332	369	397
6742	Thurman	Thurman-Moody complex, 6 to 11 percent slopes, eroded	6 to 11	284	332	369	397
6758	Nora	Nora silty clay loam, 11 to 17 percent slopes	11 to 17	112	134	151	164
6765	Nora	Nora silty clay loam, 2 to 6 percent slopes	2 to 6	112	135	152	165
6766	Nora_ variant	Nora silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	135	160	180	195
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	112	135	151	165
6774	Nora	Nora-Crofton complex, 11 to 17 percent slopes, eroded	11 to 17	112	135	152	165
6775	Nora_variant	Nora-Crofton complex, 2 to 6 percent slopes, eroded	2 to 6	136	161	181	196
6778	Nora_variant	Nora-Crofton complex, 6 to 11 percent slopes, eroded	6 to 11	136	161	181	196

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Colfax County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	229	268	299	322
6807	Moody	Moody silty clay loam, 0 to 1 percent slopes	0 to 1	146	173	194	210
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	145	172	193	209
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	150	178	199	215
6812	Moody	Moody silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	144	171	191	207
6813	Moody	Moody silty clay loam, 6 to 11 percent slopes	6 to 11	142	169	189	204
6814	Moody	Moody silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	142	169	189	204
6824	Moody	Moody-Thurman complex, 2 to 6 percent slopes, eroded	2 to 6	146	173	194	210
6835	Nora_variant	Nora variant silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	134	159	178	193
6836	Nora_variant	Nora variant silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	134	159	178	193
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	80	97	110	120
7122	Eudora	Eudora loam, rarely flooded	0 to 2	227	267	297	320
7612	Steinauer	Steinauer clay loam, 11 to 30 percent slopes, eroded	11 to 30	71	86	99	108
7614	Steinauer	Steinauer clay loam, 6 to 11 percent slopes, eroded	6 to 11	69	84	96	105
7787	Luton	Luton silty clay, occasionally flooded	0 to 2	66	81	93	102
8401	Alda	Alda fine sandy loam, occasionally flooded	0 to 1	362	422	467	502
8403	Alda	Alda loam, occasionally flooded	0 to 1	548	636	703	753
8420	Boel	Boel loamy fine sand, occasionally flooded	0 to 2	434	506	559	600
8462	Gayville_ variant	Gayville variant silty clay loam, rarely flooded	0 to 2	91	110	124	136
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	336	393	435	468
8563	Platte	Platte loam, occasionally flooded	0 to 1	437	509	563	604
8573	Platte	Platte-Inavale complex, channeled, frequently flooded	0 to 2	437	509	563	604

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Colfax County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
8848	Hall	Hall silty clay loam, sandy substratum, 0 to 1 percent slopes	0 to 1	560	650	718	769
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Miscellaneous_water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Cuming County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	305	356	395	425
2288	Wann	Wann loam, occasionally flooded	0 to 2	145	172	193	209
2339	Inavale	Inavale loamy fine sand, 3 to 6 percent slopes, occasionally flooded	2 to 6	305	356	395	425
2352	Inavale	Inavale-Boel complex, channeled, occasionally flooded	0 to 3	299	349	388	417
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	92	111	125	137
3521	Cass	Cass fine sandy loam, occasionally flooded	0 to 2	211	248	276	298
3524	Lamo	Lamo-Saltine complex, occasionally flooded	0 to 2	92	111	125	137
3529	Gibbon	Gibbon loam, occasionally flooded	0 to 2	91	111	125	136
3537	Gibbon	Gibbon silty clay loam, occasionally flooded	0 to 2	82	100	113	123
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	161	190	212	230
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	222	261	291	313
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	346	403	308	480
6318	Barney	Barney sandy loam, frequently flooded	0 to 2	239	281	312	336
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	105	127	143	155
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	358	418	463	498
6363	Obert	Obert silt loam, frequently ponded	0 to 1	146	173	194	210
6364	Obert	Obert silty clay loam, frequently ponded	0 to 1	109	131	148	160
6380	Saltine	Saltine-Gibbon complex, occasionally flooded	0 to 2	102	123	138	150
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	182	215	240	259
6401	Calco	Calco silty clay loam, occasionally flooded	0 to 2	109	132	148	161
6403	Calco	Calco silty clay loam, wet, occasionally flooded	0 to 2	109	132	148	161
6505	Belfore	Belfore silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	89	108	122	133
6545	Moody	Moody silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	142	169	189	204
6555	Shell	Shell silty clay loam, 0 to 1 percent slopes	0 to 1	151	178	200	216
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	135	159	179	194
6603	Alcester	Alcester silty clay loam, 2 to 6 percent slopes	2 to 6	120	144	162	176
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	92	112	126	137

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Cuming County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6630	Belfore	Belfore-Moody silty clay loams, 1 to 3 percent slopes	1 to 3	94	114	128	140
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	289	338	375	403
6716	Thurman	Thurman-Valentine loamy fine sands, 0 to 2 percent slopes	0 to 3	325	380	421	453
6717	Thurman	Thurman-Valentine loamy fine sands, 2 to 6 percent slopes	3 to 6	325	380	421	453
6722	Valentine	Thurman and Valentine loamy fine sands, 6 to 11 percent slopes	6 to 11	184	216	241	261
6750	Nora_variant	Nora silt loam, 11 to 17 percent slopes, eroded	11 to 17	146	173	194	210
6756	Nora_variant	Nora silt loam, 6 to 11 percent slopes, eroded	6 to 11	148	175	196	212
6758	Nora	Nora silty clay loam, 11 to 17 percent slopes	11 to 17	112	134	151	164
6759	Nora	Nora silty clay loam, 11 to 17 percent slopes, eroded	11 to 15	136	161	180	195
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	112	135	151	165
6768	Nora	Nora silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	112	134	151	164
6774	Nora	Nora-Crofton complex, 11 to 17 percent slopes, eroded	11 to 17	112	135	152	165
6778	Nora_variant	Nora-Crofton complex, 6 to 11 percent slopes, eroded	6 to 11	136	161	181	196
6782	Nora	Nora-Moody silty clay loams, 6 to 11 percent slopes	7 to 11	112	134	151	164
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	229	268	299	322
6790	Loretto	Loretto fine sandy loam, 2 to 6 percent slopes	2 to 6	64	78	90	99
6802	Leisy	Leisy fine sandy loam, 6 to 11 percent slopes	7 to 11	63	77	89	97
6807	Moody	Moody silty clay loam, 0 to 1 percent slopes	0 to 1	146	173	194	210
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	150	178	199	215

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in Feet**

Cuming County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6812	Moody	Moody silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	144	171	191	207
6813	Moody	Moody silty clay loam, 6 to 11 percent slopes	6 to 11	142	169	189	204
6814	Moody	Moody silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	142	169	189	204
6831	Leisy	Leisy fine sandy loam, 2 to 6 percent slopes	2 to 6	63	77	89	97
6833	Leisy	Leisy loam, 2 to 6 percent slopes	2 to 6	92	112	126	137
6835	Nora_variant	Nora variant silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	134	159	178	193
6836	Nora_variant	Nora variant silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	134	159	178	193
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	125	149	167	182
7053	Kennebec	Kennebec silt loam, overwash, occasionally flooded	0 to 2	118	142	159	173
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	79	97	110	120
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	125	150	168	182
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	102	123	138	150
7234	Judson	Judson silty clay loam, 2 to 6 percent slopes	2 to 6	94	114	129	141
7892	Zook	Zook silty clay, occasionally flooded	0 to 2	73	89	102	112
8418	Boel	Boel loam, occasionally flooded	0 to 2	786	910	1004	1075
8574	Platte	Platte-Inavale complex, channeled, occasionally flooded	0 to 3	440	512	566	608
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	108	131	147	160
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Custer County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	524	609	673	722
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	302	353	392	422
2521	Coly	Coly-Hobbs silt loams, 0 to 30 percent slopes	2 to 30	136	161	180	195
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	124	148	167	181
2537	Coly	Coly silt loam, 6 to 11 percent slopes	7 to 11	128	152	171	185
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2541	Coly	Coly silt loam, 11 to 17 percent slopes, eroded	11 to 20	128	152	171	185
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	128	152	171	185
2558	Coly	Coly-Uly silt loams, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2595	Hersh	Hersh fine sandy loam, 0 to 3 percent slopes	0 to 3	153	180	202	218
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	153	180	202	218
2597	Hersh	Hersh fine sandy loam, 6 to 11 percent slopes	6 to 11	153	180	202	218
2598	Hersh	Hersh fine sandy loam, 11 to 17 percent slopes	11 to 17	153	180	202	218
2600	Hersh	Hersh loamy fine sand, 3 to 6 percent slopes	3 to 6	203	238	266	287
2610	Hersh	Hersh-Valentine complex, 11 to 24 percent slopes	9 to 24	152	180	202	218
2614	Hersh	Hersh-Valentine complex, 15 to 30 percent slopes	15 to 30	153	180	202	218
2668	Holdrege	Hersh fine sandy loam, 3 to 6 percent slopes	1 to 3	108	130	147	159
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	108	130	147	159
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	96	117	132	143
2672	Holdrege_ variant	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	50	62	72	79
2810	Coly	Uly and Coly silt loams, 11 to 30 percent slopes	9 to 31	128	152	171	185

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Custer County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2814	Uly	Uly silt loam, 0 to 1 percent slopes	0 to 1	271	317	352	379
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	145	171	192	208
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	145	171	192	208
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	145	171	192	208
2837	Uly	Uly-Holdrege silt loams, 6 to 11 percent slopes	6 to 11	271	317	352	379
2838	Holdrege	Uly-Holdrege-Coly silt loams, 6 to 11 percent slopes, eroded	6 to 11	115	138	155	168
2842	Uly	Uly-Sully silt loams, 17 to 30 percent slopes, eroded	15 to 31	271	317	352	379
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	160	189	211	228
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	160	189	211	228
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	304	355	394	424
3912	Scott	Scott silty clay loam, frequently ponded	0 to 1	94	113	128	139
3946	Fillmore_ variant	Fillmore variant silt loam, frequently ponded	0 to 1	1125	1300	1432	1532
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	106	127	143	156
4138	Holdrege	Holdrege silt loam, 7 to 11 percent slopes	6 to 11	108	130	147	159
4146	Holdrege_ variant	Holdrege silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	50	62	72	79
4205	Almeria	Almeria loamy fine sand, channeled, frequently flooded	0 to 2	84	103	116	127
4240	Ord	Ord fine sandy loam, rarely flooded	0 to 2	325	379	420	452
4247	Ord	Ord very fine sandy loam, occasionally flooded	0 to 1	257	301	334	360
4260	Gannett	Gannett and Loup loams, occasionally flooded	0 to 2	615	713	787	844
4368	Ipage	Ipage sand, terrace, 0 to 3 percent slopes	0 to 3	347	405	448	482
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	334	389	432	464
4521	Els	Els fine sand, 0 to 3 percent slopes	0 to 3	426	496	549	589
4542	Els	Els-Ipage complex, 0 to 3 percent slopes	0 to 3	406	473	523	562
4576	Gannett	Gannett loam, 0 to 1 percent slopes	0 to 1	646	749	827	886
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	358	417	462	497
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	345	402	446	479
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	345	402	446	479

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Custer County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4807	Valentine	Valentine fine sand, rolling	9 to 24	345	402	446	479
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	430	500	553	594
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	334	390	432	465
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	334	390	432	465
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	334	390	432	465
6311	Barney	Barney fine sandy loam, frequently flooded	0 to 2	377	439	486	522
6313	Barney	Barney loam, channeled, frequently flooded	0 to 2	538	625	690	740
8420	Boel	Boel loamy fine sand, occasionally flooded	0 to 2	424	494	546	586
8423	Boel	Boel soils, channeled, frequently flooded	0 to 3	424	494	546	586
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	109	131	147	160
8808	Anselmo	Anselmo fine sandy loam, terrace, 0 to 1 percent slopes	0 to 1	190	224	250	270
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	216	254	283	305
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	227	267	297	320
8817	Cozad	Cozad silt loam, 3 to 6 percent slopes	3 to 6	216	254	283	305
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	150	177	198	214
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	150	177	198	214
8867	Hord	Hord fine sandy loam, 1 to 3 percent slopes	1 to 3	78	95	108	118
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	116	139	156	170
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	116	139	156	170
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	116	139	156	170
8906	Ovina	Ovina loam, 0 to 1 percent slopes	0 to 2	184	217	242	261
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	115	138	155	168
9002	Anselmo	Anselmo fine sandy loam, 1 to 3 percent slopes	1 to 3	194	228	254	274
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	115	138	155	168
9012	Anselmo	Anselmo loamy fine sand, 0 to 3 percent slopes	0 to 3	114	137	154	167
9014	Anselmo	Anselmo very fine sandy loam, 0 to 1 percent slopes	0 to 1	122	146	164	178
9015	Anselmo	Anselmo very fine sandy loam, 1 to 3 percent slopes	1 to 3	122	146	164	178
9027	Gates	Gates silt loam, 1 to 3 percent slopes	1 to 3	207	243	271	292
9029	Gates	Gates silt loam, 3 to 6 percent slopes, eroded	3 to 6	207	243	271	292

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Custer County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9030	Gates	Gates silt loam, 6 to 11 percent slopes, eroded	6 to 11	207	243	271	292
9033	Gates	Gates silt loam, 11 to 30 percent slopes	11 to 30	207	243	271	292
9036	Gates	Gates very fine sandy loam, 3 to 6 percent slopes	3 to 6	169	200	223	241
9038	Gates	Gates very fine sandy loam, 6 to 11 percent slopes, eroded	6 to 11	169	200	223	241
9039	Gates	Gates very fine sandy loam, 11 to 17 percent slopes	11 to 15	169	200	223	241
9041	Gates	Gates very fine sandy loam, 17 to 30 percent slopes	15 to 30	169	200	223	241
9043	Gates	Gates-Hersh complex, 20 to 60 percent slopes	30 to 60	169	200	223	241
9050	Graybert	Graybert very fine sandy loam, 0 to 1 percent slopes	0 to 1	142	168	188	204
9051	Graybert	Graybert very fine sandy loam, 1 to 3 percent slopes	1 to 3	142	168	188	204
9052	Graybert	Graybert very fine sandy loam, 3 to 6 percent slopes	3 to 6	142	168	188	204
9068	Kenesaw	Kenesaw very fine sandy loam, 0 to 1 percent slopes	0 to 1	150	177	198	215
9069	Kenesaw	Kenesaw very fine sandy loam, 1 to 3 percent slopes	1 to 3	150	177	198	215
9081	Rusco	Rusco silty clay loam, 0 to 1 percent slopes	0 to 1	137	162	182	197
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	86	105	119	130
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dakota County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3322	Sansarc	Sansarc-Nora complex, 11 to 30 percent slopes	11 to 30	108	130	146	159
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	91	110	124	136
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	165	195	218	236
6300	Aowa	Aowa silt loam, occasionally flooded	0 to 2	139	165	185	200
6308	Barney	Barney fine sandy loam, occasionally flooded	0 to 2	254	298	331	357
6400	Calco	Calco silt loam, overwash, occasionally flooded	0 to 2	120	144	162	176
6401	Calco	Calco silty clay loam, occasionally flooded	0 to 2	108	130	146	159
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	133	157	177	192
6601	Alcester	Alcester silt loam, 6 to 11 percent slopes	6 to 11	133	157	177	192
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	230	270	300	324
6681	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	231	271	301	325
6685	Crofton	Crofton silt loam, 2 to 6 percent slopes, eroded	2 to 6	231	271	301	325
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	229	268	299	322
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	231	271	301	325
6749	Nora	Nora silt loam, 11 to 17 percent slopes	11 to 17	128	152	170	185
6750	Nora	Nora silt loam, 11 to 17 percent slopes, eroded	11 to 17	148	175	196	212
6751	Nora	Nora silt loam, 17 to 30 percent slopes	17 to 30	128	152	170	185
6754	Nora	Nora silt loam, 2 to 6 percent slopes, eroded	2 to 6	148	175	196	212
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	128	152	170	185
6756	Nora	Nora silt loam, 6 to 11 percent slopes, eroded	6 to 11	148	175	196	212
6765	Nora	Nora silty clay loam, 2 to 6 percent slopes	2 to 6	114	136	153	167
6766	Nora_variant	Nora silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	135	160	179	194

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dakota County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	114	136	153	167
6768	Nora_variant	Nora silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	135	160	179	194
6769	Nora	Nora-Alcester silt loams, 11 to 17 percent slopes	11 to 15	129	153	172	187
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	145	172	192	208
6813	Moody	Moody silty clay loam, 6 to 11 percent slopes	6 to 11	145	172	192	208
6814	Moody	Moody silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	145	172	192	208
6823	Moody	Moody-Nora silty clay loams, 11 to 17 percent slopes	11 to 15	145	172	192	208
6836	Nora_variant	Nora variant silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	133	158	177	192
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7053	Kennebec	Kennebec silt loam, overwash, occasionally flooded	0 to 2	120	143	161	175
7083	Sarpy	Sarpy loamy fine sand, occasionally flooded	0 to 3	441	513	567	609
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	127	151	170	184
7219	Burchard	Burchard clay loam, 11 to 17 percent slopes, eroded	11 to 17	60	74	85	93
7234	Judson	Judson silty clay loam, 2 to 6 percent slopes	2 to 6	97	117	132	144
7236	Judson	Judson silty clay loam, 0 to 2 percent slopes	0 to 2	97	117	132	144
7704	Grable	Grable very fine sandy loam, occasionally flooded	0 to 2	483	562	621	667
7705	Grable	Grable very fine sandy loam, rarely flooded	0 to 2	497	578	639	685
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	60	73	84	92
7711	Albaton	Albaton silty clay, frequently flooded	0 to 1	84	102	116	126
7713	Albaton	Albaton silty clay loam, occasionally flooded	0 to 1	70	85	97	107
7722	Blake	Blake silty clay loam, occasionally flooded	0 to 2	159	188	210	227
7729	Blencoe	Blencoe silty clay, rarely flooded	0 to 1	89	108	122	133
7741	Haynie	Haynie silt loam, occasionally	0 to 1	202	237	264	285

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dakota County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
		flooded					
7744	Haynie	Haynie silt loam, rarely flooded	0 to 2	199	234	261	282
7758	Modale	Modale silt loam, occasionally flooded	0 to 2	146	173	193	209
7765	Blyburg	Blyburg silt loam, rarely flooded	0 to 2	174	205	229	248
7766	Blyburg	Blyburg silt loam, 2 to 6 percent slopes, rarely flooded	2 to 6	174	205	229	248
7767	Blyburg	Blyburg silty clay loam, rarely flooded	0 to 2	139	165	185	201
7768	Blyburg	Blyburg silty clay, overwash, rarely flooded	0 to 2	115	138	155	169
7780	Forney	Forney silt loam, overwash, rarely flooded	0 to 2	93	113	127	139
7781	Forney	Forney silty clay, rarely flooded	0 to 2	61	75	86	95
7782	Forney	Forney soils, swales, rarely flooded	0 to 2	61	75	86	95
7792	Luton	Luton silty clay, thin surface, rarely flooded	0 to 2	67	81	94	102
7800	Owego	Owego silty clay, occasionally flooded	0 to 1	68	83	95	105
7802	Percival	Percival silty clay, occasionally flooded	0 to 2	493	572	633	679
7825	Waubonsie	Waubonsie very fine sandy loam, loamy substratum, occasionally flooded	0 to 2	143	169	189	205
7850	Sarpy	Sarpy fine sand, 3 to 11 percent slopes	3 to 11	415	483	535	574
7855	Sarpy	Sarpy silty clay, overwash, occasionally flooded	0 to 2	319	372	413	444
7874	Omadi	Omadi silt loam, rarely flooded	0 to 2	171	202	225	243
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	91	111	125	136
8006	Ida	Ida silt loam, 11 to 17 percent slopes, eroded	11 to 17	184	217	242	261
8007	Ida	Ida silt loam, 17 to 30 percent slopes	17 to 30	184	217	242	261
8008	Ida	Ida silt loam, 17 to 30 percent slopes, eroded	17 to 30	184	217	242	261
8011	Ida	Ida soils, 30 to 60 percent slopes	30 to 60	184	217	242	261
8070	Monona	Monona silt loam, 11 to 17 percent slopes	11 to 17	135	160	180	195
8073	Monona	Monona silt loam, 17 to 30 percent slopes	17 to 30	135	160	180	195
8078	Monona	Monona silt loam, 6 to 11 percent slopes	6 to 11	135	160	180	195

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dakota County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
8104	Napier	Napier silt loam, 2 to 6 percent slopes	2 to 6	163	193	216	233
8105	Napier	Napier silt loam, 6 to 11 percent slopes	6 to 11	163	193	216	233
8106	Napier	Napier silt loam, 11 to 17 percent slopes	11 to 15	163	193	216	233
8107	Ida	Napier-Gullied land complex, 2 to 11 percent slopes	2 to 11	143	169	190	205
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	101	122	137	149
9931	Ida	Gullied land-Ida complex, 30 to 60 percent slopes	30 to 60	133	157	176	191
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--
9986	Miscellaneous_water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawes County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
1001	Bankard	Bankard fine sand, channeled, frequently flooded	0 to 2	230	270	301	324
1004	Bankard	Bankard loamy fine sand, 0 to 2 percent slopes	0 to 2	106	128	144	157
1006	Bankard	Bankard loamy fine sand, channeled, frequently flooded	0 to 2	81	99	112	122
1008	Bankard_ variant	Bankard loamy fine sand, wet variant	0 to 2	820	950	1047	1121
1012	Bankard	Bankard very fine sandy loam, 0 to 3 percent slopes	0 to 3	381	444	491	528
1013	Bankard	Bankard loamy coarse sand, frequently flooded	0 to 2	74	90	103	113
1014	Bankard	Bankard loamy fine sand, frequently flooded	0 to 3	215	253	282	304
1030	Glenberg	Glenberg fine sandy loam, 0 to 2 percent slopes	0 to 2	124	148	166	180
1031	Glenberg	Glenberg fine sandy loam, channeled, frequently flooded	0 to 2	125	149	168	182
1036	Glenberg	Glenberg loamy very fine sand, 0 to 3 percent slopes	0 to 3	209	246	274	295
1037	Glenberg	Glenberg loamy very fine sand, occasionally flooded, 0 to 3 percent slopes	0 to 3	209	246	274	295
1114	Bankard	Bankard loamy fine sand, occasionally flooded	0 to 2	77	95	107	117
1187	Las_Animas	Las Animas soils, 0 to 2 percent slopes	0 to 2	690	799	882	945
1350	Bridget	Bridget loam, 0 to 1 percent slopes	0 to 1	164	193	216	234
1355	Bridget	Bridget silt loam, 0 to 1 percent slopes	0 to 1	195	229	256	276
1356	Bridget	Bridget silt loam, 1 to 3 percent slopes	1 to 3	195	229	256	276
1357	Bridget	Bridget silt loam, 3 to 6 percent slopes	3 to 6	195	229	256	276
1358	Bridget	Bridget silt loam, 9 to 20 percent slopes	9 to 20	191	225	251	271
1361	Bridget	Bridget very fine sandy loam, 0 to 1 percent slopes	0 to 1	123	147	165	179
1362	Bridget	Bridget very fine sandy loam, 1 to 3 percent slopes	1 to 3	123	147	165	179
1363	Bridget	Bridget very fine sandy loam, 3 to 6 percent slopes	3 to 6	116	140	157	171
1364	Bridget	Bridget very fine sandy loam, 6 to 9 percent slopes	6 to 9	116	140	157	171
1535	Sulco	Sulco-Haverson loams, 0 to 50 percent slopes	0 to 50	203	239	266	287
1616	Keith	Keith and Ulysses silt loams, 3 to 9 percent slopes	3 to 9	196	231	258	278

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawes County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	161	191	213	231
1620	Keith	Keith silt loam, 1 to 3 percent slopes	1 to 3	196	231	258	278
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	160	189	211	228
1631	Keith	Keith silt loam, 3 to 9 percent slopes	3 to 9	196	231	258	278
1690	Manvel	Manvel silty clay loam, 3 to 6 percent slopes	2 to 6	115	138	155	168
1697	Minnequa	Minnequa silty clay loam, 1 to 6 percent slopes	1 to 5	125	149	168	182
1698	Minnequa	Minnequa silty clay loam, 6 to 12 percent slopes	5 to 12	125	149	168	182
1726	Rosebud	Rosebud loam, 1 to 3 percent slopes	1 to 3	159	187	210	227
1730	Rosebud	Rosebud silt loam, 1 to 3 percent slopes	1 to 3	191	224	250	270
1736	Rosebud	Rosebud-Canyon complex, 3 to 9 percent slopes	3 to 9	154	182	203	220
1742	Rosebud	Rosebud-Canyon loams, 3 to 9 percent slopes	3 to 9	154	182	204	221
1762	Richfield	Richfield silt loam, 1 to 3 percent slopes	1 to 3	100	120	136	148
1812	Satanta	Satanta fine sandy loam, 3 to 6 percent slopes	3 to 6	156	185	207	224
1813	Satanta	Satanta fine sandy loam, 6 to 9 percent slopes	6 to 9	156	185	207	224
1822	Satanta	Satanta-Canyon complex, 12 to 20 percent slopes	11 to 15	182	215	240	259
1823	Satanta	Satanta-Canyon complex, 6 to 12 percent slopes	6 to 11	155	184	205	222
1862	Ulysses	Ulysses silt loam, 9 to 20 percent slopes	9 to 20	150	177	199	215
1881	Dwyer	Valent and Dwyer loamy fine sands, 0 to 3 percent slopes	0 to 3	164	193	216	234
1882	Valent	Valent and Dwyer loamy fine sands, 3 to 20 percent slopes	3 to 17	335	391	434	466
1884	Valent	Valent complex, rolling and hilly	9 to 60	335	391	434	466
1885	Valent	Valent fine sand, 0 to 3 percent slopes	0 to 3	335	391	434	466
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	335	391	434	466
1891	Valent	Valent loamy fine sand, 0 to 3 percent slopes	0 to 3	348	405	449	483
1892	Valent	Valent loamy fine sand, 3 to 9 percent slopes	3 to 9	343	401	444	477
1894	Valent	Valent loamy fine sand, 9 to 20 percent slopes	9 to 17	331	387	429	461
2360	Munjor	Munjor fine sandy loam, rarely flooded	0 to 2	112	135	152	165

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawes County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
2361	Munjor	Munjor fine sandy loam, channeled, frequently flooded	0 to 2	112	135	152	165
4223	Bolent	Bolent loamy fine sand, occasionally flooded	0 to 2	93	112	127	138
4524	Els	Els fine sand, calcareous, 0 to 3 percent slopes	0 to 2	332	388	430	462
4636	Hoffland	Hoffland fine sandy loam, frequently ponded	0 to 1	435	506	560	601
4649	Ipage	Ipage loamy fine sand, alkali substratum, 0 to 3 percent slopes	0 to 3	172	203	226	245
4713	Orpha	Orpha loamy fine sand, 3 to 9 percent slopes	3 to 9	384	447	495	532
4716	Orpha	Orpha-Niobrara complex, 9 to 30 percent slopes	9 to 30	385	449	497	534
5003	Lohmiller	Lohmiller silty clay loam, frequently flooded	0 to 3	102	123	139	151
5056	Bufton	Bufton clay loam, 1 to 3 percent slopes	1 to 3	114	137	154	167
5058	Bufton	Bufton silty clay loam, 0 to 1 percent slopes	0 to 1	116	139	157	170
5060	Bufton	Bufton silty clay loam, 1 to 3 percent slopes	1 to 3	116	139	157	170
5061	Bufton	Bufton-Hisle complex, 0 to 9 percent slopes	3 to 9	111	133	150	163
5070	Vetal	Vetal and Bayard soils, 1 to 6 percent slopes	1 to 5	158	187	209	226
5101	Alliance	Alliance loam, 1 to 3 percent slopes	1 to 3	146	173	194	210
5102	Alliance	Alliance loam, 3 to 6 percent slopes	3 to 6	146	172	193	209
5105	Alliance	Alliance silt loam, 1 to 3 percent slopes	1 to 3	183	216	241	260
5106	Alliance	Alliance silt loam, 3 to 9 percent slopes	3 to 9	183	216	241	260
5107	Alliance	Alliance silt loam, 3 to 9 percent slopes, eroded	3 to 9	178	210	234	253
5112	Bufton	Bufton clay loam, 3 to 9 percent slopes	3 to 9	113	136	153	166
5114	Bufton	Bufton silty clay loam, 3 to 9 percent slopes	3 to 9	116	139	157	170
5115	Bufton	Bufton silty clay loam, 9 to 20 percent slopes	9 to 20	117	140	157	171
5118	Busher	Busher and tassel loamy very fine sands, 6 to 20 percent slopes	9 to 20	153	181	203	220
5123	Busher	Busher loamy very fine sand, 1 to 6 percent slopes	1 to 5	153	181	203	220
5124	Busher	Busher loamy very fine sand, 1 to 6 percent slopes, eroded	1 to 5	152	180	202	218

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawes County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5125	Busher	Busher loamy very fine sand, 3 to 6 percent slopes	3 to 6	153	181	203	219
5126	Busher	Busher loamy very fine sand, 6 to 9 percent slopes	6 to 9	153	181	203	220
5128	Busher	Busher loamy very fine sand, 6 to 9 percent slopes, eroded	5 to 9	152	180	202	218
5129	Busher	Busher loamy very fine sand, 9 to 20 percent slopes	9 to 20	153	181	203	220
5133	Busher	Busher-Jayem loamy very fine sands, 0 to 3 percent slopes	0 to 3	161	190	212	229
5134	Busher	Busher-Jayem loamy very fine sands, 3 to 6 percent slopes	3 to 6	161	190	212	229
5135	Busher	Busher-Jayem loamy very fine sands, 6 to 9 percent slopes	6 to 9	161	190	212	229
5139	Busher	Busher-Tassel complex, 6 to 30 percent slopes	6 to 30	151	178	200	216
5143	Busher	Busher-Tassel loamy very fine sands, 6 to 30 percent slopes	6 to 30	160	189	211	228
5152	Canyon	Canyon soils, 3 to 30 percent slopes	3 to 30	87	105	119	130
5153	Canyon	Canyon soils, 30 to 50 percent slopes	30 to 50	87	105	119	130
5162	Canyon	Rock outcrop-Canyon complex, 30 to 60 percent slopes	30 to 60	87	105	119	130
5184	Keota	Keota-Epping silt loams, 3 to 9 percent slopes	3 to 6	140	165	185	201
5188	Keya	Keya loam, 0 to 2 percent slopes	0 to 2	154	182	204	221
5191	Norrest	Norrest clay loam, 1 to 3 percent slopes	1 to 3	84	102	115	126
5192	Norrest	Norrest clay loam, 3 to 9 percent slopes	6 to 9	83	101	115	125
5195	Norrest	Norrest silty clay loam, 1 to 3 percent slopes	1 to 3	94	114	129	140
5196	Norrest	Norrest silty clay loam, 3 to 9 percent slopes	3 to 9	94	114	129	140
5197	Norrest	Norrest silty clay loam, 9 to 20 percent slopes	9 to 20	94	114	129	140
5200	Oglala	Oglala loam, 9 to 30 percent slopes	9 to 30	155	183	205	221
5206	Oglala	Oglala-Canyon complex, 3 to 9 percent slopes	3 to 9	135	160	180	195
5207	Oglala	Oglala-Canyon complex, 6 to 9 percent slopes	6 to 11	171	202	225	244
5210	Oglala	Oglala-Canyon complex, 9 to 30 percent slopes	9 to 20	140	165	185	201
5211	Oglala	Oglala-Canyon loams, 9 to 20 percent slopes	9 to 20	155	183	205	221

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawes County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
5215	Oglala	Oglala-Canyon very fine sandy loams, 9 to 30 percent slopes	9 to 30	145	171	192	208
5225	Pierre	Pierre clay, 1 to 6 percent slopes	1 to 6	105	127	143	156
5226	Pierre	Pierre clay, 6 to 20 percent slopes	6 to 20	105	127	143	156
5227	Pierre	Pierre-Slickspots complex, 3 to 9 percent slopes	3 to 9	102	123	138	150
5230	Ponderosa	Ponderosa loamy very fine sand, 6 to 9 percent slopes	6 to 9	90	109	123	135
5231	Ponderosa	Ponderosa loamy very fine sand, 9 to 20 percent slopes	9 to 20	91	111	125	137
5234	Ponderosa	Ponderosa-Tassel-Vetal complex, 6 to 30 percent slopes	6 to 30	91	111	125	137
5240	Samsil	Samsil silty clay, 3 to 30 percent slopes	3 to 30	89	108	122	133
5241	Samsil	Pierre-Samsil, moderately deep silty clays, 6 to 25 percent slopes	6 to 25	90	109	123	134
5243	Samsil	Samsil-Shale outcrop complex, 9 to 50 percent slopes	30 to 50	88	107	121	132
5254	Schamber	Schamber soils, 3 to 30 percent slopes	3 to 30	401	467	517	555
5255	Skilak	Skilak silty clay loam, 0 to 5 percent slopes	0 to 5	167	198	221	239
5257	Thirtynine	Thirtynine silt loam, 0 to 2 percent slopes	1 to 3	216	254	283	305
5258	Thirtynine	Thirtynine silt loam, 2 to 11 percent slopes	3 to 9	216	254	283	305
5259	Thirtynine	Thirtynine silt loam, 2 to 11 percent slopes, eroded	3 to 9	216	254	283	305
5260	Thirtynine	Thirtynine loam, 1 to 3 percent slopes	1 to 3	173	204	228	246
5261	Thirtynine	Thirtynine loam, 3 to 6 percent slopes	3 to 6	173	205	228	247
5262	Thirtynine	Thirtynine loam, 6 to 9 percent slopes	6 to 9	174	206	230	248
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	158	186	208	225
5282	Vetal	Vetal fine sandy loam, 3 to 6 percent slopes	3 to 6	251	294	327	352
5288	Vetal	Vetal loamy fine sand, 0 to 3 percent slopes	0 to 3	172	203	227	245
5291	Vetal	Vetal very fine sandy loam, 1 to 3 percent slopes	1 to 3	176	208	232	251
5292	Vetal	Vetal very fine sandy loam, 3 to 6 percent slopes	3 to 6	176	208	232	251
5350	Minnequa	Enning and Minnequa silty clay loams, 6 to 20 percent slopes	9 to 20	125	149	168	182
5351	Enning	Enning-Minnequa complex, 6 to 20 percent slopes	9 to 20	120	144	162	176
5352	Enning	Enning-Rock outcrop complex, 11 to 40 percent slopes	9 to 40	120	144	162	176

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawes County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5353	Enning	Enning-Shale outcrop complex, 11 to 50 percent slopes	30 to 40	116	139	156	170
5355	Hisle	Hisle-Slickspots complex, 0 to 6 percent slopes	0 to 6	82	100	113	123
5358	Kyle	Kyle silty clay, 0 to 1 percent slopes	0 to 1	95	114	129	141
5359	Kyle	Kyle silty clay, 1 to 6 percent slopes	1 to 6	95	114	129	141
5360	Kyle	Kyle-Hisle complex, 0 to 2 percent slopes	0 to 2	95	114	129	141
5600	Bigwinder	Bigwinder fine sandy loam, frequently flooded	0 to 3	427	497	550	591
5612	Craft	Craft loam, channeled, frequently flooded	0 to 2	504	586	648	695
5637	Haverson	Haverson silt loam, 0 to 3 percent slopes	0 to 3	233	273	304	327
5638	Haverson	Haverson silt loam, occasionally flooded	0 to 3	233	273	304	327
5639	Haverson	Haverson silty clay loam, occasionally flooded	0 to 3	235	275	307	330
5640	Haverson	Haverson loam, frequently flooded	0 to 3	215	253	282	304
5657	Lisco	Lisco very fine sandy loam, wet, occasionally flooded	0 to 1	253	296	329	354
5810	Buffington	Buffington silty clay, 0 to 1 percent slopes	0 to 1	102	123	138	150
5834	Mitchell	Mitchell silt loam, 0 to 1 percent slopes	0 to 1	148	175	196	212
5836	Mitchell	Mitchell silt loam, 1 to 6 percent slopes	1 to 5	148	175	196	212
5838	Mitchell	Mitchell silt loam, 6 to 9 percent slopes	6 to 9	148	175	196	212
5839	Mitchell	Mitchell silt loam, 9 to 20 percent slopes	9 to 20	148	175	196	212
5849	Epping	Mitchell-Epping complex, 9 to 30 percent slopes	9 to 30	109	132	148	161
5870	Tripp	Tripp silt loam, 0 to 1 percent slopes	0 to 1	125	150	168	182
5871	Tripp	Tripp silt loam, 1 to 3 percent slopes	1 to 3	125	150	168	182
5872	Tripp	Tripp silt loam, saline-alkali, 0 to 2 percent slopes	0 to 2	162	191	214	231
5943	Duroc	Duroc loam, 1 to 3 percent slopes	1 to 3	74	90	102	112
5947	Duroc	Duroc very fine sandy loam, 1 to 3 percent slopes	1 to 3	64	78	89	98
5964	Vetal	Jayem and Vetal loamy very fine sands, 6 to 9 percent slopes	5 to 9	145	172	193	209
5965	Jayem	Jayem fine sandy loam, 0 to 3 percent slopes	0 to 3	162	191	214	231
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	162	191	214	231
5978	Jayem	Jayem loamy very fine sand, 1 to 6 percent slopes	1 to 5	125	149	167	182
5979	Jayem	Jayem loamy very fine sand, 3 to 6 percent slopes	3 to 6	119	143	160	174

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawes County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
5980	Jayem	Jayem loamy very fine sand, 6 to 9 percent slopes	6 to 9	125	149	167	182
5983	Rock_outcrop	Rock outcrop-Tassel complex, 9 to 70 percent slopes	9 to 70	--	--	--	--
5987	Orella	Orella clay, 1 to 30 percent slopes	1 to 30	131	155	174	189
5988	Orella	Orella silty clay loam, 3 to 30 percent slopes	3 to 30	150	177	198	215
6026	Tassel	Tassel loamy very fine sand, 3 to 30 percent slopes	3 to 30	81	99	112	123
6028	Tassel	Tassel soils, 3 to 30 percent slopes	3 to 30	82	100	114	124
6031	Tassel	Tassel-Ashollow-Rock outcrop complex, 9 to 60 percent slopes	9 to 60	83	101	114	124
6036	Tassel	Tassel-Busher-Rock outcrop complex, 6 to 30 percent slopes	6 to 30	86	104	118	128
6043	Tassel	Tassel-Ponderosa-Rock outcrop association, 9 to 70 percent slopes	9 to 70	81	99	112	123
6045	Tassel	Tassel-Rock outcrop complex, 9 to 70 percent slopes	9 to 70	112	135	151	165
6048	Orella	Orella-Badland complex, 3 to 50 percent slopes	3 to 30	150	177	198	215
6090	Sarben	Sarben and Vetal loamy very fine sands, 9 to 30 percent slopes	9 to 30	99	120	135	147
6091	Sarben	Sarben fine sandy loam, 1 to 6 percent slopes	1 to 5	109	131	148	160
6092	Sarben	Sarben fine sandy loam, 6 to 9 percent slopes	5 to 9	109	131	148	160
6093	Sarben	Sarben fine sandy loam, 9 to 30 percent slopes	9 to 30	104	125	141	154
6109	Sarben	Sarben loamy very fine sand, 9 to 30 percent slopes	9 to 30	148	175	196	212
6201	Epping	Epping silt loam, 3 to 30 percent slopes	3 to 30	109	132	148	161
6203	Epping	Epping-Badland complex, 3 to 60 percent slopes	3 to 60	109	132	148	161
6240	Keota	Keota silt loam, 1 to 3 percent slopes	1 to 3	140	165	185	201
9971	Arents	Arents, earthen dam	to	--	--	--	--
9973	Badland	Badland	3 to 50	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2521	Coly	Coly-Hobbs silt loams, 0 to 30 percent slopes	2 to 30	136	161	180	195
2529	Uly	Coly and Uly silt loams, 11 to 30 percent slopes	9 to 30	138	163	183	198
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	136	161	180	195
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2541	Coly	Coly silt loam, 11 to 17 percent slopes, eroded	11 to 20	136	161	180	195
2544	Coly	Coly, Uly, and Hobbs soils, 3 to 30 percent slopes	3 to 31	128	152	171	185
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	117	141	158	172
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	111	133	150	163
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	117	141	158	172
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	109	131	148	160
2672	Holdrege_ variant	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	50	62	72	79
2809	Coly	Uly and Coly silt loams, 6 to 11 percent slopes, eroded	6 to 9	128	152	171	185
2810	Coly	Uly and Coly silt loams, 11 to 30 percent slopes	9 to 31	128	152	171	185
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	137	162	182	197
2830	Uly	Uly-Coly silt loams, 11 to 30 percent slopes	9 to 30	137	162	182	197
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	137	162	182	197
2837	Uly	Uly-Holdrege silt loams, 6 to 11 percent slopes	6 to 11	137	162	182	197
2838	Holdrege	Uly-Holdrege-Coly silt loams, 6 to 11 percent slopes, eroded	6 to 11	115	138	155	168
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	167	197	220	237
3949	Fillmore	Fillmore silt loam, drained, occasionally ponded	0 to 1	111	133	150	163
3951	Fillmore	Fillmore silt loam, occasionally ponded	0 to 1	124	149	167	181
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	106	127	143	156

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4157	Holdrege	Holdrege-Uly silt loams, 3 to 7 percent slopes, eroded	3 to 6	88	107	121	132
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	150	178	199	215
4558	Elsmere	Elsmere loamy fine sand, loamy substratum, 0 to 3 percent slopes	0 to 2	146	172	193	209
4559	Elsmere	Selia loamy fine sand, 0 to 3 percent slopes	0 to 3	153	181	202	219
4807	Valentine	Valentine fine sand, rolling	9 to 24	342	399	442	475
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	348	406	450	484
4817	Valentine	Valentine loamy fine sand, 3 to 6 percent slopes	3 to 6	348	406	450	484
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	348	406	450	484
6333	Lawet	Lawet loam, ponded, rarely flooded	0 to 2	329	384	426	458
6338	Lawet	Lawet silt loam, drained, rarely flooded	0 to 2	346	404	448	481
6340	Lawet	Lawet silt loam, saline-alkali, rarely flooded	0 to 1	412	480	532	571
8402	Alda	Alda loam, rarely flooded	0 to 1	573	666	735	788
8465	Gibbon	Gibbon loam, rarely flooded	0 to 2	303	354	393	423
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	483	561	620	666
8502	Lex	Lex loam, rarely flooded	0 to 2	634	735	811	870
8504	Lex	Lex loam, saline-alkali, rarely flooded	0 to 2	472	549	607	651
8550	Silver_Creek	Silver Creek complex, rarely flooded	0 to 2	263	308	342	368
8553	Silver_Creek	Silver Creek silt loam, rarely flooded	0 to 2	263	308	342	368
8556	Silver_Creek	Silver Creek silty clay loam, rarely flooded	0 to 2	90	110	124	135
8563	Platte	Platte loam, occasionally flooded	0 to 1	613	711	785	841
8567	Platte	Platte-Alda complex, occasionally flooded	0 to 2	636	738	815	873
8583	Wann	Wann fine sandy loam, saline-alkali, rarely flooded	0 to 1	347	405	448	482
8585	Wann	Wann loam, rarely flooded	0 to 2	505	587	649	696
8810	Cozad	Cozad fine sandy loam, 0 to 1 percent slopes	0 to 1	119	143	161	174
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	191	225	251	271
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	191	225	251	271
8817	Cozad	Cozad silt loam, 3 to 6 percent slopes	3 to 6	202	238	265	286
8819	Cozad	Cozad silt loam, 6 to 11 percent slopes, eroded	6 to 11	202	238	265	286
8820	Cozad	Cozad silt loam, saline-alkali, 0 to 1 percent slopes	0 to 1	141	167	187	203
8821	Cozad	Cozad silty clay loam, 0 to 1 percent slopes	0 to 1	171	201	225	243

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8827	Cozad	Cozad silt loam, wet substratum, 0 to 1 percent slopes	0 to 1	177	209	233	252
8828	Cozad	Cozad silt loam, wet substratum, 1 to 3 percent slopes	1 to 3	177	209	233	252
8830	Gosper	Gosper fine sandy loam, 0 to 1 percent slopes	0 to 2	220	258	288	310
8831	Gosper	Gosper loam, 0 to 1 percent slopes	0 to 2	311	363	403	433
8832	Gosper	Gosper loam, saline-alkali, 0 to 1 percent slopes	0 to 2	339	395	438	471
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	135	160	179	194
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	142	168	189	204
8846	Hord	Hall silt loam, wet substratum, 0 to 1 percent slopes	0 to 1	118	142	160	173
8867	Hord	Hord fine sandy loam, 1 to 3 percent slopes	1 to 3	82	100	114	124
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	123	148	166	180
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	123	148	166	180
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	121	145	163	177
8875	Hord	Hord silt loam, wet substratum, 0 to 1 percent slopes	0 to 1	120	144	162	176
8876	Hord	Hord silty clay loam, 0 to 1 percent slopes	0 to 1	98	118	134	145
8877	Hord	Hord silty clay loam, wet substratum, 0 to 1 percent slopes	0 to 1	100	121	136	148
8905	Ovina	Ovina fine sandy loam	0 to 2	202	237	265	285
8960	Wood_River	Wood River silt loam, 0 to 1 percent slopes	0 to 1	182	214	239	258
8965	Wood_River	Wood River-Gayville complex, 0 to 1 percent slopes	0 to 2	185	218	243	263
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	210	247	275	297
9002	Anselmo	Anselmo fine sandy loam, 1 to 3 percent slopes	1 to 3	191	225	251	271
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	191	225	251	271
9006	Anselmo	Anselmo fine sandy loam, 6 to 11 percent slopes	6 to 11	191	225	251	271
9010	Anselmo	Anselmo loam, 0 to 1 percent slopes	0 to 1	274	321	356	383
9080	Rusco	Rusco silt loam, 0 to 1 percent slopes	0 to 1	117	140	158	171
9724	Ustorthents	Ustorthents, 17 to 60 percent slopes	17 to 60	105	127	143	155
9830	Ustorthents	Spoil banks	0 to 60	112	134	151	164
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dawson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Deuel County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1050	Lexsworth	Lexsworth loam, very rarely flooded	0 to 1	375	437	484	520
1076	Ralton	Ralton loam, very rarely flooded	0 to 1	230	269	300	323
1182	Las_Animas	Las Animas loam, occasionally flooded	0 to 2	118	142	159	173
1183	Las_Animas	Las Animas loam, channeled, frequently flooded	0 to 1	196	231	257	277
1371	Chappell	Chappell-Alice-Broadwater complex, 0 to 3 percent slopes	0 to 3	274	320	356	383
1414	Glenberg	Glenberg fine sandy loam, rarely flooded	0 to 2	110	132	149	162
1509	Altvan	Altvan-Eckley-Satanta complex, 3 to 9 percent slopes	3 to 9	277	324	360	387
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	110	132	149	162
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	96	116	131	143
1650	Kuma	Kuma loam, 0 to 1 percent slopes	0 to 1	154	182	203	220
1651	Kuma	Kuma loam, 1 to 3 percent slopes	1 to 3	155	183	205	221
1662	Lodgepole	Lodgepole silt loam, occasionally ponded	0 to 1	80	97	110	120
1820	Satanta	Satanta-Altvan complex, 3 to 6 percent slopes	3 to 6	159	188	210	227
1821	Ascalon	Satanta-Ascalon complex, 0 to 1 percent slopes	0 to 2	292	342	379	408
1825	Satanta	Satanta-Johnstown-Altvan loams, 1 to 3 percent slopes	1 to 3	475	552	611	655
1830	Sulco	Sulco-McConaughy loams, 9 to 30 percent slopes	9 to 30	169	200	223	241
1831	Sulco	Sulco-McConaughy loams, 6 to 9 percent slopes, eroded	6 to 9	88	107	120	131
1832	Sulco	Sulco-McConaughy loams, 3 to 6 percent slopes, eroded	3 to 6	88	107	120	131
1838	Sidney	Sidney loam, 3 to 6 percent slopes	3 to 6	134	159	178	193
1839	Sidney	Sidney-Canyon complex, 3 to 9 percent slopes	3 to 9	153	181	202	219
1840	Sidney	Sidney-Canyon loams, 3 to 9 percent slopes	6 to 9	134	159	178	193
1850	Sulco	Sulco-McConaughy complex, 3 to 6 percent slopes, eroded	3 to 6	169	199	223	241
1884	Valent	Valent complex, rolling and hilly	9 to 60	338	394	437	470
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	338	394	437	470
1889	Valent	Valent fine sand, rolling	9 to 24	338	394	437	470
3203	Johnstown	Johnstown-Satanta-Richfield loams, 0 to 2 percent slopes	0 to 2	402	468	518	557
4235	Calamus	Calamus sand, very rarely flooded	0 to 1	293	342	380	409
5100	Alliance	Alliance loam, 0 to 1 percent slopes	0 to 1	194	228	254	275

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Deuel County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5108	Alliance	Alliance-Rosebud loams, 1 to 3 percent slopes	1 to 3	168	199	222	240
5605	Broadwater	Broadwater loamy sand, frequently flooded	0 to 1	254	298	331	356
5648	Jankosh	Jankosh loam, rarely flooded	0 to 2	348	406	449	483
5822	Duroc	Duroc loam, terrace, 0 to 1 percent slopes	0 to 1	87	106	120	130
5823	Duroc	Duroc loam, terrace, 1 to 3 percent slopes	1 to 3	87	106	120	130
5858	Scoville	Scoville loamy fine sand, 0 to 3 percent slopes	0 to 3	220	259	288	311
5917	Ashollow	Ashollow-Tassel complex, 9 to 30 percent slopes	9 to 30	117	141	158	172
5927	Blueridge	Blueridge-Altvan complex, 6 to 30 percent slopes	6 to 30	251	294	327	352
5942	Duroc	Duroc loam, 0 to 1 percent slopes	0 to 1	79	96	109	119
5946	Duroc	Duroc silt loam, 1 to 3 percent slopes	1 to 3	94	114	129	141
5965	Jayem	Jayem fine sandy loam, 0 to 3 percent slopes	0 to 3	98	119	134	146
6094	Sarben	Sarben loamy fine sand, 0 to 3 percent slopes	0 to 3	95	115	129	141
6095	Sarben	Sarben loamy fine sand, 3 to 6 percent slopes	3 to 6	95	115	129	141
8494	Gothenburg	Gothenburg soils, occasionally flooded	0 to 1	302	353	392	422
8521	Merrick	Merrick sandy clay loam, very rarely flooded	0 to 1	103	124	139	152
8563	Platte	Platte loam, occasionally flooded	0 to 1	358	417	463	497
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dixon County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3513	Lamo	Lamo silt loam, occasionally flooded	0 to 2	92	111	126	137
3514	Lamo	Lamo silt loam, overwash, occasionally flooded	0 to 1	92	111	126	137
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	91	111	125	136
6300	Aowa	Aowa silt loam, occasionally flooded	0 to 2	139	165	185	200
6301	Aowa	Aowa silt loam, channeled, frequently flooded	0 to 2	139	165	185	200
6305	Baltic	Baltic silty clay loam, occasionally flooded	0 to 2	99	119	134	146
6306	Baltic	Baltic silty clay, occasionally flooded	0 to 2	80	97	110	120
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	99	119	135	147
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	172	202	226	244
6400	Calco	Calco silt loam, overwash, occasionally flooded	0 to 2	129	153	171	186
6401	Calco	Calco silty clay loam, occasionally flooded	0 to 2	119	143	161	175
6403	Calco	Calco silty clay loam, wet, occasionally flooded	0 to 2	119	143	161	175
6516	Blendon	Blendon sandy loam, 0 to 3 percent slopes	0 to 3	375	437	484	520
6533	Loretto	Loretto fine sandy loam, 0 to 2 percent slopes	0 to 2	103	124	140	152
6540	Maskell	Maskell loam, 0 to 2 percent slopes	0 to 2	40	50	58	65
6541	Maskell	Maskell loam, 2 to 6 percent slopes	2 to 6	40	50	58	65
6567	Thurman	Thurman loamy sand, 2 to 6 percent slopes	2 to 6	294	344	382	411
6568	Thurman	Thurman loamy sand, 2 to 6 percent slopes, eroded	2 to 6	294	344	382	411
6569	Thurman	Thurman loamy sand, 6 to 11 percent slopes	6 to 11	293	343	381	410
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	133	157	177	192
6601	Alcester	Alcester silt loam, 6 to 11 percent slopes	6 to 11	133	157	177	192
6602	Alcester	Alcester silt loam, gullied, 11 to 60 percent slopes	11 to 25	133	157	177	192
6617	Bazile	Bazile silty clay loam, 2 to 6 percent slopes	2 to 6	431	502	555	596
6630	Belfore	Belfore-Moody silty clay loams, 1 to 3 percent slopes	1 to 3	94	114	128	140
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	229	268	299	322
6681	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	229	268	299	322
6685	Crofton	Crofton silt loam, 2 to 6 percent slopes, eroded	2 to 6	229	268	299	322

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dixon County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	229	268	299	322
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	229	268	299	322
6693	Crofton	Crofton-Nora complex, 2 to 6 percent slopes, eroded	2 to 6	230	270	300	324
6694	Crofton	Crofton-Nora complex, 6 to 11 percent slopes, eroded	6 to 11	231	271	301	325
6719	Thurman	Thurman loamy sand, 6 to 11 percent slopes, eroded	6 to 11	296	345	383	412
6720	Thurman	Thurman sand, 2 to 20 percent slopes	11 to 20	312	364	404	434
6734	Thurman	Thurman-Leisy complex, 2 to 6 percent slopes	3 to 6	294	344	382	411
6735	Thurman	Thurman-Leisy complex, 6 to 11 percent slopes	6 to 11	293	343	381	410
6736	Thurman	Thurman-Loretto complex, 2 to 6 percent slopes	2 to 6	291	341	378	407
6743	Thurman	Thurman-Ortello complex, 6 to 11 percent slopes	6 to 11	291	340	377	406
6749	Nora	Nora silt loam, 11 to 17 percent slopes	11 to 17	129	153	172	187
6750	Nora_variant	Nora silt loam, 11 to 17 percent slopes, eroded	11 to 17	152	179	201	217
6751	Nora	Nora silt loam, 17 to 30 percent slopes	17 to 30	129	153	172	187
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	123	147	166	180
6756	Nora_variant	Nora silt loam, 6 to 11 percent slopes, eroded	6 to 11	146	173	194	210
6765	Nora	Nora silty clay loam, 2 to 6 percent slopes	2 to 6	114	136	153	167
6766	Nora_variant	Nora silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	135	160	179	194
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	114	136	153	167
6768	Nora_variant	Nora silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	135	160	179	194
6769	Nora	Nora-Alcester silt loams, 11 to 17 percent slopes	11 to 15	129	153	172	187
6770	Nora	Nora-Alcester silt loams, 17 to 30 percent slopes	15 to 30	129	153	172	187
6782	Nora	Nora-Moody silty clay loams, 6 to 11 percent slopes	7 to 11	112	134	151	164
6787	Crofton	Crofton-Alcester silt loams, 20 to 60 percent slopes	20 to 60	231	271	301	325
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	230	270	300	324

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dixon County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6797	Loretto	Loretto loam, sand substratum, 6 to 11 percent slopes	6 to 11	296	346	384	413
6801	Leisy	Leisy loam, 0 to 6 percent slopes	1 to 5	76	93	105	115
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	141	167	187	202
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	141	167	187	202
6813	Moody	Moody silty clay loam, 6 to 11 percent slopes	6 to 11	141	167	187	202
6814	Moody	Moody silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	143	169	189	205
6818	Moody	Moody-Leisy complex, 2 to 6 percent slopes	2 to 6	141	167	187	202
6819	Moody	Moody-Leisy complex, 6 to 11 percent slopes	6 to 11	141	167	187	202
6835	Nora_variant	Nora variant silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	133	158	177	192
6836	Nora_variant	Nora variant silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	133	158	177	192
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	300	351	389	419
6855	Ortello	Ortello sandy loam, 2 to 6 percent slopes	2 to 6	283	330	367	395
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7083	Sarpy	Sarpy loamy fine sand, occasionally flooded	0 to 3	445	518	573	615
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	80	98	111	121
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	116	139	157	170
7705	Grable	Grable very fine sandy loam, rarely flooded	0 to 2	497	578	639	685
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	59	73	84	92
7724	Blake	Blake silty clay loam, rarely flooded	0 to 2	155	183	205	222
7744	Haynie	Haynie silt loam, rarely flooded	0 to 2	199	234	261	282
7757	Modale	Modale very fine sandy loam, rarely flooded	0 to 2	98	118	133	145
7802	Percival	Percival silty clay, occasionally flooded	0 to 2	488	568	628	673
7847	Sarpy	Sarpy-Riverwash complex, frequently flooded	0 to 3	445	518	573	615
7848	Sarpy	Sarpy-Ustorthents complex, 0 to 4 percent slopes	0 to 4	415	483	535	574
7850	Sarpy	Sarpy fine sand, 3 to 11 percent slopes	3 to 11	415	483	535	574

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dixon County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
7855	Sarpy	Sarpy silty clay, overwash, occasionally flooded	0 to 2	319	372	413	444
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	92	111	126	137
7883	Onawa	Onawa silty clay, rarely flooded	0 to 2	90	110	124	135
7892	Zook	Zook silty clay, occasionally flooded	0 to 2	73	89	102	112
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dodge County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	299	349	388	417
2288	Wann	Wann loam, occasionally flooded	0 to 2	143	170	190	206
3521	Cass	Cass fine sandy loam, occasionally flooded	0 to 2	201	237	264	285
3529	Gibbon	Gibbon loam, occasionally flooded	0 to 2	91	111	125	136
3537	Gibbon	Gibbon silty clay loam, occasionally flooded	0 to 2	103	124	140	152
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	157	186	208	225
3640	Kezan	Kezan silt loam, frequently flooded	0 to 2	132	157	176	191
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	211	248	276	298
3951	Fillmore	Fillmore silt loam, occasionally ponded	0 to 1	121	145	163	177
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	153	181	202	219
6315	Barney	Barney silty clay loam, frequently flooded	0 to 2	460	535	592	635
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	116	139	156	169
6327	Fontanelle	Fontanelle silty clay loam, frequently flooded	0 to 1	107	128	144	157
6380	Saltine	Saltine-Gibbon complex, occasionally flooded	0 to 2	102	123	138	150
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	182	215	240	259
6401	Calco	Calco silty clay loam, occasionally flooded	0 to 2	109	132	148	161
6403	Calco	Calco silty clay loam, wet, occasionally flooded	0 to 2	119	143	161	175
6405	Napa	Napa-Luton complex, occasionally flooded	0 to 1	102	123	139	151
6456	Inglewood	Inglewood loamy fine sand, occasionally flooded	0 to 2	374	436	483	519
6457	Inglewood	Inglewood loamy fine sand, rarely flooded	0 to 3	377	439	487	523
6460	Inglewood	Inglewood-Novina complex, occasionally flooded	0 to 2	573	665	735	787
6505	Belfore	Belfore silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	101	122	138	150
6526	Janude	Janude loam, rarely flooded	0 to 2	122	146	164	178
6528	Janude	Janude loam, clayey substratum, rarely flooded	0 to 2	88	107	121	132
6545	Moody	Moody silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	144	170	191	207
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	125	150	168	182
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	90	109	123	134

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dodge County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	230	270	300	324
6681	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	230	270	300	324
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	230	270	300	324
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	293	342	380	409
6706	Thurman	Thurman loamy fine sand, 6 to 11 percent slopes	6 to 11	293	342	380	409
6717	Thurman	Thurman-Valentine loamy fine sands, 2 to 6 percent slopes	3 to 6	160	189	211	228
6722	Valentine	Thurman and Valentine loamy fine sands, 6 to 11 percent slopes	6 to 11	184	216	241	261
6738	Thurman	Thurman-Moody complex, 11 to 30 percent slopes, eroded	11 to 30	293	342	380	409
6742	Thurman	Thurman-Moody complex, 6 to 11 percent slopes, eroded	6 to 11	293	342	380	409
6759	Nora	Nora silty clay loam, 11 to 17 percent slopes, eroded	11 to 15	113	135	152	165
6766	Nora_variant	Nora silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	135	160	180	195
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	113	135	152	165
6768	Nora_variant	Nora silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	136	161	180	195
6774	Nora	Nora-Crofton complex, 11 to 17 percent slopes, eroded	11 to 17	112	135	152	165
6778	Nora_variant	Nora-Crofton complex, 6 to 11 percent slopes, eroded	6 to 11	136	161	180	195
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	144	170	191	207
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	144	170	191	207
6813	Moody	Moody silty clay loam, 6 to 11 percent slopes	6 to 11	144	170	191	207
6831	Leisy	Leisy fine sandy loam, 2 to 6 percent slopes	2 to 6	51	64	74	81
6835	Nora_variant	Nora variant silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	134	159	178	193

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dodge County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6836	Nora_variant	Nora variant silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	134	159	178	193
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7010	Calco	Calco silty clay loam, frequently flooded	0 to 2	119	143	161	175
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	125	149	167	182
7055	Kennebec	Kennebec and Colo soils, channeled, frequently flooded	0 to 2	125	149	167	182
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	79	97	109	120
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	102	123	138	150
7266	Burchard	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	68	83	95	104
7612	Steinauer	Steinauer clay loam, 11 to 30 percent slopes, eroded	11 to 30	69	84	97	106
7787	Luton	Luton silty clay, occasionally flooded	0 to 2	65	79	91	100
7891	Zook	Zook silt loam, overwash, occasionally flooded	0 to 2	100	121	136	148
7892	Zook	Zook silty clay, occasionally flooded	0 to 2	73	89	102	112
7901	Monona	Monona silt loam, terrace, 0 to 2 percent slopes	0 to 2	134	158	178	193
7902	Monona	Monona silt loam, terrace, 2 to 6 percent slopes	2 to 6	134	158	178	193
8013	Ida	Ida-Steinauer complex, 17 to 60 percent slopes	17 to 60	181	213	238	257
8401	Alda	Alda fine sandy loam, occasionally flooded	0 to 1	359	419	464	498
8403	Alda	Alda loam, occasionally flooded	0 to 1	518	601	665	713
8418	Boel	Boel loam, occasionally flooded	0 to 2	795	921	1016	1088
8433	Cass	Cass fine sandy loam, clayey substratum, rarely flooded	0 to 2	135	160	179	194
8435	Cass	Cass loam, rarely flooded	0 to 2	320	374	415	446
8436	Cass	Cass loam, occasionally flooded	0 to 2	301	352	391	420
8438	Cass	Cass loam, clayey substratum, rarely flooded	0 to 2	190	223	249	269
8466	Gibbon	Gibbon loamy sand, overwash, occasionally flooded	0 to 2	135	160	180	195
8475	Gibbon_ variant	Gibbon variant soils, frequently flooded	0 to 2	340	396	439	472
8480	Gibbon	Gibbon-Wann complex, occasionally flooded	0 to 2	118	141	159	173
8485	Gilliam	Gilliam-Eudora silt loams, occasionally flooded	0 to 2	112	135	152	165

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dodge County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8562	Platte	Platte fine sandy loam, occasionally flooded	0 to 2	555	644	712	763
8563	Platte	Platte loam, occasionally flooded	0 to 1	440	512	566	608
8569	Platte	Platte-Barney complex, channeled, frequently flooded	0 to 2	387	451	500	537
8573	Platte	Platte-Inavale complex, channeled, frequently flooded	0 to 2	437	509	653	604
8574	Platte	Platte-Inavale complex, channeled, occasionally flooded	0 to 3	440	512	566	608
8580	Wann	Wann fine sandy loam, occasionally flooded	0 to 2	109	131	147	160
9901	Fluvaquents, _sandy	Fluvaquents sandy and Aquolls silty, frequently flooded	0 to 2	260	304	338	364
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	380	443	491	527
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Douglas County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2106	Carr	Carr-Ticonic-Scroll complex, occasionally flooded	0 to 2	637	739	816	874
2341	Inavale	Inavale loamy fine sand, hummocky, rarely flooded	0 to 6	159	188	211	228
3537	Gibbon	Gibbon silty clay loam, occasionally flooded	0 to 2	89	108	122	133
3643	Kennebec	Kezan-Kennebec silt loams, drained, occasionally flooded	0 to 2	127	151	169	184
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	101	122	138	150
6382	Saltine	Saltine-Gibbon silty clay loams, occasionally flooded	0 to 2	102	123	138	150
6452	Clamo	Clamo-Zook-Kezan silty clay loams, occasionally flooded	0 to 2	119	143	160	174
6460	Inglewood	Inglewood-Novina complex, occasionally flooded	0 to 2	573	665	735	787
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	133	158	177	192
7061	Muscotah	Muscotah silty clay loam, occasionally flooded	0 to 2	116	139	156	170
7210	Burchard	Burchard-Contrary-Steinauer complex, 7 to 16 percent slopes	7 to 16	62	76	88	96
7234	Judson	Judson silty clay loam, 2 to 6 percent slopes	2 to 6	95	115	130	142
7235	Judson	Judson-Nodaway channeled-Contrary complex, 3 to 10 percent slopes	1 to 6	95	115	130	142
7741	Haynie	Haynie silt loam, occasionally flooded	0 to 1	224	263	292	315
7787	Luton	Luton silty clay, occasionally flooded	0 to 2	65	79	91	100
7812	Kenridge	Smithland-Kenridge silty clay loams, occasionally flooded	0 to 2	108	130	146	159
7815	Ticonic	Ticonic-Sarpy-Carr complex, occasionally flooded	0 to 2	277	324	359	387
7862	Nishna	Nishna silty clay loam, occasionally flooded	0 to 2	85	103	117	128
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	111	134	150	163
8012	Ida	Ida-Pohocco-Monona silt loams, 11 to 30 percent slopes	10 to 26	168	199	222	240
8016	Marshall	Marshall silty clay loam, 0 to 2 percent slopes	0 to 2	106	128	144	156
8035	Marshall	Marshall-Contrary silty clay loams, 2 to 7 percent slopes	2 to 7	110	132	148	161
8041	Melia	Melia silty clay loam, 0 to 2 percent slopes	0 to 2	128	151	170	184

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Douglas County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8100	Monona	Monona-Pohocco-Ida silt loams, 17 to 33 percent slopes	14 to 33	125	150	168	182
8136	Pohocco	Pohocco-Ida complex, 11 to 17 percent slopes, eroded	11 to 17	112	134	151	164
8138	Pohocco	Pohocco-Ida-Monona complex, 6 to 17 percent slopes	6 to 18	112	134	151	164
8140	Pohocco	Pohocco-Judson silt loams, 11 to 40 percent slopes	20 to 54	115	138	156	169
8143	Pohocco	Pohocco-Monona silt loams, 11 to 54 percent slopes	13 to 54	115	138	156	169
8153	Contrary	Contrary-Marshall silty clay loams, 6 to 11 percent slopes	6 to 12	110	132	148	161
8155	Contrary	Contrary-Monona silty clay loams, 6 to 11 percent slopes	6 to 13	110	132	148	161
8157	Contrary	Contrary-Monona-Ida complex, 6 to 17 percent slopes	9 to 16	110	132	148	161
8403	Alda	Alda loam, occasionally flooded	0 to 1	518	601	665	713
8408	Alda	Alda-Platte complex, occasionally flooded	0 to 2	642	745	822	881
8409	Alda	Alda-Platte fine sandy loams, occasionally flooded	0 to 2	343	400	444	477
8410	Alda	Alda-Platte-Lex complex, occasionally flooded	0 to 2	526	610	675	723
8442	Cass	Cass-Novina complex, occasionally flooded	0 to 2	395	460	509	547
8443	Cass	Cass-Wann fine sandy loams, occasionally flooded	0 to 2	221	259	289	311
8468	Gibbon	Gibbon loamy fine sand, overwash, occasionally flooded	0 to 2	116	140	157	171
8480	Gibbon	Gibbon-Wann complex, occasionally flooded	0 to 2	118	141	159	173
8485	Gilliam	Gilliam-Eudora silt loams, occasionally flooded	0 to 2	112	135	152	165
8486	Gilliam	Gilliam-Onawa complex, occasionally flooded	0 to 2	112	135	152	165
8510	Lex	Lex-Platte complex, occasionally flooded	0 to 2	517	601	664	712
8532	Novina	Novina-Gibbon complex, occasionally flooded	0 to 2	74	90	103	112
8560	Platte	Platte and Alda soils, frequently flooded	0 to 2	404	471	521	560
8566	Platte	Platte, Inglewood, and Barney soils, frequently flooded	0 to 2	423	492	545	585
8569	Platte	Platte-Barney complex, channeled, frequently flooded	0 to 2	387	451	500	537

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Douglas County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8574	Platte	Platte-Inavale complex, channeled, occasionally flooded	0 to 3	440	512	566	608
8594	Wann	Wann-Caruso-Ingelwood complex, occasionally flooded	0 to 2	206	242	270	291
9700	Udarents	Udarents-Urban land complex, 1 to 14 percent slopes	1 to 14	--	--	--	--
9701	Udarents	Udarents-Urban land complex, footslope, 0 to 10 percent slopes	0 to 10	--	--	--	--
9702	Udarents	Udarents-Urban land complex, summit, 0 to 8 percent slopes	1 to 8	--	--	--	--
9706	Udorthents	Udorthents-Urban land-Pohocco complex, 0 to 39 percent slopes	0 to 46	--	--	--	--
9711	Urban_land	Urban land-Udarents complex, 0 to 16 percent slopes	2 to 10	--	--	--	--
9712	Urban_land	Urban land-Udarents-Udorthents complex, 0 to 23 percent slopes	0 to 6	--	--	--	--
9713	Urban_land	Urban land-Udorthents complex, 0 to 10 percent slopes, occasionally flooded	0 to 6	--	--	--	--
9714	Urban_land	Urban land-Udorthents complex, 0 to 14 percent slopes	0 to 14	--	--	--	--
9715	Urban_land	Urban land-Udorthents complex, drainageway, 0 to 8 percent slopes, occasionally flooded	0 to 6	--	--	--	--
9716	Urban_land	Urban land-Udorthents complex, footslope, 0 to 11 percent slopes	0 to 11	--	--	--	--
9717	Urban_land	Urban land-Udorthents complex, summit, 0 to 8 percent slopes	0 to 6	--	--	--	--
9718	Urban_land	Urban land-Udorthents-Judson complex, 0 to 11 percent slopes	0 to 11	--	--	--	--
9719	Urban_land	Urban land-Udorthents-Marshall complex, 0 to 9 percent slopes	0 to 9	--	--	--	--
9720	Urban_land	Urban land-Udorthents-Pohocco complex, 0 to 16 percent slopes	0 to 16	--	--	--	--
9901	Fluvaquents, _sandy	Fluvaquents sandy and Aquolls silty, frequently flooded	0 to 2	--	--	--	--
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dundy County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1042	Haigler	Haigler very fine sandy loam, rarely flooded	0 to 2	370	432	478	514
1073	Sanborn	Sanborn loam, rarely flooded	0 to 2	503	584	646	693
1119	Bankard	Bankard sand, occasionally flooded	0 to 2	327	381	423	455
1406	Craft	Craft very fine sandy loam, rarely flooded	0 to 2	115	138	155	168
1527	Blanche	Blanche loamy sand, 1 to 3 percent slopes	0 to 3	77	94	107	117
1528	Blanche	Blanche loamy sand, 3 to 6 percent slopes	3 to 6	78	96	108	118
1540	Colfer	Colfer sand, 0 to 3 percent slopes	0 to 3	203	239	266	287
1547	Dailey	Dailey loamy sand, 0 to 3 percent slopes	0 to 3	322	376	417	448
1553	Benkelman	Benkelman very fine sandy loam, 0 to 2 percent slopes	0 to 2	111	133	150	163
1556	Blackwood	Blackwood loam, 0 to 1 percent slopes	0 to 1	78	95	108	118
1559	Blackwood	Blackwood loam, 1 to 3 percent slopes	1 to 3	81	98	111	121
1595	Kanorado	Kanorado silty clay loam, 6 to 9 percent slopes	6 to 9	91	111	125	136
1620	Keith	Keith silt loam, 1 to 3 percent slopes	1 to 3	191	225	251	271
1630	Keith	Keith silt loam, 3 to 6 percent slopes, eroded	3 to 6	191	225	251	271
1656	Laird	Laird fine sandy loam, 0 to 2 percent slopes	0 to 2	96	117	132	143
1663	Lodgepole	Lodgepole silty clay loam, frequently ponded	0 to 1	89	108	122	133
1665	Lodgepole	Lodgepole silty clay loam, occasionally ponded	0 to 1	90	109	124	135
1703	Otero	Otero fine sandy loam, 0 to 1 percent slopes	0 to 1	104	126	142	154
1720	Overlake	Overlake sand, 0 to 3 percent slopes	0 to 3	205	241	268	289
1796	Sarben	Sarben loamy sand, 0 to 3 percent slopes	0 to 3	88	107	120	131
1797	Sarben	Sarben loamy sand, 3 to 6 percent slopes	3 to 6	103	125	141	153
1798	Sarben	Sarben loamy sand, 6 to 9 percent slopes	6 to 9	84	103	116	127
1799	Sarben	Sarben loamy sand, 9 to 30 percent slopes	9 to 30	316	369	409	440
1809	Satanta	Satanta fine sandy loam, 1 to 3 percent slopes	1 to 3	99	120	135	147
1826	Sulco	Sulco complex, 9 to 60 percent slopes	30 to 60	108	130	146	159
1827	Sulco	Sulco loam, 3 to 6 percent slopes	3 to 6	109	131	148	161
1828	Sulco	Sulco fine sandy loam, 3 to 6 percent slopes	3 to 6	109	131	148	161
1848	Sulco	Sulco loam, 6 to 9 percent slopes	6 to 9	106	128	144	157
1849	Sulco	Sulco loam, 9 to 30 percent slopes	9 to 30	105	127	142	155
1854	Ulysses	Ulysses loam, 1 to 3 percent slopes	1 to 3	121	145	163	177
1855	Ulysses	Ulysses loam, 3 to 6 percent slopes	3 to 6	85	103	117	128

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Dundy County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1884	Valent	Valent complex, rolling and hilly	9 to 60	326	381	422	454
1896	Valent	Valent loamy sand, 3 to 9 percent slopes	3 to 9	366	427	473	508
1897	Valent	Valent sand, 0 to 3 percent slopes	0 to 3	323	378	419	450
1898	Valent	Valent sand, 3 to 9 percent slopes	3 to 9	342	399	443	476
1899	Valent	Valent sand, rolling	9 to 24	342	399	442	475
4226	Bolent	Bolent-Almeria complex, channeled, frequently flooded	0 to 2	344	401	444	478
4230	Calamus	Calamus coarse sand, rarely flooded	0 to 2	273	319	354	382
5615	Craft	Craft very fine sandy loam, channeled, frequently flooded	0 to 2	111	133	150	163
5859	Scoville	Scoville loamy sand, calcareous, 1 to 3 percent slopes	1 to 3	222	261	290	313
5942	Duroc	Duroc loam, 0 to 1 percent slopes	0 to 1	85	103	116	127
5973	Jayem	Jayem loamy sand, 0 to 3 percent slopes	0 to 3	88	106	120	131
6031	Tassel	Tassel-Ashollow-Rock outcrop complex, 9 to 60 percent slopes	9 to 60	82	100	113	124
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Fillmore County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	137	162	182	197
2834	Uly	Uly-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	136	161	180	195
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	160	189	211	229
3557	Hobbs	Hobbs silt loam, channeled, occasionally flooded	0 to 1	161	190	212	230
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	160	189	211	229
3641	Kezan	Kezan silt loam, channeled, frequently flooded	0 to 2	127	151	169	183
3731	Massie	Massie silty clay loam, frequently ponded	0 to 1	97	117	132	144
3775	Muir	Muir silt loam, rarely flooded	0 to 1	110	132	149	161
3776	Muir	Muir silt loam, 1 to 3 percent slopes	1 to 3	110	132	149	161
3777	Muir	Muir silt loam, 3 to 7 percent slopes	3 to 7	107	128	145	157
3812	Olbut	Olbut-Butler silt loams, 0 to 1 percent slopes	0 to 1	96	116	131	143
3817	Butler	Butler silty clay loam, 0 to 1 percent slopes	0 to 1	118	142	160	173
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3825	Crete	Crete silt loam, 1 to 3 percent slopes	1 to 3	107	129	146	158
3826	Crete	Crete silt loam, 3 to 7 percent slopes	3 to 7	107	129	146	158
3827	Crete	Crete silty clay loam, 0 to 1 percent slopes	0 to 1	93	112	127	138
3829	Crete	Crete silty clay loam, 1 to 3 percent slopes	1 to 3	93	112	127	138
3831	Crete	Crete silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	94	113	128	140
3837	Geary_variant	Geary silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	103	124	140	152
3839	Geary	Geary silty clay loam, 11 to 30 percent slopes	11 to 30	97	118	133	144
3840	Geary_variant	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	104	125	141	153
3846	Geary_variant	Geary silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	105	126	142	155
3851	Geary	Geary-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	110	132	148	161
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	153	180	202	219
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	153	181	203	220
3868	Hastings	Hastings silt loam, 3 to 7 percent slopes	3 to 7	143	169	189	205
3869	Hastings	Hastings silt loam, 7 to 11 percent slopes	6 to 11	143	169	189	205

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Fillmore County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
3870	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	127	150	169	183
3889	Holder_ variant	Holder silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	152	180	201	218
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3913	Scott	Scott silty clay loam, drained, frequently ponded	0 to 1	105	126	142	155
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
3953	Fillmore	Fillmore silt loam, drained, 0 to 1 percent slopes	0 to 1	125	149	168	182
3962	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	127	150	169	183
4100	Crete	Crete silt loam, thick solum, 0 to 1 percent slopes	0 to 1	112	135	151	165
7258	Deroin	Deroin silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	89	108	122	133
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	116	140	157	170
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	116	140	157	170
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Franklin County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2327	Inavale	Inavale fine sandy loam, rarely flooded	0 to 2	363	423	469	503
2333	Inavale	Inavale loamy sand, rarely flooded	0 to 3	273	320	355	383
2345	McCook	McCook fine sandy loam, rarely flooded	0 to 2	131	156	174	189
2347	McCook	McCook silt loam, rarely flooded	0 to 2	215	252	281	303
2360	Munjor	Munjor fine sandy loam, rarely flooded	0 to 2	429	499	552	593
2366	Munjor	Munjor loamy fine sand, rarely flooded	0 to 2	345	402	446	479
2375	Roxbury	Roxbury silt loam, rarely flooded	0 to 1	111	134	150	163
2512	Campus	Campus complex, 11 to 30 percent slopes	9 to 15	71	87	99	109
2536	Coly	Coly silt loam, 30 to 60 percent slopes	30 to 60	136	161	180	195
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	128	152	171	185
2557	Coly	Coly-Uly silt loams, 3 to 11 percent slopes, eroded	6 to 9	136	161	180	195
2558	Coly	Coly-Uly silt loams, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2559	Coly	Coly-Uly silt loams, 11 to 30 percent slopes	9 to 30	128	152	171	185
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2570	Holdrege	Nuckolls and Holdrege silt loams, 3 to 6 percent slopes	3 to 6	94	113	128	140
2571	Holdrege	Nuckolls and Holdrege silt loams, 6 to 11 percent slopes	6 to 9	94	114	128	140
2572	Holdrege	Nuckolls and Holdrege soils, 3 to 11 percent slopes, eroded	3 to 9	93	113	127	139
2573	Meadin	Nuckolls and Meadin soils, 11 to 30 percent slopes	9 to 30	425	495	548	588
2583	Nuckolls	Nuckolls-Hobbs complex, 11 to 30 percent slopes	9 to 30	162	191	214	232
2608	Hersh	Hersh-Valentine complex, 0 to 6 percent slopes	1 to 6	194	228	255	275
2609	Hersh	Hersh-Valentine complex, 6 to 11 percent slopes	6 to 11	194	228	255	275
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	95	115	129	141
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	95	115	129	141
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	94	114	129	141
2817	Uly	Uly silt loam, 3 to 6 percent slopes	3 to 6	136	162	181	196
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	136	161	181	196
2830	Uly	Uly-Coly silt loams, 11 to 30 percent slopes	9 to 30	136	161	181	196
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Franklin County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	161	190	213	230
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	97	117	132	144
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	153	180	202	219
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	170	157	170
4123	Holdrege	Holdrege and Uly soils, 3 to 7 percent slopes, eroded	3 to 7	93	113	128	139
4138	Holdrege	Holdrege silt loam, 7 to 11 percent slopes	6 to 11	95	114	129	141
4160	Kipson	Kipson complex, 7 to 30 percent slopes	9 to 30	82	100	113	124
4168	Rock_outcrop	Rock Outcrop-Kipson complex, 7 to 45 percent slopes	7 to 45	--	--	--	--
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	346	403	447	480
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	346	403	447	480
4841	Valentine	Valentine loamy sand, hilly	15 to 60	365	425	471	506
4864	Valentine	Valentine-Hersh complex, 11 to 30 percent slopes	11 to 30	342	399	443	476
5151	Canyon	Canyon loam, 9 to 30 percent slopes	9 to 30	101	122	138	150
5156	Canyon	Canyon-Campus loams, 9 to 30 percent slopes	9 to 30	101	121	137	149
7262	Deroin	Deroin soils, 6 to 11 percent slopes, severely eroded	7 to 10	96	116	131	142
8469	Gibbon	Gibbon silt loam, rarely flooded	0 to 2	78	95	108	118
8581	Wann	Wann fine sandy loam, rarely flooded	0 to 2	108	130	146	159
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	148	275	195	212
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	117	140	157	171
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	116	139	157	170
8894	Wann	Wann silt loam, rarely flooded	0 to 2	174	205	229	247
9063	Kenesaw	Kenesaw silt loam, 0 to 1 percent slopes	0 to 1	203	238	266	287
9064	Kenesaw	Kenesaw silt loam, 1 to 3 percent slopes	1 to 3	203	238	266	287
9066	Kenesaw	Kenesaw silt loam, 3 to 6 percent slopes	3 to 6	203	238	266	287
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	108	130	146	159
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	211	247	276	297
9922	Ustorthents	Ustorthents, 3 to 30 percent slopes	3 to 30	271	317	352	379
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Frontier County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1532	Sulco	Sulco silt loam, 9 to 30 percent slopes	9 to 30	233	273	304	327
1534	Sulco	Sulco silt loam, 30 to 60 percent slopes	30 to 60	233	273	304	327
1586	Blackwood	Blackwood silt loam, 3 to 6 percent slopes	3 to 6	141	166	187	202
1588	Blackwood	Blackwood silt loam, 0 to 1 percent slopes	0 to 1	143	169	189	205
1589	Blackwood	Blackwood silt loam, 1 to 3 percent slopes	1 to 3	142	168	188	204
1619	Keith	Keith silt loam, 0 to 1 percent slopes	0 to 1	197	232	259	279
1620	Keith	Keith silt loam, 1 to 3 percent slopes	1 to 3	197	232	259	279
1629	Keith	Keith silt loam, 3 to 6 percent slopes	3 to 6	197	232	259	279
1694	McCash	McCash loamy very fine sand, 0 to 3 percent slopes	0 to 3	179	211	236	255
1695	McCash	McCash very fine sandy loam, 0 to 1 percent slopes	0 to 1	247	290	322	347
1833	Sulco	Sulco-Ulysses silt loams, 9 to 30 percent slopes, eroded	9 to 30	233	273	304	327
2114	McCook	McCook silt loam, wet, occasionally flooded	0 to 1	188	222	247	267
2177	McCook	McCook silt loam, occasionally flooded	0 to 2	173	204	228	247
2347	McCook	McCook silt loam, rarely flooded	0 to 2	192	226	252	272
2529	Uly	Coly and Uly silt loams, 11 to 30 percent slopes	9 to 30	138	163	183	198
2537	Coly	Coly silt loam, 6 to 11 percent slopes	7 to 11	128	152	171	185
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2541	Coly	Coly silt loam, 11 to 17 percent slopes, eroded	11 to 20	128	152	171	185
2549	Coly	Coly-Nuckolls silt loams, 11 to 30 percent slopes	9 to 30	128	152	171	185
2557	Coly	Coly-Uly silt loams, 3 to 11 percent slopes, eroded	6 to 9	128	152	171	185
2559	Coly	Coly-Uly silt loams, 11 to 30 percent slopes	9 to 30	128	152	171	185
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	92	112	126	137
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	92	111	125	137
2669	Holdrege	Holdrege silt loam, 1 to 3 percent slopes, eroded	1 to 3	91	110	125	136
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	90	109	124	135
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	90	109	124	135
2809	Coly	Uly and Coly silt loams, 6 to 11 percent slopes, eroded	6 to 9	128	152	171	185

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Frontier County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2810	Coly	Uly and Coly silt loams, 11 to 30 percent slopes	9 to 31	128	152	171	185
2818	Uly	Uly silt loam, 3 to 6 percent slopes, eroded	3 to 6	136	161	181	196
2819	Uly	Uly silt loam, 3 to 11 percent slopes	3 to 9	137	163	182	197
2820	Uly	Uly silt loam, 6 to 11 percent slopes	6 to 9	138	163	183	198
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	137	162	182	197
2830	Uly	Uly-Coly silt loams, 11 to 30 percent slopes	9 to 30	137	162	182	197
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	137	162	182	197
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	159	188	210	227
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	165	195	218	236
3715	Cozad	Cozad silt loam, rarely flooded	0 to 1	202	237	264	285
3951	Fillmore	Fillmore silt loam, occasionally ponded	0 to 1	124	149	167	181
4118	Holdrege	Holdrege and Keith silt loams, 1 to 3 percent slopes	1 to 3	107	129	145	158
4119	Holdrege	Holdrege and Keith silt loams, 1 to 3 percent slopes, eroded	1 to 3	108	130	147	159
4151	Holdrege	Holdrege-Coly silt loams, 1 to 3 percent slopes, eroded	1 to 3	92	112	126	137
4152	Holdrege	Holdrege-Coly silt loams, 3 to 7 percent slopes, eroded	3 to 6	92	112	126	137
4156	Holdrege	Holdrege-Uly silt loams, 1 to 3 percent slopes	1 to 3	90	109	123	134
4157	Holdrege	Holdrege-Uly silt loams, 3 to 7 percent slopes, eroded	3 to 6	88	107	121	132
5159	Canyon	Canyon-Sarben complex, 30 to 60 percent slopes	30 to 60	97	117	132	144
5161	Canyon	Canyon-Sulco-Rock outcrop complex, 17 to 60 percent slopes	30 to 60	71	86	99	108
5976	Jayem	Jayem loamy very fine sand, 0 to 3 percent slopes	0 to 3	172	202	226	244
5977	Jayem	Jayem loamy very fine sand, 1 to 3 percent slopes	1 to 3	185	217	243	262
6103	Sarben	Sarben loamy very fine sand, 20 to 60 percent slopes	20 to 60	158	187	209	226
6104	Sarben	Sarben loamy very fine sand, 3 to 6 percent slopes	3 to 6	158	187	209	226
6105	Sarben	Sarben loamy very fine sand, 3 to 9 percent slopes	3 to 9	151	178	199	216

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Frontier County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6106	Sarben	Sarben loamy very fine sand, 6 to 9 percent slopes	6 to 9	158	187	209	226
6316	Barney	Barney soils, frequently flooded	0 to 1	320	374	414	446
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	187	220	246	265
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	135	160	179	194
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	135	160	179	194
8843	Hall	Hall silt loam, 3 to 6 percent slopes	3 to 6	135	160	179	194
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	117	140	158	171
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	117	140	158	171
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	117	141	158	172
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Gage County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3391	Lancaster	Lancaster loam, 3 to 7 percent slopes	3 to 7	88	107	121	131
3641	Kezan	Kezan silt loam, channeled, frequently flooded	0 to 2	133	158	177	192
3642	Kezan	Kezan silt loam, occasionally flooded	0 to 2	133	158	177	192
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	112	135	152	165
3856	Edalgo	Edalgo silty clay loam, 11 to 20 percent slopes	8 to 20	65	79	91	100
4109	Hedville	Hedville cobbly loam, 7 to 30 percent slopes	6 to 30	75	91	104	114
4166	Kipson	Kipson-Sogn complex, 3 to 30 percent slopes	3 to 30	84	103	116	127
4167	Kipson	Kipson-Sogn-Rock outcrop complex, 11 to 60 percent slopes	12 to 60	84	103	116	127
4173	Lancaster	Lancaster loam, 7 to 11 percent slopes	7 to 11	88	107	121	131
4350	Chase	Chase silty clay loam, rarely flooded	0 to 1	83	101	114	125
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	112	135	151	164
7061	Muscotah	Muscotah silty clay loam, occasionally flooded	0 to 2	116	139	156	170
7102	Wymore	Wymore silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	79	97	109	120
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	146	173	193	209
7226	Burchard	Burchard clay loam, 2 to 6 percent slopes	2 to 6	60	73	84	92
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	111	134	150	163
7257	Deroin	Deroin silty clay loam, 2 to 6 percent slopes, eroded	2 to 5	89	108	122	133
7258	Deroin	Deroin silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	89	108	122	133
7266	Burchard	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	60	73	84	92
7268	Burchard	Burchard-Steinauer clay loams, 6 to 11 percent slopes, eroded	6 to 12	60	73	84	92
7344	Malmo	Malmo, eroded-Pawnee complex, 6 to 11 percent slopes	6 to 12	70	85	98	107
7349	Malmo	Malmo clay loam, 2 to 6 percent slopes, eroded	2 to 6	70	85	98	107
7411	Cortland	Cortland-Malmo complex, 6 to 11 percent slopes, eroded	6 to 12	207	243	271	293
7419	Morrill	Morrill loam, 11 to 17 percent slopes	12 to 17	142	168	188	204
7464	Otoe	Otoe silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	78	95	108	117
7469	Padonia	Padonia silty clay loam, 6 to 11 percent slopes	6 to 12	89	107	121	132

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Gage County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
7492	Filley	Filley fine sandy loam, 6 to 11 percent slopes	6 to 12	229	269	300	323
7493	Filley	Filley fine sandy loam, 11 to 17 percent slopes	12 to 18	229	269	300	323
7501	Pawnee	Pawnee clay loam, 4 to 8 percent slopes, eroded	4 to 8	71	86	99	108
7611	Steinauer	Steinauer clay loam, 11 to 30 percent slopes	11 to 30	68	82	95	104
7619	Steinauer	Steinauer clay loam, 30 to 50 percent slopes	30 to 50	68	82	95	104
7689	Wymore	Wymore silty clay loam, 0 to 2 percent slopes	0 to 2	79	97	109	120
7693	Wymore	Wymore silty clay loam, 2 to 6 percent slopes	2 to 7	79	97	109	120
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	150	178	199	216
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	148	175	196	213
7868	Nodaway	Nodaway silt loam, channeled, occasionally flooded	0 to 2	150	178	199	216
9906	Fluvaquents	Fluvaquents, silty, frequently flooded	0 to 1	106	127	143	156
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Garden County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1002	Bankard	Bankard loamy coarse sand, occasionally flooded	0 to 2	74	90	103	113
1300	Bayard	Bayard fine sandy loam, 1 to 3 percent slopes	1 to 3	154	182	204	221
1301	Bayard	Bayard fine sandy loam, 3 to 6 percent slopes	3 to 6	155	183	205	222
1305	Bayard	Bayard loam, 0 to 1 percent slopes	0 to 1	209	245	273	295
1307	Bayard	Bayard very fine sandy loam, 1 to 3 percent slopes	1 to 3	158	186	208	225
1326	Bayard	Bayard fine sandy loam, 0 to 1 percent slopes	0 to 1	154	182	204	221
1526	Blanche	Blanche loamy fine sand, 1 to 3 percent slopes	0 to 3	111	134	151	164
1545	Dailey	Dailey loamy fine sand, 0 to 3 percent slopes	0 to 3	297	347	385	415
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	200	235	262	283
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	165	195	218	236
1650	Kuma	Kuma loam, 0 to 1 percent slopes	0 to 1	158	187	209	226
1661	Lodgepole	Lodgepole silt loam, frequently ponded	0 to 1	111	134	151	164
1662	Lodgepole	Lodgepole silt loam, occasionally ponded	0 to 1	80	97	110	120
1830	Sulco	Sulco-McConaughy loams, 9 to 30 percent slopes	9 to 30	169	200	223	241
1831	Sulco	Sulco-McConaughy loams, 6 to 9 percent slopes, eroded	6 to 9	169	199	223	241
1838	Sidney	Sidney loam, 3 to 6 percent slopes	3 to 6	201	237	264	285
1841	Sidney	Sidney-Canyon complex, 6 to 9 percent slopes	6 to 9	199	234	261	282
1847	Sulco	Sulco loam, 30 to 60 percent slopes	30 to 60	170	200	224	242
1850	Sulco	Sulco-McConaughy complex, 3 to 6 percent slopes, eroded	3 to 6	169	199	223	241
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	326	381	423	454
1889	Valent	Valent fine sand, rolling	9 to 24	324	378	419	451
1891	Valent	Valent loamy fine sand, 0 to 3 percent slopes	0 to 3	327	382	424	455
1892	Valent	Valent loamy fine sand, 3 to 9 percent slopes	3 to 9	336	393	435	468
1893	Valent	Valent loamy fine sand, 6 to 9 percent slopes	8 to 9	348	405	449	483
4200	Almeria	Almeria fine sandy loam, channeled, frequently flooded	0 to 2	319	373	413	444
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Garden County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4455	Crowther	Crowther loam, 0 to 1 percent slopes	0 to 1	219	257	286	309
4456	Crowther	Crowther mucky peat	0 to 1	574	666	736	789
4470	Doughboy	Doughboy fine sandy loam, 0 to 3 percent slopes	0 to 3	119	142	160	174
4490	Dunday	Dunday loamy fine sand, 3 to 9 percent slopes	3 to 9	356	415	459	494
4524	Els	Els fine sand, calcareous, 0 to 3 percent slopes	0 to 2	331	386	428	460
4556	Elsmere	Elsmere loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	450	524	579	622
4635	Hoffland	Hoffland fine sandy loam, 0 to 1 percent slopes	0 to 1	386	450	498	535
4636	Hoffland	Hoffland fine sandy loam, frequently ponded	0 to 1	335	390	433	465
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	375	437	484	520
4643	Ipage	Ipage fine sand, calcareous, 0 to 3 percent slopes	0 to 3	360	419	465	499
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	564	655	724	776
4691	Marlake	Marlake mucky peat	0 to 1	194	228	254	275
4711	Nenzel	Nenzel loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	415	483	535	574
4712	Nenzel	Nenzel loamy fine sand, 0 to 3 percent slopes	0 to 3	364	424	470	505
4780	Valentine	Valentine complex, rolling and hilly	9 to 24	336	392	434	467
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	335	391	434	466
4807	Valentine	Valentine fine sand, rolling	9 to 24	335	391	434	466
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	348	405	449	483
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	329	384	425	457
4894	Wildhorse	Wildhorse fine sand, 0 to 3 percent slopes	0 to 3	340	397	440	473
4897	Wildhorse	Wildhorse-Hoffland complex, 0 to 3 percent slopes	0 to 3	340	397	440	473
4898	Wildhorse	Wildhorse-Ipage, calcareous complex, 0 to 3 percent slopes	0 to 3	337	393	436	468
5100	Alliance	Alliance loam, 0 to 1 percent slopes	0 to 1	115	138	155	168
5101	Alliance	Alliance loam, 1 to 3 percent slopes	1 to 3	148	175	196	212
5108	Alliance	Alliance-Rosebud loams, 1 to 3 percent slopes	1 to 3	168	199	222	240
5138	Busher	Busher-Tassel complex, 3 to 9 percent slopes	3 to 9	124	148	167	181

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Garden County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5140	Busher	Busher-Tassel complex, 9 to 20 percent slopes	9 to 20	122	147	165	179
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	144	170	191	207
5606	Broadwater	Broadwater loamy sand, channeled, frequently flooded	0 to 2	240	282	313	338
5648	Jankosh	Jankosh loam, rarely flooded	0 to 2	409	476	527	566
5650	Lemoyne	Lemoyne sand, rarely flooded	0 to 2	203	238	266	287
5651	Lewellen	Lewellen loam, rarely flooded	0 to 2	479	557	616	661
5652	Lewellen	Lewellen-McCuligan complex, rarely flooded	0 to 2	489	568	628	674
5668	Rushcreek	Rushcreek loam, rarely flooded	0 to 2	303	354	393	423
5845	Mitchell	Mitchell very fine sandy loam, 3 to 6 percent slopes	3 to 6	133	158	177	192
5846	Mitchell	Mitchell very fine sandy loam, 6 to 9 percent slopes	6 to 9	134	159	178	193
5849	Mitchell	Mitchell-Epping complex, 9 to 30 percent slopes	9 to 30	133	158	177	192
5858	Scoville	Scoville loamy fine sand, 0 to 3 percent slopes	0 to 3	210	247	275	297
5917	Ashollow	Ashollow-Tassel complex, 9 to 30 percent slopes	9 to 30	159	187	210	227
5925	Blueridge	Blueridge coarse sand, 6 to 30 percent slopes	6 to 30	238	279	310	334
5940	Dankworth	Dankworth loamy sand, 3 to 6 percent slopes	3 to 6	344	401	445	478
5942	Duroc	Duroc loam, 0 to 1 percent slopes	0 to 1	95	115	130	142
5965	Jayem	Jayem fine sandy loam, 0 to 3 percent slopes	0 to 3	147	173	194	210
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	147	174	195	211
5970	Jayem	Jayem loamy fine sand, 0 to 3 percent slopes	0 to 3	132	156	175	190
5972	Jayem	Jayem loamy fine sand, 3 to 6 percent slopes	3 to 6	119	143	161	175
6030	Tassel	Tassel-Ashollow-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	93	113	127	139
6034	Tassel	Tassel-Busher-Rock outcrop complex, 9 to 60 percent slopes	9 to 60	147	174	195	211
6094	Sarben	Sarben loamy fine sand, 0 to 3 percent slopes	0 to 3	89	108	122	133
6095	Sarben	Sarben loamy fine sand, 3 to 6 percent slopes	3 to 6	89	108	122	133

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Garden County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
6096	Sarben	Sarben loamy fine sand, 6 to 9 percent slopes	6 to 9	86	105	119	129
6097	Sarben	Sarben loamy fine sand, 9 to 20 percent slopes	9 to 20	95	115	130	141
6206	Epping	Epping-Rock outcrop complex, 30 to 60 percent slopes	30 to 60	130	154	172	187
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	248	290	323	348
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	398	463	513	551
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Garfield County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2540	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes, moist	6 to 60	179	211	236	255
2595	Hersh	Hersh fine sandy loam, 0 to 3 percent slopes	0 to 3	152	180	201	218
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	153	180	202	218
2597	Hersh	Hersh fine sandy loam, 6 to 11 percent slopes	6 to 11	153	180	202	218
2604	Hersh	Hersh-Gates complex, 0 to 3 percent slopes	0 to 3	152	180	201	218
2610	Hersh	Hersh-Valentine complex, 11 to 24 percent slopes	9 to 24	200	235	262	283
2611	Hersh	Hersh-Valentine complex, 11 to 30 percent slopes	11 to 30	153	180	202	218
2822	Uly	Uly silt loam, 11 to 17 percent slopes, eroded, moist	11 to 17	148	175	196	212
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	137	163	182	198
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	136	162	181	196
2833	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded, moist	17 to 30	148	175	196	212
2844	Uly	Uly-Coly silt loams, 6 to 11 percent slopes, eroded	6 to 11	136	161	180	195
2845	Uly	Uly-Coly silt loams, 11 to 17 percent slopes, eroded	11 to 17	136	161	180	195
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	166	196	219	237
4200	Almeria	Almeria fine sandy loam, channeled, frequently flooded	0 to 2	331	386	428	460
4265	Loup	Loup fine sandy loam, occasionally flooded	0 to 2	419	488	540	580
4351	Elsmere	Elsmere loamy fine sand, rarely flooded	0 to 2	390	454	503	540
4365	Ipage	Ipage loamy fine sand, terrace, 0 to 3 percent slopes	0 to 3	346	404	447	481
4376	Loup	Loup fine sandy loam, rarely flooded	0 to 2	455	529	585	628
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--
4533	Els	Els loamy sand, 0 to 3 percent slopes	0 to 2	412	480	531	570
4542	Els	Els-Ipage complex, 0 to 3 percent slopes	0 to 3	406	473	523	562
4545	Els	Els-Ipage fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Garfield County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4562	Elsmere	Elsmere-Selia loamy fine sands, 0 to 3 percent slopes	0 to 3	396	461	510	548
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	374	436	483	519
4650	Ipage	Ipage loamy sand, 0 to 3 percent slopes	0 to 3	362	422	468	503
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	360	420	466	500
4669	Loup	Loup fine sandy loam, frequently ponded	0 to 2	451	525	581	623
4687	Marlake	Marlake loamy fine sand, frequently ponded	0 to 1	425	495	547	587
4746	Tryon	Tryon loamy fine sand, 0 to 3 percent slopes	0 to 2	387	451	500	537
4751	Tryon	Tryon loamy fine sand, frequently ponded	0 to 2	374	435	482	518
4758	Tryon	Tryon-Ipage complex, 0 to 3 percent slopes	0 to 2	383	446	494	530
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	388	452	501	538
4807	Valentine	Valentine fine sand, rolling	9 to 24	356	415	460	495
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	357	417	462	496
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	340	396	440	472
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	355	414	459	493
4858	Valentine	Valentine-Els complex, 0 to 9 percent slopes	0 to 9	356	415	460	495
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	363	423	469	504
4866	Valentine	Valentine-Ipage fine sands, 1 to 30 percent slopes	24 to 30	359	418	463	498
6313	Barney	Barney loam, channeled, frequently flooded	0 to 2	547	635	702	753
6366	Obert	Obert silt loam, occasionally flooded	0 to 2	128	152	171	185
8469	Gibbon	Gibbon silt loam, rarely flooded	0 to 2	84	102	115	126
8585	Wann	Wann loam, rarely flooded	0 to 2	532	618	682	732
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	228	268	298	322
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	228	268	298	322
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	117	140	157	171
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	111	134	150	163
8927	Simeon	Simeon loamy sand, 3 to 30 percent slopes	3 to 30	276	323	359	386
9035	Gates	Gates very fine sandy loam, 1 to 3 percent slopes	1 to 3	137	162	182	197
9037	Gates	Gates very fine sandy loam, 3 to 6 percent slopes, eroded	3 to 6	136	162	181	196
9038	Gates	Gates very fine sandy loam, 6 to 11 percent slopes, eroded	6 to 11	144	171	191	207

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Garfield County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9040	Gates	Gates very fine sandy loam, 11 to 30 percent slopes	11 to 30	144	171	191	207
9082	Rusco_variant	Rusco variant silty clay loam, 0 to 1 percent slopes	0 to 1	284	333	369	397
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	432	503	556	597
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Gosper County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2541	Coly	Coly silt loam, 11 to 17 percent slopes, eroded	11 to 20	128	152	171	185
2559	Coly	Coly-Uly silt loams, 11 to 30 percent slopes	9 to 30	128	152	171	185
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	91	110	125	136
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	91	110	125	136
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	91	110	125	136
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	92	112	126	137
2819	Uly	Uly silt loam, 3 to 11 percent slopes	3 to 9	137	163	182	197
2820	Uly	Uly silt loam, 6 to 11 percent slopes	6 to 9	137	162	182	197
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	137	162	182	197
2830	Uly	Uly-Coly silt loams, 11 to 30 percent slopes	9 to 30	137	162	182	197
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	159	188	210	227
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	159	188	210	227
3715	Cozad	Cozad silt loam, rarely flooded	0 to 1	202	237	264	285
3912	Scott	Scott silty clay loam, frequently ponded	0 to 1	96	116	130	142
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
3954	Fillmore	Fillmore silt loam, drained, frequently ponded	0 to 1	114	136	153	167
4156	Holdrege	Holdrege-Uly silt loams, 1 to 3 percent slopes	1 to 3	90	109	123	134
4157	Holdrege	Holdrege-Uly silt loams, 3 to 7 percent slopes, eroded	3 to 6	88	107	121	132
8490	Gothenburg	Gothenburg fine sandy loam, frequently flooded	0 to 2	358	418	463	497
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	421	490	542	582
8502	Lex	Lex loam, rarely flooded	0 to 2	586	680	752	806
8504	Lex	Lex loam, saline-alkali, rarely flooded	0 to 2	489	569	629	674
8563	Platte	Platte loam, occasionally flooded	0 to 1	275	322	358	385
8810	Cozad	Cozad fine sandy loam, 0 to 1 percent slopes	0 to 1	119	143	161	174
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	225	264	294	317
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	202	237	264	285
8817	Cozad	Cozad silt loam, 3 to 6 percent slopes	3 to 6	202	237	264	285
8831	Gosper	Gosper loam, 0 to 1 percent slopes	0 to 2	194	228	254	275

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Gosper County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8832	Gosper	Gosper loam, saline-alkali, 0 to 1 percent slopes	0 to 2	339	395	438	471
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	130	155	173	188
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	130	155	173	188
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	116	139	156	169
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	116	139	156	169
8875	Hord	Hord silt loam, wet substratum, 0 to 1 percent slopes	0 to 1	117	141	158	172
9002	Anselmo	Anselmo fine sandy loam, 1 to 3 percent slopes	1 to 3	114	137	154	167
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	114	137	154	167
9006	Anselmo	Anselmo fine sandy loam, 6 to 11 percent slopes	6 to 11	114	137	154	167
9724	Ustorthents	Ustorthents, 17 to 60 percent slopes	17 to 60	105	127	143	155
9971	Arents	Arents, earthen dam	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Grant County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1545	Dailey	Dailey loamy fine sand, 0 to 3 percent slopes	0 to 3	90	110	124	135
1546	Dailey	Dailey loamy fine sand, 3 to 9 percent slopes	3 to 9	90	109	123	134
3160	Doger	Doger and Dunday loamy fine sands, 0 to 2 percent slopes	0 to 3	223	261	291	314
3161	Dunday	Doger and Dunday loamy fine sands, 2 to 11 percent slopes	3 to 6	146	173	194	210
4205	Almeria	Almeria loamy fine sand, channeled, frequently flooded	0 to 2	268	313	348	375
4242	Ord	Ord loam, 0 to 3 percent slopes	0 to 3	735	852	940	1006
4455	Crowther	Crowther loam, 0 to 1 percent slopes	0 to 1	293	343	381	410
4456	Crowther	Crowther mucky peat	0 to 1	591	686	758	812
4462	Cullison	Cullison loam, 0 to 1 percent slopes	0 to 1	110	132	149	162
4467	Cutcomb	Cutcomb mucky peat	0 to 1	2500	2883	3171	3380
4490	Dunday	Dunday loamy fine sand, 3 to 9 percent slopes	3 to 9	351	410	454	488
4518	Ipage	Ipage-Els complex, 0 to 3 percent slopes	0 to 3	366	426	472	507
4520	Hoffland	Els calcareous-Hoffland complex, 0 to 3 percent slopes	0 to 1	662	767	847	908
4521	Els	Els fine sand, 0 to 3 percent slopes	0 to 3	426	496	549	589
4524	Els	Els fine sand, calcareous, 0 to 3 percent slopes	0 to 2	331	386	428	460
4536	Els	Els, calcareous-Hoffland complex, 0 to 3 percent slopes	0 to 2	334	389	432	464
4545	Els	Els-Ipage fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	395	460	510	547
4556	Elsmere	Elsmere loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	436	508	562	603
4561	Elsmere	Elsmere-Loup complex, 0 to 3 percent slopes	0 to 2	301	352	391	420
4579	Gannett	Gannett mucky peat	0 to 1	593	688	759	814
4585	Gannett	Gannett-Loup fine sandy loams, 0 to 3 percent slopes	0 to 2	467	543	600	644
4586	Gannett	Gannett-Loup fine sandy loams, drained, 0 to 3 percent slopes	0 to 2	440	512	566	608
4591	Gus	Gus mucky peat	0 to 1	117	141	158	172
4635	Hoffland	Hoffland fine sandy loam, 0 to 1 percent slopes	0 to 1	449	522	578	620
4636	Hoffland	Hoffland fine sandy loam, frequently ponded	0 to 1	416	485	537	576

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Grant County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4643	Ipage	Ipage fine sand, calcareous, 0 to 3 percent slopes	0 to 3	375	437	484	520
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	468	544	602	646
4676	Loup	Loup-Gannett loamy fine sands, frequently ponded	0 to 2	356	415	460	495
4677	Loup	Loup-Gannett loamy fine sands, drained, 0 to 3 percent slopes	0 to 2	356	415	460	495
4680	Marlake	Marlake, frequently ponded	0 to 1	203	239	266	287
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	524	608	672	721
4691	Marlake	Marlake mucky peat	0 to 1	194	228	254	275
4711	Nenzel	Nenzel loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	322	376	417	448
4712	Nenzel	Nenzel loamy fine sand, 0 to 3 percent slopes	0 to 3	364	424	470	505
4750	Tryon	Tryon loamy fine sand, drained, 0 to 3 percent slopes	0 to 2	383	446	494	530
4751	Tryon	Tryon loamy fine sand, frequently ponded	0 to 2	383	446	494	530
4772	Valentine	Valentine-Tryon complex, 0 to 24 percent slopes	1 to 24	374	435	482	518
4780	Valentine	Valentine complex, rolling and hilly	9 to 24	364	425	471	506
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	364	424	470	505
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4800	Valentine	Valentine fine sand, hilly	17 to 60	343	400	443	476
4807	Valentine	Valentine fine sand, rolling	9 to 24	344	401	445	478
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	343	400	443	476
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	361	421	466	501
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	374	436	483	518
4865	Valentine	Valentine-Hoffland, complex, 0 to 24 percent slopes	3 to 24	376	438	485	521
4875	Valentine	Valentine-Dunday complex, 0 to 9 percent slopes	3 to 9	377	439	486	522
4894	Wildhorse	Wildhorse fine sand, 0 to 3 percent slopes	0 to 3	339	396	439	471
4895	Wildhorse	Wildhorse loamy fine sand, 0 to 3 percent slopes	0 to 3	341	398	441	474
4897	Wildhorse	Wildhorse-Hoffland complex, 0 to 3 percent slopes	0 to 3	423	492	544	584
4898	Wildhorse	Wildhorse-Ipage, calcareous complex, 0 to 3 percent slopes	0 to 3	337	393	436	468
9970	Aquolls	Aquolls	0 to 1	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Grant County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Greeley County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2540	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes, moist	6 to 60	179	211	236	255
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	128	152	171	185
2595	Hersh	Hersh fine sandy loam, 0 to 3 percent slopes	0 to 3	195	229	255	276
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	153	180	202	218
2597	Hersh	Hersh fine sandy loam, 6 to 11 percent slopes	6 to 11	153	180	202	218
2598	Hersh	Hersh fine sandy loam, 11 to 17 percent slopes	11 to 17	153	180	202	218
2605	Hersh	Hersh-Gates complex, 17 to 30 percent slopes	15 to 30	153	181	202	219
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	95	115	129	141
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	95	115	129	141
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	110	132	149	162
2672	Holdrege_ variant	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	50	61	71	78
2812	Uly	Uly and Coly silt loams, 11 to 30 percent slopes	9 to 31	143	170	190	206
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	136	161	181	196
2822	Uly	Uly silt loam, 11 to 17 percent slopes, eroded, moist	11 to 17	148	175	196	212
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	136	161	181	196
2824	Uly	Uly silt loam, 11 to 30 percent slopes, eroded	11 to 30	148	175	196	212
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	136	161	181	196
2833	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded, moist	17 to 30	148	175	196	212
2844	Uly	Uly-Coly silt loams, 6 to 11 percent slopes, eroded	6 to 11	135	160	180	195
2845	Uly	Uly-Coly silt loams, 11 to 17 percent slopes, eroded	11 to 17	148	175	196	212

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Greeley County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	165	195	218	236
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	165	195	218	236
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	114	137	154	167
3912	Scott	Scott silty clay loam, frequently ponded	0 to 1	95	115	129	141
4205	Almeria	Almeria loamy fine sand, channeled, frequently flooded	0 to 2	279	326	362	389
4266	Loup	Loup loam, occasionally flooded	0 to 1	676	783	864	926
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	148	175	196	212
4488	Dunday	Dunday loamy fine sand, 3 to 6 percent slopes	3 to 6	148	175	196	212
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	375	437	484	520
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	368	429	476	511
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	363	423	469	504
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4807	Valentine	Valentine fine sand, rolling	9 to 24	363	423	469	504
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	364	425	471	506
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	335	391	434	466
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	335	391	434	466
6313	Barney	Barney loam, channeled, frequently flooded	0 to 2	553	642	710	761
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	180	212	237	256
6383	Saltine	Saltine-Leshara silt loams, occasionally flooded	0 to 1	151	179	200	217
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	422	491	543	583
6513	Blendon	Blendon loam, 0 to 2 percent slopes	0 to 2	501	582	644	690
8418	Boel	Boel loam, occasionally flooded	0 to 2	774	897	989	1059
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	225	264	294	317
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	225	264	294	317
8817	Cozad	Cozad silt loam, 3 to 6 percent slopes	3 to 6	217	254	283	306
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	131	156	175	190
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	131	156	175	190
8864	Hord	Hord-Hastings complex, 3 to 6 percent slopes	3 to 6	115	138	155	169
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	119	143	160	174

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Greeley County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	119	143	160	174
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	119	143	160	174
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	289	337	375	403
9002	Anselmo	Anselmo fine sandy loam, 1 to 3 percent slopes	1 to 3	115	138	155	168
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	115	138	155	168
9029	Gates	Gates silt loam, 3 to 6 percent slopes, eroded	3 to 6	204	240	268	289
9030	Gates	Gates silt loam, 6 to 11 percent slopes, eroded	6 to 11	204	240	268	289
9032	Gates	Gates silt loam, 11 to 17 percent slopes, eroded	11 to 17	204	240	268	289
9042	Gates	Gates-Hersh complex, 0 to 3 percent slopes	0 to 3	118	142	159	173
9068	Kenesaw	Kenesaw very fine sandy loam, 0 to 1 percent slopes	0 to 1	151	179	200	217
9069	Kenesaw	Kenesaw very fine sandy loam, 1 to 3 percent slopes	1 to 3	151	179	200	217
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	154	182	203	220
9971	Arents	Arents, earthen dam	to	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hall County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1021	Caruso	Caruso loam, rarely flooded	0 to 2	346	403	447	481
2321	Inavale	Inavale fine sand, 0 to 3 percent slopes	0 to 3	163	193	216	233
2338	Inavale	Inavale loamy fine sand, very rarely flooded	0 to 3	255	298	332	357
2344	Inavale	Inavale loamy sand, 3 to 11 percent slopes, very rarely flooded	3 to 9	314	366	406	437
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	129	153	171	186
2537	Coly	Coly silt loam, 6 to 11 percent slopes	7 to 11	124	148	167	181
2599	Hersh	Hersh fine sandy loam, silty substratum, 3 to 6 percent slopes	3 to 6	110	132	149	162
2672	Holdrege	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	116	140	157	170
2813	Holdrege	Uly and Holdrege silt loams, 6 to 11 percent slopes	5 to 11	93	112	127	138
2816	Uly	Uly silt loam, 1 to 3 percent slopes, eroded	1 to 3	140	166	186	201
2818	Uly	Uly silt loam, 3 to 6 percent slopes, eroded	3 to 6	139	165	184	200
2825	Uly	Uly, eroded-Coly silt loams, 6 to 11 percent slopes	6 to 11	143	169	189	205
2826	Uly	Uly, eroded-Hobbs silt loams, 2 to 40 percent slopes	8 to 17	143	170	190	206
2841	Uly	Uly, eroded-Coly silt loams, 11 to 17 percent slopes	11 to 17	143	170	190	206
2843	Uly	Uly, Holdrege, and Coly soils, 6 to 11 percent slopes, eroded	5 to 11	137	162	182	197
3110	O'Neill	O'Neill and Pivot loams, 0 to 2 percent slopes	0 to 1	578	671	741	794
3156	Brocksburg	Brocksburg loam, 0 to 2 percent slopes	0 to 1	498	579	640	687
3182	Jansen	Jansen fine sandy loam, overblown, leveled	0 to 1	289	338	375	404
3268	O'Neill	O'Neill sandy loam, 2 to 6 percent slopes	2 to 6	403	469	519	558
3515	Lamo	Lamo silt loam, sand substratum, 0 to 1 percent slope	0 to 1	718	832	918	984
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	196	230	257	277
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	174	206	230	248
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	112	134	151	164
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	153	180	202	219
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	153	181	203	220
3870	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	127	151	169	183
3880	Holder	Holder silt loam, 1 to 3 percent slopes	1 to 3	131	156	174	189

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hall County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3881	Holder	Holder loam, 0 to 3 percent slopes, overblown	0 to 3	96	117	132	143
3885	Holder	Holder silt loam, 0 to 1 percent slopes	0 to 1	130	154	173	188
3887	Holder	Holder silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	88	106	120	131
3889	Holder	Holder silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	68	83	95	104
3912	Scott	Scott silty clay loam, frequently ponded	0 to 1	130	154	173	188
3947	Fillmore	Fillmore silty clay loam, occasionally ponded	0 to 1	132	156	175	190
3962	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	127	151	169	183
4131	Holdrege	Holdrege silt loam, 1 to 3 percent slopes, overblown	1 to 3	117	140	157	171
4207	Almeria	Almeria loamy sand, frequently flooded	0 to 2	402	468	518	556
4220	Bolent	Bolent fine sandy loam, occasionally flooded	0 to 2	384	448	496	533
4222	Bolent	Bolent loam, occasionally flooded	0 to 2	592	687	759	813
4225	Bolent	Bolent loamy sand, occasionally flooded	0 to 2	414	482	534	573
4227	Bolent	Bolent-Calamus complex, occasionally flooded	0 to 2	753	873	963	1031
4232	Calamus	Calamus loamy fine sand, rarely flooded	0 to 2	364	424	470	505
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	112	134	151	164
4461	Cullison	Cullison fine sandy loam, 0 to 1 percent slopes	0 to 1	116	139	156	170
4563	Els	Els-Tryon complex, 0 to 3 percent slopes	0 to 2	266	311	345	372
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	214	251	280	302
4657	Ipage	Ipage-Tryon, wet, complex, silty substratum, 0 to 3 percent slopes	0 to 3	429	500	553	594
4668	Loup	Loup fine sandy loam, loamy substratum, 0 to 2 percent slopes	0 to 2	248	291	323	348
4672	Loup	Loup loam, 0 to 3 percent slopes	0 to 1	544	631	698	748
4687	Marlake	Marlake loamy fine sand, frequently ponded	0 to 1	280	327	363	391
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	383	446	494	531
4807	Valentine	Valentine fine sand, rolling	9 to 24	383	447	495	531
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	383	447	495	531
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	355	414	459	493

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hall County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4828	Valentine	Valentine loamy fine sand, loamy substratum, 0 to 3 percent slopes	0 to 3	255	299	332	358
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	383	446	494	530
4867	Valentine	Valentine-Libory complex, 0 to 9 percent slopes	0 to 9	385	448	496	533
4890	Valentine	Valentine-Tryon, silty substratum, complex, 0 to 9 percent slopes	3 to 9	384	448	496	533
6310	Barney	Barney complex, channeled, frequently flooded	0 to 2	446	518	574	615
6322	Barney	Barney-Bolent complex, frequently flooded	0 to 2	431	502	555	596
6350	Leshara	Leshara and Gibbon silt loams	0 to 1	208	244	272	294
6513	Blendon	Blendon loam, 0 to 2 percent slopes	0 to 2	498	578	640	686
6527	Janude	Janude loam, calcareous, rarely flooded	0 to 1	430	500	554	594
6529	Janude	Janude sandy loam, very rarely flooded	0 to 2	118	142	160	173
6561	Thurman	Thurman fine sandy loam, 0 to 2 percent slopes	0 to 3	170	200	223	242
6572	Dunday	Thurman-Valentine loamy fine sands, terrace, 0 to 2 percent slopes	0 to 3	325	380	421	453
6579	Ortello	Ortello loam, 0 to 1 percent slopes	0 to 1	463	538	596	639
6645	Boelus	Boelus, O'Neill, and Pivot complex, 0 to 3 percent slopes	0 to 3	134	159	179	194
6700	Thurman	Thurman loamy fine sand, 0 to 2 percent slopes	0 to 2	301	351	390	420
6710	Thurman	Thurman loamy fine sand, loamy substratum, 0 to 3 percent slopes	0 to 3	115	138	155	169
6711	Thurman	Thurman loamy fine sand, loamy substratum, 2 to 6 percent slopes	3 to 6	180	212	237	256
6849	Ortello	Ortello fine sandy loam, silty substratum, 0 to 3 percent slopes	0 to 3	120	143	161	175
6857	Ortello	Ortello, silty substratum-Holder, overblown complex, 0 to 3 percent slopes	0 to 3	96	116	131	143
8402	Alda	Alda loam, rarely flooded	0 to 1	551	640	707	758
8404	Alda	Alda sandy loam, rarely flooded	0 to 2	406	473	523	562
8447	Cozad	Cozad, sand substratum-Hobbs, occasionally flooded, silt loams, 0 to 3 percent slopes	0 to 3	334	390	432	464
8451	Darr	Darr sandy loam, very rarely flooded	0 to 2	290	339	376	405
8460	Gayville	Gayville loam, rarely flooded	0 to 2	166	196	219	237
8467	Gibbon	Gibbon loam, saline, rarely flooded	0 to 1	268	313	348	375
8469	Gibbon	Gibbon silt loam, rarely flooded	0 to 2	469	546	604	648
8491	Gothenburg	Gothenburg loam, frequently flooded	0 to 2	452	526	582	624

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hall County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8506	Lex	Lex silt loam, rarely flooded	0 to 1	900	1041	1148	1229
8551	Silver_Creek	Silver Creek complex, saline-alkali, rarely flooded	0 to 2	127	150	169	183
8552	Silver_Creek	Silver Creek fine sandy loam, overblown, occasionally ponded	0 to 1	356	415	460	494
8568	Platte	Platte-Alda loams, channeled, frequently flooded	0 to 2	573	666	735	788
8570	Platte	Platte-Bolent complex, occasionally flooded	0 to 2	537	623	689	739
8572	Platte	Platte-Inavale complex, 0 to 6 percent slopes, occasionally flooded	0 to 2	745	863	952	1020
8585	Wann	Wann loam, rarely flooded	0 to 2	258	302	336	362
8588	Wann	Wann sandy loam, rarely flooded	0 to 2	294	343	381	410
8811	Cozad	Cozad loam, 0 to 1 percent slopes	0 to 1	508	590	652	699
8812	Cozad	Cozad loam, sand substratum, 0 to 3 percent slopes	0 to 3	508	590	652	699
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	111	134	150	163
8842	Hall	Hall silt loam, 1 to 3 percent slopes, eroded	1 to 3	104	126	142	154
8845	Hall	Hall silt loam, sandy substratum, 0 to 1 percent slopes	0 to 1	487	566	626	672
8847	Hall	Hall silt loam. 3 to 6 percent slopes, eroded	3 to 6	106	128	144	156
8849	Hall	Hall, eroded-Hobbs, silt loams, 0 to 3 perent slopes	1 to 3	106	127	144	156
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	172	202	226	245
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	123	147	165	179
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	122	146	164	178
8874	Hord	Hord silt loam, sandy substratum, 0 to 1 percent slopes	0 to 1	610	707	781	837
8900	Lockton	Lockton loam	0 to 1	456	531	587	630
8905	Ovina	Ovina fine sandy loam	0 to 2	89	108	122	133
8932	Simeon	Simeon sandy loam, 0 to 3 percent slopes	0 to 3	378	441	488	525
8960	Wood_River	Wood River silt loam, 0 to 1 percent slopes	0 to 1	507	589	651	699
8962	Wood_River	Wood River-Silver Creek fine sandy loams, 0 to 1 percent slopes	0 to 2	130	155	174	188
8963	Wood_River	Wood River-Silver Creek silt loams, 0 to 1 percent slopes	0 to 1	661	767	846	907
9025	Gates	Gates fine sandy loam, 0 to 3 percent slopes, hummocky	0 to 3	99	119	134	146
9026	Gates	Gates silt loam, 0 to 1 percent slopes	0 to 1	272	318	353	380
9027	Gates	Gates silt loam, 1 to 3 percent slopes	1 to 3	218	256	285	307
9028	Gates	Gates silt loam, 3 to 6 percent slopes	3 to 6	268	314	349	376

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hall County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9029	Gates	Gates silt loam, 3 to 6 percent slopes, eroded	3 to 6	230	270	300	323
9030	Gates	Gates silt loam, 6 to 11 percent slopes, eroded	6 to 11	169	199	222	240
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	100	121	136	148
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hamilton County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2333	Inavale	Inavale loamy sand, rarely flooded	0 to 3	247	290	322	347
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	136	161	180	195
2536	Coly	Coly silt loam, 30 to 60 percent slopes	30 to 60	136	161	180	195
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	136	161	180	195
2814	Uly	Uly silt loam, 0 to 1 percent slopes	0 to 1	145	171	192	208
2815	Uly	Uly silt loam, 1 to 3 percent slopes	1 to 3	145	171	192	208
2816	Uly	Uly silt loam, 1 to 3 percent slopes, eroded	1 to 3	140	166	186	201
2817	Uly	Uly silt loam, 3 to 6 percent slopes	3 to 6	136	162	181	196
2818	Uly	Uly silt loam, 3 to 6 percent slopes, eroded	3 to 6	139	165	184	200
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	136	162	181	196
2824	Uly	Uly silt loam, 11 to 30 percent slopes, eroded	11 to 30	141	168	188	203
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	175	206	230	249
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	175	206	230	249
3715	Cozad	Cozad silt loam, rarely flooded	0 to 1	173	203	227	246
3720	Detroit	Detroit silt loam, terrace, 0 to 1 percent slopes	0 to 1	104	125	141	153
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	100	121	136	148
3727	Detroit	Detroit silt loam, terrace, 1 to 3 percent slopes	1 to 3	85	103	116	127
3730	Massie	Massie silt loam, frequently ponded	0 to 1	104	126	142	154
3755	Hord	Hord silt loam, rarely flooded	0 to 1	122	146	164	178
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	171	202	225	244
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3835	Geary	Geary silt loam, 11 to 30 percent slopes	11 to 30	118	141	159	173
3837	Geary_variant	Geary silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	132	157	176	191
3840	Geary_variant	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	116	140	157	170
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	145	171	192	208
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	145	171	192	208
3870	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	127	151	169	183
3910	Scott	Scott silt loam, frequently ponded	0 to 1	117	140	158	171
3913	Scott	Scott silty clay loam, drained, frequently ponded	0 to 1	116	139	156	170
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	119	143	160	174

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hamilton County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3953	Fillmore	Fillmore silt loam, drained, 0 to 1 percent slopes	0 to 1	121	145	163	177
3962	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	127	151	169	183
6312	Barney	Barney loam, frequently flooded	0 to 1	612	710	784	841
6578	Ortello	Ortello fine sandy loam, 0 to 1 percent slopes	0 to 1	124	148	166	180
6726	Thurman	Thurman fine sandy loam, 11 to 30 percent slopes	11 to 30	196	231	257	278
6727	Thurman	Thurman fine sandy loam, 2 to 11 percent slopes	3 to 11	197	231	258	278
6843	Ortello	Ortello fine sandy loam, 1 to 3 percent slopes	1 to 3	124	148	166	180
6852	Ortello	Ortello loam, loamy substratum, 0 to 1 percent slopes	0 to 1	119	142	160	174
6853	Ortello	Ortello loam, loamy substratum, 1 to 3 percent slopes	1 to 3	122	146	164	178
6857	Ortello	Ortello, silty substratum-Holder, overblown complex, 0 to 3 percent slopes	0 to 3	96	116	131	143
8403	Alda	Alda loam, occasionally flooded	0 to 1	548	636	703	753
8405	Alda	Alda sandy loam, occasionally flooded	0 to 2	514	597	660	708
8446	Cozad	Cozad silt loam, wet substratum, rarely flooded	0 to 1	118	141	159	172
8458	Fonner_variant	Fonner variant loamy sand, occasionally flooded	0 to 2	954	1104	1216	1302
8491	Gothenburg	Gothenburg loam, frequently flooded	0 to 2	452	526	582	624
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	391	455	504	542
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	219	257	287	309
8563	Platte	Platte loam, occasionally flooded	0 to 1	471	548	606	650
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	173	203	227	246
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	116	140	157	170
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	122	147	165	179
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	119	143	160	174
9080	Rusco	Rusco silt loam, 0 to 1 percent slopes	0 to 1	128	152	170	185
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hamilton County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Harlan County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2117	McCook	McCook sand, occasionally flooded	0 to 1	210	247	275	296
2176	McCook	McCook loam, occasionally flooded	0 to 2	186	219	245	264
2326	Inavale	Inavale fine sandy loam, 0 to 3 percent slopes	0 to 3	244	285	317	342
2327	Inavale	Inavale fine sandy loam, rarely flooded	0 to 2	363	423	469	503
2347	McCook	McCook silt loam, rarely flooded	0 to 2	227	266	296	319
2355	Inavale	Inavale soils, occasionally flooded	0 to 2	305	356	395	425
2360	Munjor	Munjor fine sandy loam, rarely flooded	0 to 2	229	269	299	323
2366	Munjor	Munjor loamy fine sand, rarely flooded	0 to 2	194	228	254	275
2520	Coly	Coly and Hobbs silt loams	9 to 50	128	152	171	185
2526	Coly	Coly and Nuckolls silt loams, 11 to 30 percent slopes, eroded	9 to 31	128	152	171	185
2528	Coly	Coly and Uly silt loams, 3 to 11 percent slopes, eroded	6 to 9	128	152	171	185
2548	Coly	Coly-Nuckolls silt loams, 11 to 17 percent slopes, eroded	9 to 15	128	152	171	185
2549	Coly	Coly-Nuckolls silt loams, 11 to 30 percent slopes	9 to 30	128	152	171	185
2557	Coly	Coly-Uly silt loams, 3 to 11 percent slopes, eroded	6 to 9	128	152	171	185
2559	Coly	Coly-Uly silt loams, 11 to 30 percent slopes	9 to 30	128	152	171	185
2574	Uly	Nuckolls and Uly silt loams, 11 to 17 percent slopes	9 to 15	138	163	183	198
2575	Uly	Nuckolls and Uly silt loams, 11 to 30 percent slopes, eroded	9 to 31	137	162	182	197
2577	Nuckolls	Nuckolls, Uly, and Canlon soils, 11 to 30 percent slopes	9 to 31	162	191	214	231
2583	Nuckolls	Nuckolls-Hobbs complex, 11 to 30 percent slopes	9 to 30	162	232	214	232
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	92	112	126	138
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	94	114	128	140
2669	Holdrege	Holdrege silt loam, 1 to 3 percent slopes, eroded	1 to 3	93	113	127	138
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	93	113	127	138
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	94	113	128	139
2810	Coly	Uly and Coly silt loams, 11 to 30 percent slopes	9 to 31	128	152	171	185
2817	Uly	Uly silt loam, 3 to 6 percent slopes	3 to 6	136	162	181	196
2819	Uly	Uly silt loam, 3 to 11 percent slopes	3 to 9	138	163	183	198
2821	Uly	Uly silt loam, 6 to 11 percent slopes,	6 to 11	136	161	181	196

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Harlan County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
		eroded					
3541	Hobbs	Hobbs and McCook silt loams, occasionally flooded	0 to 1	165	195	218	236
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	159	188	210	227
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	160	189	211	229
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	159	188	210	227
3563	Hobbs	Hobbs-McCook silt loams, occasionally flooded	0 to 2	159	188	210	227
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	96	116	131	143
3731	Massie	Massie silty clay loam, frequently ponded	0 to 1	125	150	168	182
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	152	180	201	218
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3910	Scott	Scott silt loam, frequently ponded	0 to 1	101	122	138	150
4123	Uly	Holdrege and Uly soils, 3 to 7 percent slopes, eroded	3 to 7	136	161	180	195
4152	Holdrege	Holdrege-Coly silt loams, 3 to 7 percent slopes, eroded	3 to 6	92	112	126	137
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	345	402	446	479
8561	Platte	Platte and McCook soils	0 to 2	322	376	417	448
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	194	228	254	274
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	194	228	254	275
8817	Cozad	Cozad silt loam, 3 to 6 percent slopes	3 to 6	195	229	256	276
8860	Hord	Hord and Hall silt loams, 0 to 1 percent slopes	0 to 1	120	144	162	175
8861	Hord	Hord and Hall silt loams, 1 to 3 percent slopes	1 to 3	116	139	156	170
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	107	129	145	158
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	107	129	145	158
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	64	79	91	99
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	219	257	286	309
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hayes County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1118	Bankard	Bankard loamy sand, occasionally flooded	0 to 2	218	256	285	307
1355	Bridget	Bridget silt loam, 0 to 1 percent slopes	0 to 1	159	188	211	228
1356	Bridget	Bridget silt loam, 1 to 3 percent slopes	1 to 3	159	188	211	228
1357	Bridget	Bridget silt loam, 3 to 6 percent slopes	3 to 6	159	188	211	228
1414	Glenberg	Glenberg fine sandy loam, rarely flooded	0 to 2	309	361	400	430
1531	Sulco	Sulco silt loam, 6 to 9 percent slopes	6 to 9	233	273	304	327
1532	Sulco	Sulco silt loam, 9 to 30 percent slopes	9 to 30	233	273	304	327
1534	Sulco	Sulco silt loam, 30 to 60 percent slopes	30 to 60	233	273	304	327
1556	Blackwood	Blackwood loam, 0 to 1 percent slopes	0 to 1	78	95	108	118
1586	Blackwood	Blackwood silt loam, 3 to 6 percent slopes	3 to 6	141	166	187	202
1588	Blackwood	Blackwood silt loam, 0 to 1 percent slopes	0 to 1	143	169	189	205
1589	Blackwood	Blackwood silt loam, 1 to 3 percent slopes	1 to 3	142	168	188	204
1593	Sanborn	Haigler and Sanborn loams, rarely flooded	0 to 1	542	630	696	746
1619	Keith	Keith silt loam, 0 to 1 percent slopes	0 to 1	197	232	259	279
1620	Keith	Keith silt loam, 1 to 3 percent slopes	1 to 3	197	232	259	279
1629	Keith	Keith silt loam, 3 to 6 percent slopes	3 to 6	197	232	259	279
1695	McCash	McCash very fine sandy loam, 0 to 1 percent slopes	0 to 1	247	290	322	347
1696	McCash	McCash very fine sandy loam, 1 to 3 percent slopes	1 to 3	247	290	322	347
1826	Sulco	Sulco complex, 9 to 60 percent slopes	30 to 60	108	130	146	159
1833	Sulco	Sulco-Ulysses silt loams, 9 to 30 percent slopes, eroded	9 to 30	233	273	304	327
1859	Ulysses	Ulysses silt loam, 3 to 6 percent slopes	3 to 6	163	192	215	232
1861	Ulysses	Ulysses silt loam, 6 to 9 percent slopes, eroded	6 to 9	163	192	215	232
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	336	392	435	468
1889	Valent	Valent fine sand, rolling	9 to 24	336	392	435	468
1890	Valent	Valent fine sand, rolling and hilly	9 to 24	336	392	435	468
1899	Valent	Valent sand, rolling	9 to 24	339	396	439	472
2109	McCook	McCook silt loam, channeled, occasionally flooded	0 to 3	218	256	285	307
2177	McCook	McCook silt loam, occasionally flooded	0 to 2	449	523	578	621
2347	McCook	McCook silt loam, rarely flooded	0 to 2	207	243	271	292
2534	Coly	Coly silt loam, 17 to 30 percent slopes	17 to 30	128	152	171	185
3916	Scott_variant	Scott variant silty clay loam, frequently ponded	0 to 1	173	204	228	247
4262	Gannett_ variant	Gannett silt loam, occasionally flooded	0 to 2	1910	2204	2425	2593
5161	Canyon	Canyon-Sulco-Rock outcrop complex, 17 to 60 percent slopes	30 to 60	71	86	99	108

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hayes County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5945	Duroc	Duroc silt loam, 0 to 1 percent slopes	0 to 1	106	127	143	156
5946	Duroc	Duroc silt loam, 1 to 3 percent slopes	1 to 3	104	126	142	154
5970	Jayem	Jayem loamy fine sand, 0 to 3 percent slopes	0 to 3	114	136	153	167
5976	Jayem	Jayem loamy very fine sand, 0 to 3 percent slopes	0 to 3	172	202	226	244
5979	Jayem	Jayem loamy very fine sand, 3 to 6 percent slopes	3 to 6	185	218	243	263
6102	Sarben	Sarben loamy very fine sand, 0 to 3 percent slopes	0 to 3	158	187	209	226
6103	Sarben	Sarben loamy very fine sand, 20 to 60 percent slopes	20 to 60	158	187	209	226
6104	Sarben	Sarben loamy very fine sand, 3 to 6 percent slopes	3 to 6	158	187	209	226
6106	Sarben	Sarben loamy very fine sand, 6 to 9 percent slopes	6 to 9	158	187	209	226
6107	Sarben	Sarben loamy very fine sand, 9 to 20 percent slopes	9 to 20	158	187	209	226
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	171	202	225	244
9906	Fluvaquents	Fluvaquents, silty, frequently flooded	0 to 1	100	121	136	148
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hitchcock County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1003	Bankard	Bankard loamy fine sand, rarely flooded	0 to 2	218	256	285	308
1032	Haigler	Haigler fine sandy loam, 0 to 1 percent slopes	0 to 1	405	472	522	561
1042	Haigler	Haigler very fine sandy loam, rarely flooded	0 to 2	370	432	478	514
1073	Sanborn	Sanborn loam, rarely flooded	0 to 2	474	551	609	654
1300	Bayard	Bayard fine sandy loam, 1 to 3 percent slopes	1 to 3	415	483	535	574
1305	Bayard	Bayard loam, 0 to 1 percent slopes	0 to 1	575	668	738	791
1326	Bayard	Bayard fine sandy loam, 0 to 1 percent slopes	0 to 1	415	483	535	574
1355	Bridget	Bridget silt loam, 0 to 1 percent slopes	0 to 1	161	190	212	230
1356	Bridget	Bridget silt loam, 1 to 3 percent slopes	1 to 3	161	190	212	230
1357	Bridget	Bridget silt loam, 3 to 6 percent slopes	3 to 6	159	188	211	228
1406	Craft	Craft very fine sandy loam, rarely flooded	0 to 2	115	138	155	168
1414	Glenberg	Glenberg fine sandy loam, rarely flooded	0 to 2	309	361	400	430
1531	Sulco	Sulco silt loam, 6 to 9 percent slopes	6 to 9	233	273	304	327
1532	Sulco	Sulco silt loam, 9 to 30 percent slopes	9 to 30	233	273	304	327
1534	Sulco	Sulco silt loam, 30 to 60 percent slopes	30 to 60	233	273	304	327
1553	Benkelman	Benkelman very fine sandy loam, 0 to 2 percent slopes	0 to 2	111	133	150	163
1556	Blackwood	Blackwood loam, 0 to 1 percent slopes	0 to 1	78	95	108	118
1559	Blackwood	Blackwood loam, 1 to 3 percent slopes	1 to 3	81	98	111	121
1588	Blackwood	Blackwood silt loam, 0 to 1 percent slopes	0 to 1	168	198	222	240
1589	Blackwood	Blackwood silt loam, 1 to 3 percent slopes	1 to 3	142	168	188	204
1593	Sanborn	Haigler and Sanborn loams, rarely flooded	0 to 1	542	630	696	746
1615	Keith	Keith and Blackwood silt loams, 0 to 1 percent slopes	0 to 1	198	232	259	280
1619	Keith	Keith silt loam, 0 to 1 percent slopes	0 to 1	197	232	259	279
1620	Keith	Keith silt loam, 1 to 3 percent slopes	1 to 3	197	232	258	279
1629	Keith	Keith silt loam, 3 to 6 percent slopes	3 to 6	195	230	256	276
1630	Keith	Keith silt loam, 3 to 6 percent slopes, eroded	3 to 6	191	225	251	271
1632	Keith	Keith silt loam, 1 to 3 percent slopes, eroded	1 to 3	193	227	253	273
1661	Lodgepole	Lodgepole silt loam, frequently ponded	0 to 1	116	139	156	170
1703	Otero	Otero fine sandy loam, 0 to 1 percent slopes	0 to 1	104	126	142	154
1826	Sulco	Sulco complex, 9 to 60 percent slopes	30 to 60	231	271	301	325
1833	Sulco	Sulco-Ulysses silt loams, 9 to 30 percent slopes, eroded	9 to 30	233	273	304	327
1848	Sulco	Sulco loam, 6 to 9 percent slopes	6 to 9	106	128	144	157

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hitchcock County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1849	Sulco	Sulco loam, 9 to 30 percent slopes	9 to 30	105	127	142	155
1853	Sulco	Sulco-McConaughy complex, 3 to 6 percent slopes, eroded	3 to 6	232	272	303	326
1854	Ulysses	Ulysses loam, 1 to 3 percent slopes	1 to 3	121	145	163	177
1855	Ulysses	Ulysses loam, 3 to 6 percent slopes	3 to 6	85	103	117	128
1860	Ulysses	Ulysses silt loam, 3 to 6 percent slopes, eroded	3 to 6	222	260	290	312
1861	Ulysses	Ulysses silt loam, 6 to 9 percent slopes, eroded	6 to 9	224	263	293	316
1889	Valent	Valent fine sand, rolling	9 to 24	335	391	434	466
1899	Valent	Valent sand, rolling	9 to 24	342	399	442	475
2000	McCook	McCook loam, frequently flooded	0 to 1	154	182	203	220
2109	McCook	McCook silt loam, channeled, occasionally flooded	0 to 3	165	195	218	236
2112	McCook_ variant	McCook loam, sand substratum variant, occasionally flooded	0 to 1	1465	1992	1863	1992
2115	Inavale	Inavale soils, frequently flooded	0 to 2	296	346	384	413
2177	McCook	McCook silt loam, occasionally flooded	0 to 2	173	204	228	247
2302	McCook	McCook loam, rarely flooded	0 to 1	142	168	188	204
2347	McCook	McCook silt loam, rarely flooded	0 to 2	192	226	252	272
3916	Scott_variant	Scott variant silty clay loam, frequently ponded	0 to 1	173	204	228	247
4226	Bolent	Bolent-Almeria complex, channeled, frequently flooded	0 to 2	344	401	444	478
5153	Canyon	Canyon soils, 30 to 50 percent slopes	30 to 50	56	69	79	87
5612	Craft	Craft loam, channeled, frequently flooded	0 to 2	214	252	280	302
5615	Craft	Craft very fine sandy loam, channeled, frequently flooded	0 to 2	111	133	150	163
5626	Duroc	Duroc silt loam, terrace, 0 to 1 percent slopes	0 to 1	94	114	129	141
5627	Duroc	Duroc silt loam, terrace, 1 to 3 percent slopes	1 to 3	94	114	129	141
5636	Haverson	Haverson fine sandy loam, rarely flooded	0 to 1	159	188	210	227
5951	Dwyer	Dwyer-Valent loamy fine sands, 3 to 17 percent slopes	3 to 9	352	411	455	489
5962	Jayem	Jayem fine sandy loam, 0 to 1 percent slopes	0 to 1	256	300	333	359
5963	Jayem	Jayem fine sandy loam, 1 to 3 percent slopes	1 to 3	256	300	333	359
5970	Jayem	Jayem loamy fine sand, 0 to 3 percent slopes	0 to 3	274	320	356	383

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hitchcock County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6092	Sarben	Sarben fine sandy loam, 6 to 9 percent slopes	5 to 9	168	198	221	239
6095	Sarben	Sarben loamy fine sand, 3 to 6 percent slopes	3 to 6	252	295	328	353
6110	Sarben	Sarben fine sandy loam, 3 to 6 percent slopes	3 to 5	163	193	215	233
6111	Sarben	Sarben loamy fine sand, hummocky	1 to 3	158	187	209	226
6309	Barney	Barney loam, occasionally flooded	0 to 1	509	591	654	701
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	122	146	164	178
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Holt County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	320	373	414	445
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	294	344	382	411
2111	Inavale	Inavale loamy fine sand, occasionally flooded, wet	0 to 3	260	305	339	365
2118	Inavale	Inavale fine sand, channeled, frequently flooded, wet	0 to 3	295	345	383	412
2121	Inavale	Inavale loamy fine sand, rarely flooded, wet	0 to 2	317	370	410	441
2322	Inavale	Inavale fine sand, channeled, frequently flooded	0 to 3	333	389	431	464
2330	Inavale	Inavale fine sand, rarely flooded	0 to 2	320	373	414	445
2331	Inavale	Inavale loamy fine sand, rarely flooded	0 to 2	305	356	395	425
2346	Inavale	Inavale sand, channeled, frequently flooded	0 to 2	304	355	394	424
2817	Uly	Uly silt loam, 3 to 6 percent slopes	3 to 6	136	161	181	196
3105	Nimbro	Nimbro silt loam, 0 to 2 percent slopes	0 to 2	151	178	199	216
3150	Bristow	Bristow silty clay, 20 to 40 percent slopes	20 to 40	80	98	111	121
3151	Bristow	Bristow silty clay, 30 to 60 percent slopes	30 to 60	80	98	111	121
3183	Jansen	Jansen loam, 0 to 2 percent slopes	0 to 2	518	602	665	714
3184	Jansen	Jansen loam, 2 to 6 percent slopes	2 to 6	517	600	663	711
3193	Jansen	Jansen-Meadin loams, 2 to 6 percent slopes	2 to 6	514	598	661	709
3205	Josburg	Josburg fine sandy loam, 0 to 2 percent slopes	0 to 2	66	81	93	102
3206	Josburg	Josburg loam, 0 to 2 percent slopes	0 to 2	119	143	161	174
3220	Labu	Labu silty clay, 2 to 6 percent slopes	2 to 6	83	101	114	125
3221	Labu	Labu silty clay, 6 to 11 percent slopes	6 to 11	83	101	114	125
3225	Labu	Labu-Sansarc silty clays, 11 to 30 percent slopes	11 to 30	79	96	109	119
3226	Labu	Labu-Sansarc silty clays, 11 to 40 percent slopes	11 to 40	82	100	113	124
3230	Lynch	Lynch silty clay, 2 to 6 percent slopes	2 to 6	69	84	96	105
3231	Lynch	Lynch silty clay, 6 to 11 percent slopes	6 to 11	69	84	96	105
3245	Meadin	Meadin loam, 0 to 2 percent slopes	0 to 3	412	480	531	570
3252	Meadin	Meadin sandy loam, 0 to 2 percent slopes	0 to 3	304	355	394	424
3255	Meadin	Meadin sandy loam, 2 to 30 percent slopes	3 to 30	304	355	394	424
3259	Meadin	Meadin-O'Neill complex, 2 to 30 percent slopes	3 to 30	305	356	396	425
3260	O'Neill	O'Neill fine sandy loam, 0 to 2 percent slopes	0 to 2	335	391	434	466

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Holt County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3261	O'Neill	O'Neill fine sandy loam, 2 to 6 percent slopes	2 to 6	335	391	434	466
3264	O'Neill	O'Neill loam, 0 to 2 percent slopes	0 to 2	465	541	598	642
3266	O'Neill	O'Neill loamy sand, 0 to 2 percent slopes	0 to 3	275	322	357	384
3268	O'Neill	O'Neill sandy loam, 2 to 6 percent slopes	2 to 6	473	550	608	652
3270	O'Neill	O'Neill-Meadin fine sandy loams, 11 to 30 percent slopes	11 to 30	340	397	440	473
3271	O'Neill	O'Neill-Meadin fine sandy loams, 2 to 6 percent slopes	2 to 6	340	397	440	473
3273	O'Neill	O'Neill-Meadin fine sandy loams, 6 to 11 percent slopes	6 to 11	340	397	440	473
3283	Paka	Paka fine sandy loam, 0 to 2 percent slopes	0 to 2	85	104	118	128
3284	Paka	Paka fine sandy loam, 2 to 6 percent slopes	2 to 6	85	104	118	128
3285	Paka	Paka loam, 0 to 2 percent slopes	0 to 2	124	149	167	181
3286	Paka	Paka loam, 2 to 6 percent slopes	2 to 6	124	149	167	181
3287	Paka	Paka loam, 6 to 11 percent slopes, eroded	6 to 11	124	149	167	181
3320	Sansarc	Sansarc silty clay, 20 to 40 percent slopes	30 to 40	97	117	132	144
3325	Verdel	Verdel silty clay loam, 0 to 2 percent slopes	0 to 1	71	87	99	109
3340	Wewela	Wewela fine sandy loam, 0 to 2 percent slopes	0 to 2	82	100	113	124
3341	Wewela	Wewela fine sandy loam, 2 to 6 percent slopes	2 to 6	82	100	113	124
3342	Wewela	Wewela loam, 0 to 2 percent slopes	0 to 2	103	124	140	152
3523	Lamo	Lamo-Lute loams, 0 to 2 percent slopes	0 to 2	468	544	602	646
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	316	369	409	440
3951	Fillmore	Fillmore silt loam, occasionally ponded	0 to 1	119	143	160	174
4210	Almeria	Almeria-Calamus complex, channeled, frequently flooded	0 to 1	294	35	382	410
4215	Blackloup	Blackloup loam, rarely flooded	0 to 1	296	346	385	414
4216	Blackloup	Blackloup loam, occasionally flooded	0 to 1	383	447	495	531
4243	Ord	Ord loam, rarely flooded	0 to 2	470	547	605	649
4249	Ord	Ord-Lute fine sandy loams, rarely flooded	0 to 2	275	322	357	385
4351	Elsmere	Elsmere loamy fine sand, rarely flooded	0 to 2	390	454	503	540
4352	Elsmere	Elsmere fine sandy loam, rarely flooded	0 to 2	540	627	693	743
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	148	176	197	213
4374	Libory	Libory-Whitelake loamy fine sands, 0 to 3 percent slopes	0 to 3	106	127	143	156

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Holt County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--
4488	Dunday	Dunday loamy fine sand, 3 to 6 percent slopes	3 to 6	340	396	439	472
4498	Dunday	Dunday loamy sand, 0 to 3 percent slopes	0 to 3	334	389	432	464
4499	Dunday	Dunday loamy sand, 3 to 6 percent slopes	3 to 6	341	398	442	475
4512	Dunn	Dunn loamy sand, 0 to 3 percent slopes	0 to 3	154	182	204	221
4533	Els	Els loamy sand, 0 to 3 percent slopes	0 to 2	393	458	507	544
4542	Els	Els-Ipage complex, 0 to 3 percent slopes	0 to 3	401	468	518	556
4545	Els	Els-Ipage fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589
4548	Els	Els-Ipage-Tryon loamy sands, 0 to 6 percent slopes	0 to 3	412	480	531	570
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	448	521	577	619
4557	Elsmere	Elsmere loamy fine sand, clayey substratum, 0 to 3 percent slopes	0 to 2	266	311	346	373
4560	Elsmere	Elsmere-Ipage loamy fine sands, 0 to 3 percent slopes	0 to 3	441	513	568	609
4562	Elsmere	Elsmere-Selia loamy fine sands, 0 to 3 percent slopes	0 to 3	435	506	560	601
4576	Gannett	Gannett loam, 0 to 1 percent slopes	0 to 1	607	704	778	833
4579	Gannett	Gannett mucky peat	0 to 1	638	740	817	876
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	356	416	461	495
4650	Ipage	Ipage loamy sand, 0 to 3 percent slopes	0 to 3	401	467	517	555
4653	Ipage	Ipage sand, 0 to 3 percent slopes	0 to 3	374	436	483	519
4656	Ipage	Ipage-Tryon fine sands, 0 to 3 percent slopes	0 to 3	380	443	491	527
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	360	420	466	500
4669	Loup	Loup fine sandy loam, frequently ponded	0 to 2	454	528	585	627
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	541	628	694	745
4721	Pivot	Pivot loamy sand, 0 to 3 percent slopes	0 to 3	269	315	350	377
4722	Pivot	Pivot loamy sand, 3 to 9 percent slopes	3 to 6	269	315	350	377
4723	Pivot	Pivot-Valentine complex, 0 to 9 percent slopes	0 to 9	282	330	366	394
4746	Tryon	Tryon loamy fine sand, 0 to 3 percent slopes	0 to 2	370	431	478	513
4751	Tryon	Tryon loamy fine sand, frequently ponded	0 to 2	383	446	494	530
4756	Tryon	Tryon-Els loamy sands, 0 to 3 percent slopes	0 to 2	371	432	479	515
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	363	423	469	504

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Holt County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4796	Valentine	Valentine fine sand, 9 to 24 percent slopes	9 to 24	363	423	469	504
4807	Valentine	Valentine fine sand, rolling	9 to 24	363	423	469	504
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	363	423	469	504
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	325	379	420	452
4857	Valentine	Valentine-Dunday loamy fine sands, 3 to 9 percent slopes	3 to 9	346	404	448	481
4858	Valentine	Valentine-Els complex, 0 to 9 percent slopes	0 to 9	363	423	469	504
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	363	423	469	504
4871	Valentine	Valentine-Dunday loamy fine sands, 0 to 3 percent slopes	0 to 3	346	404	448	481
4881	Valentine	Valentine-Simeon sands, 3 to 9 percent slopes	3 to 9	338	395	438	471
4882	Valentine	Valentine-Simeon sands, 9 to 30 percent slopes, eroded	9 to 30	338	395	438	471
4888	Valentine	Valentine-Tryon fine sands, 0 to 17 percent slopes	3 to 17	343	400	444	477
4891	Valentine	Valentine-Wewela complex, 3 to 9 percent slopes	3 to 9	363	423	469	504
6301	Aowa	Aowa silt loam, channeled, frequently flooded	0 to 2	159	187	209	227
6304	Barney	Barney loam, frequently flooded, wet	0 to 2	675	783	864	926
6314	Barney	Barney silt loam, channeled, frequently flooded	0 to 1	410	477	528	567
6320	Barney	Barney-Boel-Calamus complex, channeled	0 to 1	484	563	622	668
6331	Lawet	Lawet loam, drained, rarely flooded	0 to 2	105	126	142	155
6345	Lawet	Lawet-Lute complex, rarely flooded	0 to 2	103	124	140	152
6359	Norway	Norway loamy fine sand, frequently flooded, wet	0 to 4	180	212	237	256
6500	Bazile	Bazile loam, 0 to 2 percent slopes	0 to 2	433	504	557	598
6575	Trent	Trent silt loam, 0 to 2 percent slopes	0 to 2	147	174	195	211
6578	Ortello	Ortello fine sandy loam, 0 to 1 percent slopes	0 to 1	144	170	191	207
6605	Bazile	Bazile loam, 2 to 6 percent slopes	2 to 6	424	494	547	587
6613	Bazile	Bazile silt loam, 0 to 2 percent slopes	0 to 2	475	552	611	655
6615	Bazile	Bazile silt loam, 2 to 6 percent slopes	2 to 6	503	584	646	692
6640	Boelus	Boelus loamy sand, 0 to 3 percent slopes	0 to 3	110	133	149	162
6641	Boelus	Boelus loamy sand, 3 to 6 percent slopes	3 to 6	89	109	123	134

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Holt County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6642	Boelus	Boelus loamy sand, 6 to 11 percent slopes	6 to 11	89	109	123	134
6643	Boelus	Boelus loamy sand, gravelly substratum, 0 to 3 percent slopes	0 to 3	243	285	316	341
6648	Boelus	Boelus-Meadin complex, 6 to 11 percent slopes	6 to 11	77	94	107	117
6662	Brunswick	Brunswick-Longpine fine sandy loams, 11 to 40 percent slopes	11 to 30	214	251	280	302
6663	Brunswick	Brunswick-Paka complex, 17 to 30 percent slopes	15 to 30	121	145	163	176
6665	Brunswick	Brunswick-Pivot complex, 11 to 30 percent slopes	11 to 30	216	254	282	305
6700	Thurman	Thurman loamy fine sand, 0 to 2 percent slopes	0 to 2	304	355	394	424
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	303	353	392	422
6723	Thurman	Thurman fine sand, 0 to 2 percent slopes	0 to 3	327	382	424	455
6746	Nora	Nora silt loam, 0 to 2 percent slopes	0 to 2	129	153	172	187
6753	Nora	Nora silt loam, 2 to 6 percent slopes	2 to 6	129	153	172	187
6765	Nora	Nora silty clay loam, 2 to 6 percent slopes	2 to 6	112	135	152	165
6791	Loretto	Loretto loam, 0 to 2 percent slopes	0 to 2	87	106	120	130
6792	Loretto	Loretto loam, 2 to 6 percent slopes	2 to 6	95	115	130	141
6804	Moody	Moody loam, 0 to 2 percent slopes	0 to 2	144	170	191	206
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	300	351	389	419
8420	Boel	Boel loamy fine sand, occasionally flooded	0 to 2	436	508	562	603
8422	Boel	Boel silty clay loam, overwash, occasionally flooded	0 to 2	447	520	576	618
8425	Boel	Boel-Inavale complex, channeled, frequently flooded	0 to 3	414	482	533	572
8427	Boel	Boel loamy fine sand, occasionally flooded, wet	0 to 2	414	482	533	572
8509	Lex	Lex-Lute loams, rarely flooded	0 to 2	408	475	526	565
8807	Anselmo	Anselmo-O'Neill sandy loams, 0 to 3 percent slopes	0 to 1	174	205	229	248
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	286	335	372	400
8929	Simeon	Simeon sand, 0 to 3 percent slopes	0 to 3	281	329	365	393
8931	Simeon	Simeon sand, 6 to 30 percent slopes, eroded	6 to 30	281	329	365	393
8947	Simeon	Simeon-Valentine sands, 11 to 60 percent slopes, eroded	15 to 30	278	326	362	389

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Holt County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	197	231	258	278
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	201	237	264	285
9010	Anselmo	Anselmo loam, 0 to 1 percent slopes	0 to 1	289	338	375	403
9020	Anselmo	Anselmo-O'Neill sandy loams, 3 to 6 percent slopes	2 to 6	176	208	232	251
9810	Riverwash	Riverwash	0 to 3	339	396	439	471
9905	Fluvaquents, _sandy	Fluvaquents, sandy-Fluvaquents, loamy complex, frequently flooded	0 to 1	464	540	597	641
9911	Fluvaquents	Fluvaquents, frequently flooded, wet	0 to 2	158	186	208	225
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hooker County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4211	Almeria	Almeria-Fluvaquents, sandy complex, channeled, frequently flooded	0 to 1	348	406	450	484
4226	Bolent	Bolent-Almeria complex, channeled, frequently flooded	0 to 2	295	345	383	412
4237	Calamus	Calamus-Bolent loamy fine sands, channeled, occasionally flooded	0 to 2	324	378	419	451
4390	Natick	Natick sand, 0 to 3 percent slopes	0 to 3	309	361	401	431
4391	Thedford	Thedford fine sand, 0 to 3 percent slopes	0 to 3	333	389	431	464
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--
4455	Crowther	Crowther loam, 0 to 1 percent slopes	0 to 1	356	415	460	494
4456	Crowther	Crowther mucky peat	0 to 1	591	686	758	812
4463	Cullison	Cullison mucky peat	0 to 1	130	154	173	188
4467	Cutcomb	Cutcomb mucky peat	0 to 1	2500	2883	3171	3388
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	355	414	459	493
4490	Dunday	Dunday loamy fine sand, 3 to 9 percent slopes	3 to 9	351	410	454	488
4518	Ipage	Ipage-Els complex, 0 to 3 percent slopes	0 to 3	366	426	472	507
4520	Hoffland	Els calcareous-Hoffland complex, 0 to 3 percent slopes	0 to 1	662	767	847	908
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	349	407	451	485
4556	Elsmere	Elsmere loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	450	524	579	622
4561	Elsmere	Elsmere-Loup complex, 0 to 3 percent slopes	0 to 2	301	352	391	420
4591	Gus	Gus mucky peat	0 to 1	117	141	158	172
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	399	465	514	552
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	488	567	627	673
4670	Loup	Loup mucky peat	0 to 1	490	569	630	675
4691	Marlake	Marlake mucky peat	0 to 1	663	769	849	909
4711	Nenzel	Nenzel loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	415	483	535	574
4712	Nenzel	Nenzel loamy fine sand, 0 to 3 percent slopes	0 to 3	364	424	470	505
4737	Clawhammer	Clawhammer-Ord complex, 0 to 3 percent slopes	0 to 1	170	201	225	--
4770	Mullen	Mullen loamy fine sand, 0 to 3 percent slopes	0 to 3	133	158	177	192

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Hooker County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4771	Valentine	Valentine-Mullen complex, 0 to 9 percent slopes	0 to 9	373	434	481	517
4772	Valentine	Valentine-Tryon complex, 0 to 24 percent slopes	1 to 24	374	435	482	518
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	314	367	407	438
4800	Valentine	Valentine fine sand, hilly	17 to 60	380	443	490	527
4807	Valentine	Valentine fine sand, rolling	9 to 24	374	435	482	518
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	374	435	482	518
4851	Valentine	Valentine-Birdwood complex, 9 to 80 percent slopes	9 to 80	372	433	480	515
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	374	436	583	518
4865	Valentine	Valentine-Hoffland, complex, 0 to 24 percent slopes	3 to 24	376	438	485	521
4867	Valentine	Valentine-Libory complex, 0 to 9 percent slopes	0 to 9	373	434	481	517
4875	Valentine	Valentine-Dunday complex, 0 to 9 percent slopes	3 to 9	377	439	486	522
4897	Wildhorse	Wildhorse-Hoffland complex, 0 to 3 percent slopes	0 to 3	423	492	544	584
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Howard County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1038	Grigston	Grigston silt loam	0 to 1	113	135	152	165
2288	Wann	Wann loam, occasionally flooded	0 to 2	144	171	191	207
2321	Inavale	Inavale fine sand, 0 to 3 percent slopes	0 to 3	163	193	216	233
2326	Inavale	Inavale fine sandy loam, 0 to 3 percent slopes	0 to 3	185	218	243	262
2329	Inavale	Inavale loam, 0 to 3 percent slopes	0 to 3	236	276	307	331
2335	Inavale	Inavale loamy fine sand, 0 to 3 percent slopes	0 to 3	152	180	201	218
2338	Inavale	Inavale loamy fine sand, very rarely flooded	0 to 3	255	298	332	357
2532	Coly	Coly silt loam, 11 to 30 percent slopes, moist	11 to 30	184	216	241	261
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	127	151	169	183
2535	Coly	Coly silt loam, 30 to 60 percent slopes, moist	30 to 60	184	216	241	261
2536	Coly	Coly silt loam, 30 to 60 percent slopes	30 to 60	129	153	172	186
2537	Coly	Coly silt loam, 6 to 11 percent slopes	7 to 11	127	151	169	183
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	129	153	172	186
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	129	153	172	186
2550	Coly	Coly-Uly complex, 17 to 30 percent slopes	15 to 31	127	151	169	183
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	129	153	172	186
2558	Coly	Coly-Uly silt loams, 6 to 11 percent slopes, eroded	6 to 11	129	153	172	186
2576	Nuckolls_ variant	Nuckolls soils, 17 to 30 percent slopes, severely eroded	15 to 31	128	152	171	185
2580	Coly	Coly silt loam, 3 to 6 percent slopes	3 to 6	129	153	172	186
2581	Nuckolls_ variant	Nuckolls variant soils, 11 to 17 percent slopes, severely eroded	11 to 15	128	152	171	185
2585	Nuckolls_ variant	Nuckolls variant soils, 7 to 11 percent slopes, severely eroded	7 to 11	128	152	171	185
2612	Harney	Harney silt loam, 0 to 1 percent slopes	0 to 1	119	143	160	174
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	104	125	141	154
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	104	125	141	154
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	110	132	149	162
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	104	126	141	154
2672	Holdrege_ variant	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	6	8	10	12

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Howard County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	137	162	181	197
2822	Uly	Uly silt loam, 11 to 17 percent slopes, eroded, moist	11 to 17	148	175	196	212
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	137	162	181	197
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	136	161	181	196
2833	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded, moist	17 to 30	148	175	196	212
2844	Uly	Uly-Coly silt loams, 6 to 11 percent slopes, eroded	6 to 11	135	160	180	195
2845	Uly	Uly-Coly silt loams, 11 to 17 percent slopes, eroded	11 to 17	148	175	196	212
3264	O'Neill	O'Neill loam, 0 to 2 percent slopes	0 to 2	726	841	928	994
3513	Lamo	Lamo silt loam, occasionally flooded	0 to 2	93	112	127	138
3529	Gibbon	Gibbon loam, occasionally flooded	0 to 2	87	106	120	131
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	165	195	218	236
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	165	195	218	236
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	153	181	203	219
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	88	107	121	132
3755	Hord	Hord silt loam, rarely flooded	0 to 1	113	136	153	166
4115	Holdrege_ variant	Holdrege variant silty clay loam, 7 to 11 percent slopes, severely eroded	5 to 11	6	8	10	12
4138	Holdrege	Holdrege silt loam, 7 to 11 percent slopes	6 to 11	104	126	142	154
4146	Holdrege	Holdrege silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	97	117	132	143
4213	Almeria	Almeria loam, occasionally flooded	0 to 2	379	441	489	525
4225	Bolent	Bolent loamy sand, occasionally flooded	0 to 2	414	482	534	573
4240	Ord	Ord fine sandy loam, rarely flooded	0 to 2	264	309	344	370
4243	Ord	Ord loam, rarely flooded	0 to 2	350	408	452	486
4258	Almeria	Almeria soils, occasionally flooded	0 to 2	440	512	566	608
4266	Loup	Loup loam, occasionally flooded	0 to 1	676	783	864	926
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	112	134	151	164
4372	Libory	Libory-Boelus fine sands	0 to 3	119	143	160	174
4373	Libory	Libory-Boelus loamy fine sands	0 to 3	94	114	128	140
4527	Els	Els loamy fine sand, 0 to 3 percent slopes	0 to 3	160	188	211	228
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	180	212	237	256

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Howard County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4563	Els	Els-Tryon complex, 0 to 3 percent slopes	0 to 2	266	311	345	372
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	368	429	476	511
4657	Ipage	Ipage-Tryon, wet, complex, silty substratum, 0 to 3 percent slopes	0 to 3	429	500	553	594
4668	Loup	Loup fine sandy loam, loamy substratum, 0 to 2 percent slopes	0 to 2	248	291	323	348
4775	Valentine	Valentine and Thurman soils, 0 to 17 percent slopes	0 to 17	341	398	441	474
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4807	Valentine	Valentine fine sand, rolling	9 to 24	341	398	441	474
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	335	391	434	466
4867	Valentine	Valentine-Libory complex, 0 to 9 percent slopes	0 to 9	385	448	496	533
5732	Darr	Darr fine sandy loam, rarely flooded	0 to 1	169	199	222	240
6312	Barney	Barney loam, frequently flooded	0 to 1	612	710	784	841
6529	Janude	Janude sandy loam, very rarely flooded	0 to 2	118	142	160	173
6532	Loretto	Loretto complex, 0 to 6 percent slopes	0 to 2	71	86	99	108
6533	Loretto	Loretto fine sandy loam, 0 to 2 percent slopes	0 to 2	71	87	99	109
6536	Loretto	Loretto-Valentine complex, 3 to 11 percent slopes	6 to 9	67	81	93	102
6560	Thurman	Thurman fine sand, 0 to 6 percent slopes	3 to 5	309	362	401	431
6565	Thurman	Thurman loamy fine sand, loamy substratum, 0 to 2 percent slopes	0 to 3	236	277	308	332
6572	Dunday	Thurman-Valentine loamy fine sands, terrace, 0 to 2 percent slopes	0 to 3	325	380	421	453
6578	Ortello	Ortello fine sandy loam, 0 to 1 percent slopes	0 to 1	236	277	308	332
6579	Ortello	Ortello loam, 0 to 1 percent slopes	0 to 1	313	366	406	436
6580	Ortello	Ortello loam, 1 to 5 percent slopes	2 to 5	313	366	406	436
6582	Ortello	Ortello loamy fine sand, 1 to 6 percent slopes	1 to 3	90	109	123	135
6700	Thurman	Thurman loamy fine sand, 0 to 2 percent slopes	0 to 2	301	351	390	420
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	301	351	390	420
6849	Ortello	Ortello fine sandy loam, silty substratum, 0 to 3 percent slopes	0 to 3	120	143	161	175
6859	Ortello	Ortello-Coly complex, 17 to 30 percent slopes	15 to 30	117	140	157	171

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Howard County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8415	Boel	Boel fine sandy loam, rarely flooded	0 to 2	587	681	752	806
8417	Boel	Boel loam, rarely flooded	0 to 2	864	1000	1102	1180
8418	Boel	Boel loam, occasionally flooded	0 to 2	774	897	989	1059
8419	Boel	Boel loamy fine sand, rarely flooded	0 to 2	467	543	600	644
8452	Darr	Darr silt loam, rarely flooded	0 to 1	281	328	365	393
8460	Gayville	Gayville loam, rarely flooded	0 to 2	166	196	219	237
8461	Gayville_ variant	Gayville variant silt loam, rarely flooded	0 to 2	197	231	258	279
8469	Gibbon	Gibbon silt loam, rarely flooded	0 to 2	109	131	147	160
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	344	401	445	478
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	219	257	287	309
8531	Novina	Novina sandy loam, rarely flooded	0 to 2	72	88	100	110
8541	Ovina	Ovina loam, rarely flooded	0 to 1	152	179	201	217
8551	Silver_Creek	Silver Creek complex, saline-alkali, rarely flooded	0 to 2	127	150	169	183
8557	Silver_Creek	Silver Creek-Slickspots complex, rarely flooded	0 to 2	86	105	119	130
8585	Wann	Wann loam, rarely flooded	0 to 2	258	302	336	362
8587	Wann	Wann sandy loam, occasionally flooded	0 to 2	105	127	143	156
8812	Cozad	Cozad loam, sand substratum, 0 to 3 percent slopes	0 to 3	212	249	277	299
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	225	264	294	317
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	144	171	191	207
8845	Hall	Hall silt loam, sandy substratum, 0 to 1 percent slopes	0 to 1	487	566	626	672
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	117	141	158	172
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	113	136	153	166
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	113	136	153	166
8874	Hord	Hord silt loam, sandy substratum, 0 to 1 percent slopes	0 to 1	610	707	781	837
8905	Ovina	Ovina fine sandy loam	0 to 2	89	108	122	133
8907	Ovina	Ovina loamy fine sand	0 to 3	118	141	159	172
8920	Rusco	Rusco silt loam, occasionally flooded	0 to 1	125	149	168	182
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	303	354	393	423
8962	Wood_River	Wood River-Silver Creek fine sandy loams, 0 to 1 percent slopes	0 to 2	130	155	174	188
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	114	137	154	168
9025	Gates	Gates fine sandy loam, 0 to 3 percent slopes, hummocky	0 to 3	99	119	134	146

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Howard County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9063	Kenesaw	Kenesaw silt loam, 0 to 1 percent slopes	0 to 1	213	250	278	300
9065	Kenesaw	Kenesaw silt loam, 1 to 6 percent slopes	1 to 3	213	250	278	300
9066	Kenesaw	Kenesaw silt loam, 3 to 6 percent slopes	3 to 6	238	279	310	334
9067	Kenesaw	Kenesaw silt loam, 6 to 11 percent slopes	5 to 11	213	250	278	300
9072	Kenesaw	Kenesaw-Cozad complex	0 to 1	213	250	278	300
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	100	121	136	148
9966	Blownout_land	Blown-out land	3 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Jefferson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2834	Uly	Uly-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	136	162	181	196
3184	Jansen	Jansen loam, 2 to 6 percent slopes	2 to 6	509	591	654	701
3185	Jansen	Jansen loam, 3 to 7 percent slopes, eroded	3 to 7	488	567	627	672
3186	Jansen	Jansen loam, 6 to 11 percent slopes	6 to 11	509	591	654	701
3247	Meadin	Meadin loam, 6 to 30 percent slopes	6 to 30	382	445	493	530
3361	Edalgo	Edalgo silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	53	66	76	84
3392	Lancaster	Lancaster loam, 3 to 7 percent slopes, eroded	3 to 7	70	85	97	106
3404	Longford	Longford silty clay loam, 3 to 7 percent slopes, eroded	2 to 6	93	112	127	138
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	161	190	212	230
3557	Hobbs	Hobbs silt loam, channeled, occasionally flooded	0 to 1	161	190	212	230
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	157	185	207	224
3775	Muir	Muir silt loam, rarely flooded	0 to 1	110	132	149	161
3776	Muir	Muir silt loam, 1 to 3 percent slopes	1 to 3	111	134	150	163
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	162	191	214	231
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3825	Crete	Crete silt loam, 1 to 3 percent slopes	1 to 3	121	145	163	177
3831	Crete	Crete silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	109	131	147	160
3832	Crete	Crete silt loam, 7 to 11 percent slopes	7 to 11	121	145	163	177
3834	Geary_variant	Geary silty clay loam, 3 to 11 percent slopes, severely eroded	3 to 11	104	125	141	153
3839	Geary	Geary silty clay loam, 11 to 30 percent slopes	11 to 30	99	119	135	147
3840	Geary	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	99	119	135	147
3841	Geary_variant	Geary silty clay loam, 11 to 30 percent slopes, severely eroded	11 to 30	104	125	141	153
3846	Geary	Geary silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	100	121	137	149
3855	Edalgo	Edalgo silty clay loam, 7 to 11 percent slopes	7 to 11	53	66	76	84
3857	Jansen	Geary and Jansen soils, 7 to 11 percent slopes	5 to 11	504	585	647	694
3860	Jansen	Geary and Jansen soils, 11 to 30 percent slopes	11 to 30	504	585	647	694

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Jefferson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3861	Jansen	Geary and Jansen soils, 7 to 11 percent slopes, eroded	6 to 11	514	597	660	708
3862	Jansen	Geary and Jansen soils, 7 to 11 percent slopes, severely eroded	5 to 11	371	433	480	515
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	147	174	195	212
3867	Hastings_ variant	Hastings silty clay loam, 3 to 11 percent slopes, severely eroded	3 to 11	42	53	61	68
3868	Hastings	Hastings silt loam, 3 to 7 percent slopes	3 to 7	147	174	195	212
3869	Hastings	Hastings silt loam, 7 to 11 percent slopes	6 to 11	147	174	195	212
3870	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	127	151	170	184
3962	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	81	99	112	123
4108	Hedville	Hedville loam, 30 to 50 percent slopes	31 to 50	96	116	131	143
4110	Hedville	Hedville loam, 7 to 30 percent slopes	7 to 30	146	172	193	209
4161	Kipson	Kipson silt loam, 7 to 30 percent slopes	7 to 30	81	99	112	122
4162	Kipson	Kipson soils, 11 to 30 percent slopes	11 to 30	82	100	114	124
4170	Lancaster	Lancaster and Edalgo soils, 11 to 30 percent slopes	11 to 30	70	85	97	106
4173	Lancaster	Lancaster loam, 7 to 11 percent slopes	7 to 11	71	86	99	108
4175	Lancaster_ variant	Lancaster soils, 7 to 11 percent slopes, severely eroded	7 to 11	59	72	83	91
6365	Obert	Obert soils, occasionally flooded	0 to 1	119	142	160	174
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	146	173	193	209
7217	Burchard	Burchard clay loam, 11 to 30 percent slopes	11 to 30	66	81	93	102
7226	Burchard	Burchard clay loam, 2 to 6 percent slopes	2 to 6	66	81	93	102
7227	Burchard	Burchard clay loam, 6 to 11 percent slopes	6 to 11	66	81	93	102
7228	Burchard	Burchard clay loam, 6 to 11 percent slopes, eroded	6 to 11	66	81	93	102
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	111	134	150	163
7257	Deroin	Deroin silty clay loam, 2 to 6 percent slopes, eroded	2 to 5	89	108	122	133
7258	Deroin	Deroin silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	89	108	122	133
7266	Burchard	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	60	73	84	92
7267	Burchard	Burchard-Steinauer clay loams, 11 to 30 percent slopes	11 to 30	61	75	87	95
7268	Burchard	Burchard-Steinauer clay loams, 6 to 11 percent slopes, eroded	6 to 12	60	73	84	92

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Jefferson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7297	Malcolm	Malcolm silt loam, 6 to 11 percent slopes, eroded	5 to 11	229	269	299	323
7344	Malmo	Malmo, eroded-Pawnee complex, 6 to 11 percent slopes	6 to 12	70	85	98	107
7347	Malmo	Malmo silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	74	90	103	112
7348	Malmo	Malmo silty clay loam, 3 to 6 percent slopes, eroded	2 to 6	74	90	103	112
7349	Malmo	Malmo clay loam, 2 to 6 percent slopes, eroded	2 to 6	70	85	98	107
7350	Malmo	Malmo clay, 3 to 11 percent slopes, eroded	3 to 11	70	86	98	107
7411	Cortland	Cortland-Malmo complex, 6 to 11 percent slopes, eroded	6 to 12	207	243	271	293
7417	Morrill	Morrill clay loam, 11 to 30 percent slopes	11 to 30	73	89	102	112
7418	Morrill	Morrill clay loam, 6 to 11 percent slopes	6 to 11	73	89	102	112
7422	Morrill	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	77	94	106	116
7423	Morrill	Morrill clay loam, 3 to 6 percent slopes	3 to 7	73	89	102	112
7425	Morrill	Morrill clay loam, 3 to 6 percent slopes, eroded	3 to 7	73	89	101	111
7432	Morrill_variant	Morrill soils, 6 to 11 percent slopes, severely eroded	5 to 12	641	743	822	879
7464	Otoe	Otoe silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	78	95	108	117
7550	Benfield	Benfield silty clay loam, 11 to 30 percent slopes	11 to 30	67	81	93	102
7551	Benfield	Benfield silty clay loam, 3 to 11 percent slopes, eroded	3 to 9	67	81	93	102
7552	Benfield	Benfield silty clay loam, 6 to 11 percent slopes, eroded	7 to 11	67	81	93	102
7611	Steinauer	Steinauer clay loam, 11 to 30 percent slopes	11 to 30	68	82	95	104
7666	Mayberry	Mayberry silty clay loam, 3 to 6 percent slopes, eroded	3 to 7	107	128	145	157
7667	Mayberry	Mayberry silty clay loam, 6 to 11 percent slopes	7 to 11	72	88	101	110
7689	Wymore	Wymore silty clay loam, 0 to 2 percent slopes	0 to 2	79	97	109	120
7693	Wymore	Wymore silty clay loam, 2 to 6 percent slopes	2 to 7	79	97	109	120
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	150	178	199	216

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Jefferson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7868	Nodaway	Nodaway silt loam, channeled, occasionally flooded	0 to 2	150	178	199	216
8435	Cass	Cass loam, rarely flooded	0 to 2	332	387	429	462
8436	Cass	Cass loam, occasionally flooded	0 to 2	332	387	429	462
8870	Muir	Hord silt loam, 1 to 3 percent slopes	1 to 3	114	137	154	167
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	261	306	340	366
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Johnson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4163	Kipson	Kipson-Benfield complex, 11 to 25 percent slopes	11 to 25	81.1	98.9	111.9	122.3
7091	Wabash	Wabash silty clay, occasionally flooded	0 to 1	80.4	98.1	111.1	121.4
7095	Zoe	Zoe-Zook silty clay loams, occasionally flooded	0 to 1	100.7	121.6	137.0	149.1
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	79.7	97.3	110.2	120.3
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	124.5	149.1	167.4	181.7
7154	Kennebec	Kennebec-Nodaway silt loams, rarely flooded	0 to 4	123.3	147.7	165.9	180.0
7206	Aksarben	Aksarben silty clay loam, 2 to 6 percent slopes	2 to 6	69.6	84.8	97.2	106.5
7226	Burchard	Burchard clay loam, 2 to 6 percent slopes	2 to 6	59.5	73.0	84.1	92.4
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	96.1	116.3	131.2	142.9
7266	Steinauer	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	67.2	82.0	94.2	103.2
7268	Burchard	Burchard-Steinauer clay loams, 6 to 11 percent slopes, eroded	6 to 12	59.5	73.0	84.1	92.4
7270	Dickinson	Dickinson fine sandy loam, 6 to 11 percent slopes	6 to 11	117.3	140.7	158.2	171.8
7271	Dickinson	Dickinson fine sandy loam, 11 to 20 percent slopes	11 to 20	182.2	214.7	239.6	258.8
7296	Malcolm	Malcolm silt loam, 6 to 11 percent slopes	6 to 11	205.3	241.3	269.0	290.2
7299	Malcolm	Malcolm silt loam, 11 to 25 percent slopes	11 to 25	205.3	241.3	269.0	290.2
7344	Malmo	Malmo, eroded-Pawnee complex, 6 to 11 percent slopes	6 to 12	70.0	85.2	97.7	107.0
7349	Malmo	Malmo clay loam, 2 to 6 percent slopes, eroded	2 to 6	70.0	85.2	97.7	107.0
7350	Malmo	Malmo clay, 3 to 11 percent slopes, eroded	3 to 11	70.3	85.6	98.1	107.4
7411	Cortland	Cortland-Malmo complex, 6 to 11 percent slopes, eroded	6 to 12	207.1	243.4	271.2	292.6
7418	Morrill	Morrill clay loam, 6 to 11 percent slopes	6 to 11	73.3	89.1	102.0	111.6
7422	Morrill	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	78.2	95.6	108.3	118.4
7464	Otoe	Otoe silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	77.6	94.8	107.5	117.4
7492	Filley	Filley fine sandy loam, 6 to 11 percent slopes	6 to 12	229.3	269.1	299.5	322.8
7493	Filley	Filley fine sandy loam, 11 to 17 percent slopes	12 to 18	229.3	269.1	299.5	322.8
7501	Pawnee	Pawnee clay loam, 4 to 8 percent slopes, eroded	4 to 8	70.8	86.2	98.7	108.1
7511	Pawnee	Pawnee clay loam, 6 to 11 percent slopes	7 to 12	61.5	75.3	86.7	95.2

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Johnson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7515	Pawnee	Pawnee clay, 6 to 11 percent slopes, eroded	9 to 12	59.1	72.6	83.7	91.9
7549	Shelby	Shelby clay loam, 11 to 17 percent slopes	9 to 15	46.2	57.3	66.7	73.7
7596	Shelby	Shelby clay loam, 17 to 30 percent slopes	15 to 30	46.2	57.3	66.7	73.7
7610	Steinauer	Steinauer clay loam, 11 to 20 percent slopes	11 to 20	68.6	83.6	95.9	105.0
7611	Steinauer	Steinauer clay loam, 11 to 30 percent slopes	11 to 30	67.5	82.3	94.5	103.5
7669	Mayberry	Mayberry clay loam, 3 to 11 percent slopes	3 to 9	83.6	101.8	115.2	125.7
7689	Wymore	Wymore silty clay loam, 0 to 2 percent slopes	0 to 2	76.4	93.5	106.0	115.9
7693	Wymore	Wymore silty clay loam, 2 to 6 percent slopes	2 to 7	76.4	93.5	106.0	115.9
7695	Wymore	Wymore silty clay, 3 to 6 percent slopes, eroded	2 to 7	72.0	87.6	100.3	109.8
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	152.2	180.0	201.4	218.0
7863	Nishna	Nishna silty clay, occasionally flooded	0 to 1	79.3	96.8	109.7	119.8
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	148.2	175.4	196.4	212.6
7868	Nodaway	Nodaway silt loam, channeled, occasionally flooded	0 to 2	150.3	177.8	199.0	215.5
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Kearney County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2331	Inavale	Inavale loamy fine sand, rarely flooded	0 to 2	293	343	380	409
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	128	152	171	185
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2541	Coly	Coly silt loam, 11 to 17 percent slopes, eroded	11 to 20	128	152	171	185
2542	Coly	Coly-Kenesaw silt loams, 0 to 3 percent slopes	0 to 3	128	152	171	185
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	128	152	171	185
2558	Coly	Coly-Uly silt loams, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2559	Coly	Coly-Uly silt loams, 11 to 30 percent slopes	9 to 30	128	152	171	185
2580	Coly	Coly silt loam, 3 to 6 percent slopes	3 to 6	128	152	171	185
2595	Hersh	Hersh fine sandy loam, 0 to 3 percent slopes	0 to 3	153	181	202	219
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	153	181	202	219
2597	Hersh	Hersh fine sandy loam, 6 to 11 percent slopes	6 to 11	153	181	202	219
2609	Hersh	Hersh-Valentine complex, 6 to 11 percent slopes	6 to 11	194	228	255	275
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	94	114	128	140
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	94	114	128	140
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	94	114	128	140
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	94	114	128	140
2830	Uly	Uly-Coly silt loams, 11 to 30 percent slopes	9 to 30	136	161	181	196
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	160	189	211	229
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	167	197	220	238
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	160	189	211	229
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	98	119	134	146
3731	Massie	Massie silty clay loam, frequently ponded	0 to 1	97	117	132	144
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
4140	Holdrege	Holdrege silt loam, overblown, 0 to 1 percent slopes	0 to 1	95	115	130	141
4141	Holdrege	Holdrege silt loam, overblown, 1 to 3 percent slopes	1 to 3	95	115	130	141

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Kearney County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4257	Tryon	Tryon loamy fine sand, rarely flooded	0 to 1	387	451	500	537
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	111	133	150	163
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	346	403	447	480
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	346	403	447	480
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	346	403	447	480
4863	Valentine	Valentine-Els loamy fine sands, 0 to 9 percent slopes	3 to 9	346	403	447	480
8402	Alda	Alda loam, rarely flooded	0 to 1	515	598	661	709
8415	Boel	Boel fine sandy loam, rarely flooded	0 to 2	403	470	520	558
8465	Gibbon	Gibbon loam, rarely flooded	0 to 2	76	93	105	115
8467	Gibbon	Gibbon loam, saline, rarely flooded	0 to 1	99	119	134	146
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	323	377	418	450
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	421	490	542	582
8502	Lex	Lex loam, rarely flooded	0 to 2	432	503	557	597
8506	Lex	Lex silt loam, rarely flooded	0 to 1	900	1041	1148	1229
8511	Lex	Lex loam, saline, rarely flooded	0 to 1	374	436	483	519
8563	Platte	Platte loam, occasionally flooded	0 to 1	298	348	386	415
8581	Wann	Wann fine sandy loam, rarely flooded	0 to 2	206	242	270	291
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	114	137	155	168
8932	Simeon	Simeon sandy loam, 0 to 3 percent slopes	0 to 3	300	350	389	418
9063	Kenesaw	Kenesaw silt loam, 0 to 1 percent slopes	0 to 1	203	239	267	288
9064	Kenesaw	Kenesaw silt loam, 1 to 3 percent slopes	1 to 3	180	212	236	255
9066	Kenesaw	Kenesaw silt loam, 3 to 6 percent slopes	3 to 6	213	250	279	300
9070	Kenesaw	Kenesaw-Coly silt loams, 1 to 3 percent slopes	1 to 3	202	238	265	286
9080	Rusco	Rusco silt loam, 0 to 1 percent slopes	0 to 1	123	147	166	180
9726	Ustorthents	Ustorthents, steep	9 to 30	105	127	143	155
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Keith County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1009	Bankard	Bankard loamy sand, rarely flooded	0 to 2	282	330	366	394
1010	Bankard	Bankard loamy sand, channeled, frequently flooded	0 to 2	232	272	303	327
1011	Bankard	Bankard sand, rarely flooded	0 to 2	102	123	138	151
1050	Lexsworth	Lexsworth loam, very rarely flooded	0 to 1	503	585	647	694
1075	Norwest	Norwest loam, 0 to 2 percent slopes	0 to 2	338	395	438	470
1300	Bayard	Bayard fine sandy loam, 1 to 3 percent slopes	1 to 3	154	182	204	221
1307	Bayard	Bayard very fine sandy loam, 1 to 3 percent slopes	1 to 3	212	249	278	299
1351	Bridget	Bridget loam, 1 to 3 percent slopes	1 to 3	122	146	164	178
1355	Bridget	Bridget silt loam, 0 to 1 percent slopes	0 to 1	159	187	210	227
1370	Chappell	Chappell fine sandy loam, 0 to 3 percent slopes	0 to 3	352	410	455	489
1371	Chappell	Chappell-Alice-Broadwater complex, 0 to 3 percent slopes	0 to 3	274	320	356	383
1502	Altvan	Altvan loam, 1 to 3 percent slopes	1 to 3	664	769	849	910
1503	Altvan	Altvan loam, 3 to 6 percent slopes	3 to 6	664	769	849	910
1507	Altvan	Altvan-Dix complex, 6 to 30 percent slopes	6 to 15	441	513	568	610
1509	Altvan	Altvan-Eckley-Satanta complex, 3 to 9 percent slopes	3 to 9	277	324	360	387
1573	Dix	Dix gravelly loam, 3 to 20 percent slopes	3 to 20	281	328	365	392
1576	Dix	Dix-Sulco-Sarben complex, 20 to 60 percent slopes	20 to 60	333	389	431	463
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	182	214	239	258
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	187	220	246	266
1650	Kuma	Kuma loam, 0 to 1 percent slopes	0 to 1	157	185	207	224
1651	Kuma	Kuma loam, 1 to 3 percent slopes	1 to 3	157	185	207	224
1653	Kuma	Kuma silt loam, 1 to 3 percent slopes	1 to 3	166	196	219	236
1661	Lodgepole	Lodgepole silt loam, frequently ponded	0 to 1	93	113	127	139
1662	Lodgepole	Lodgepole silt loam, occasionally ponded	0 to 1	80	97	110	120
1726	Rosebud	Rosebud loam, 1 to 3 percent slopes	1 to 3	100	121	136	148
1728	Rosebud	Rosebud loam, 3 to 9 percent slopes	3 to 9	100	121	136	148
1740	Rosebud	Rosebud-Canyon loams, 3 to 6 percent slopes	3 to 6	144	170	191	206
1810	Satanta	Satanta loam, 0 to 1 percent slopes	0 to 1	193	228	254	274
1811	Satanta	Satanta loam, 1 to 3 percent slopes	1 to 3	194	228	255	275
1814	Satanta	Satanta loam, 3 to 6 percent slopes	3 to 6	194	228	255	275
1818	Satanta	Satanta very fine sandy loam, 1 to 3 percent slopes	1 to 3	168	198	222	239

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Keith County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1819	Satanta	Satanta very fine sandy loam, 3 to 6 percent slopes	3 to 6	229	268	299	322
1824	Satanta	Satanta-Dix complex, 3 to 9 percent slopes	3 to 9	197	231	258	278
1825	Satanta	Satanta-Johnstown-Altvan loams, 1 to 3 percent slopes	1 to 3	475	552	611	655
1830	Sulco	Sulco-McConaughy loams, 9 to 30 percent slopes	9 to 30	169	200	223	241
1831	Sulco	Sulco-McConaughy loams, 6 to 9 percent slopes, eroded	6 to 9	88	107	120	131
1836	Sulco	Sulco-Dix complex, 9 to 20 percent slopes	9 to 20	169	200	223	241
1847	Sulco	Sulco loam, 30 to 60 percent slopes	30 to 60	169	200	223	241
1848	Sulco	Sulco loam, 6 to 9 percent slopes	6 to 9	169	200	223	241
1899	Valent	Valent sand, rolling	9 to 24	365	426	472	507
3203	Johnstown	Johnstown-Satanta-Richfield loams, 0 to 2 percent slopes	0 to 2	402	468	518	557
4460	Cullison	Cullison fine sandy loam, very rarely flooded	0 to 2	97	117	132	144
4463	Cullison	Cullison mucky peat	0 to 1	129	154	172	187
4556	Elsmere	Elsmere loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	450	524	579	622
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	376	438	485	521
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	399	465	514	552
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	592	686	758	813
4711	Nenzel	Nenzel loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	415	483	535	574
4712	Nenzel	Nenzel loamy fine sand, 0 to 3 percent slopes	0 to 3	364	424	470	505
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	336	392	434	467
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	336	392	434	467
4799	Valentine	Valentine fine sand, gullied, 30 to 60 percent slopes	30 to 60	336	392	434	467
4807	Valentine	Valentine fine sand, rolling	9 to 24	336	392	434	467
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	335	391	434	466
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	361	421	466	501
4885	Valentine	Valentine-Tassel-Rock outcrop complex, 9 to 60 percent slopes	9 to 17	335	391	434	466
5288	Vetal	Vetal loamy fine sand, 0 to 3 percent slopes	0 to 3	188	221	247	267
5605	Broadwater	Broadwater loamy sand, frequently	0 to 1	254	298	331	356

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Keith County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
		flooded					
5606	Broadwater	Broadwater loamy sand, channeled, frequently flooded	0 to 2	240	282	313	338
5643	Janise	Janise loam, occasionally flooded	0 to 1	454	528	584	627
5644	Janise	Janise loam, drained, 0 to 3 percent slopes	0 to 2	182	214	239	258
5648	Jankosh	Jankosh loam, rarely flooded	0 to 2	348	406	449	483
5822	Duroc	Duroc loam, terrace, 0 to 1 percent slopes	0 to 1	78	96	109	119
5823	Duroc	Duroc loam, terrace, 1 to 3 percent slopes	1 to 3	78	96	109	119
5927	Blueridge	Blueridge-Altvan complex, 6 to 30 percent slopes	6 to 30	251	294	327	352
5942	Duroc	Duroc loam, 0 to 1 percent slopes	0 to 1	79	96	109	119
5945	Duroc	Duroc silt loam, 0 to 1 percent slopes	0 to 1	94	114	129	141
5946	Duroc	Duroc silt loam, 1 to 3 percent slopes	1 to 3	94	114	129	141
6030	Tassel	Tassel-Ashollow-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	93	113	127	139
6042	Tassel	Tassel-Otero-Rock outcrop complex, 15 to 60 percent slopes	15 to 60	146	173	194	210
6094	Sarben	Sarben loamy fine sand, 0 to 3 percent slopes	0 to 3	124	149	167	181
6095	Sarben	Sarben loamy fine sand, 3 to 6 percent slopes	3 to 6	152	179	201	217
6096	Sarben	Sarben loamy fine sand, 6 to 9 percent slopes	6 to 9	152	179	201	217
6097	Sarben	Sarben loamy fine sand, 9 to 20 percent slopes	9 to 20	124	149	167	181
6330	Lawet	Lawet loam, rarely flooded	0 to 2	127	151	169	183
8401	Alda	Alda fine sandy loam, occasionally flooded	0 to 1	352	411	455	489
8419	Boel	Boel loamy fine sand, rarely flooded	0 to 2	259	303	337	363
8492	Gothenburg	Gothenburg loamy sand, occasionally flooded	0 to 2	319	372	413	444
8494	Gothenburg	Gothenburg soils, occasionally flooded	0 to 1	302	353	392	422
8502	Lex	Lex loam, rarely flooded	0 to 2	434	505	559	600
8520	Merrick	Merrick loam, rarely flooded	0 to 2	87	106	120	131
8521	Merrick	Merrick sandy clay loam, very rarely flooded	0 to 1	103	124	139	152
8563	Platte	Platte loam, occasionally flooded	0 to 1	264	310	344	370
8581	Wann	Wann fine sandy loam, rarely flooded	0 to 2	173	204	227	246
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	415	483	534	574
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Keith County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Keya Paha County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	564	655	724	776
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	294	344	382	411
2322	Inavale	Inavale fine sand, channeled, frequently flooded	0 to 3	312	365	405	435
2325	Inavale	Inavale fine sand, 3 to 11 percent slopes	3 to 11	312	365	405	435
2360	Munjor	Munjor fine sandy loam, rarely flooded	0 to 2	217	255	284	306
3156	Brocksburg	Brocksburg loam, 0 to 2 percent slopes	0 to 1	723	838	924	990
3167	Hennings	Hennings fine sandy loam, 0 to 3 percent slopes	0 to 2	211	248	277	199
3170	Holt	Holt fine sandy loam, 0 to 2 percent slopes	0 to 2	293	342	380	409
3171	Holt	Holt fine sandy loam, 2 to 6 percent slopes	2 to 6	115	139	156	169
3172	Holt	Holt-Longpine fine sandy loams, 2 to 6 percent slopes	2 to 6	293	342	380	409
3173	Holt	Holt-Longpine fine sandy loams, 6 to 11 percent slopes	6 to 11	115	139	156	169
3177	Holt_variant	Holt variant fine sandy loam, 3 to 6 percent slopes	2 to 6	123	148	166	180
3178	Holt_variant	Holt variant loamy fine sand, 0 to 3 percent slopes	0 to 3	110	132	148	161
3179	Holt_variant	Holt variant loamy fine sand, 3 to 6 percent slopes	3 to 6	110	132	148	161
3180	Jansen	Jansen fine sandy loam, 0 to 2 percent slopes	0 to 2	362	422	467	502
3183	Jansen	Jansen loam, 0 to 2 percent slopes	0 to 2	787	911	1005	1076
3184	Jansen	Jansen loam, 2 to 6 percent slopes	2 to 6	743	861	949	1017
3192	Jansen	Jansen-Meadin loams, 0 to 2 percent slopes	0 to 3	564	655	724	776
3213	Longpine	Longpine loamy fine sand, 3 to 30 percent slopes	3 to 30	74	90	103	113
3214	Longpine	Longpine-Duda complex, 3 to 15 percent slopes	3 to 15	83	101	114	125
3215	Longpine	Longpine-Ronson-Duda complex, 15 to 70 percent slopes	30 to 70	211	247	276	297
3221	Labu	Labu silty clay, 6 to 11 percent slopes	6 to 11	82	100	114	124
3225	Labu	Labu-Sansarc silty clays, 11 to 30 percent slopes	11 to 30	82	100	114	124
3239	Mariaville	Mariaville-Keota silt loams, 11 to 60 percent slopes	15 to 60	185	218	244	263
3240	Mariaville	Mariaville-Paka loams, 11 to 40 percent slopes	15 to 40	138	163	183	198

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Keya Paha County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3244	Meadin	Meadin gravelly sandy loam, 2 to 30 percent slopes	3 to 30	307	358	398	428
3260	O'Neill	O'Neill fine sandy loam, 0 to 2 percent slopes	0 to 2	511	593	656	703
3261	O'Neill	O'Neill fine sandy loam, 2 to 6 percent slopes	2 to 6	511	594	656	704
3263	O'Neill	O'Neill fine sandy loam, 6 to 11 percent slopes	6 to 9	511	593	656	703
3265	O'Neill	O'Neill loamy fine sand, 0 to 2 percent slopes	0 to 3	377	439	486	522
3269	O'Neill	O'Neill-Meadin fine sandy loams, 0 to 2 percent slopes	0 to 3	495	575	636	682
3277	O'Neill	O'Neill-Valentine complex, 2 to 11 percent slopes	1 to 2	510	592	655	702
3283	Paka	Paka fine sandy loam, 0 to 2 percent slopes	0 to 2	75	92	105	114
3284	Paka	Paka fine sandy loam, 2 to 6 percent slopes	2 to 6	86	104	118	129
3285	Paka	Paka loam, 0 to 2 percent slopes	0 to 2	126	150	168	183
3291	Paka	Paka-Mariaville loams, 2 to 6 percent slopes	3 to 6	126	150	168	183
3292	Paka	Paka-Mariaville loams, 11 to 30 percent slopes	11 to 30	126	150	168	183
3298	Ree	Ree loam, 0 to 2 percent slopes	1 to 3	549	637	704	755
3299	Ree	Ree loam, clayey substratum, 0 to 2 percent slopes	0 to 2	118	141	159	172
3305	Reliance	Reliance silt loam, 2 to 6 percent slopes	2 to 6	662	767	847	907
3311	Ronson	Ronson-Anselmo fine sandy loams, 6 to 11 percent slopes	6 to 9	127	151	170	184
3312	Ronson	Ronson-Anselmo fine sandy loams, 6 to 30 percent slopes	9 to 30	127	151	170	184
3313	Ronson	Ronson-Longpine fine sandy loams, 0 to 2 percent slopes	0 to 3	127	151	170	184
3320	Sansarc	Sansarc silty clay, 20 to 40 percent slopes	30 to 40	98	118	133	145
3325	Verdel	Verdel silty clay loam, 0 to 2 percent slopes	0 to 1	72	87	100	110
3326	Verdel	Verdel silty clay loam, 2 to 6 percent slopes	3 to 6	72	87	100	110
3340	Wewela	Wewela fine sandy loam, 0 to 2 percent slopes	0 to 2	82	100	113	123
3341	Wewela	Wewela fine sandy loam, 2 to 6 percent slopes	2 to 6	82	100	113	123
4204	Almeria	Almeria loamy fine sand, occasionally flooded	0 to 2	268	314	349	376
4215	Blackloup	Blackloup loam, rarely flooded	0 to 1	296	346	385	414
4216	Blackloup	Blackloup loam, occasionally flooded	0 to 1	383	447	495	531

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Keya Paha County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4240	Ord	Ord fine sandy loam, rarely flooded	0 to 2	278	326	362	389
4241	Ord	Ord fine sandy loam, occasionally flooded	0 to 2	303	354	393	422
4248	Ord	Ord-Loup fine sandy loams, 0 to 1 percent slopes	0 to 2	256	300	334	359
4474	Duda	Duda loamy fine sand, 0 to 3 percent slopes	0 to 3	182	214	239	258
4475	Duda	Duda loamy fine sand, 3 to 6 percent slopes	3 to 6	182	214	239	258
4476	Duda	Duda-Fishberry loamy fine sands, 0 to 3 percent slopes	0 to 3	182	214	239	258
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	339	395	438	471
4502	Dunday	Dunday-Duda loamy fine sands, 0 to 3 percent slopes	0 to 3	339	395	438	471
4521	Els	Els fine sand, 0 to 3 percent slopes	0 to 3	389	453	501	538
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	432	503	556	597
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	378	440	488	524
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	457	531	587	630
4669	Loup	Loup fine sandy loam, frequently ponded	0 to 2	457	531	587	630
4687	Marlake	Marlake loamy fine sand, frequently ponded	0 to 1	398	464	514	551
4700	McKelvie	McKelvie loamy fine sand, 0 to 3 percent slopes	0 to 3	268	313	348	375
4702	McKelvie	McKelvie loamy fine sand, 9 to 30 percent slopes	9 to 30	270	316	352	378
4704	McKelvie	McKelvie-Fishberry-Rock outcrop complex, 11 to 60 percent slopes	11 to 60	270	316	352	378
4705	McKelvie	McKelvie-Rock outcrop complex, 30 to 60 percent slopes	20 to 60	270	316	352	378
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4800	Valentine	Valentine fine sand, hilly	17 to 60	364	425	471	506
4807	Valentine	Valentine fine sand, rolling	9 to 24	363	424	469	504
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	329	384	426	458
4827	Valentine	Valentine loamy fine sand, gently rolling	3 to 9	356	416	460	495
4838	Valentine	Valentine loamy sand, 0 to 3 percent slopes	0 to 3	339	395	438	471
4856	Valentine	Valentine-Duda complex, 3 to 9 percent slopes	3 to 9	364	424	470	505
4884	Valentine	Valentine-Longpine complex, rolling	6 to 17	365	426	472	507
4892	Valentine	Valentine-Wewela loamy fine sands, 3 to 6 percent slopes	3 to 6	356	416	460	495

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Keya Paha County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4893	Valentine	Valentine-Wewela loamy fine sands, 6 to 30 percent slopes	6 to 30	343	400	443	476
5220	Onita	Onita silt loam, 0 to 1 percent slopes	0 to 1	128	152	170	185
5252	Schamber	Schamber gravelly sandy loam, 9 to 30 percent slopes	11 to 30	494	574	634	680
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	228	267	297	321
5285	Vetal	Vetal loam, 0 to 1 percent slopes	0 to 1	281	328	364	392
5286	Vetal	Vetal loam, 1 to 3 percent slopes	1 to 3	303	354	393	423
5287	Vetal	Vetal loam, 3 to 6 percent slopes	3 to 6	225	264	294	317
6311	Barney	Barney fine sandy loam, frequently flooded	0 to 2	268	314	349	375
6319	Barney	Barney-Boel complex, channeled	0 to 2	262	307	341	367
6321	Barney	Barney-Bolent complex, channeled, occasionally flooded	0 to 1	283	331	368	396
7710	Albaton_ variant	Albaton silty clay, occasionally flooded	0 to 2	494	574	634	680
8435	Cass	Cass loam, rarely flooded	0 to 2	324	379	420	451
8437	Cass	Cass loam, channeled, frequently flooded	0 to 3	305	356	395	425
8935	Simeon	Simeon-Holt variant-Ronson complex, 6 to 17 percent slopes	6 to 17	202	237	264	285
8943	Simeon	Simeon-Valentine fine sands, 6 to 17 percent slopes, eroded	6 to 17	281	328	364	392
8945	Simeon	Simeon-Valentine loamy sands, 0 to 3 percent slopes	0 to 3	273	320	355	382
8946	Simeon	Simeon-Valentine loamy sands, 0 to 6 percent slopes	0 to 6	270	316	351	378
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	442	514	569	611
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	174	205	229	248
9012	Anselmo	Anselmo loamy fine sand, 0 to 3 percent slopes	0 to 3	153	181	203	220
9903	Fluvaquents, _sandy	Fluvaquents, sandy, frequently flooded	0 to 1	--	--	--	--
9905	Fluvaquents, _sandy	Fluvaquents, sandy-Fluvaquents, loamy complex, frequently flooded	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Kimball County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1186	Las_Animas	Las Animas loam, channeled, occasionally flooded	0 to 2	407	474	525	563
1301	Bayard	Bayard fine sandy loam, 3 to 6 percent slopes	3 to 6	88	107	121	132
1307	Bayard	Bayard very fine sandy loam, 1 to 3 percent slopes	1 to 3	158	186	208	225
1326	Bayard	Bayard fine sandy loam, 0 to 1 percent slopes	0 to 1	155	184	206	222
1327	Bayard	Bayard fine sandy loam, 0 to 3 percent slopes	0 to 3	86	104	118	129
1362	Bridget	Bridget very fine sandy loam, 1 to 3 percent slopes	1 to 3	118	142	159	173
1372	Chappell	Chappell-Bayard-Broadwater complex, 0 to 2 percent slopes	0 to 2	281	329	366	393
1414	Glenberg	Glenberg fine sandy loam, rarely flooded	0 to 2	414	482	534	573
1500	Altvan	Altvan fine sandy loam, 1 to 3 percent slopes	1 to 3	325	379	420	452
1501	Altvan	Altvan loam, 0 to 1 percent slopes	0 to 1	545	632	699	749
1508	Altvan	Altvan-Eckley complex, 3 to 9 percent slopes	3 to 9	278	325	361	388
1510	Altvan	Altvan-Eckley-Tassel complex, 3 to 9 percent slopes	3 to 9	278	325	361	388
1511	Altvan	Altvan-Satanta fine sandy loams, 1 to 3 percent slopes	1 to 3	337	393	436	468
1512	Altvan	Altvan-Satanta loams, 0 to 1 percent slopes	0 to 1	430	500	554	594
1524	Brownson	Brownson-Rosebud-Canyon loams, 0 to 3 percent slopes	0 to 3	75	91	104	113
1578	Eckley	Eckley and Altvan soils, 9 to 50 percent slopes	9 to 50	323	377	418	450
1617	Keith	Keith loam, 0 to 1 percent slopes	0 to 1	105	127	143	155
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	105	127	143	155
1650	Kuma	Kuma loam, 0 to 1 percent slopes	0 to 1	155	183	205	221
1660	Lodgepole	Lodgepole loam, occasionally ponded	0 to 1	154	182	204	221
1661	Lodgepole	Lodgepole silt loam, frequently ponded	0 to 1	159	188	211	228
1725	Rosebud	Rosebud loam, 0 to 1 percent slopes	0 to 1	131	155	174	189
1726	Rosebud	Rosebud loam, 1 to 3 percent slopes	1 to 3	102	123	138	150
1735	Rosebud	Rosebud-Blanche complex , 1 to 3 percent slopes	1 to 3	82	99	113	123
1739	Rosebud	Rosebud-Canyon loams, 1 to 3 percent slopes	1 to 3	127	151	169	184
1744	Rosebud	Rosebud-Hemingford loams, 0 to 1 percent slopes	0 to 1	82	99	113	123

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Kimball County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1745	Rosebud	Rosebud-Tassel sandy loams, 0 to 3 percent slopes	0 to 3	90	109	123	134
1809	Satanta	Satanta fine sandy loam, 1 to 3 percent slopes	1 to 3	210	247	275	297
1843	Sidney	Sidney-Canyon loams, 6 to 9 percent slopes, eroded	6 to 9	236	277	308	332
5100	Alliance	Alliance loam, 0 to 1 percent slopes	0 to 1	117	140	158	171
5101	Alliance	Alliance loam, 1 to 3 percent slopes	1 to 3	117	140	158	171
5102	Alliance	Alliance loam, 3 to 6 percent slopes	3 to 6	194	228	254	275
5607	Broadwater	Broadwater loamy sand, channeled, occasionally flooded	0 to 2	256	300	333	359
5800	Albinas	Albinas-Cheyenne loams, rarely flooded	0 to 1	394	459	509	546
5866	Tripp	Tripp loam, 0 to 1 percent slopes	0 to 1	118	141	159	173
5867	Tripp	Tripp loam, 1 to 3 percent slopes	1 to 3	116	140	157	170
5942	Duroc	Duroc loam, 0 to 1 percent slopes	0 to 1	78	95	108	118
5949	Dwyer	Dwyer loamy fine sand, 9 to 17 percent slopes	9 to 17	167	197	220	237
5950	Dwyer	Dwyer loamy sand, 0 to 3 percent slopes	0 to 3	323	377	418	449
5965	Jayem	Jayem fine sandy loam, 0 to 3 percent slopes	0 to 3	98	119	134	146
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	98	119	134	146
6023	Dix	Tassel and Dix and Altvan soils, 9 to 30 percent slopes	9 to 30	299	350	388	418
6030	Tassel	Tassel-Ashollow-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	87	105	119	130
6032	Tassel	Tassel-Blanche complex, 9 to 30 percent slopes	9 to 30	83	102	115	125
6041	Tassel	Tassel-Blanche sandy loams, 3 to 9 percent slopes	3 to 9	88	107	121	132
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Knox County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain mDepth
2111	Inavale	Inavale loamy fine sand, occasionally flooded, wet	0 to 3	260	305	339	365
2118	Inavale	Inavale fine sand, channeled, frequently flooded, wet	0 to 3	295	345	383	412
2119	Inavale	Inavale fine sand, rarely flooded, wet	0 to 2	293	342	380	408
2120	Inavale	Inavale fine sandy loam, occasionally flooded, wet	0 to 3	456	531	587	630
2121	Inavale	Inavale loamy fine sand, rarely flooded, wet	0 to 2	317	370	410	441
2322	Inavale	Inavale fine sand, channeled, frequently flooded	0 to 3	333	389	431	464
2327	Inavale	Inavale fine sandy loam, rarely flooded	0 to 2	400	466	516	554
2330	Inavale	Inavale fine sand, rarely flooded	0 to 2	329	384	426	458
2331	Inavale	Inavale loamy fine sand, rarely flooded	0 to 2	309	361	401	431
2561	Eltree	Eltree silt loam, 0 to 3 percent slopes	0 to 2	136	161	181	196
2563	Eltree	Eltree silt loam, 3 to 6 percent slopes	2 to 6	133	158	177	192
3151	Bristow	Bristow silty clay, 30 to 60 percent slopes	30 to 60	80	98	111	121
3221	Labu	Labu silty clay, 6 to 11 percent slopes	6 to 11	82	100	113	124
3227	Labu	Labu-Sansarc complex, 11 to 30 percent slopes	11 to 30	82	100	113	123
3232	Lynch	Lynch-Bristow complex, 11 to 30 percent slopes	11 to 30	71	86	99	108
3235	Lynch	Lynch-Verdel complex, 6 to 11 percent slopes	6 to 11	71	86	99	108
3238	Mariaville	Mariaville very fine sandy loam, 2 to 30 percent slopes	3 to 30	150	177	199	215
3252	Meadin	Meadin sandy loam, 0 to 2 percent slopes	0 to 3	301	351	390	420
3259	Meadin	Meadin-O'Neill complex, 2 to 30 percent slopes	3 to 30	305	356	396	425
3267	O'Neill	O'Neill sandy loam, 0 to 2 percent slopes	0 to 2	475	552	610	655
3268	O'Neill	O'Neill sandy loam, 2 to 6 percent slopes	2 to 6	473	550	608	652
3285	Paka	Paka loam, 0 to 2 percent slopes	0 to 2	129	153	172	187
3286	Paka	Paka loam, 2 to 6 percent slopes	2 to 6	128	152	171	185
3287	Paka	Paka loam, 6 to 11 percent slopes, eroded	6 to 11	130	155	174	188
3290	Paka	Paka loam, 11 to 20 percent slopes	11 to 15	130	154	173	187
3321	Sansarc	Sansarc silty clay, 30 to 60 percent slopes	30 to 60	99	119	135	147
3323	Verdel	Verdel silty clay, 0 to 2 percent slopes, wet	0 to 1	72	87	100	109
3324	Verdel	Verdel silty clay, 2 to 6 percent slopes, wet	2 to 6	72	87	100	109
3327	Verdel	Verdel silty clay, 0 to 2 percent slopes	0 to 1	69	84	97	106
3328	Verdel	Verdel silty clay, 2 to 6 percent slopes	2 to 6	65	80	91	100
3329	Verdel	Verdel silty clay, 6 to 11 percent slopes	6 to 11	63	77	88	97

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Knox County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain mDepth
3330	Verdigre	Verdigre fine sandy loam, 11 to 30 percent slopes	11 to 30	89	108	122	133
3331	Verdigre	Verdigre fine sandy loam, 2 to 6 percent slopes	2 to 6	87	105	119	130
3332	Verdigre	Verdigre fine sandy loam, 6 to 11 percent slopes	6 to 11	90	109	123	135
3335	Verdigre	Verdigre loam, 2 to 6 percent slopes	2 to 6	102	123	138	150
3336	Verdigre	Verdigre loam, 6 to 11 percent slopes	6 to 11	101	122	138	150
3337	Verdigre	Verdigre loam, 11 to 30 percent slopes	11 to 30	102	123	139	151
3404	Longford	Longford silty clay loam, 3 to 7 percent slopes, eroded	2 to 6	92	112	126	137
3554	Hobbs	Hobbs silt loam, frequently flooded, wet	0 to 1	135	160	180	195
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	160	189	212	229
3617	Solomon	Solomon silty clay, occasionally flooded	0 to 2	64	78	90	98
3618	Solomon	Solomon silty clay, occasionally flooded, wet	0 to 2	169	199	223	241
3619	Solomon	Solomon silty clay, rarely flooded, wet	0 to 2	77	94	106	116
3641	Kezan	Kezan silt loam, channeled, frequently flooded	0 to 2	136	161	180	195
3642	Kezan	Kezan silt loam, occasionally flooded	0 to 2	147	174	195	211
3645	Kezan	Kezan silt loam, occasionally flooded, wet	0 to 2	104	126	142	154
3756	Hord	Hord silt loam, rarely flooded, wet	0 to 1	132	157	176	190
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	196	230	257	277
3910	Scott	Scott silt loam, frequently ponded	0 to 1	123	147	165	179
3926	Solomon	Sogn-Rock outcrop complex, 11 to 30 percent slopes	11 to 30	68	83	95	104
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	147	176	198	214
4182	Longford	Longford silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	92	112	126	137
4241	Ord	Ord fine sandy loam, occasionally flooded	0 to 2	287	336	373	401
4244	Ord	Ord loam, occasionally flooded	0 to 2	380	443	491	527
4250	Ord	Ord fine sandy loam, occasionally flooded, wet	0 to 2	352	411	455	489
4352	Elsmere	Elsmere fine sandy loam, rarely flooded	0 to 2	585	679	750	804
4354	Elsmere	Elsmere fine sandy loam, rarely flooded, wet	0 to 2	653	757	836	895
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	390	454	503	540
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4796	Valentine	Valentine fine sand, 9 to 24 percent slopes	9 to 24	363	423	469	504

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Knox County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain mDepth
5475	Betts	Betts clay loam, 11 to 15 percent slopes, eroded	11 to 15	69	84	97	106
5476	Betts	Betts clay loam, 15 to 30 percent slopes	15 to 30	69	84	96	105
5477	Betts	Betts clay loam, 30 to 60 percent slopes	30 to 60	69	84	97	106
5478	Betts	Betts clay loam, 6 to 11 percent slopes, eroded	6 to 11	69	84	96	105
5479	Betts	Betts clay loam, 6 to 15 percent slopes	6 to 15	73	89	102	111
6300	Aowa	Aowa silt loam, occasionally flooded	0 to 2	158	187	209	226
6301	Aowa	Aowa silt loam, channeled, frequently flooded	0 to 2	159	187	209	227
6302	Aowa	Aowa silt loam, channeled, frequently flooded, wet	0 to 2	112	135	152	165
6303	Aowa	Aowa silt loam, occasionally flooded, wet	0 to 2	110	132	148	161
6304	Barney	Barney loam, frequently flooded, wet	0 to 2	675	783	864	926
6312	Barney	Barney loam, frequently flooded	0 to 1	387	451	500	537
6323	Coleridge	Coleridge silt loam, occasionally flooded	0 to 2	123	148	166	180
6325	Coleridge	Coleridge silt loam, occasionally flooded, wet	0 to 2	135	160	180	1948
6357	Meckling	Leshara-Saltine silt loams, occasionally flooded	0 to 1	372	434	481	517
6358	Norway	Leshara-Saltine silt loams, occasionally flooded	0 to 1	209	246	274	296
6359	Norway	Norway loamy fine sand, frequently flooded, wet	0 to 4	180	212	237	256
6362	Obert	Obert silt loam, occasionally flooded, wet	0 to 2	122	146	164	178
6366	Obert	Obert silt loam, occasionally flooded	0 to 2	136	162	181	196
6369	Orwet	Orwet loam, rarely flooded	0 to 2	511	594	657	704
6370	Orwet	Orwet loam, rarely flooded, wet	0 to 2	627	728	803	861
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	188	221	247	266
6457	Inglewood	Inglewood loamy fine sand, rarely flooded	0 to 3	377	439	487	523
6500	Bazile	Bazile loam, 0 to 2 percent slopes	0 to 2	433	504	557	598
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	242	283	315	339
6533	Loretto	Loretto fine sandy loam, 0 to 2 percent slopes	0 to 2	67	82	94	103
6550	Sardak	Moody silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	445	518	573	615
6551	Sardak	Sardak loamy fine sand, 2 to 11 percent slopes, very rare flooding, wet	2 to 9	463	538	595	639
6557	Shell	Shell silt loam, occasionally flooded, wet	0 to 2	130	154	173	188

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Knox County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain mDepth
6561	Thurman	Thurman fine sandy loam, 0 to 2 percent slopes	0 to 3	335	391	434	466
6575	Trent	Trent silt loam, 0 to 2 percent slopes	0 to 2	146	173	194	210
6576	Trent	Trent silt loam, moderately wet, 0 to 2 percent slopes	0 to 2	139	165	184	200
6578	Ortello	Ortello fine sandy loam, 0 to 1 percent slopes	0 to 1	144	170	180	195
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	135	159	179	194
6601	Alcester	Alcester silt loam, 6 to 11 percent slopes	6 to 11	136	161	180	195
6605	Bazile	Bazile loam, 2 to 6 percent slopes	2 to 6	429	500	553	593
6606	Bazile	Bazile loam, 6 to 11 percent slopes	6 to 11	429	499	552	593
6608	Bazile	Bazile loamy fine sand, 0 to 2 percent slopes	0 to 2	222	261	290	313
6609	Bazile	Bazile loamy fine sand, 2 to 6 percent slopes	2 to 6	221	260	289	312
6610	Bazile	Bazile loamy fine sand, 6 to 11 percent slopes	6 to 11	221	260	289	312
6640	Boelus	Boelus loamy sand, 0 to 3 percent slopes	0 to 3	95	115	130	141
6641	Boelus	Boelus loamy sand, 3 to 6 percent slopes	3 to 6	95	115	130	141
6642	Boelus	Boelus loamy sand, 6 to 11 percent slopes	6 to 11	95	115	130	141
6659	Brunswick	Brunswick fine sandy loam, 6 to 11 percent slopes	6 to 11	118	142	159	173
6661	Paka	Brunswick-Paka complex, 6 to 17 percent slopes	6 to 11	107	129	145	157
6663	Brunswick	Brunswick-Paka complex, 17 to 30 percent slopes	15 to 30	121	145	163	176
6670	Thurman	Crofton-Thurman complex, 11 to 17 percent slopes, eroded	11 to 15	188	221	246	266
6671	Thurman	Crofton-Thurman complex, 17 to 30 percent slopes	15 to 30	187	220	246	265
6672	Thurman	Crofton-Thurman complex, 6 to 11 percent slopes, eroded	6 to 11	188	221	246	266
6673	Crofton	Crofton silt loam, 11 to 17 percent slopes, eroded	11 to 15	230	270	300	324
6674	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	230	270	300	324
6685	Crofton	Crofton silt loam, 2 to 6 percent slopes, eroded	2 to 6	117	140	158	171
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	118	142	160	173

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Knox County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain mDepth
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	117	140	158	171
6693	Crofton	Crofton-Nora complex, 2 to 6 percent slopes, eroded	2 to 6	229	268	299	322
6694	Crofton	Crofton-Nora complex, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6699	Crofton	Crofton-Nora silt loams, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6700	Thurman	Thurman loamy fine sand, 0 to 2 percent slopes	0 to 2	304	355	394	424
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	303	353	392	422
6723	Thurman	Thurman fine sand, 0 to 2 percent slopes	0 to 3	327	382	424	455
6724	Thurman	Thurman fine sand, 2 to 6 percent slopes	3 to 6	324	378	419	450
6726	Thurman	Thurman fine sandy loam, 11 to 30 percent slopes	11 to 30	337	393	436	469
6727	Thurman	Thurman fine sandy loam, 2 to 11 percent slopes	3 to 11	337	393	436	468
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	123	147	166	180
6758	Nora	Nora silty clay loam, 11 to 17 percent slopes	11 to 17	112	135	152	165
6761	Gavins	Gavins silt loam, 30 to 60 percent slopes	30 to 60	165	194	217	235
6765	Nora	Nora silty clay loam, 2 to 6 percent slopes	2 to 6	112	135	152	165
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	112	135	152	165
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	229	268	299	322
6790	Loretto	Loretto fine sandy loam, 2 to 6 percent slopes	2 to 6	64	78	90	99
6804	Moody	Moody loam, 0 to 2 percent slopes	0 to 2	144	170	191	206
6805	Moody	Moody loam, 2 to 6 percent slopes	2 to 6	144	170	191	206
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	142	168	188	204
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	142	168	188	204
6828	Redstoe	Redstoe silt loam, 6 to 11 percent slopes	6 to 11	174	205	229	248
6829	Redstoe	Redstoe-Gavins complex, 11 to 30 percent slopes	11 to 25	172	203	227	246
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	300	351	389	419
7708	Albaton	Albaton silty clay, frequently flooded, wet	0 to 1	59	72	83	92
7709	Albaton	Albaton silty clay, occasionally flooded, wet	0 to 2	59	72	83	92
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	63	77	89	97

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Knox County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain mDepth
7711	Albaton	Albaton silty clay, frequently flooded	0 to 1	111	134	150	163
7762	Onawa	Onawa silty clay, occasionally flooded, wet	0 to 2	90	109	123	135
7764	Blyburg	Blyburg silt loam, rarely flooded, wet	0 to 2	182	215	240	259
7765	Blyburg	Blyburg silt loam, rarely flooded	0 to 2	183	216	241	260
7804	Percival	Percival silty clay, rarely flooded	0 to 2	517	601	664	712
7805	Percival	Percival silty clay, rarely flooded, wet	0 to 2	287	335	372	401
7883	Onawa	Onawa silty clay, rarely flooded	0 to 2	96	109	123	135
8420	Boel	Boel loamy fine sand, occasionally flooded	0 to 2	452	526	582	624
8427	Boel	Boel loamy fine sand, occasionally flooded, wet	0 to 2	414	482	533	572
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	106	128	144	157
8482	Gibbon	Gibbon silt loam, occasionally flooded, wet	0 to 2	110	132	149	162
8595	Wann	Wann loam, occasionally flooded, wet	0 to 1	219	258	287	309
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	122	147	165	179
8926	Simeon	Simeon loamy sand, 0 to 6 percent slopes	0 to 6	283	331	368	396
8931	Simeon	Simeon sand, 6 to 30 percent slopes, eroded	6 to 30	283	331	368	396
8933	Simeon	Simeon sandy loam, 0 to 6 percent slopes	0 to 6	346	404	448	481
8938	Simeon	Simeon-Thurman complex, 6 to 30 percent slopes	6 to 30	289	337	375	403
9707	Urban_land	Urban land, 3 to 30 percent slopes	3 to 30	--	--	--	--
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	105	126	142	154
9911	Fluvaquents	Fluvaquents, frequently flooded, wet	0 to 2	215	252	281	303
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Lancaster County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	41	110	124	135
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	161	190	212	230
3640	Kezan	Kezan silt loam, frequently flooded	0 to 2	138	164	184	199
3641	Kezan	Kezan silt loam, channeled, frequently flooded	0 to 2	133	158	177	192
3709	Crete	Crete silt loam, terrace, 0 to 1 percent slopes	0 to 1	135	161	180	195
3713	Butler	Butler silt loam, terrace, 0 to 1 percent slopes	0 to 1	169	200	223	242
3785	Crete	Crete silty clay loam, terrace, 1 to 3 percent slopes	1 to 3	126	150	168	183
3786	Crete	Crete silty clay loam, terrace, 3 to 7 percent slopes	3 to 6	120	144	161	175
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	169	200	223	242
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3840	Geary	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	98	119	134	146
3921	Sogn	Sogn-Rock outcrop complex, 11 to 30 percent slopes	11 to 30	70	85	98	107
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	132	156	175	190
4101	Crete_variant	Crete variant silty clay loam, 1 to 4 percent slopes	1 to 4	69	84	96	105
4112	Hedville	Hedville sandy loam, 7 to 30 percent slopes	6 to 30	62	76	88	96
7015	Salmo	Salmo silt loam, occasionally flooded	0 to 1	114	137	154	167
7016	Salmo	Salmo silty clay loam, channeled, frequently flooded	0 to 1	79	97	110	120
7017	Salmo	Salmo silty clay loam, occasionally flooded	0 to 1	79	97	110	120
7049	Kenridge	Kenridge silty clay loam, occasionally flooded	0 to 2	108	130	146	159
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	112	135	151	164
7067	Saltillo	Saltillo silt loam, occasionally flooded	0 to 2	122	146	164	178
7091	Wabash	Wabash silty clay, occasionally flooded	0 to 1	81	98	112	122
7094	Zoe	Zoe silty clay loam, occasionally flooded	0 to 2	103	124	140	152
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	79	97	110	120
7155	Aksarben	Aksarben silty clay loam, terrace, 0 to 1 percent slopes	0 to 1	71	86	98	108
7205	Aksarben	Aksarben silty clay loam, 0 to 2 percent slopes	0 to 2	117	141	158	172
7206	Aksarben	Aksarben silty clay loam, 2 to 6 percent slopes	2 to 6	69	85	97	106

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Lancaster County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7207	Aksarben	Aksarben silty clay loam, 2 to 6 percent slopes	2 to 6	69	85	97	106
7211	Burchard	Burchard-Nodaway complex, 2 to 30 percent slopes	15 to 30	60	74	85	93
7227	Burchard	Burchard clay loam, 6 to 11 percent slopes	6 to 11	60	74	85	93
7229	Burchard	Burchard clay loam, 11 to 17 percent slopes	11 to 15	60	74	85	93
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	102	124	139	152
7232	Judson	Judson fine sandy loam, 2 to 6 percent slopes	2 to 6	62	76	87	96
7258	Deroin	Deroin silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	87	106	120	131
7266	Burchard	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	66	81	93	102
7267	Burchard	Burchard-Steinauer clay loams, 11 to 30 percent slopes	11 to 30	61	75	87	95
7268	Burchard	Burchard-Steinauer clay loams, 6 to 11 percent slopes, eroded	6 to 12	60	73	84	92
7270	Dickinson	Dickinson fine sandy loam, 6 to 11 percent slopes	6 to 11	186	220	245	265
7273	Dickinson	Dickinson fine sandy loam, 6 to 11 percent slopes, eroded	9 to 11	186	219	245	264
7296	Malcolm	Malcolm silt loam, 6 to 11 percent slopes	6 to 11	206	242	270	291
7297	Malcolm	Malcolm silt loam, 6 to 11 percent slopes, eroded	5 to 11	125	150	168	182
7299	Malcolm	Malcolm silt loam, 11 to 25 percent slopes	11 to 25	206	242	270	291
7344	Malmo	Malmo, eroded-Pawnee complex, 6 to 11 percent slopes	6 to 12	70	85	98	107
7349	Malmo	Malmo clay loam, 2 to 6 percent slopes, eroded	2 to 6	70	85	98	107
7351	Malmo	Malmo clay, 2 to 6 percent slopes, eroded	2 to 7	68	82	95	104
7353	Malmo	Malmo clay loam, 6 to 11 percent slopes, eroded	6 to 12	70	85	98	107
7411	Cortland	Cortland-Malmo complex, 6 to 11 percent slopes, eroded	6 to 12	207	243	271	293
7418	Morrill	Morrill clay loam, 6 to 11 percent slopes	6 to 11	77	95	107	117
7420	Morrill	Morrill clay loam, 11 to 17 percent slopes	11 to 15	77	95	107	117
7422	Morrill	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	80	98	111	121
7446	Morrill_variant	Morrill-Malmo, eroded, complex, 3 to 11 percent slopes	3 to 9	485	563	623	668

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Lancaster County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7464	Otoe	Otoe silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	78	95	108	117
7466	Otoe	Otoe silty clay, 6 to 11 percent slopes, eroded	5 to 9	78	95	108	117
7501	Pawnee	Pawnee clay loam, 4 to 8 percent slopes, eroded	4 to 8	71	86	99	108
7507	Pawnee	Pawnee clay loam, 6 to 11 percent slopes, eroded	6 to 11	58	72	83	91
7546	Burchard	Shelby and Burchard clay loams, 11 to 17 percent slopes	12 to 17	64	78	90	99
7548	Shelby	Shelby clay loam, 6 to 11 percent slopes	6 to 11	45	55	65	71
7611	Steinauer	Steinauer clay loam, 11 to 30 percent slopes	11 to 30	68	83	95	105
7614	Steinauer	Steinauer clay loam, 6 to 11 percent slopes, eroded	6 to 11	81	99	112	122
7616	Steinauer	Steinauer loam, 6 to 11 percent slopes	6 to 11	72	87	100	109
7617	Steinauer	Steinauer loam, 11 to 30 percent slopes	11 to 30	72	87	100	109
7620	Steinauer	Steinauer clay loam, 20 to 40 percent slopes	20 to 40	81	99	112	122
7644	Yutan	Yutan silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	90	109	123	134
7645	Yutan	Yutan silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	90	109	123	134
7646	Yutan	Yutan, eroded-Judson complex, 6 to 11 percent slopes	5 to 11	97	117	132	144
7647	Yutan	Yutan, eroded-Aksarben silty clay loams, 2 to 6 percent slopes	2 to 5	97	117	132	144
7666	Mayberry	Mayberry silty clay loam, 3 to 6 percent slopes, eroded	3 to 7	93	113	127	139
7668	Mayberry	Mayberry silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	93	113	127	139
7669	Mayberry	Mayberry clay loam, 3 to 11 percent slopes	3 to 9	89	108	123	134
7680	Wymore	Wymore silty clay loam, 0 to 1 percent slopes	0 to 1	76	93	105	115
7681	Wymore	Wymore silty clay loam, 1 to 3 percent slopes	1 to 3	76	93	105	115
7684	Wymore	Wymore silty clay loam, 3 to 6 percent slopes, eroded	3 to 6	76	93	105	115
7689	Wymore	Wymore silty clay loam, 0 to 2 percent slopes	0 to 2	79	97	109	120
7693	Wymore	Wymore silty clay loam, 2 to 6 percent slopes	2 to 7	79	97	109	120

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Lancaster County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7695	Wymore	Wymore silty clay, 3 to 6 percent slopes, eroded	2 to 7	72	87	100	109
7697	Wymore	Wymore silty clay loam, 6 to 11 percent slopes	7 to 11	75	92	105	115
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	152	180	202	218
7770	Colo	Colo silty clay loam, occasionally flooded	0 to 2	96	116	131	143
7773	Colo	Colo-Nodaway complex, frequently flooded	0 to 2	97	118	133	144
7774	Colo	Colo-Nodaway silty clay loams, frequently flooded	0 to 2	96	116	131	143
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	148	175	196	212
7868	Nodaway	Nodaway silt loam, channeled, occasionally flooded	0 to 2	150	178	199	216
7890	Zook	Zook silt loam, occasionally flooded	0 to 1	100	121	136	148
8013	Ida	Ida-Steinauer complex, 17 to 60 percent slopes	17 to 60	181	213	238	257
9708	Urban_land	Urban land-Judson complex, 1 to 3 percent slopes	1 to 3	--	--	--	--
9709	Urban_land	Urban land-Kennebec complex, 0 to 2 percent slopes	0 to 2	--	--	--	--
9710	Urban_land	Urban land-Pawnee-Mayberry complex, 2 to 6 percent slopes	2 to 7	--	--	--	--
9721	Urban_land	Urban land-Wymore complex, 0 to 2 percent slopes	0 to 2	--	--	--	--
9722	Urban_land	Urban land-Wymore-Aksarben complex, 2 to 6 percent slopes	2 to 7	--	--	--	--
9728	Urban_land	Urban land-Crete-Aksarben complex, 0 to 2 percent slopes	0 to 2	--	--	--	--
9967	Sanitary landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Lincoln County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1007	Bankard_ variant	Bankard loamy fine sand, loamy subsoil variant	0 to 1	1097	1268	1397	1494
1020	Caruso_ variant	Caruso loam	0 to 1	1409	2018	2221	2374
1075	Norwest	Norwest loam, 0 to 2 percent slopes	0 to 2	283	331	398	396
1307	Bayard	Bayard very fine sandy loam, 1 to 3 percent slopes	1 to 3	212	237	264	285
1531	Sulco	Sulco silt loam, 6 to 9 percent slopes	6 to 9	233	273	304	327
1534	Sulco	Sulco silt loam, 30 to 60 percent slopes	30 to 60	233	273	304	327
1547	Dailey	Dailey loamy sand, 0 to 3 percent slopes	0 to 3	279	326	362	390
1570	Dix	Dix complex, 6 to 30 percent slopes	5 to 30	247	290	323	347
1573	Dix	Dix gravelly loam, 3 to 20 percent slopes	3 to 20	281	328	365	392
1589	Blackwood	Blackwood silt loam, 1 to 3 percent slopes	1 to 3	142	168	188	204
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	182	176	197	214
1620	Keith	Keith silt loam, 1 to 3 percent slopes	1 to 3	197	232	259	279
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	187	220	246	266
1629	Keith	Keith silt loam, 3 to 6 percent slopes	3 to 6	197	232	259	279
1630	Keith	Keith silt loam, 3 to 6 percent slopes, eroded	3 to 6	227	266	297	320
1650	Kuma	Kuma loam, 0 to 1 percent slopes	0 to 1	157	185	207	224
1651	Kuma	Kuma loam, 1 to 3 percent slopes	1 to 3	157	185	207	224
1652	Kuma	Kuma silt loam, 0 to 1 percent slopes	0 to 1	166	196	219	236
1653	Kuma	Kuma silt loam, 1 to 3 percent slopes	1 to 3	166	196	219	236
1661	Lodgepole	Lodgepole silt loam, frequently ponded	0 to 1	93	113	127	139
1670	Mace	Mace silt loam, 0 to 1 percent slopes	0 to 1	93	88	100	110
1695	McCash	McCash very fine sandy loam, 0 to 1 percent slopes	0 to 1	247	269	302	323
1696	McCash	McCash very fine sandy loam, 1 to 3 percent slopes	1 to 3	303	329	365	393
1811	Satanta	Satanta loam, 1 to 3 percent slopes	1 to 3	194	228	255	275
1814	Satanta	Satanta loam, 3 to 6 percent slopes	3 to 6	194	228	255	275
1818	Satanta	Satanta very fine sandy loam, 1 to 3 percent slopes	1 to 3	168	198	222	239
1833	Sulco	Sulco-Ulysses silt loams, 9 to 30 percent slopes, eroded	9 to 30	233	207	231	250
1837	Sidney	Sidney complex, 6 to 20 percent slopes	7 to 20	158	155	174	188
1859	Ulysses	Ulysses silt loam, 3 to 6 percent slopes	3 to 6	163	192	215	232
1861	Ulysses	Ulysses silt loam, 6 to 9 percent slopes, eroded	6 to 9	163	192	215	232
1869	Ulysses	Ulysses-Sulco silt loams, 6 to 9 percent slopes, eroded	6 to 9	163	193	216	233

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Lincoln County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1876	Woodly	Woodly loamy fine sand, 0 to 3 percent slopes	0 to 3	119	146	164	178
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	336	392	435	468
1889	Valent	Valent fine sand, rolling	9 to 24	336	392	435	468
1890	Valent	Valent fine sand, rolling and hilly	9 to 24	336	392	435	468
1896	Valent	Valent loamy sand, 3 to 9 percent slopes	3 to 9	346	403	447	481
1899	Valent	Valent sand, rolling	9 to 24	165	418	464	498
2177	McCook	McCook silt loam, occasionally flooded	0 to 2	449	523	578	621
2302	McCook	McCook loam, rarely flooded	0 to 1	588	682	754	808
2309	McCook	McCook loam, saline-alkali	0 to 1	554	643	710	761
2335	Inavale	Inavale loamy fine sand, 0 to 3 percent slopes	0 to 3	236	277	308	332
2529	Uly	Coly and Uly silt loams, 11 to 30 percent slopes	9 to 30	138	163	183	198
2534	Coly	Coly silt loam, 17 to 30 percent slopes	17 to 30	128	152	171	185
2537	Coly	Coly silt loam, 6 to 11 percent slopes	7 to 11	128	152	171	185
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2541	Coly	Coly silt loam, 11 to 17 percent slopes, eroded	11 to 20	128	152	171	185
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2590	Hersh	Hersh and Anselmo fine sandy loams, 0 to 3 percent slopes	0 to 3	186	219	244	264
2591	Anselmo	Hersh and Anselmo soils, 11 to 30 percent slopes	9 to 30	196	230	257	277
2593	Valentine	Hersh and Valentine soils, 11 to 30 percent slopes	11 to 31	334	390	432	464
2594	Valentine	Hersh and Valentine soils, 6 to 11 percent slopes	5 to 11	334	390	432	464
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	186	219	244	264
2597	Hersh	Hersh fine sandy loam, 6 to 11 percent slopes	6 to 11	153	180	202	218
2598	Hersh	Hersh fine sandy loam, 11 to 17 percent slopes	11 to 17	153	180	202	218
2601	Hersh	Hersh soils, 3 to 6 percent slopes	3 to 5	153	181	202	219
2602	Hersh	Hersh soils, 6 to 11 percent slopes	5 to 9	153	181	202	219
2603	Hersh	Hersh-Anselmo fine sandy loams, 1 to 3 percent slopes	1 to 3	153	181	202	219

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Lincoln County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2607	Hersh	Hersh-Valentine loamy fine sands, 0 to 6 percent slopes	0 to 6	306	257	396	426
2614	Hersh	Hersh-Valentine complex, 15 to 30 percent slopes	15 to 30	153	181	202	219
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	96	116	131	143
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	96	116	131	143
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	96	117	132	143
2672	Holdrege_ variant	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	50	62	72	79
2809	Coly	Uly and Coly silt loams, 6 to 11 percent slopes, eroded	6 to 9	127	151	170	184
2810	Coly	Uly and Coly silt loams, 11 to 30 percent slopes	9 to 31	127	151	170	184
2818	Uly	Uly silt loam, 3 to 6 percent slopes, eroded	3 to 6	137	162	182	197
2820	Uly	Uly silt loam, 6 to 11 percent slopes	6 to 9	186	163	183	198
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	145	171	192	208
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	137	162	182	197
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	137	162	182	197
2832	Uly	Uly-Coly silt loams, 6 to 11 percent slopes	7 to 9	137	163	183	198
2837	Uly	Uly-Holdrege silt loams, 6 to 11 percent slopes	6 to 11	271	317	352	379
3541	McCook	Hobbs and McCook silt loams, occasionally flooded	0 to 1	282	245	273	295
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	165	195	218	236
3571	Humbarger	Humbarger loam, gravelly substratum	0 to 1	418	486	538	578
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	195	229	256	276
3755	Hord	Hord silt loam, rarely flooded	0 to 1	171	201	225	243
3914	Scott	Scott soils, frequently ponded	0 to 1	104	125	141	153
3950	Fillmore	Fillmore complex, frequently ponded	0 to 1	117	140	158	171
4122	Uly	Holdrege and Uly silt loams, 7 to 11 percent slopes	7 to 9	137	163	183	198
4125	Holdrege	Holdrege fine sandy loam, 0 to 3 percent slopes	0 to 3	67	82	94	103
4126	Holdrege	Holdrege fine sandy loam, 1 to 3 percent slopes, overblown	2 to 4	81	99	112	122
4138	Holdrege	Holdrege silt loam, 7 to 11 percent slopes	6 to 11	121	145	163	177
4146	Holdrege_ variant	Holdrege silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	49	61	71	78

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Lincoln County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
4211	Almeria	Almeria-Fluvaquents, sandy complex, channeled, frequently flooded	0 to 1	348	406	450	484
4262	Gannett_ variant	Gannett silt loam, occasionally flooded	0 to 2	894	1035	2993	3198
4353	Elsmere	Elsmere loamy fine sand, very rarely flooded	0 to 3	443	515	570	611
4380	Loup	Loup complex, rarely flooded	0 to 2	623	723	902	855
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--
4463	Cullison	Cullison mucky peat	0 to 1	130	154	173	243
4467	Cutcomb	Cutcomb mucky peat	0 to 1	2500	2883	3171	3388
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	150	178	199	215
4490	Dunday	Dunday loamy fine sand, 3 to 9 percent slopes	3 to 9	351	410	454	488
4504	Dunday	Dunday-Valentine loamy fine sands, 0 to 6 percent slopes	3 to 5	150	178	199	215
4549	Elsmere	Elsmere complex, 0 to 6 percent slopes	0 to 3	443	515	570	611
4558	Elsmere	Elsmere loamy fine sand, loamy substratum, 0 to 3 percent slopes	0 to 2	146	172	193	209
4687	Marlake	Marlake loamy fine sand, frequently ponded	0 to 1	401	467	517	555
4771	Valentine	Valentine-Mullen complex, 0 to 9 percent slopes	0 to 9	373	434	481	517
4777	Valentine	Valentine complex, hilly	15 to 60	360	420	465	500
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	342	399	442	475
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	374	436	483	519
4807	Valentine	Valentine fine sand, rolling	9 to 24	342	399	442	475
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	374	435	482	518
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	330	385	427	459
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	361	421	466	501
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	330	385	427	459
4851	Valentine	Valentine-Birdwood complex, 9 to 80 percent slopes	9 to 80	372	433	480	515
4869	Valentine	Valentine-Ringgold complex, 0 to 9 percent slopes	3 to 9	329	384	426	458
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	156	184	206	223
5283	Vetal	Vetal fine sandy loam, loamy substratum, 0 to 3 percent slopes	0 to 3	120	143	161	175

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

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Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5288	Vetal	Vetal loamy fine sand, 0 to 3 percent slopes	0 to 3	188	221	247	267
5643	Janise	Janise loam, occasionally flooded	0 to 1	454	528	584	627
5822	Duroc	Duroc loam, terrace, 0 to 1 percent slopes	0 to 1	78	96	109	119
5946	Duroc	Duroc silt loam, 1 to 3 percent slopes	1 to 3	94	114	129	141
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	146	173	193	209
5976	Jayem	Jayem loamy very fine sand, 0 to 3 percent slopes	0 to 3	172	202	226	244
5979	Jayem	Jayem loamy very fine sand, 3 to 6 percent slopes	3 to 6	185	218	243	263
6095	Sarben	Sarben loamy fine sand, 3 to 6 percent slopes	3 to 6	152	179	201	217
6096	Sarben	Sarben loamy fine sand, 6 to 9 percent slopes	6 to 9	152	179	201	217
6097	Sarben	Sarben loamy fine sand, 9 to 20 percent slopes	9 to 20	124	149	167	181
6102	Sarben	Sarben loamy very fine sand, 0 to 3 percent slopes	0 to 3	158	187	209	226
6104	Sarben	Sarben loamy very fine sand, 3 to 6 percent slopes	3 to 6	158	187	209	226
6106	Sarben	Sarben loamy very fine sand, 6 to 9 percent slopes	6 to 9	158	187	209	226
6107	Sarben	Sarben loamy very fine sand, 9 to 20 percent slopes	9 to 20	158	187	209	226
6316	Barney	Barney soils, frequently flooded	0 to 1	320	374	414	446
6328	Lawet	Lawet fine sandy loam, drained, occasionally flooded	0 to 1	216	253	282	304
6332	Lawet_variant	Lawet loam, gravelly subsoil variant, occasionally flooded	0 to 1	345	402	446	479
6336	Lawet	Lawet silt loam, occasionally flooded	0 to 2	138	164	183	199
6337	Lawet	Lawet silt loam, drained, occasionally flooded	0 to 1	264	309	343	370
6339	Lawet	Lawet silt loam, saline-alkali, occasionally flooded	0 to 1	551	640	707	758
6340	Lawet	Lawet silt loam, saline-alkali, rarely flooded	0 to 1	412	480	532	571
6346	Lawet	Lawet-Saltine complex, occasionally flooded	0 to 1	551	640	707	758
8401	Alda	Alda fine sandy loam, occasionally flooded	0 to 1	352	411	455	489
8406	Alda	Alda soils, occasionally flooded	0 to 1	728	844	931	997

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Lincoln County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8432	Cass_variant	Cass fine sandy loam, calcareous variant, rarely flooded	0 to 1	119	143	160	174
8492	Gothenburg	Gothenburg loamy sand, occasionally flooded	0 to 2	319	372	413	444
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	305	356	396	425
8502	Lex	Lex loam, rarely flooded	0 to 2	434	505	559	600
8503	Lex	Lex loam, occasionally flooded	0 to 2	422	491	544	584
8505	Lex	Lex loam, saline-alkali, occasionally flooded	0 to 1	597	692	765	820
8554	Silver_Creek	Silver Creek silt loam, occasionally flooded	0 to 1	762	883	974	1043
8555	Silver_Creek	Silver Creek-Saltine complex, rarely flooded	0 to 1	249	292	325	350
8567	Platte	Platte-Alda complex, occasionally flooded	0 to 2	636	738	815	873
8581	Wann	Wann fine sandy loam, rarely flooded	0 to 2	108	119	146	159
8582	Wann	Wann fine sandy loam, saline-alkali, occasionally flooded	0 to 1	112	135	151	165
8583	Wann	Wann fine sandy loam, saline-alkali, rarely flooded	0 to 1	347	405	448	482
8585	Wann	Wann loam, rarely flooded	0 to 2	143	169	190	205
8804	Anselmo	Anselmo sandy loam, terrace, 0 to 3 percent slopes	0 to 3	192	226	252	272
8805	Anselmo	Anselmo sandy loam, terrace, 3 to 6 percent slopes	3 to 5	193	227	253	273
8813	Cozad_variant	Cozad loam, sandy subsoil variant	0 to 2	148	176	197	213
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	231	271	302	326
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	231	271	302	326
8817	Cozad	Cozad silt loam, 3 to 6 percent slopes	3 to 6	323	272	303	327
8820	Cozad	Cozad silt loam, saline-alkali, 0 to 1 percent slopes	0 to 1	190	224	249	269
8821	Cozad	Cozad silty clay loam, 0 to 1 percent slopes	0 to 1	211	248	276	298
8826	Cozad	Cozad silt loam, wet	0 to 1	229	269	299	323
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	131	155	174	189
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	131	155	174	189
8867	Hord	Hord fine sandy loam, 1 to 3 percent slopes	1 to 3	104	125	141	153
8868	Hord	Hord fine sandy loam, 3 to 6 percent slopes	3 to 7	111	133	150	163
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	122	146	164	178
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	115	138	155	168
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	171	201	225	243

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Lincoln County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	115	138	155	168
9002	Anselmo	Anselmo fine sandy loam, 1 to 3 percent slopes	1 to 3	194	228	254	274
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	194	228	254	274
9005	Anselmo	Anselmo fine sandy loam, 6 to 9 percent slopes	5 to 9	196	230	257	277
9024	Anselmo	Anselmo-Holdrege fine sandy loams, 3 to 7 percent slopes	3 to 5	194	228	254	274
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	108	131	147	160
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	315	368	408	439
9906	Fluvaquents	Fluvaquents, silty, frequently flooded	0 to 1	102	123	138	150
9966	Blownout_land	Blown-out land	3 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Logan County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2369	Munjor	Munjor fine sandy loam, 0 to 2 percent slopes	0 to 2	161	190	213	230
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	124	148	167	181
2534	Coly	Coly silt loam, 17 to 30 percent slopes	17 to 30	128	152	171	185
2536	Coly	Coly silt loam, 30 to 60 percent slopes	30 to 60	128	152	171	185
2541	Coly	Coly silt loam, 11 to 17 percent slopes, eroded	11 to 20	128	152	171	185
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	128	152	171	185
2590	Hersh	Hersh and Anselmo fine sandy loams, 0 to 3 percent slopes	0 to 3	186	219	244	264
2593	Valentine	Hersh and Valentine soils, 11 to 30 percent slopes	11 to 31	334	390	432	464
2594	Hersh	Hersh and Valentine soils, 6 to 11 percent slopes	5 to 11	186	219	244	264
2595	Hersh	Hersh fine sandy loam, 0 to 3 percent slopes	0 to 3	153	180	202	218
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	186	219	244	264
2597	Hersh	Hersh fine sandy loam, 6 to 11 percent slopes	6 to 11	153	180	202	218
2614	Hersh	Hersh-Valentine complex, 15 to 30 percent slopes	15 to 30	153	180	202	218
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	108	130	147	159
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	120	144	162	176
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	122	146	164	178
2814	Uly	Uly silt loam, 0 to 1 percent slopes	0 to 1	271	317	352	379
2818	Uly	Uly silt loam, 3 to 6 percent slopes, eroded	3 to 6	137	162	182	197
2820	Uly	Uly silt loam, 6 to 11 percent slopes	6 to 9	137	163	183	198
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	145	171	192	208
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	145	171	192	208
2832	Uly	Uly-Coly silt loams, 6 to 11 percent slopes	7 to 9	137	163	183	198
2837	Uly	Uly-Holdrege silt loams, 6 to 11 percent slopes	6 to 11	271	317	352	379
2839	Holdrege	Uly-Holdrege silt loams, 11 to 17 percent slopes	11 to 15	120	144	162	176
2842	Uly	Uly-Sully silt loams, 17 to 30 percent slopes, eroded	15 to 31	271	317	352	379
3755	Hord	Hord silt loam, rarely flooded	0 to 1	167	197	220	238

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Logan County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3914	Scott	Scott soils, frequently ponded	0 to 1	112	134	151	164
4126	Holdrege	Holdrege fine sandy loam, 1 to 3 percent slopes, overblown	2 to 4	81	99	112	122
4138	Holdrege	Holdrege silt loam, 7 to 11 percent slopes	6 to 11	121	145	163	177
4139	Holdrege	Holdrege silt loam, 7 to 11 percent slopes, severely eroded	5 to 11	121	145	163	177
4154	Holdrege	Holdrege-Hord silt loams, 0 to 3 percent slopes	0 to 3	120	144	162	176
4212	Almeria	Almeria fine sandy loam, frequently ponded	0 to 1	359	419	464	498
4240	Ord	Ord fine sandy loam, rarely flooded	0 to 2	325	379	420	452
4247	Ord	Ord very fine sandy loam, occasionally flooded	0 to 1	257	301	334	360
4261	Gannett	Gannett fine sandy loam, occasionally flooded	0 to 1	463	539	596	639
4470	Doughboy	Doughboy fine sandy loam, 0 to 3 percent slopes	0 to 3	119	142	160	174
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	334	389	432	464
4503	Dunday	Dunday-Valentine loamy fine sands, 0 to 3 percent slopes	0 to 3	344	401	445	478
4506	Valentine	Dunday-Valentine loamy fine sands, 3 to 9 percent slopes	3 to 9	334	390	432	464
4519	Els	Els and Elsmere fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589
4521	Els	Els fine sand, 0 to 3 percent slopes	0 to 3	426	496	549	589
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	374	436	483	519
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	468	545	603	646
4687	Marlake	Marlake loamy fine sand, frequently ponded	0 to 1	513	596	659	707
4726	Ringgold	Ringgold-Valentine complex, 0 to 3 percent slopes	0 to 3	378	440	487	523
4746	Tryon	Tryon loamy fine sand, 0 to 3 percent slopes	0 to 2	470	546	604	648
4771	Valentine	Valentine-Mullen complex, 0 to 9 percent slopes	0 to 9	373	434	481	517
4777	Valentine	Valentine complex, hilly	15 to 60	342	399	442	475
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	342	399	442	475
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	345	402	446	479
4800	Valentine	Valentine fine sand, hilly	17 to 60	343	400	443	476
4807	Valentine	Valentine fine sand, rolling	9 to 24	342	399	442	475

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Logan County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	430	500	553	594
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	334	390	432	464
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	334	390	432	464
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	334	390	432	464
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	374	436	483	518
4869	Valentine	Valentine-Ringgold complex, 0 to 9 percent slopes	3 to 9	329	384	426	458
4875	Valentine	Valentine-Dunday complex, 0 to 9 percent slopes	3 to 9	377	439	486	522
5280	Vetal	Vetal fine sandy loam	0 to 1	156	184	206	222
8808	Anselmo	Anselmo fine sandy loam, terrace, 0 to 1 percent slopes	0 to 1	190	224	250	270
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	228	267	297	320
8867	Hord	Hord fine sandy loam, 1 to 3 percent slopes	1 to 3	78	95	108	118
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	130	154	173	187
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	130	154	173	187
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	130	154	173	187
8895	Wann_variant	Wann variant fine sandy loam, alkali, rarely flooded	0 to 3	212	249	277	299
8906	Ovina	Ovina loam, 0 to 1 percent slopes	0 to 2	184	217	242	261
9002	Anselmo	Anselmo fine sandy loam, 1 to 3 percent slopes	1 to 3	190	224	250	270
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	190	224	250	270
9006	Anselmo	Anselmo fine sandy loam, 6 to 11 percent slopes	6 to 11	190	224	250	270
9966	Blownout_land	Blown-out land	3 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Loup County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2595	Hersh	Hersh fine sandy loam, 0 to 3 percent slopes	0 to 3	141	167	187	203
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	219	257	286	309
2597	Hersh	Hersh fine sandy loam, 6 to 11 percent slopes	6 to 11	219	257	286	309
2600	Hersh	Hersh loamy fine sand, 3 to 6 percent slopes	3 to 6	203	238	266	287
2604	Hersh	Hersh-Gates complex, 0 to 3 percent slopes	0 to 3	156	184	206	223
2606	Hersh	Hersh-Gates complex, 30 to 60 percent slopes	20 to 60	246	288	321	345
2610	Hersh	Hersh-Valentine complex, 11 to 24 percent slopes	9 to 24	200	235	262	283
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	108	130	147	159
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	135	161	180	195
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	136	161	181	196
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	158	187	209	226
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	160	189	211	228
4200	Almeria	Almeria fine sandy loam, channeled, frequently flooded	0 to 2	331	386	428	460
4204	Almeria	Almeria loamy fine sand, occasionally flooded	0 to 2	270	316	351	378
4206	Almeria	Almeria loamy fine sand, wet, occasionally flooded	0 to 2	274	320	356	383
4208	Almeria	Almeria-Histosols complex, channeled, frequently flooded	0 to 2	337	393	436	469
4223	Bolent	Bolent loamy fine sand, occasionally flooded	0 to 2	284	332	369	397
4225	Bolent	Bolent loamy sand, occasionally flooded	0 to 2	286	334	371	399
4232	Calamus	Calamus loamy fine sand, rarely flooded	0 to 2	334	389	432	464
4246	Ord	Ord very fine sandy loam, rarely flooded	0 to 2	191	225	251	271
4265	Loup	Loup fine sandy loam, occasionally flooded	0 to 2	419	488	540	580
4364	Ipage	Ipage fine sand, terrace, 0 to 3 percent slopes	0 to 3	361	421	467	501
4365	Ipage	Ipage loamy fine sand, terrace, 0 to 3 percent slopes	0 to 3	346	404	447	481

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Loup County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--
4533	Els	Els loamy sand, 0 to 3 percent slopes	0 to 2	412	480	531	570
4545	Els	Els-Ipage fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	443	515	570	611
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	375	437	484	520
4687	Marlake	Marlake loamy fine sand, frequently ponded	0 to 1	422	491	543	583
4746	Tryon	Tryon loamy fine sand, 0 to 3 percent slopes	0 to 2	383	446	494	530
4751	Tryon	Tryon loamy fine sand, frequently ponded	0 to 2	383	446	494	530
4755	Tryon	Tryon-Els loamy fine sands, 0 to 3 percent slopes	0 to 2	383	446	494	530
4758	Tryon	Tryon-Ipage complex, 0 to 3 percent slopes	0 to 2	387	451	500	537
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	364	425	471	506
4807	Valentine	Valentine fine sand, rolling	9 to 24	364	425	471	506
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	364	425	471	506
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	334	390	432	465
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	334	390	432	465
4858	Valentine	Valentine-Els complex, 0 to 9 percent slopes	0 to 9	363	423	469	504
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	329	384	426	458
4877	Valentine	Valentine-Simeon complex, 0 to 9 percent slopes	3 to 9	364	424	470	505
5290	Vetal	Vetal very fine sandy loam, 0 to 3 percent slopes	0 to 3	257	301	335	361
6638	Boelus	Boelus loamy fine sand, sandy substratum, 0 to 3 percent slopes	0 to 3	220	258	288	310
6644	Boelus	Boelus sandy substratum-Simeon loamy sands, 0 to 3 percent slopes	0 to 3	192	225	252	272
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	191	225	251	271
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	191	225	251	271
8817	Cozad	Cozad silt loam, 3 to 6 percent slopes	3 to 6	216	254	283	305
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	117	140	158	171
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	116	139	156	170
8929	Simeon	Simeon sand, 0 to 3 percent slopes	0 to 3	280	327	364	391
8930	Simeon	Simeon sand, 3 to 30 percent slopes	3 to 30	280	327	364	391

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Loup County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9027	Gates	Gates silt loam, 1 to 3 percent slopes	1 to 3	207	243	271	292
9029	Gates	Gates silt loam, 3 to 6 percent slopes, eroded	3 to 6	207	243	271	292
9030	Gates	Gates silt loam, 6 to 11 percent slopes, eroded	6 to 11	207	243	271	292
9033	Gates	Gates silt loam, 11 to 30 percent slopes	11 to 30	207	243	271	292
9036	Gates	Gates very fine sandy loam, 3 to 6 percent slopes	3 to 6	169	200	223	241
9043	Gates	Gates-Hersh complex, 20 to 60 percent slopes	30 to 60	169	200	223	241
9069	Kenesaw	Kenesaw very fine sandy loam, 1 to 3 percent slopes	1 to 3	150	177	198	215
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	314	367	407	438
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Madison County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4211	Almeria	Almeria-Fluvaquents, sandy complex, channeled, frequently flooded	0 to 1	348	406	450	484
4237	Calamus	Calamus-Bolent loamy fine sands, channeled, occasionally flooded	0 to 2	324	378	419	451
4369	Ipage	Ipage calcareous-Hoffland complex, 0 to 3 percent slopes	0 to 3	425	494	547	587
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--
4455	Crowther	Crowther loam, 0 to 1 percent slopes	0 to 1	356	415	460	494
4456	Crowther	Crowther mucky peat	0 to 1	591	686	758	812
4462	Cullison	Cullison loam, 0 to 1 percent slopes	0 to 1	110	132	149	162
4463	Cullison	Cullison mucky peat	0 to 1	130	154	173	188
4470	Doughboy	Doughboy fine sandy loam, 0 to 3 percent slopes	0 to 3	119	142	160	174
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	355	414	459	193
4490	Dunday	Dunday loamy fine sand, 3 to 9 percent slopes	3 to 9	351	410	454	488
4518	Ipage	Ipage-Els complex, 0 to 3 percent slopes	0 to 3	366	426	472	507
4520	Hoffland	Els calcareous-Hoffland complex, 0 to 3 percent slopes	0 to 1	662	767	847	908
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	349	407	451	485
4556	Elsmere	Elsmere loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	450	524	579	622
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	399	465	514	552
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	488	567	627	673
4670	Loup	Loup mucky peat	0 to 1	490	569	630	675
4691	Marlake	Marlake mucky peat	0 to 1	663	769	849	909
4711	Nenzel	Nenzel loamy fine sand, calcareous, 0 to 3 percent slopes	0 to 3	415	483	535	574
4712	Nenzel	Nenzel loamy fine sand, 0 to 3 percent slopes	0 to 3	364	424	470	505
4726	Ringgold	Ringgold-Valentine complex, 0 to 3 percent slopes	0 to 3	378	440	487	523
4770	Mullen	Mullen loamy fine sand, 0 to 3 percent slopes	0 to 3	133	158	177	192
4771	Valentine	Valentine-Mullen complex, 0 to 9 percent slopes	0 to 9	373	434	481	517

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Madison County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
4772	Valentine	Valentine-Tryon complex, 0 to 24 percent slopes	1 to 24	374	435	482	518
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	374	519	483	519
4807	Valentine	Valentine fine sand, rolling	9 to 24	374	435	482	518
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	374	435	482	518
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	360	419	465	499
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	361	501	466	501
4851	Valentine	Valentine-Birdwood complex, 9 to 80 percent slopes	9 to 80	372	433	480	515
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	374	436	483	518
4865	Valentine	Valentine-Hoffland, complex, 0 to 24 percent slopes	3 to 24	376	438	485	521
4869	Valentine	Valentine-Ringgold complex, 0 to 9 percent slopes	3 to 9	329	384	426	458
4875	Valentine	Valentine-Dunday complex, 0 to 9 percent slopes	3 to 9	377	439	486	522
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

McPherson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	528	614	678	727
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	297	347	385	414
2351	Inavale	Inavale-Boel complex, 0 to 6 percent slopes, occasionally flooded	0 to 6	297	347	385	414
3513	Lamo	Lamo silt loam, occasionally flooded	0 to 2	146	172	193	209
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	91	111	125	136
3521	Cass	Cass fine sandy loam, occasionally flooded	0 to 2	225	264	294	317
3537	Gibbon	Gibbon silty clay loam, occasionally flooded	0 to 2	104	125	141	153
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	160	188	211	228
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	160	188	211	228
3774	Muir	Muir silty clay loam, rarely flooded	0 to 1	95	115	130	142
3775	Muir	Muir silt loam, rarely flooded	0 to 1	109	131	148	161
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	115	138	155	169
4241	Ord	Ord fine sandy loam, occasionally flooded	0 to 2	253	297	330	355
4244	Ord	Ord loam, occasionally flooded	0 to 2	354	413	458	492
4352	Elsmere	Elsmere fine sandy loam, rarely flooded	0 to 2	524	609	673	721
4371	Libory	Libory loamy fine sand, 3 to 6 percent slopes	2 to 6	112	135	151	164
4376	Loup	Loup fine sandy loam, rarely flooded	0 to 2	155	183	205	222
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	420	489	541	581
4674	Loup	Loup loamy fine sand, frequently ponded	0 to 1	340	396	439	472
4686	Marlake	Marlake loam, frequently ponded	0 to 1	716	830	915	980
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	349	407	451	484
4796	Valentine	Valentine fine sand, 9 to 24 percent slopes	9 to 24	357	417	462	496
6323	Coleridge	Coleridge silt loam, occasionally flooded	0 to 2	112	134	151	164
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	102	123	139	151
6330	Lawet	Lawet loam, rarely flooded	0 to 2	136	162	181	196
6364	Obert	Obert silty clay loam, frequently ponded	0 to 1	129	154	172	187
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	177	208	233	252
6387	Shell_variant	Shell variant silty clay loam, 0 to 1 percent slopes	0 to 1	136	162	181	196
6459	Inglewood	Inglewood-Boel complex, channeled, occasionally flooded	0 to 2	374	436	483	519
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	158	186	209	226

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

McPherson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6533	Loretto	Loretto fine sandy loam, 0 to 2 percent slopes	0 to 2	65	79	91	100
6545	Moody	Moody silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	144	171	191	207
6555	Shell	Shell silty clay loam, 0 to 1 percent slopes	0 to 1	151	178	200	216
6603	Alcester	Alcester silty clay loam, 2 to 6 percent slopes	2 to 6	120	144	162	176
6605	Bazile	Bazile loam, 2 to 6 percent slopes	2 to 6	449	522	578	620
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	92	112	126	137
6637	Boelus	Boelus loamy fine sand, 2 to 6 percent slopes	2 to 6	101	122	137	150
6668	Clarno	Clarno loam, 2 to 6 percent slopes	2 to 6	82	99	113	123
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	231	271	301	325
6685	Crofton	Crofton silt loam, 2 to 6 percent slopes, eroded	2 to 6	231	271	301	325
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	232	272	303	326
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	231	271	301	325
6701	Thurman	Thurman loamy fine sand, 1 to 3 percent slopes	1 to 3	298	349	387	417
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	297	348	386	415
6706	Thurman	Thurman loamy fine sand, 6 to 11 percent slopes	6 to 11	298	348	387	416
6713	Thurman	Thurman loamy fine sand, thick, 0 to 2 percent slopes	0 to 2	272	330	366	394
6758	Nora	Nora silty clay loam, 11 to 17 percent slopes	11 to 17	112	134	151	164
6764	Hadar	Hadar loamy fine sand, 2 to 6 percent slopes	2 to 6	100	121	137	149
6765	Nora	Nora silty clay loam, 2 to 6 percent slopes	2 to 6	112	134	151	164
6766	Nora_variant	Nora silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	135	160	180	195
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	112	134	151	164
6775	Nora_variant	Nora-Crofton complex, 2 to 6 percent slopes, eroded	2 to 6	136	161	181	191
6778	Nora_variant	Nora-Crofton complex, 6 to 11 percent slopes, eroded	6 to 11	136	161	181	191
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	231	271	301	325

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

McPherson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6790	Loretto	Loretto fine sandy loam, 2 to 6 percent slopes	2 to 6	65	79	91	100
6791	Loretto	Loretto loam, 0 to 2 percent slopes	0 to 2	87	105	119	130
6792	Loretto	Loretto loam, 2 to 6 percent slopes	2 to 6	87	105	119	130
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	144	171	191	207
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	144	171	191	207
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	326	380	422	453
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	80	97	110	120
8421	Boel	Boel loamy fine sand, channeled, frequently flooded	0 to 1	432	502	556	597
8436	Cass	Cass loam, occasionally flooded	0 to 2	347	405	449	482
8476	Gibbon	Gibbon-Gayville silty clay loams, occasioanlly flooded	0 to 2	102	123	139	151
8540	Ovina	Ovina fine sandy loam, rarely flooded	0 to 2	129	153	172	186
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	117	141	158	172
8908	Ovina	Ovina loamy fine sand, 0 to 3 percent slopes	0 to 3	127	151	170	184
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	84	102	115	126
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Merrick County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1021	Caruso	Caruso loam, rarely flooded	0 to 2	346	403	447	481
1022	Caruso	Caruso-Gayville complex, 0 to 1 percent slopes	0 to 1	81	99	112	122
2288	Wann	Wann loam, occasionally flooded	0 to 2	144	171	191	207
2335	Inavale	Inavale loamy fine sand, 0 to 3 percent slopes	0 to 3	182	215	240	259
2338	Inavale	Inavale loamy fine sand, very rarely flooded	0 to 3	255	298	332	357
2343	Inavale	Inavale loamy sand, 3 to 11 percent slopes	3 to 9	301	352	390	420
2537	Coly	Coly silt loam, 6 to 11 percent slopes	7 to 11	124	148	167	181
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2581	Nuckolls_ variant	Nuckolls variant soils, 11 to 17 percent slopes, severely eroded	11 to 15	128	152	171	185
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	104	125	141	154
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	104	125	141	154
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	104	126	141	154
2812	Uly	Uly and Coly silt loams, 11 to 30 percent slopes	9 to 31	143	170	190	206
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	137	162	181	197
2833	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded, moist	17 to 30	148	175	196	212
2845	Uly	Uly-Coly silt loams, 11 to 17 percent slopes, eroded	11 to 17	148	175	196	212
3110	O'Neill	O'Neill and Pivot loams, 0 to 2 percent slopes	0 to 1	578	671	741	794
3156	Brocksburg	Brocksburg loam, 0 to 2 percent slopes	0 to 1	655	759	838	898
3253	Meadin	Meadin sandy loam, 2 to 11 percent slopes	2 to 9	307	358	397	427
3264	O'Neill	O'Neill loam, 0 to 2 percent slopes	0 to 2	689	798	881	944
3267	O'Neill	O'Neill sandy loam, 0 to 2 percent slopes	0 to 2	447	520	576	618
3268	O'Neill	O'Neill sandy loam, 2 to 6 percent slopes	2 to 6	447	521	576	618
3512	Lamo	Lamo clay loam, sandy substratum, 0 to 1 percent slopes	0 to 1	698	809	892	956
3524	Lamo	Lamo-Saltine complex, occasionally flooded	0 to 2	91	110	124	135
3529	Gibbon	Gibbon loam, occasionally flooded	0 to 2	87	106	120	131
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	154	181	203	220
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Merrick County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	154	181	203	220
3885	Holder	Holder silt loam, 0 to 1 percent slopes	0 to 1	98	119	134	146
4220	Bolent	Bolent fine sandy loam, occasionally flooded	0 to 2	384	448	496	533
4232	Calamus	Calamus loamy fine sand, rarely flooded	0 to 2	364	424	470	505
4265	Loup	Loup fine sandy loam, occasionally flooded	0 to 2	454	528	585	627
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	115	138	155	168
4527	Els	Els loamy fine sand, 0 to 3 percent slopes	0 to 3	160	188	211	228
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	364	424	470	505
4654	Ipage	Ipage-Els loamy fine sands, 0 to 3 percent slopes	0 to 3	381	444	492	529
4690	Marlake	Marlake loamy sand, frequently ponded	0 to 1	431	502	555	596
4775	Valentine	Valentine and Thurman soils, 0 to 17 percent slopes	0 to 17	341	398	441	474
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	350	409	453	487
4796	Valentine	Valentine fine sand, 9 to 24 percent slopes	9 to 24	350	409	453	487
4807	Valentine	Valentine fine sand, rolling	9 to 24	383	447	495	531
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	334	390	432	465
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	334	390	432	465
4853	Valentine	Valentine-Boelus loamy fine sands, 0 to 3 percent slopes	0 to 3	341	398	441	474
4854	Valentine	Valentine-Boelus loamy fine sands, 3 to 9 percent slopes	3 to 9	348	406	450	483
4867	Valentine	Valentine-Libory complex, 0 to 9 percent slopes	0 to 9	385	448	496	533
6310	Barney	Barney complex, channeled, frequently flooded	0 to 2	456	530	587	629
6312	Barney	Barney loam, frequently flooded	0 to 1	612	710	784	841
6322	Barney	Barney-Bolent complex, frequently flooded	0 to 2	431	502	555	596
6344	Lawet_variant	Lawet variant fine sandy loam, frequently flooded	0 to 1	299	350	388	417
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	346	404	448	481
6366	Obert	Obert silt loam, occasionally flooded	0 to 2	136	162	181	197
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	174	205	229	247
6510	Blendon	Blendon fine sandy loam, 2 to 6 percent slopes	2 to 6	174	205	229	247

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Merrick County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6513	Blendon	Blendon loam, 0 to 2 percent slopes	0 to 2	498	578	640	686
6517	Blendon_ variant	Blendon variant fine sandy loam, 0 to 2 percent slopes	0 to 2	306	357	396	426
6525	Janude	Janude fine sandy loam, 0 to 1 percent slopes	0 to 1	83	101	115	125
6527	Janude	Janude loam, calcareous, rarely flooded	0 to 1	430	500	554	594
6529	Janude	Janude sandy loam, very rarely flooded	0 to 2	145	172	193	209
6533	Loretto	Loretto fine sandy loam, 0 to 2 percent slopes	0 to 2	71	87	99	109
6536	Loretto	Loretto-Valentine complex, 3 to 11 percent slopes	6 to 9	67	81	93	102
6700	Thurman	Thurman loamy fine sand, 0 to 2 percent slopes	0 to 2	296	345	384	413
6701	Thurman	Thurman loamy fine sand, 1 to 3 percent slopes	1 to 3	287	335	372	401
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	296	345	384	413
6730	Thurman	Thurman-Ortello fine sandy loams, 0 to 2 percent slopes	1 to 3	357	416	461	495
6843	Ortello	Ortello fine sandy loam, 1 to 3 percent slopes	1 to 3	326	380	422	453
8402	Alda	Alda loam, rarely flooded	0 to 1	551	640	707	758
8403	Alda	Alda loam, occasionally flooded	0 to 1	734	850	938	1004
8404	Alda	Alda sandy loam, rarely flooded	0 to 2	406	473	523	562
8405	Alda	Alda sandy loam, occasionally flooded	0 to 2	514	597	660	708
8418	Boel	Boel loam, occasionally flooded	0 to 2	760	880	971	1040
8455	Fonner	Fonner loam, rarely flooded	0 to 1	457	532	588	631
8456	Fonner	Fonner sandy loam, rarely flooded	0 to 2	336	392	435	467
8457	Fonner_ variant	Fonner variant loamy sand, rarely flooded	0 to 2	1059	1224	1349	1443
8458	Fonner_variant	Fonner variant loamy sand, occasionally flooded	0 to 2	934	1081	1191	1275
8461	Gayville_ variant	Gayville variant silt loam, rarely flooded	0 to 2	197	231	258	279
8463	Gayville_ variant	Gayville-Caruso complex, occasionally flooded	0 to 1	161	190	213	230
8469	Gibbon	Gibbon silt loam, rarely flooded	0 to 2	469	546	604	648
8476	Gibbon	Gibbon-Gayville silty clay loams, occasioanlly flooded	0 to 2	107	129	145	158
8490	Gothenburg	Gothenburg fine sandy loam, frequently flooded	0 to 2	249	292	325	350

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Merrick County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	344	401	445	478
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	219	257	287	309
8501	Lex	Lex clay loam, occasionally flooded	0 to 1	558	648	715	767
8503	Lex	Lex loam, occasionally flooded	0 to 2	610	708	781	837
8508	Lex_variant	Lex variant loam, occasionally flooded	0 to 1	696	807	890	953
8515	Lockton	Lockton loam, rarely flooded	0 to 1	700	811	895	959
8520	Merrick	Merrick loam, rarely flooded	0 to 2	92	111	126	137
8530	Novina	Novina fine sandy loam, rarely flooded	0 to 2	70	85	98	107
8531	Novina	Novina sandy loam, rarely flooded	0 to 2	72	88	100	110
8541	Ovina	Ovina loam, rarely flooded	0 to 1	152	179	201	217
8551	Silver_Creek	Silver Creek complex, saline-alkali, rarely flooded	0 to 2	127	150	169	183
8562	Platte	Platte fine sandy loam, occasionally flooded	0 to 2	451	524	580	623
8563	Platte	Platte loam, occasionally flooded	0 to 1	436	507	561	602
8564	Platte	Platte loam, wet, occasionally flooded	0 to 1	728	843	930	996
8567	Platte	Platte-Alda complex, occasionally flooded	0 to 2	451	524	580	623
8568	Platte	Platte-Alda loams, channeled, frequently flooded	0 to 2	747	865	954	1022
8570	Platte	Platte-Bolent complex, occasionally flooded	0 to 2	537	623	689	739
8571	Platte	Platte-Gothenburg complex, channeled, frequently flooded	0 to 3	513	596	658	706
8587	Wann	Wann sandy loam, occasionally flooded	0 to 2	105	127	143	156
8812	Cozad	Cozad loam, sand substratum, 0 to 3 percent slopes	0 to 3	212	249	277	299
8814	Cozad	Cozad loam, wet substratum, 0 to 1 percent slopes	0 to 1	177	209	233	252
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	133	157	176	191
8845	Hall	Hall silt loam, sandy substratum, 0 to 1 percent slopes	0 to 1	293	343	381	409
8864	Hord	Hord-Hastings complex, 3 to 6 percent slopes	3 to 6	115	138	155	169
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	172	202	226	245
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	118	141	159	172
8874	Hord	Hord silt loam, sandy substratum, 0 to 1 percent slopes	0 to 1	731	847	934	1001
8878	Hord	Hord very fine sandy loam, 0 to 1 percent slopes	0 to 1	86	105	119	129
8900	Lockton	Lockton loam	0 to 1	456	531	587	630

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Merrick County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8920	Rusco	Rusco silt loam, occasionally flooded	0 to 1	135	160	179	194
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	244	286	318	343
8960	Wood_River	Wood River silt loam, 0 to 1 percent slopes	0 to 1	507	589	651	699
9063	Kenesaw	Kenesaw silt loam, 0 to 1 percent slopes	0 to 1	238	279	310	334
9066	Kenesaw	Kenesaw silt loam, 3 to 6 percent slopes	3 to 6	238	279	310	334
9072	Kenesaw	Kenesaw-Cozad complex	0 to 1	213	250	278	300
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Morrill County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1001	Bankard	Bankard fine sand, channeled, frequently flooded	0 to 2	89	108	122	133
1002	Bankard	Bankard loamy coarse sand, occasionally flooded	0 to 2	74	90	103	113
1006	Bankard	Bankard loamy fine sand, channeled, frequently flooded	0 to 2	81	99	112	122
1030	Glenberg	Glenberg fine sandy loam, 0 to 2 percent slopes	0 to 2	81	99	112	122
1034	Glenberg	Glenberg very fine sandy loam, 0 to 2 percent slopes	0 to 2	374	435	482	518
1035	Glenberg	Glenberg loamy fine sand, 0 to 2 percent slopes	0 to 2	277	324	360	388
1114	Bankard	Bankard loamy fine sand, occasionally flooded	0 to 2	84	102	115	126
1300	Bayard	Bayard fine sandy loam, 1 to 3 percent slopes	1 to 3	154	182	204	221
1309	Bayard	Bayard very fine sandy loam, 6 to 9 percent slopes	6 to 9	158	186	208	225
1316	Bayard	Bayard-Dix complex, 9 to 20 percent slopes	9 to 20	157	185	207	224
1361	Bridget	Bridget very fine sandy loam, 0 to 1 percent slopes	0 to 1	96	116	131	142
1362	Bridget	Bridget very fine sandy loam, 1 to 3 percent slopes	1 to 3	96	116	131	142
1363	Bridget	Bridget very fine sandy loam, 3 to 6 percent slopes	3 to 6	96	116	131	142
1364	Bridget	Bridget very fine sandy loam, 6 to 9 percent slopes	6 to 9	96	116	131	142
1365	Bridget	Bridget very fine sandy loam, 9 to 20 percent slopes	9 to 20	96	116	131	142
1406	Craft	Craft very fine sandy loam, rarely flooded	0 to 2	161	190	213	230
1506	Altvan	Altvan-Dix complex, 3 to 9 percent slopes	3 to 9	685	794	876	939
1545	Dailey	Dailey loamy fine sand, 0 to 3 percent slopes	0 to 3	290	339	377	405
1546	Dailey	Dailey loamy fine sand, 3 to 9 percent slopes	3 to 9	290	339	377	405
1571	Dix	Dix gravelly loam, 9 to 50 percent slopes	11 to 50	339	396	439	471
1574	Dix	Dix loamy coarse sand, 6 to 50 percent slopes	30 to 50	109	131	148	161
1617	Keith	Keith loam, 0 to 1 percent slopes	0 to 1	169	199	222	241
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	173	204	228	146
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	163	193	215	233
1622	Keith	Keith loam, 3 to 6 percent slopes, eroded	3 to 6	168	198	221	239

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Morrill County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1623	Keith	Keith loam, 6 to 9 percent slopes, eroded	6 to 9	165	194	217	235
1704	Otero	Otero loamy very fine sand, 0 to 3 percent slopes	0 to 3	94	114	128	140
1705	Otero	Otero loamy very fine sand, 0 to 6 percent slopes	3 to 6	94	114	128	140
1707	Otero	Otero loamy very fine sand, 9 to 20 percent slopes	9 to 20	94	114	128	140
1708	Otero_variant	Otero variant very fine sandy loam, 0 to 1 percent slopes	0 to 2	110	132	148	161
1709	Otero	Otero very fine sandy loam, 0 to 3 percent slopes	1 to 3	109	131	148	161
1710	Otero	Otero very fine sandy loam, 3 to 6 percent slopes	3 to 6	110	133	149	162
1711	Otero	Otero very fine sandy loam, 6 to 9 percent slopes	6 to 9	110	133	149	162
1718	Otero	Otero-Epping complex, 9 to 60 percent slopes	9 to 30	138	164	184	199
1719	Otero	Otero loamy very fine sand, 3 to 9 percent slopes	6 to 9	138	164	184	199
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	326	381	423	454
1889	Valent	Valent fine sand, rolling	9 to 24	324	378	419	451
1890	Valent	Valent fine sand, rolling and hilly	9 to 24	323	377	366	450
1891	Valent	Valent loamy fine sand, 0 to 3 percent slopes	0 to 3	327	382	424	455
1892	Valent	Valent loamy fine sand, 3 to 9 percent slopes	3 to 9	336	393	435	468
1893	Valent	Valent loamy fine sand, 6 to 9 percent slopes	8 to 9	348	405	449	483
2306	McCook	McCook very fine sandy loam, 0 to 1 percent slopes	0 to 1	149	176	197	214
4264	Hoffland	Hoffland fine sandy loam, occasionally flooded	0 to 1	404	471	522	560
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	366	427	473	508
4490	Dunday	Dunday loamy fine sand, 3 to 9 percent slopes	3 to 9	356	415	459	494
4521	Els	Els fine sand, 0 to 3 percent slopes	0 to 3	426	496	549	459
4524	Els	Els fine sand, calcareous, 0 to 3 percent slopes	0 to 2	331	386	428	460
4527	Els	Els loamy fine sand, 0 to 3 percent slopes	0 to 3	428	498	551	592
4635	Hoffland	Hoffland fine sandy loam, 0 to 1 percent slopes	0 to 1	386	450	498	535

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Morrill County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4636	Hoffland	Hoffland fine sandy loam, frequently ponded	0 to 1	450	523	579	621
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	581	674	745	798
4691	Marlake	Marlake mucky peat	0 to 1	194	228	254	275
4693	Marlake	Marlake very fine sandy loam, frequently ponded	0 to 1	594	690	762	817
4780	Valentine	Valentine complex, rolling and hilly	9 to 24	336	392	434	467
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	344	401	445	478
4800	Valentine	Valentine fine sand, hilly	17 to 60	343	400	443	476
4807	Valentine	Valentine fine sand, rolling	9 to 24	342	399	442	475
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	348	405	449	483
4894	Wildhorse	Wildhorse fine sand, 0 to 3 percent slopes	0 to 3	340	397	440	473
4895	Wildhorse	Wildhorse loamy fine sand, 0 to 3 percent slopes	0 to 3	347	404	448	482
4896	Wildhorse	Wildhorse sand, 0 to 3 percent slopes	0 to 2	311	363	402	433
4898	Wildhorse	Wildhorse-Ipage, calcareous complex, 0 to 3 percent slopes	0 to 3	337	393	436	468
5123	Busher	Busher loamy very fine sand, 1 to 6 percent slopes	1 to 5	150	177	198	215
5129	Busher	Busher loamy very fine sand, 9 to 20 percent slopes	9 to 20	150	177	198	215
5130	Busher	Busher very fine sandy loam, 1 to 6 percent slopes	3 to 6	190	224	250	270
5131	Busher	Busher very fine sandy loam, 6 to 9 percent slopes	6 to 9	172	203	227	245
5132	Busher	Busher very fine sandy loam, 9 to 20 percent slopes	9 to 20	192	226	252	272
5134	Busher	Busher-Jayem loamy very fine sands, 3 to 6 percent slopes	3 to 6	161	190	212	229
5138	Busher	Busher-Tassel complex, 3 to 9 percent slopes	3 to 9	124	148	167	181
5140	Busher	Busher-Tassel complex, 9 to 20 percent slopes	9 to 20	122	147	165	179
5144	Busher	Busher-Tassel loamy very fine sands, 9 to 20 percent slopes	9 to 20	150	177	198	215
5145	Busher	Busher-Tassel loamy very fine sand, 3 to 9 percent slopes	3 to 9	151	179	200	217
5212	Oglala	Oglala-Canyon very fine sandy loams, 3 to 9 percent slopes	6 to 9	174	205	229	248
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	156	184	206	223

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Morrill County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5606	Broadwater	Broadwater loamy sand, channeled, frequently flooded	0 to 2	240	282	313	338
5607	Broadwater	Broadwater loamy sand, channeled, occasionally flooded	0 to 2	256	300	333	359
5613	Craft	Craft loamy very fine sand, 0 to 2 percent slopes	0 to 2	130	154	173	187
5617	Craft	Craft very fine sandy loam, alkali, 0 to 2 percent slopes	0 to 1	89	108	123	134
5631	Gering	Gering loam, alkali, occasionally flooded	0 to 1	505	586	648	695
5643	Janise	Janise loam, occasionally flooded	0 to 1	126	150	168	183
5648	Jankosh	Jankosh loam, rarely flooded	0 to 2	409	476	527	566
5652	Lewellen	Lewellen-McCuligan complex, rarely flooded	0 to 2	489	568	628	674
5656	Lisco	Lisco very fine sandy loam, occasionally flooded	0 to 2	215	253	282	304
5665	Minatare	Minatare-Janise complex, rarely flooded	0 to 1	263	308	343	369
5668	Rushcreek	Rushcreek loam, rarely flooded	0 to 2	303	354	393	423
5670	Yockey	Yockey loam, alkali, occasionally flooded	0 to 2	141	167	187	203
5671	Yockey	Yockey silt loam, occasionally flooded	0 to 1	209	245	273	295
5672	Yockey	Yockey silt loam, alkali, occasionally flooded	0 to 1	174	205	229	248
5673	Yockey	Yockey very fine sandy loam, channeled, occasionally flooded	0 to 2	143	170	190	206
5843	Mitchell	Mitchell very fine sandy loam, 0 to 1 percent slopes	0 to 1	113	136	153	166
5844	Mitchell	Mitchell very fine sandy loam, 1 to 3 percent slopes	1 to 3	113	136	153	166
5845	Mitchell	Mitchell very fine sandy loam, 3 to 6 percent slopes	3 to 6	113	136	153	166
5846	Mitchell	Mitchell very fine sandy loam, 6 to 9 percent slopes	6 to 9	113	136	153	166
5847	Mitchell	Mitchell very fine sandy loam, 9 to 20 percent slopes	9 to 20	112	135	152	165
5850	Mitchell	Mitchell-Epping very fine sandy loams, 3 to 9 percent slopes	3 to 9	117	140	158	171
5851	Mitchell	Mitchell-Epping very fine sandy loams, 9 to 20 percent slopes	9 to 20	112	135	152	165
5873	Tripp	Tripp very fine sandy loam, 0 to 1 percent slopes	0 to 1	105	127	142	155
5874	Tripp	Tripp very fine sandy loam, 1 to 3 percent slopes	1 to 3	102	123	139	151

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Morrill County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5875	Tripp	Tripp very fine sandy loam, 3 to 6 percent slopes, eroded	3 to 6	98	119	134	146
5876	Tripp	Tripp very fine sandy loam, 3 to 6 percent slopes	3 to 6	103	125	140	153
5877	Tripp	Tripp very fine sandy loam, 6 to 9 percent slopes, eroded	6 to 9	100	121	136	148
5878	Tripp	Tripp very fine sandy loam, 6 to 9 percent slopes	6 to 9	103	124	140	152
5901	Alice	Alice fine sandy loam, 0 to 3 percent slopes	0 to 3	175	206	230	249
5902	Alice	Alice fine sandy loam, 3 to 6 percent slopes	3 to 6	175	206	230	249
5903	Alice	Alice fine sandy loam, 6 to 9 percent slopes, eroded	6 to 9	175	206	230	249
5904	Alice	Alice loamy fine sand, 0 to 3 percent slopes	0 to 3	172	203	227	245
5905	Alice	Alice-Dix complex, 0 to 3 percent slopes	0 to 3	175	206	230	248
5906	Alice	Alice-Dix complex, 3 to 6 percent slopes	3 to 6	175	206	230	249
5907	Alice	Alice-Dix complex, 6 to 20 percent slopes	6 to 15	185	218	243	263
5910	Angora	Angora very fine sandy loam, 1 to 6 percent slopes	1 to 6	112	134	151	164
5911	Angora	Angora very fine sandy loam, 6 to 20 percent slopes	6 to 20	112	134	151	164
5917	Ashollow	Ashollow-Tassel complex, 9 to 30 percent slopes	9 to 30	159	187	210	227
5925	Blueridge	Blueridge coarse sand, 6 to 30 percent slopes	6 to 30	238	279	310	334
5929	Blueridge	Blueridge gravelly sandy loam, 20 to 30 percent slopes	20 to 30	289	338	375	404
5935	Creighton	Creighton very fine sandy loam, 3 to 6 percent slopes	3 to 6	128	151	170	184
5942	Duroc	Duroc loam, 0 to 1 percent slopes	0 to 1	86	105	118	129
5943	Duroc	Duroc loam, 1 to 3 percent slopes	1 to 3	149	176	197	213
5944	Duroc	Duroc loam, 1 to 6 percent slopes	3 to 5	100	121	136	148
5948	Duroc	Duroc loam, 3 to 6 percent slopes	3 to 6	86	105	118	129
5965	Jayem	Jayem fine sandy loam, 0 to 3 percent slopes	0 to 3	147	174	195	212
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	149	176	197	213
5967	Jayem	Jayem fine sandy loam, 6 to 9 percent slopes	6 to 9	147	174	194	211

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Morrill County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5968	Jayem	Jayem fine sandy loam, 9 to 20 percent slopes	9 to 20	205	241	269	290
5970	Jayem	Jayem loamy fine sand, 0 to 3 percent slopes	0 to 3	117	141	158	172
5972	Jayem	Jayem loamy fine sand, 3 to 6 percent slopes	3 to 6	180	212	237	256
6010	Sarben	Sarben very fine sandy loam, 1 to 3 percent slopes	1 to 3	111	134	151	164
6011	Sarben	Sarben very fine sandy loam, 3 to 9 percent slopes	6 to 9	103	124	140	152
6022	Tassel	Tassel-Busher complex, 3 to 30 percent slopes	3 to 30	83	101	114	125
6025	Tassel	Tassel loamy very fine sand, 20 to 50 percent slopes	30 to 50	122	147	165	179
6030	Tassel	Tassel-Ashollow-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	93	113	127	139
6033	Tassel	Tassel-Busher loamy very fine sands, 3 to 30 percent slopes	3 to 30	122	147	165	179
6034	Tassel	Tassel-Busher-Rock outcrop complex, 9 to 60 percent slopes	9 to 60	147	174	195	211
6035	Tassel	Tassel-Busher-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	123	148	166	180
6044	Tassel	Tassel-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	123	148	166	180
6050	Epping	Rock outcrop-Epping complex, 20 to 60 percent slopes	20 to 60	141	167	187	203
6053	Rock_outcrop	Rock outcrop-Tassel complex, 20 to 60 percent slopes	20 to 60	--	--	--	--
6095	Sarben	Sarben loamy fine sand, 3 to 6 percent slopes	3 to 6	89	108	122	133
6096	Sarben	Sarben loamy fine sand, 6 to 9 percent slopes	6 to 9	86	105	119	129
6102	Sarben	Sarben loamy very fine sand, 0 to 3 percent slopes	0 to 3	144	171	191	207
6105	Sarben	Sarben loamy very fine sand, 3 to 9 percent slopes	3 to 9	87	106	120	130
6107	Sarben	Sarben loamy very fine sand, 9 to 20 percent slopes	9 to 20	95	115	129	141
6204	Epping	Epping-Keota silt loams, 3 to 30 percent slopes	3 to 30	148	175	196	213
6312	Barney	Barney loam, frequently flooded	0 to 1	411	478	529	568

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Morrill County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	387	450	499	536
8563	Platte	Platte loam, occasionally flooded	0 to 1	368	429	476	511
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nance County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	561	651	719	771
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	291	340	378	406
2115	Inavale	Inavale soils, frequently flooded	0 to 2	314	366	406	437
2288	Wann	Wann loam, occasionally flooded	0 to 2	144	171	191	207
2328	Inavale	Inavale fine sandy loam, occasionally flooded	0 to 3	394	459	508	546
2332	Inavale	Inavale fine sand, occasionally flooded	0 to 1	325	380	421	453
2335	Inavale	Inavale loamy fine sand, 0 to 3 percent slopes	0 to 3	182	215	240	259
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	132	157	176	191
2580	Coly	Coly silt loam, 3 to 6 percent slopes	3 to 6	128	152	171	185
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	105	126	142	155
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	110	132	148	161
2672	Holdrege	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	97	118	133	145
2812	Uly	Uly and Coly silt loams, 11 to 30 percent slopes	9 to 31	143	170	190	206
2828	Uly	Uly, eroded-Hersh complex, 11 to 60 percent slopes	11 to 60	148	175	196	212
2833	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded, moist	17 to 30	148	175	196	212
2845	Uly	Uly-Coly silt loams, 11 to 17 percent slopes, eroded	11 to 17	148	175	196	212
3248	Meadin	Meadin loamy fine sand, 0 to 2 percent slopes	0 to 1	266	311	346	373
3260	O'Neill	O'Neill fine sandy loam, 0 to 2 percent slopes	0 to 2	492	572	632	678
3512	Lamo	Lamo clay loam, sandy substratum, 0 to 1 percent slopes	0 to 1	698	809	892	956
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	91	110	124	135
3521	Cass	Cass fine sandy loam, occasionally flooded	0 to 2	373	435	482	518
3524	Lamo	Lamo-Saltine complex, occasionally flooded	0 to 2	91	110	124	135
3525	Lamo	Lamo silt loam, moderately saline, occasionally flooded	0 to 1	96	116	131	143
3529	Gibbon	Gibbon loam, occasionally flooded	0 to 2	87	106	120	131
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	165	195	218	236
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nance County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	165	195	218	236
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	96	116	131	142
3775	Muir	Muir silt loam, rarely flooded	0 to 1	109	131	148	161
3776	Muir	Muir silt loam, 1 to 3 percent slopes	1 to 3	111	133	150	163
3777	Muir	Muir silt loam, 3 to 7 percent slopes	3 to 7	111	133	150	163
3951	Fillmore	Fillmore silt loam, occasionally ponded	0 to 1	121	146	163	177
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	135	160	179	194
4104	Geary_variant	Geary variant silty clay loam, 11 to 17 percent slopes, severely eroded	12 to 17	104	125	141	153
4105	Geary_variant	Geary variant silty clay loam, 7 to 11 percent slopes, severely eroded	7 to 11	104	125	141	154
4238	Ord_variant	Ord variant fine sandy loam, 0 to 1 percent slopes	0 to 1	256	300	334	359
4239	Ord_variant	Ord variant very fine sandy loam, 0 to 1 percent slopes	0 to 1	153	297	330	355
4265	Loup	Loup fine sandy loam, occasionally flooded	0 to 2	454	528	585	627
4267	Loup	Loup silt loam, occasionally flooded	0 to 1	772	895	987	1057
4527	Els	Els loamy fine sand, 0 to 3 percent slopes	0 to 3	401	468	518	556
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	423	492	544	584
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	368	429	476	511
4654	Ipage	Ipage-Els loamy fine sands, 0 to 3 percent slopes	0 to 3	279	327	363	390
4789	Valentine	Valentine fine sand, 3 to 17 percent slopes	9 to 17	364	425	471	506
4790	Valentine	Valentine fine sand, 3 to 17 percent slopes, eroded	9 to 17	364	425	471	506
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4796	Valentine	Valentine fine sand, 9 to 24 percent slopes	9 to 24	350	409	453	487
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	335	391	434	466
4822	Valentine	Valentine loamy fine sand, 3 to 17 percent slopes	3 to 17	363	423	468	503
4854	Valentine	Valentine-Boelus loamy fine sands, 3 to 9 percent slopes	3 to 9	348	406	450	483
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	180	212	237	256
6365	Obert	Obert soils, occasionally flooded	0 to 1	112	134	151	164
6366	Obert	Obert silt loam, occasionally flooded	0 to 2	136	162	181	197
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	422	491	543	583

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nance County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6525	Janude	Janude fine sandy loam, 0 to 1 percent slopes	0 to 1	83	101	115	125
6526	Janude	Janude loam, rarely flooded	0 to 2	109	131	148	161
6529	Janude	Janude sandy loam, very rarely flooded	0 to 2	145	172	193	209
6583	Ortello	Ortello very fine sandy loam, 1 to 3 percent slopes	1 to 3	334	390	432	465
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	131	155	174	189
6623	Belfore	Belfore silt loam, 0 to 1 percent slopes	0 to 1	108	130	146	159
6624	Belfore	Belfore silt loam, 1 to 3 percent slopes	1 to 3	102	123	139	151
6625	Belfore	Belfore silt loam, 1 to 3 percent slopes, eroded	1 to 3	99	120	135	147
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	91	110	125	136
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	231	271	301	325
6681	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	228	268	298	321
6683	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	231	271	301	325
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	243	285	317	342
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	231	271	301	325
6696	Crofton	Crofton-Nora silt loams, 11 to 17 percent slopes, eroded	11 to 17	228	268	298	321
6697	Crofton	Crofton-Nora silt loams, 17 to 30 percent slopes	17 to 30	228	268	298	321
6699	Crofton	Crofton-Nora silt loams, 6 to 11 percent slopes, eroded	6 to 11	228	268	298	321
6700	Thurman	Thurman loamy fine sand, 0 to 2 percent slopes	0 to 2	296	346	384	413
6701	Thurman	Thurman loamy fine sand, 1 to 3 percent slopes	1 to 3	287	335	372	401
6702	Thurman	Thurman loamy fine sand, 1 to 3 percent slopes, eroded	1 to 3	289	338	375	404
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	287	335	372	401
6704	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes, eroded	3 to 7	289	338	375	404
6705	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes, severely eroded	3 to 7	296	346	384	413
6730	Thurman	Thurman-Ortello fine sandy loams, 0 to 2 percent slopes	1 to 3	357	416	461	495

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nance County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6731	Thurman	Thurman-Ortello fine sandy loams, 2 to 6 percent slopes, eroded	3 to 7	361	421	466	501
6732	Thurman	Thurman-Ortello fine sandy loams, 6 to 11 percent slopes, eroded	7 to 12	362	422	467	502
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	127	151	169	184
6756	Nora	Nora silt loam, 6 to 11 percent slopes, eroded	6 to 11	123	147	165	179
6757	Nora_variant	Nora silt loam, 6 to 11 percent slopes, severely eroded	7 to 11	148	175	196	212
6771	Nora_variant	Nora-Hersh complex, 11 to 17 percent slopes, severely eroded	12 to 17	148	175	196	212
6772	Ortello	Nora-Ortello complex, 6 to 11 percent slopes, eroded	7 to 12	326	380	422	453
6773	Nora_variant	Nora-Hersh complex, 6 to 11 percent slopes, severely eroded	7 to 12	148	175	196	212
6774	Nora	Nora-Crofton complex, 11 to 17 percent slopes, eroded	11 to 17	112	135	152	165
6776	Nora	Nora-Crofton silt loams, 11 to 17 percent slopes	12 to 17	125	150	168	182
6777	Nora	Nora-Crofton silt loams, 11 to 17 percent slopes, eroded	12 to 17	122	146	164	178
6778	Nora_variant	Nora-Crofton complex, 6 to 11 percent slopes, eroded	6 to 11	135	160	180	195
6809	Moody	Moody silty clay loam, 1 to 3 percent slopes	1 to 3	145	171	192	208
6812	Moody	Moody silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	145	172	193	209
6815	Loretto	Loretto-Thurman complex, 1 to 3 percent slopes	1 to 2	71	87	99	109
6816	Loretto	Loretto-Thurman complex, 3 to 6 percent slopes	3 to 7	71	87	99	109
6817	Loretto	Loretto-Rusco variant fine sandy loams, 0 to 2 percent slopes	0 to 2	311	364	403	434
6820	Moody	Moody-Nora silt loams, 3 to 6 percent slopes	3 to 7	160	189	212	229
6821	Moody	Moody-Nora silt loams, 3 to 6 percent slopes, eroded	3 to 7	163	192	215	232
6822	Moody	Moody-Nora silt loams, 3 to 6 percent slopes, severely eroded	3 to 7	160	189	211	228
6843	Ortello	Ortello fine sandy loam, 1 to 3 percent slopes	1 to 3	326	380	422	453

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nance County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6844	Ortello	Ortello fine sandy loam, 1 to 3 percent slopes, eroded	1 to 3	335	391	434	466
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	335	391	434	466
6846	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes, eroded	3 to 7	342	399	443	476
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
8418	Boel	Boel loam, occasionally flooded	0 to 2	774	897	989	1059
8420	Boel	Boel loamy fine sand, occasionally flooded	0 to 2	434	506	559	600
8425	Boel	Boel-Inavale complex, channeled, frequently flooded	0 to 3	764	885	976	1046
8439	Cass	Cass silt loam, occasionally flooded	0 to 1	425	495	548	588
8463	Gayville_ variant	Gayville-Caruso complex, occasionally flooded	0 to 1	161	190	213	230
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	579	672	742	795
8481	Gibbon	Gibbon silt loam, moderately saline, occasionally flooded	0 to 1	127	151	169	184
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	344	401	445	478
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	336	393	435	468
8531	Novina	Novina sandy loam, rarely flooded	0 to 2	72	88	100	110
8541	Ovina	Ovina loam, rarely flooded	0 to 1	152	179	201	217
8571	Platte	Platte-Gothenburg complex, channeled, frequently flooded	0 to 3	513	596	658	706
8580	Wann	Wann fine sandy loam, occasionally flooded	0 to 2	108	130	146	159
8587	Wann	Wann sandy loam, occasionally flooded	0 to 2	105	127	143	156
8589	Wann	Wann silt loam, moderately saline, occasionally flooded	0 to 1	174	205	229	248
8590	Wann	Wann silt loam, occasionally flooded	0 to 1	174	205	229	248
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	133	157	177	191
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	133	157	176	191
8843	Hall	Hall silt loam, 3 to 6 percent slopes	3 to 6	132	157	176	191
8844	Hall	Hall silt loam, 3 to 6 percent slopes, eroded	3 to 6	131	156	175	189
8850	Hall	Hall-Gayville variant silt loams, 0 to 1 percent slopes	0 to 1	133	157	177	191
8864	Hord	Hord-Hastings complex, 3 to 6 percent slopes	3 to 6	115	138	155	169

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nance County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
8865	Hord	Hord fine sandy loam, 0 to 1 percent slopes	0 to 1	78	95	108	118
8867	Hord	Hord fine sandy loam, 1 to 3 percent slopes	1 to 3	77	94	106	116
8868	Hord	Hord fine sandy loam, 3 to 6 percent slopes	3 to 7	81	98	111	122
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	119	143	160	174
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	119	143	160	174
8874	Hord	Hord silt loam, sandy substratum, 0 to 1 percent slopes	0 to 1	731	847	934	1001
8878	Hord	Hord very fine sandy loam, 0 to 1 percent slopes	0 to 1	86	105	119	129
8879	Hord	Hord very fine sandy loam, 1 to 3 percent slopes	1 to 3	103	125	140	153
8880	Hord	Hord very fine sandy loam, 3 to 6 percent slopes	3 to 7	103	125	140	153
8881	Hord_variant	Hord very fine sandy loam, imperfectly drained, 0 to 1 percent slopes	0 to 1	87	106	120	131
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	289	337	375	403
9726	Ustorthents	Ustorthents, steep	9 to 30	152	180	202	218
9965	Spoil banks	Arents, spoil material	to	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9983	Pits	Gravel pit	0 to 30	276	323	358	386
9986	Miscella-neous_water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nemaha County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3920	Sogn	Sogn-Kipson complex, 7 to 30 percent slopes	6 to 30	63	77	89	97
7057	Kennebec	Kennebec-Nodaway silt loams, occasionally flooded	0 to 4	115	138	156	169
7083	Sarpy	Sarpy loamy fine sand, occasionally flooded	0 to 3	445	518	573	615
7087	Sarpy	Sarpy-Haynie complex, occasionally flooded	0 to 3	415	483	535	574
7091	Wabash	Wabash silty clay, occasionally flooded	0 to 1	81	98	111	122
7095	Zoe	Zoe-Zook silty clay loams, occasionally flooded	0 to 1	101	122	137	149
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	79	97	109	120
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	122	147	165	179
7205	Aksarben	Aksarben silty clay loam, 0 to 2 percent slopes	0 to 2	67	82	94	103
7206	Aksarben	Aksarben silty clay loam, 2 to 6 percent slopes	2 to 6	67	82	94	103
7229	Burchard	Burchard clay loam, 11 to 17 percent slopes	11 to 15	66	80	92	101
7230	Judson	Judson silt loam, 0 to 2 percent slopes	0 to 2	101	122	137	149
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	101	122	137	149
7263	Gymer	Gymer silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	93	113	128	139
7297	Malcolm	Malcolm silt loam, 6 to 11 percent slopes, eroded	5 to 11	209	246	274	296
7350	Malmo	Malmo clay, 3 to 11 percent slopes, eroded	3 to 11	68	82	95	104
7422	Morrill_variant	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	1250	1445	1591	1702
7495	Pawnee	Pawnee and Mayberry clay loams, 3 to 11 percent slopes, eroded	3 to 9	59	72	84	92
7501	Pawnee	Pawnee clay loam, 4 to 8 percent slopes, eroded	4 to 8	71	86	99	108
7548	Shelby	Shelby clay loam, 6 to 11 percent slopes	6 to 11	45	56	65	72
7555	Benfield	Benfield-Kipson silty clay loams, 6 to 11 percent slopes, eroded	6 to 11	68	83	95	105
7556	Benfield	Benfield-Kipson silty clay loams, 11 to 30 percent slopes	11 to 25	68	83	95	105
7596	Shelby	Shelby clay loam, 17 to 30 percent slopes	15 to 30	45	56	65	72
7641	Yutan	Yutan silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	94	114	128	140

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nemaha County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7644	Yutan	Yutan silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	95	115	129	141
7689	Wymore	Wymore silty clay loam, 0 to 2 percent slopes	0 to 2	77	95	107	117
7692	Wymore	Wymore silty clay loam, 3 to 11 percent slopes, eroded	3 to 9	75	92	105	114
7693	Wymore	Wymore silty clay loam, 2 to 6 percent slopes	2 to 7	78	95	108	118
7695	Wymore	Wymore silty clay, 3 to 6 percent slopes, eroded	2 to 7	72	87	100	109
7701	Ackmore	Ackmore silt loam, occasionally flooded	0 to 1	120	143	161	175
7704	Grable	Grable very fine sandy loam, occasionally flooded	0 to 2	491	571	632	677
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	60	73	84	92
7730	Blencoe	Blencoe silty clay, clayey substratum, rarely flooded	0 to 2	66	80	92	101
7741	Haynie	Haynie silt loam, occasionally flooded	0 to 1	227	266	296	319
7746	Haynie	Haynie silty clay, overwash, occasionally flooded	0 to 2	83	101	114	124
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	154	183	204	221
7770	Colo	Colo silty clay loam, occasionally flooded	0 to 2	96	116	131	143
7795	Moville	Moville silt loam, occasionally flooded	0 to 1	143	170	190	206
7806	Percival	Percival-Albaton silty clays, occasionally flooded	0 to 2	485	564	624	669
7858	Sarpy	Sarpy-Haynie complex, frequently flooded	0 to 3	442	514	569	611
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	149	176	197	213
7870	Nodaway	Nodaway-Colo complex, occasionally flooded	0 to 2	161	190	213	230
7871	Nodaway	Nodaway-Colo silt loams, occasionally flooded	0 to 2	153	180	202	219
7877	Onawa	Onawa silt loam, occasionally flooded	0 to 1	136	161	181	196
7878	Onawa	Onawa silt loam, overwash, occasionally flooded	0 to 1	122	146	164	178
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	91	110	124	136
7890	Zook	Zook silt loam, occasionally flooded	0 to 1	99	119	135	146
7899	Wabash	Wabash silty clay, frequently flooded, depressional	0 to 1	98	118	133	145
8019	Marshall	Marshall silty clay loam, 2 to 6 percent slopes	2 to 6	110	132	149	161
8094	Monona	Monona-Ida silt loams, 30 to 60 percent slopes	30 to 40	133	158	177	192

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nemaha County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
8096	Monona	Monona-Kipson complex, 30 to 70 percent slopes	30 to 40	133	158	177	192
8116	Pohocco	Pohocco silt loam, 2 to 6 percent slopes, eroded	2 to 5	123	147	165	179
8118	Pohocco	Pohocco silt loam, 6 to 11 percent slopes, eroded	6 to 11	123	147	165	179
8123	Pohocco	Pohocco silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	106	127	143	156
8125	Pohocco	Pohocco silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	106	127	143	156
8131	Pohocco	Pohocco, eroded-Ida silt loams, 11 to 17 percent slopes	11 to 17	122	147	165	179
8132	Pohocco	Pohocco, eroded-Ida silt loams, 17 to 30 percent slopes	17 to 30	122	147	165	179
8135	Pohocco	Pohocco, eroded-Ida silt loams, 6 to 11 percent slopes	5 to 11	124	148	167	181
9704	Udorthents	Udorthents silty clay loam	2 to 9	63	77	88	97
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nuckolls County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2327	Inavale	Inavale fine sandy loam, rarely flooded	0 to 2	229	269	299	322
2335	Inavale	Inavale loamy fine sand, 0 to 3 percent slopes	0 to 3	192	226	253	273
2345	McCook	McCook fine sandy loam, rarely flooded	0 to 2	139	165	185	200
2347	McCook	McCook silt loam, rarely flooded	0 to 2	229	269	299	322
2368	Munjor	Munjor soils, occasionally flooded	0 to 2	229	269	299	322
2521	Coly	Coly-Hobbs silt loams, 0 to 30 percent slopes	2 to 30	128	152	171	185
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	99	120	135	147
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	95	115	130	141
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	92	112	126	138
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	144	171	191	207
2824	Uly	Uly silt loam, 11 to 30 percent slopes, eroded	11 to 30	136	162	181	197
2834	Uly	Uly-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	144	171	191	207
3038	Gibbon	Gibbon silty clay loam, occasionally flooded	0 to 1	157	186	208	225
3247	Meadin	Meadin loam, 6 to 30 percent slopes	6 to 30	651	755	834	893
3261	Muir	O'Neill fine sandy loam, 2 to 6 percent slopes	2 to 6	193	228	254	274
3521	Cass	Cass fine sandy loam, occasionally flooded	0 to 2	417	485	537	576
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	169	199	223	241
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	169	199	223	241
3731	Massie	Massie silty clay loam, frequently ponded	0 to 1	89	107	121	132
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	156	185	207	224
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3833	Geary	Geary-Uly complex, 11 to 30 percent slopes	11 to 30	117	141	158	171
3836	Geary_variant	Geary variant-Uly complex, 11 to 30 percent slopes, severely eroded	11 to 30	122	146	164	178
3838	Geary	Geary silt loam, 7 to 11 percent slopes	7 to 11	124	149	167	181
3840	Geary	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	112	135	151	164
3844	Geary	Geary silt loam, 3 to 7 percent slopes	3 to 7	124	148	166	181

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nuckolls County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3846	Geary	Geary silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	110	133	149	162
3851	Geary	Geary-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	112	135	151	164
3852	Geary	Geary and Hobbs soils	10 to 30	120	144	162	176
3859	Jansen	Geary and Jansen silt loams, 3 to 7 percent slopes	3 to 6	620	719	794	851
3860	Jansen	Geary and Jansen soils, 11 to 30 percent slopes	11 to 30	620	719	794	851
3861	Jansen	Geary and Jansen soils, 7 to 11 percent slopes, eroded	6 to 11	621	720	795	852
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	160	189	212	229
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	160	189	211	229
3868	Hastings	Hastings silt loam, 3 to 7 percent slopes	3 to 7	150	177	198	215
3869	Hastings	Hastings silt loam, 7 to 11 percent slopes	6 to 11	130	155	173	188
3870	Hastings_ variant	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	279	327	363	390
3880	Holder	Holder silt loam, 1 to 3 percent slopes	1 to 3	99	120	135	147
3882	Holder	Holder silt loam, 3 to 7 percent slopes	3 to 7	99	119	134	146
3884	Holder	Holder silt loam, 7 to 11 percent slopes	7 to 11	96	116	131	143
3887	Holder_ variant	Holder silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	212	245	435	295
3889	Holder_ variant	Holder silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	212	245	435	295
3910	Scott	Scott silt loam, frequently ponded	0 to 1	115	138	155	169
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	130	154	173	188
4138	Holdrege	Holdrege silt loam, 7 to 11 percent slopes	6 to 11	93	113	127	139
4147	Holdrege	Holdrege soils, 3 to 7 percent slopes, severely eroded	3 to 7	85	104	141	128
4161	Kipson	Kipson silt loam, 7 to 30 percent slopes	7 to 30	82	100	113	123
6379	Saltine	Saltine loam, occasionally flooded	0 to 1	105	126	142	155
7261	Deroin	Deroin soils, 3 to 6 percent slopes, severely eroded	3 to 5	95	115	130	142
7262	Deroin	Deroin soils, 6 to 11 percent slopes, severely eroded	7 to 10	96	116	131	142
8436	Cass	Cass loam, occasionally flooded	0 to 2	298	349	387	416
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	106	128	144	157
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	357	417	462	496
8581	Wann	Wann fine sandy loam, rarely flooded	0 to 2	184	217	242	261
8585	Wann	Wann loam, rarely flooded	0 to 2	257	301	335	360

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Nuckolls County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	205	241	268	290
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	140	166	186	202
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	122	146	164	178
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	122	146	164	178
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	122	146	164	178
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	261	306	340	366
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Otoe County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3921	Sogn	Sogn-Rock outcrop complex, 11 to 30 percent slopes	11 to 30	70	86	98	107
4164	Kipson	Kipson-Benfield complex, 7 to 20 percent slopes	6 to 20	87	106	120	131
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	112	135	151	164
7057	Kennebec	Kennebec-Nodaway silt loams, occasionally flooded	0 to 4	127	151	170	184
7087	Sarpy	Sarpy-Haynie complex, occasionally flooded	0 to 3	415	483	535	574
7091	Wabash	Wabash silty clay, occasionally flooded	0 to 1	81	99	112	122
7094	Zoe	Zoe silty clay loam, occasionally flooded	0 to 2	103	124	140	152
7095	Zoe	Zoe-Zook silty clay loams, occasionally flooded	0 to 1	101	122	137	149
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	85	103	117	127
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	127	151	170	184
7154	Kennebec	Kennebec-Nodaway silt loams, rarely flooded	0 to 4	123	148	166	180
7205	Aksarben	Aksarben silty clay loam, 0 to 2 percent slopes	0 to 2	73	88	101	111
7206	Aksarben	Aksarben silty clay loam, 2 to 6 percent slopes	2 to 6	73	88	101	111
7212	Morrill	Burchard-Morrill clay loams, 6 to 11 percent slopes	6 to 11	88	107	120	131
7230	Judson	Judson silt loam, 0 to 2 percent slopes	0 to 2	105	126	142	154
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	105	126	142	154
7270	Dickinson	Dickinson fine sandy loam, 6 to 11 percent slopes	6 to 11	204	239	267	288
7271	Dickinson	Dickinson fine sandy loam, 11 to 20 percent slopes	11 to 20	204	239	267	288
7296	Malcolm	Malcolm silt loam, 6 to 11 percent slopes	6 to 11	202	237	265	286
7297	Malcolm	Malcolm silt loam, 6 to 11 percent slopes, eroded	5 to 11	202	237	265	286
7299	Malcolm	Malcolm silt loam, 11 to 25 percent slopes	11 to 25	202	237	265	386
7344	Malmo	Malmo, eroded-Pawnee complex, 6 to 11 percent slopes	6 to 12	70	85	98	107
7350	Malmo	Malmo clay, 3 to 11 percent slopes, eroded	3 to 11	70	86	98	107
7418	Morrill	Morrill clay loam, 6 to 11 percent slopes	6 to 11	83	101	114	125
7422	Morrill	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	78	96	108	118
7446	Morrill_ variant	Morrill-Malmo, eroded, complex, 3 to 11 percent slopes	3 to 9	864	1000	1103	1180

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Otoe County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7464	Otoe	Otoe silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	78	95	108	117
7501	Pawnee	Pawnee clay loam, 4 to 8 percent slopes, eroded	4 to 8	71	86	99	108
7507	Pawnee	Pawnee clay loam, 6 to 11 percent slopes, eroded	6 to 11	63	77	88	97
7511	Pawnee	Pawnee clay loam, 6 to 11 percent slopes	7 to 12	65	79	91	100
7515	Pawnee	Pawnee clay, 6 to 11 percent slopes, eroded	9 to 12	59	72	83	91
7546	Burchard	Shelby and Burchard clay loams, 11 to 17 percent slopes	12 to 17	64	78	90	99
7548	Shelby	Shelby clay loam, 6 to 11 percent slopes	6 to 11	45	56	65	72
7549	Shelby	Shelby clay loam, 11 to 17 percent slopes	9 to 15	46	57	67	74
7596	Shelby	Shelby clay loam, 17 to 30 percent slopes	15 to 30	44	54	64	70
7610	Steinauer	Steinauer clay loam, 11 to 20 percent slopes	11 to 20	68	83	96	105
7641	Yutan	Yutan silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	96	116	130	142
7644	Yutan	Yutan silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	96	116	130	142
7668	Mayberry	Mayberry silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	90	109	123	134
7669	Mayberry	Mayberry clay loam, 3 to 11 percent slopes	3 to 9	89	108	123	134
7684	Wymore	Wymore silty clay loam, 3 to 6 percent slopes, eroded	3 to 6	77	94	106	116
7689	Wymore	Wymore silty clay loam, 0 to 2 percent slopes	0 to 2	82	99	113	123
7693	Wymore	Wymore silty clay loam, 2 to 6 percent slopes	2 to 7	76	94	106	116
7695	Wymore	Wymore silty clay, 3 to 6 percent slopes, eroded	2 to 7	72	87	100	109
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	60	73	84	93
7741	Haynie	Haynie silt loam, occasionally flooded	0 to 1	202	237	264	285
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	161	190	213	230
7770	Colo	Colo silty clay loam, occasionally flooded	0 to 2	96	116	131	143
7773	Colo	Colo-Nodaway complex, frequently flooded	0 to 2	97	118	133	144
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	148	175	196	213
7870	Nodaway	Nodaway-Colo complex, occasionally flooded	0 to 2	161	190	213	230
7871	Nodaway	Nodaway-Colo silt loams, occasionally flooded	0 to 2	153	180	202	219

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Otoe County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7878	Onawa	Onawa silt loam, overwash, occasionally flooded	0 to 1	122	146	164	178
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	90	109	123	135
8019	Marshall	Marshall silty clay loam, 2 to 6 percent slopes	2 to 6	108	130	146	159
8034	Marshall	Marshall-Ponca silt loams, 11 to 17 percent slopes	11 to 17	117	141	158	172
8073	Monona	Monona silt loam, 17 to 30 percent slopes	17 to 30	134	159	178	193
8075	Monona	Monona silt loam, 2 to 6 percent slopes	2 to 6	134	159	178	193
8096	Monona	Monona-Kipson complex, 30 to 70 percent slopes	30 to 40	133	158	177	192
8101	Monona	Monona-Shelby-Kipson complex, 30 to 70 percent slopes	30 to 70	134	159	178	193
8125	Pohocco	Pohocco silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	103	124	140	152
8135	Pohocco	Pohocco, eroded-Ida silt loams, 6 to 11 percent slopes	5 to 11	124	148	167	181
8150	Ponca	Ponca-Dow silt loams, 6 to 11 percent slopes, eroded	5 to 11	157	185	207	224
8151	Ponca	Ponca-Dow silt loams, 11 to 17 percent slopes, eroded	11 to 17	157	185	207	224
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Pawnee County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3640	Kezan	Kezan silt loam, frequently flooded	0 to 2	130	154	173	187
3709	Crete	Crete silt loam, terrace, 0 to 1 percent slopes	0 to 1	109	131	148	161
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	152	180	202	218
4163	Kipson	Kipson-Benfield complex, 11 to 25 percent slopes	11 to 25	81	99	112	122
4165	Benfield	Kipson-Benfield silty clay loams, 7 to 17 percent slopes	5 to 17	71	86	99	108
4166	Kipson	Kipson-Sogn complex, 3 to 30 percent slopes	3 to 30	70	85	98	107
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	112	135	151	164
7090	Wabash	Wabash silty clay loam, occasionally flooded	0 to 1	90	110	124	135
7091	Wabash	Wabash silty clay, occasionally flooded	0 to 1	80	98	111	121
7102	Wymore	Wymore silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	79	97	109	120
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	122	146	164	178
7154	Kennebec	Kennebec-Nodaway silt loams, rarely flooded	0 to 4	123	148	166	180
7227	Burchard	Burchard clay loam, 6 to 11 percent slopes	6 to 11	66	80	92	101
7229	Burchard	Burchard clay loam, 11 to 17 percent slopes	11 to 15	66	81	93	102
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	102	123	138	150
7266	Burchard	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	60	73	84	92
7268	Burchard	Burchard-Steinauer clay loams, 6 to 11 percent slopes, eroded	6 to 12	60	73	84	92
7295	Malcolm	Malcolm complex, 11 to 25 percent slopes	12 to 25	198	233	260	280
7296	Malcolm	Malcolm silt loam, 6 to 11 percent slopes	6 to 11	205	241	269	290
7298	Malcolm	Malcolm complex, 6 to 11 percent slopes	5 to 12	198	233	260	281
7344	Malmo	Malmo, eroded-Pawnee complex, 6 to 11 percent slopes	6 to 12	70	85	98	107
7346	Malmo	Malmo soils, 3 to 11 percent slopes, eroded	3 to 9	68	82	95	104
7349	Malmo	Malmo clay loam, 2 to 6 percent slopes, eroded	2 to 6	70	85	98	107
7350	Malmo	Malmo clay, 3 to 11 percent slopes, eroded	3 to 11	70	86	98	107
7352	Malmo	Malmo clay loam, 3 to 11 percent slopes, eroded	3 to 9	69	84	97	106
7411	Cortland	Cortland-Malmo complex, 6 to 11 percent slopes, eroded	6 to 12	207	243	271	293

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Pawnee County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7414	Mayberry	Mayberry loam, 3 to 11 percent slopes	3 to 9	90	109	123	134
7418	Morrill	Morrill clay loam, 6 to 11 percent slopes	6 to 11	73	89	102	112
7419	Morrill	Morrill loam, 11 to 17 percent slopes	12 to 17	112	135	152	165
7422	Morrill	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	78	96	108	118
7432	Morrill_ variant	Morrill soils, 6 to 11 percent slopes, severely eroded	5 to 12	733	849	937	1004
7434	Morrill	Morrill loam, 3 to 6 percent slopes	3 to 5	109	131	147	160
7444	Morrill_ variant	Morrill soils, 11 to 17 percent slopes, severely eroded	12 to 17	733	849	937	1004
7447	Morrill	Morrill loam, 6 to 11 percent slopes	5 to 12	110	132	149	162
7468	Otoe	Otoe soils, 3 to 6 percent slopes, eroded	3 to 7	78	95	108	117
7494	Malmo	Pawnee and Malmo soils, 6 to 11 percent slopes, eroded	9 to 12	68	82	95	104
7501	Pawnee	Pawnee clay loam, 4 to 8 percent slopes, eroded	4 to 8	71	86	99	108
7509	Pawnee	Pawnee loam, 0 to 3 percent slopes	0 to 3	65	79	91	99
7515	Pawnee	Pawnee clay, 6 to 11 percent slopes, eroded	9 to 12	59	73	84	92
7546	Burchard	Shelby and Burchard clay loams, 11 to 17 percent slopes	12 to 17	66	81	93	102
7548	Shelby	Shelby clay loam, 6 to 11 percent slopes	6 to 11	44	55	64	71
7549	Shelby	Shelby clay loam, 11 to 17 percent slopes	9 to 15	46	57	67	74
7551	Benfield	Benfield silty clay loam, 3 to 11 percent slopes, eroded	3 to 9	76	92	105	115
7553	Benfield	Benfield soils, 3 to 11 percent slopes, severely eroded	3 to 9	69	84	97	106
7596	Shelby	Shelby clay loam, 17 to 30 percent slopes	15 to 30	46	57	67	74
7610	Steinauer	Steinauer clay loam, 11 to 20 percent slopes	11 to 20	66	81	93	102
7613	Steinauer	Steinauer clay loam, 6 to 11 percent slopes	5 to 12	68	82	95	104
7619	Steinauer	Steinauer clay loam, 30 to 50 percent slopes	30 to 50	74	90	102	112
7669	Mayberry	Mayberry clay loam, 3 to 11 percent slopes	3 to 9	84	102	115	126
7681	Wymore	Wymore silty clay loam, 1 to 3 percent slopes	1 to 3	76	93	105	115
7683	Wymore	Wymore silty clay loam, 3 to 6 percent slopes	3 to 6	76	93	105	115
7684	Wymore	Wymore silty clay loam, 3 to 6 percent slopes, eroded	3 to 6	79	96	109	119

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Pawnee County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
7689	Wymore	Wymore silty clay loam, 0 to 2 percent slopes	0 to 2	79	97	109	120
7692	Wymore	Wymore silty clay loam, 3 to 11 percent slopes, eroded	3 to 9	75	92	105	114
7693	Wymore	Wymore silty clay loam, 2 to 6 percent slopes	2 to 7	79	97	109	120
7695	Wymore	Wymore silty clay, 3 to 6 percent slopes, eroded	2 to 7	72	88	100	110
7736	Colo	Colo and Kennebec soils, occasionally flooded	0 to 2	96	116	131	143
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	157	186	208	225
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	148	175	196	213
7868	Nodaway	Nodaway silt loam, channeled, occasionally flooded	0 to 2	150	178	199	216
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Perkins County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1010	Bankard	Bankard loamy sand, channeled, frequently flooded	0 to 2	232	272	303	327
1502	Altvan	Altvan loam, 1 to 3 percent slopes	1 to 3	664	769	849	910
1503	Altvan	Altvan loam, 3 to 6 percent slopes	3 to 6	664	769	849	910
1507	Altvan	Altvan-Dix complex, 6 to 30 percent slopes	6 to 15	680	789	871	933
1509	Altvan	Altvan-Eckley-Satanta complex, 3 to 9 percent slopes	3 to 9	277	324	360	387
1520	Ascalon	Ascalon fine sandy loam, 1 to 3 percent slopes	1 to 3	121	145	163	177
1521	Ascalon	Ascalon fine sandy loam, 3 to 6 percent slopes	3 to 6	121	145	163	177
1525	Blanche	Blanche fine sandy loam, 1 to 3 percent slopes	0 to 3	130	155	173	188
1547	Dailey	Dailey loamy sand, 0 to 3 percent slopes	0 to 3	279	326	362	390
1590	Haxtun	Haxtun fine sandy loam, 0 to 3 percent slopes	0 to 3	87	105	119	130
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	182	214	239	258
1620	Keith	Keith silt loam, 1 to 3 percent slopes	1 to 3	226	265	295	318
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	187	220	246	266
1630	Keith	Keith silt loam, 3 to 6 percent slopes, eroded	3 to 6	227	266	297	320
1650	Kuma	Kuma loam, 0 to 1 percent slopes	0 to 1	157	185	207	224
1651	Kuma	Kuma loam, 1 to 3 percent slopes	1 to 3	157	185	207	224
1652	Kuma	Kuma silt loam, 0 to 1 percent slopes	0 to 1	166	196	219	236
1653	Kuma	Kuma silt loam, 1 to 3 percent slopes	1 to 3	166	196	219	236
1661	Lodgepole	Lodgepole silt loam, frequently ponded	0 to 1	116	139	157	170
1670	Mace	Mace silt loam, 0 to 1 percent slopes	0 to 1	93	113	128	139
1671	Mace	Mace silt loam, 1 to 3 percent slopes	1 to 3	96	116	130	142
1695	McCash	McCash very fine sandy loam, 0 to 1 percent slopes	0 to 1	282	330	366	394
1696	McCash	McCash very fine sandy loam, 1 to 3 percent slopes	1 to 3	303	354	393	423
1725	Rosebud	Rosebud loam, 0 to 1 percent slopes	0 to 1	145	171	192	208
1726	Rosebud	Rosebud loam, 1 to 3 percent slopes	1 to 3	145	171	192	208
1739	Rosebud	Rosebud-Canyon loams, 1 to 3 percent slopes	1 to 3	144	170	191	206
1740	Rosebud	Rosebud-Canyon loams, 3 to 6 percent slopes	3 to 6	144	170	191	206
1743	Rosebud	Rosebud-Canyon loams, 6 to 12 percent slopes, eroded	6 to 11	146	173	194	210
1810	Satanta	Satanta loam, 0 to 1 percent slopes	0 to 1	99	120	135	147

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Perkins County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1811	Satanta	Satanta loam, 1 to 3 percent slopes	1 to 3	144	171	191	207
1814	Satanta	Satanta loam, 3 to 6 percent slopes	3 to 6	144	170	190	206
1818	Satanta	Satanta very fine sandy loam, 1 to 3 percent slopes	1 to 3	168	198	222	239
1819	Satanta	Satanta very fine sandy loam, 3 to 6 percent slopes	3 to 6	229	268	299	322
1820	Satanta	Satanta-Altvan complex, 3 to 6 percent slopes	3 to 6	159	188	210	227
1833	Sulco	Sulco-Ulysses silt loams, 9 to 30 percent slopes, eroded	9 to 30	232	272	303	326
1868	Ulysses	Ulysses-Sulco silt loams, 3 to 6 percent slopes, eroded	3 to 6	163	193	216	233
1869	Ulysses	Ulysses-Sulco silt loams, 6 to 9 percent slopes, eroded	6 to 9	163	193	216	233
1875	Woodly	Woodly fine sandy loam, 0 to 3 percent slopes	0 to 3	136	161	180	195
1876	Woodly	Woodly loamy fine sand, 0 to 3 percent slopes	0 to 3	119	143	161	175
1895	Valent	Valent loamy sand, 0 to 3 percent slopes	0 to 3	346	403	447	481
1896	Valent	Valent loamy sand, 3 to 9 percent slopes	3 to 9	346	403	447	481
1899	Valent	Valent sand, rolling	9 to 24	365	426	472	507
1900	Valent	Valent sand, rolling and hilly	17 to 60	362	421	467	502
2177	McCook	McCook silt loam, occasionally flooded	0 to 2	215	253	282	304
4263	Gannett_ variant	Gannett variant silt loam, occasionally flooded	0 to 2	2500	2883	3171	3388
4477	Duda	Duda-Tassel complex, 3 to 6 percent slopes	3 to 6	165	195	218	235
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	336	392	434	467
5104	Alliance	Alliance silt loam, 0 to 1 percent slopes	0 to 1	150	177	198	214
5105	Alliance	Alliance silt loam, 1 to 3 percent slopes	1 to 3	150	177	198	214
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	156	184	206	223
5288	Vetal	Vetal loamy fine sand, 0 to 3 percent slopes	0 to 3	188	221	247	267
5934	Creighton	Creighton very fine sandy loam, 1 to 3 percent slopes	1 to 3	157	186	208	225
5935	Creighton	Creighton very fine sandy loam, 3 to 6 percent slopes	3 to 6	157	186	208	225
5965	Jayem	Jayem fine sandy loam, 0 to 3 percent slopes	0 to 3	146	173	193	209
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	146	173	193	209

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Perkins County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5970	Jayem	Jayem loamy fine sand, 0 to 3 percent slopes	0 to 3	116	139	157	170
6040	Tassel	Tassel-Duda loamy sands, 6 to 30 percent slopes	6 to 30	82	100	114	124
6095	Sarben	Sarben loamy fine sand, 3 to 6 percent slopes	3 to 6	152	179	201	217
6096	Sarben	Sarben loamy fine sand, 6 to 9 percent slopes	6 to 9	152	179	201	217
6104	Sarben	Sarben loamy very fine sand, 3 to 6 percent slopes	3 to 6	146	173	194	210
6106	Sarben	Sarben loamy very fine sand, 6 to 9 percent slopes	6 to 9	146	173	194	210
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	148	175	196	213
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Phelps County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1038	Grigston	Grigston silt loam	0 to 1	116	139	156	170
2525	Coly	Coly and Kenesaw silt loams, 6 to 11 percent slopes	7 to 10	128	152	171	185
2526	Coly	Coly and Nuckolls silt loams, 11 to 30 percent slopes, eroded	9 to 31	128	152	171	185
2528	Coly	Coly and Uly silt loams, 3 to 11 percent slopes, eroded	6 to 9	128	152	171	185
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	128	152	171	185
2536	Coly	Coly silt loam, 30 to 60 percent slopes	30 to 60	136	161	180	195
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2541	Coly	Coly silt loam, 11 to 17 percent slopes, eroded	11 to 20	128	152	171	185
2542	Coly	Coly-Kenesaw silt loams, 0 to 3 percent slopes	0 to 3	128	152	171	185
2557	Coly	Coly-Uly silt loams, 3 to 11 percent slopes, eroded	6 to 9	136	161	180	195
2558	Coly	Coly-Uly silt loams, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2559	Coly	Coly-Uly silt loams, 11 to 30 percent slopes	9 to 30	128	152	171	185
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2574	Uly	Nuckolls and Uly silt loams, 11 to 17 percent slopes	9 to 15	138	163	183	198
2580	Coly	Coly silt loam, 3 to 6 percent slopes	3 to 6	128	152	171	185
2595	Hersh	Hersh fine sandy loam, 0 to 3 percent slopes	0 to 3	153	181	202	219
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	95	115	130	142
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	94	114	129	140
2669	Holdrege	Holdrege silt loam, 1 to 3 percent slopes, eroded	1 to 3	94	114	129	140
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	94	114	128	140
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	94	113	128	139
2810	Coly	Uly and Coly silt loams, 11 to 30 percent slopes	9 to 31	128	152	171	185
2819	Uly	Uly silt loam, 3 to 11 percent slopes	3 to 9	138	163	183	198
2830	Uly	Uly-Coly silt loams, 11 to 30 percent slopes	9 to 30	136	161	181	196
3100	Meadin	Meadin loamy sand, terrace, 0 to 2 percent slopes	0 to 2	274	321	356	384

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Phelps County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3101	Meadin	Meadin silt loam, terrace, 0 to 2 percent slopes	0 to 1	461	537	594	637
3260	O'Neill	O'Neill fine sandy loam, 0 to 2 percent slopes	0 to 2	485	564	624	669
3560	Hobbs	Hobbs silt loam, overwash, occasionally flooded	0 to 1	160	189	211	228
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	160	189	211	228
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	198	232	259	280
3715	Cozad	Cozad silt loam, rarely flooded	0 to 1	202	237	264	285
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	96	116	131	143
3731	Massie	Massie silty clay loam, frequently ponded	0 to 1	97	117	132	144
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3912	Scott	Scott silty clay loam, frequently ponded	0 to 1	96	116	130	142
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
3954	Fillmore	Fillmore silt loam, drained, frequently ponded	0 to 1	114	136	153	167
4123	Uly	Holdrege and Uly soils, 3 to 7 percent slopes, eroded	3 to 7	136	161	180	195
4138	Holdrege	Holdrege silt loam, 7 to 11 percent slopes	6 to 11	93	112	127	138
4147	Holdrege	Holdrege soils, 3 to 7 percent slopes, severely eroded	3 to 7	87	106	120	130
4149	Holdrege	Holdrege-Coly complex, 7 to 11 percent slopes, eroded	7 to 10	92	111	126	137
4156	Holdrege	Holdrege-Uly silt loams, 1 to 3 percent slopes	1 to 3	90	109	123	134
4157	Holdrege	Holdrege-Uly silt loams, 3 to 7 percent slopes, eroded	3 to 6	88	107	121	132
4387	Dunday	Dunday loamy fine sand, terrace, 0 to 3 percent slopes	0 to 3	149	176	198	214
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	346	403	447	480
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	346	403	447	480
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	346	403	447	480
4838	Valentine	Valentine loamy sand, 0 to 3 percent slopes	0 to 3	334	390	433	465
4863	Valentine	Valentine-Els loamy fine sands, 0 to 9 percent slopes	3 to 9	346	403	447	480
5632	Platte	Platte soils, occasionally flooded	0 to 3	285	334	370	399

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Phelps County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	331	387	429	461
6355	Leshara	Leshara-Saltine silt loams, occasionally flooded	0 to 1	331	387	429	461
8402	Alda	Alda loam, rarely flooded	0 to 1	515	598	661	709
8467	Gibbon	Gibbon loam, saline, rarely flooded	0 to 1	99	119	134	146
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	323	377	418	450
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	421	490	542	582
8502	Lex	Lex loam, rarely flooded	0 to 2	432	503	557	597
8567	Platte	Platte-Alda complex, occasionally flooded	0 to 2	330	385	427	459
8575	Platte	Platte-Wann complex, channeled, occasionally flooded	0 to 2	286	334	371	400
8581	Wann	Wann fine sandy loam, rarely flooded	0 to 2	109	131	148	161
8585	Wann	Wann loam, rarely flooded	0 to 2	145	171	192	208
8586	Wann	Wann loam, saline, occasionally flooded	0 to 1	149	177	198	214
8806	Anselmo	Anselmo very fine sandy loam, terrace, 0 to 1 percent slopes	0 to 1	204	240	268	289
8809	Anselmo	Anselmo fine sandy loam, terrace, 1 to 3 percent slopes	1 to 3	195	229	256	276
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	193	227	254	274
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	130	155	173	188
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	119	143	160	174
8891	Kenesaw	Kenesaw silt loam, terrace, 1 to 3 percent slopes	1 to 3	202	238	265	286
8932	Simeon	Simeon sandy loam, 0 to 3 percent slopes	0 to 3	300	350	389	418
9002	Anselmo	Anselmo fine sandy loam, 1 to 3 percent slopes	1 to 3	195	229	256	276
9006	Anselmo	Anselmo fine sandy loam, 6 to 11 percent slopes	6 to 11	200	235	262	283
9009	Anselmo	Anselmo fine sandy loam, hummocky, eroded	3 to 7	198	232	259	280
9014	Anselmo	Anselmo very fine sandy loam, 0 to 1 percent slopes	0 to 1	205	241	269	290
9059	Kenesaw	Kenesaw and Coly silt loams, hummocky, eroded	3 to 7	203	239	266	287
9060	Kenesaw	Kenesaw and Coly silt loams, 1 to 3 percent slopes	1 to 3	203	239	266	287
9061	Kenesaw	Kenesaw and Coly silt loams, hummocky	3 to 7	203	239	266	287
9063	Kenesaw	Kenesaw silt loam, 0 to 1 percent slopes	0 to 1	203	239	266	287
9080	Rusco	Rusco silt loam, 0 to 1 percent slopes	0 to 1	120	144	162	175
9724	Ustorthents	Ustorthents, 17 to 60 percent slopes	17 to 60	105	127	143	155

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Phelps County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Pierce County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2354	Inavale	Inavale loamy fine sand, frequently flooded	0 to 1	297	347	385	414
3281	Paka	Paka complex, 2 to 6 percent slopes	3 to 6	67	82	94	103
3288	Paka	Paka sandy clay loam, 2 to 11 percent slopes	3 to 8	105	127	143	155
3289	Paka	Paka sandy loam, 2 to 11 percent slopes	3 to 8	92	111	126	137
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	91	111	125	136
3521	Cass	Cass fine sandy loam, occasionally flooded	0 to 2	225	264	294	317
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	160	188	211	228
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	165	195	218	236
3556	Muir	Muir silt loam, calcareous, rarely flooded	0 to 1	114	136	153	167
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	155	183	205	222
3642	Kezan	Kezan silt loam, occasionally flooded	0 to 2	147	174	195	211
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	236	276	307	331
3755	Hord	Hord silt loam, rarely flooded	0 to 1	117	141	158	172
3774	Muir	Muir silty clay loam, rarely flooded	0 to 1	95	115	130	142
3775	Muir	Muir silt loam, rarely flooded	0 to 1	114	136	153	167
3817	Butler	Butler silty clay loam, 0 to 1 percent slopes	0 to 1	144	170	191	206
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	196	230	257	277
3950	Fillmore	Fillmore complex, frequently ponded	0 to 1	124	149	167	181
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	115	138	155	169
4179	Longford	Longford loam, 1 to 7 percent slopes	1 to 5	94	113	128	140
4182	Longford	Longford silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	92	112	126	137
4183	Longford	Longford soils, 3 to 7 percent slopes, eroded	2 to 8	87	105	119	130
4241	Ord_variant	Ord fine sandy loam, occasionally flooded	0 to 2	269	315	350	377
4244	Ord_variant	Ord loam, occasionally flooded	0 to 2	357	417	462	496
4352	Elsmere	Elsmere fine sandy loam, rarely flooded	0 to 2	524	609	673	721
4376	Loup	Loup fine sandy loam, rarely flooded	0 to 2	155	183	205	222
4379	Loup	Loup soils, rarely flooded	0 to 2	229	269	299	322
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	430	501	554	595
4686	Marlake	Marlake loam, frequently ponded	0 to 1	772	894	986	1056
4786	Valentine	Valentine fine sand, 0 to 6 percent slopes	0 to 6	363	423	469	504
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	349	407	451	484
4796	Valentine	Valentine fine sand, 9 to 24 percent slopes	9 to 24	357	417	462	496
4807	Valentine	Valentine fine sand, rolling	9 to 24	363	423	469	504

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Pierce County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
5478	Betts	Betts clay loam, 6 to 11 percent slopes, eroded	6 to 11	69	84	96	105
5480	Betts	Betts loam, 3 to 11 percent slopes, eroded	6 to 11	68	83	95	104
6301	Aowa	Aowa silt loam, channeled, frequently flooded	0 to 2	159	187	209	227
6323	Coleridge	Coleridge silt loam, occasionally flooded	0 to 2	130	154	172	187
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	102	123	139	151
6329	Lawet	Lawet loam, occasionally flooded	0 to 1	138	164	183	199
6336	Lawet	Lawet silt loam, occasionally flooded	0 to 2	151	179	200	217
6343	Lawet	Lawet soils, wet, occasionally flooded	0 to 2	151	179	200	217
6346	Lawet	Lawet-Saltine complex, occasionally flooded	0 to 1	290	339	377	405
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	328	383	425	457
6363	Obert	Obert silt loam, frequently ponded	0 to 1	124	149	167	181
6369	Orwet	Orwet loam, rarely flooded	0 to 2	500	582	643	690
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	177	208	233	252
6450	Clamo	Clamo silty clay, occasionally flooded	0 to 1	116	139	157	170
6451	Clamo	Clamo-Saltine complex, occasionally flooded	0 to 2	116	139	157	170
6500	Bazile	Bazile loam, 0 to 2 percent slopes	0 to 2	433	504	557	598
6501	Bazile	Bazile loam, terrace, 0 to 1 percent slopes	0 to 1	408	475	526	565
6502	Bazile	Bazile soils, terrace, 0 to 1 percent slopes	0 to 1	236	276	307	331
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	158	186	209	226
6533	Loretto	Loretto fine sandy loam, 0 to 2 percent slopes	0 to 2	65	79	91	100
6535	Loretto	Loretto fine sandy loam, terrace, 0 to 2 percent slopes	0 to 2	71	87	99	109
6570	Thurman	Thurman loamy fine sand, terrace, 0 to 3 percent slopes	0 to 3	296	346	384	413
6575	Trent	Trent silt loam, 0 to 2 percent slopes	0 to 2	146	173	194	210
6577	Trent	Trent silty clay loam	0 to 1	120	144	162	176
6578	Ortello	Ortello fine sandy loam, 0 to 1 percent slopes	0 to 1	335	391	434	466
6581	Ortello	Ortello loam, terrace, 0 to 1 percent slopes	0 to 1	475	552	611	655
6584	Ortello	Ortello fine sandy loam, terrace, 0 to 2 percent slopes	0 to 2	335	391	434	466
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	135	159	179	194
6603	Alcester	Alcester silty clay loam, 2 to 6 percent slopes	2 to 6	120	144	162	176

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Pierce County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6604	Bazile	Bazile complex, 0 to 3 percent slopes	0 to 3	232	272	303	327
6605	Bazile	Bazile loam, 2 to 6 percent slopes	2 to 6	449	522	578	620
6607	Bazile	Bazile complex, 3 to 6 percent slopes	3 to 6	232	272	303	327
6609	Bazile	Bazile loamy fine sand, 2 to 6 percent slopes	2 to 6	221	260	289	312
6613	Bazile	Bazile silt loam, 0 to 2 percent slopes	0 to 2	491	570	631	677
6614	Bazile	Bazile silt loam, 1 to 6 percent slopes	1 to 7	491	570	631	677
6619	Bazile	Bazile soils, 0 to 1 percent slopes	0 to 1	236	276	307	331
6620	Bazile	Bazile soils, 1 to 6 percent slopes	2 to 6	236	276	307	331
6636	Boelus	Boelus loamy fine sand, 0 to 3 percent slopes	0 to 3	110	133	149	162
6637	Boelus	Boelus loamy fine sand, 2 to 6 percent slopes	2 to 6	101	122	137	150
6641	Boelus	Boelus loamy sand, 3 to 6 percent slopes	3 to 6	95	115	130	141
6642	Boelus	Boelus loamy sand, 6 to 11 percent slopes	6 to 11	95	115	130	141
6646	Boelus	Boelus-Loretto complex, 0 to 2 percent slopes	0 to 2	99	119	134	146
6647	Boelus	Boelus-Loretto complex, 2 to 6 percent slopes	2 to 7	99	119	134	146
6668	Clarno	Clarno loam, 2 to 6 percent slopes	2 to 6	108	130	146	159
6669	Clarno	Clarno loam, 6 to 11 percent slopes	6 to 11	108	130	146	159
6674	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	230	270	300	324
6685	Crofton	Crofton silt loam, 2 to 6 percent slopes, eroded	2 to 6	230	270	300	324
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	231	271	301	325
6693	Crofton	Crofton-Nora complex, 2 to 6 percent slopes, eroded	2 to 6	229	268	299	322
6694	Crofton	Crofton-Nora complex, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6695	Crofton	Crofton-Nora silt loams, 1 to 6 percent slopes, eroded	1 to 7	230	270	300	324
6696	Crofton	Crofton-Nora silt loams, 11 to 17 percent slopes, eroded	11 to 17	230	270	300	324
6699	Crofton	Crofton-Nora silt loams, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6700	Thurman	Thurman loamy fine sand, 0 to 2 percent slopes	0 to 2	296	346	384	413

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Pierce County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6701	Thurman	Thurman loamy fine sand, 1 to 3 percent slopes	1 to 3	298	349	387	417
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	296	346	384	413
6706	Thurman	Thurman loamy fine sand, 6 to 11 percent slopes	6 to 11	298	348	387	416
6713	Thurman	Thurman loamy fine sand, thick, 0 to 2 percent slopes	0 to 2	282	330	366	394
6715	Thurman	Thurman-Valentine complex, undulating	2 to 6	296	346	384	413
6727	Thurman	Thurman fine sandy loam, 2 to 11 percent slopes	3 to 11	337	393	436	468
6728	Thurman	Thurman fine sandy loam, 6 to 11 percent slopes	7 to 11	366	427	473	508
6747	Nora	Nora silt loam, 1 to 6 percent slopes	1 to 7	125	150	168	182
6749	Nora	Nora silt loam, 11 to 17 percent slopes	11 to 17	123	147	166	180
6753	Nora	Nora silt loam, 2 to 6 percent slopes	2 to 6	124	148	167	181
6754	Nora_variant	Nora silt loam, 2 to 6 percent slopes, eroded	2 to 6	143	170	190	206
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	123	147	166	180
6758	Nora	Nora silty clay loam, 11 to 17 percent slopes	11 to 17	112	134	151	164
6764	Hadar	Hadar loamy fine sand, 2 to 6 percent slopes	2 to 6	100	121	137	149
6765	Nora	Nora silty clay loam, 2 to 6 percent slopes	2 to 6	112	134	151	164
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	112	134	151	164
6775	Nora_variant	Nora-Crofton complex, 2 to 6 percent slopes, eroded	2 to 6	136	161	181	196
6778	Nora_variant	Nora-Crofton complex, 6 to 11 percent slopes, eroded	6 to 11	136	161	181	196
6783	Thurman	Nora-Thurman complex, 11 to 17 percent slopes	11 to 17	366	427	473	508
6784	Thurman	Nora-Thurman complex, 6 to 11 percent slopes	7 to 9	366	427	473	508
6785	Hadar	Hadar-Thurman complex, 6 to 17 percent slopes	5 to 10	87	105	119	130
6786	Hadar	Hadar-Thurman complex, 6 to 11 percent slopes	7 to 11	100	121	137	149
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	231	271	301	325
6791	Loretto	Loretto loam, 0 to 2 percent slopes	0 to 2	93	112	127	138
6792	Loretto	Loretto loam, 2 to 6 percent slopes	2 to 6	89	109	123	134

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Pierce County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6798	Loretto	Loretto sandy loam, 0 to 3 percent slopes	0 to 3	63	77	89	97
6801	Leisy	Leisy loam, 0 to 6 percent slopes	1 to 5	76	93	105	115
6802	Leisy	Leisy fine sandy loam, 6 to 11 percent slopes	7 to 11	55	68	79	87
6805	Moody	Moody loam, 2 to 6 percent slopes	2 to 6	144	170	190	206
6807	Moody	Moody silty clay loam, 0 to 1 percent slopes	0 to 1	144	170	190	206
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	144	171	191	207
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	144	170	190	206
6813	Moody	Moody silty clay loam, 6 to 11 percent slopes	6 to 11	142	168	188	204
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	335	391	434	466
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	108	130	146	159
7769	Leshara	Colo fine sandy loam, overblown, occasionally flooded	0 to 2	79	97	110	120
8435	Cass	Cass loam, rarely flooded	0 to 2	340	397	440	473
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	106	128	144	157
8540	Ovina	Ovina fine sandy loam, rarely flooded	0 to 2	124	148	166	181
8541	Ovina	Ovina loam, rarely flooded	0 to 1	158	187	209	226
8542	Ovina	Ovina loamy fine sand, rarely flooded	0 to 2	161	190	212	230
8543	Ovina	Ovina-Lute complex, rarely flooded	0 to 2	124	148	166	181
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	117	141	158	172
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	116	139	156	170
8882	Hord	Hord-Hobbs silt loams, 0 to 6 percent slopes	2 to 7	117	141	158	172
8934	Simeon	Simeon sandy loam, 3 to 11 percent slopes	3 to 9	346	404	448	481
9966	Blownout_ land	Blown-out land	3 to 30	--	--	--	--
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Platte County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1041	Grigston	Grigston silt loam, wet substratum, rarely flooded	0 to 1	115	139	156	169
1438	Grigston	Grigston silt loam, rarely flooded	0 to 2	115	138	155	168
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	517	601	664	713
2288	Wann	Wann loam, occasionally flooded	0 to 2	144	171	191	207
2327	Inavale	Inavale fine sandy loam, rarely flooded	0 to 2	394	459	508	546
2331	Inavale	Inavale loamy fine sand, rarely flooded	0 to 2	302	353	392	422
2340	Inavale	Inavale loamy fine sand, 3 to 11 percent slopes, rarely flooded	3 to 9	297	347	385	414
2342	Inavale	Inavale loamy sand, 3 to 6 percent slopes, rarely flooded	2 to 6	184	216	242	261
2351	Inavale	Inavale-Boel complex, 0 to 6 percent slopes, occasionally flooded	0 to 6	297	347	385	414
3260	O'Neill	O'Neill fine sandy loam, 0 to 2 percent slopes	0 to 2	477	555	614	658
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	91	110	125	136
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	165	195	218	236
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	165	195	218	236
3640	Kezan	Kezan silt loam, frequently flooded	0 to 2	130	154	173	187
3774	Muir	Muir silty clay loam, rarely flooded	0 to 1	95	115	130	142
3775	Muir	Muir silt loam, rarely flooded	0 to 1	109	131	148	161
3778	Muir	Muir silt loam, sandy substratum, 0 to 1 percent slopes	0 to 1	738	855	943	1010
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	153	181	203	220
3837	Geary	Geary silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	112	134	151	164
3839	Geary	Geary silty clay loam, 11 to 30 percent slopes	11 to 30	109	132	148	161
3840	Geary	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	111	134	150	163
3951	Fillmore	Fillmore silt loam, occasionally ponded	0 to 1	121	146	163	177
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	153	181	202	219
4527	Els	Els loamy fine sand, 0 to 3 percent slopes	0 to 3	401	468	518	556
4654	Ipage	Ipage-Els loamy fine sands, 0 to 3 percent slopes	0 to 3	279	327	363	390
4673	Loup	Loup loam, frequently ponded	0 to 2	465	540	598	641
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	344	401	445	478
4807	Valentine	Valentine fine sand, rolling	9 to 24	344	401	444	477
4886	Valentine	Valentine-Thurman complex, 3 to 9 percent slopes	3 to 9	348	406	450	484

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Platte County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6312	Barney	Barney loam, frequently flooded	0 to 1	307	358	397	427
6323	Coleridge	Coleridge silt loam, occasionally flooded	0 to 2	112	134	151	164
6336	Lawet	Lawet silt loam, occasionally flooded	0 to 2	165	195	218	235
6364	Obert	Obert silty clay loam, frequently ponded	0 to 1	113	135	152	165
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	179	211	235	254
6386	Shell	Shell silt loam, clayey substratum, occasionally flooded	0 to 1	150	177	198	214
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	154	182	204	221
6525	Janude	Janude fine sandy loam, 0 to 1 percent slopes	0 to 1	83	101	115	125
6526	Janude	Janude loam, rarely flooded	0 to 2	109	131	148	161
6545	Moody	Moody silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	143	170	190	206
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	131	155	174	189
6603	Alcester	Alcester silty clay loam, 2 to 6 percent slopes	2 to 6	120	144	162	176
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	91	110	125	136
6637	Boelus	Boelus loamy fine sand, 2 to 6 percent slopes	2 to 6	99	119	134	146
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	232	272	303	326
6693	Crofton	Crofton-Nora complex, 2 to 6 percent slopes, eroded	2 to 6	231	271	301	325
6701	Thurman	Thurman loamy fine sand, 1 to 3 percent slopes	1 to 3	294	343	381	410
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	295	345	383	412
6710	Thurman	Thurman loamy fine sand, loamy substratum, 0 to 3 percent slopes	0 to 3	162	192	214	232
6766	Nora_variant	Nora silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	135	160	180	195
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	113	136	152	166
6774	Nora	Nora-Crofton complex, 11 to 17 percent slopes, eroded	11 to 17	112	135	152	165
6778	Nora_variant	Nora-Crofton complex, 6 to 11 percent slopes, eroded	6 to 11	135	160	180	195
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	231	271	301	325

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Platte County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6807	Moody	Moody silty clay loam, 0 to 1 percent slopes	0 to 1	146	173	194	210
6809	Moody	Moody silty clay loam, 1 to 3 percent slopes	1 to 3	145	171	192	208
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	146	173	194	210
6812	Moody	Moody silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	145	172	193	209
6814	Moody	Moody silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	146	173	194	210
6824	Moody	Moody-Thurman complex, 2 to 6 percent slopes, eroded	2 to 6	146	173	194	210
6825	Moody	Moody-Thurman complex, 6 to 11 percent slopes, eroded	6 to 11	148	175	196	213
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	79	97	110	120
7892	Zook	Zook silty clay, occasionally flooded	0 to 2	73	89	102	112
8403	Alda	Alda loam, occasionally flooded	0 to 1	521	605	668	717
8420	Boel	Boel loamy fine sand, occasionally flooded	0 to 2	434	506	559	600
8425	Boel	Boel-Inavale complex, channeled, frequently flooded	0 to 3	764	885	976	1046
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	106	128	144	157
8476	Gibbon	Gibbon-Gayville silty clay loams, occasioanlly flooded	0 to 2	107	129	145	158
8490	Gothenburg	Gothenburg fine sandy loam, frequently flooded	0 to 2	249	292	325	350
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	336	393	435	468
8520	Merrick	Merrick loam, rarely flooded	0 to 2	87	106	119	130
8530	Novina	Novina fine sandy loam, rarely flooded	0 to 2	70	85	98	107
8563	Platte	Platte loam, occasionally flooded	0 to 1	310	363	402	433
8573	Platte	Platte-Inavale complex, channeled, frequently flooded	0 to 2	361	421	467	502
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	132	156	175	190
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	283	331	368	396
9725	Ustipsam-ments	Ustorthents, level	0 to 2	347	404	448	482
9726	Ustorthents	Ustorthents, steep	9 to 30	152	180	202	218
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	259	303	337	363
9906	Fluvaquents	Fluvaquents, silty, frequently flooded	0 to 1	83	101	115	125

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Platte County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Miscella-neous_water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Polk County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2331	Inavale	Inavale loamy fine sand, rarely flooded	0 to 2	188	221	247	267
2333	Inavale	Inavale loamy sand, rarely flooded	0 to 3	247	290	322	347
2342	Inavale	Inavale loamy sand, 3 to 6 percent slopes, rarely flooded	2 to 6	184	216	242	261
2343	Inavale	Inavale loamy sand, 3 to 11 percent slopes	3 to 9	301	352	390	420
2351	Inavale	Inavale-Boel complex, 0 to 6 percent slopes, occasionally flooded	0 to 6	296	346	384	413
2353	Inavale	Inavale-Platte complex, rarely flooded	3 to 7	181	213	238	257
2516	Coly	Coly soils, 3 to 6 percent slopes, severely eroded	3 to 7	128	152	171	185
2517	Coly	Coly soils, 6 to 11 percent slopes, severely eroded	7 to 11	128	152	171	185
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	128	152	171	185
2536	Coly	Coly silt loam, 30 to 60 percent slopes	30 to 60	136	161	180	195
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	136	161	180	195
2817	Uly	Uly silt loam, 3 to 6 percent slopes	3 to 6	137	162	182	197
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	136	162	181	196
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	136	161	181	196
3250	Meadin	Meadin loamy sand, 0 to 6 percent slopes	0 to 5	366	426	472	508
3260	O'Neill	O'Neill fine sandy loam, 0 to 2 percent slopes	0 to 2	461	536	593	636
3519	Lamo	Lamo silty clay loam, sandy substratum	0 to 1	670	776	857	918
3537	Gibbon	Gibbon silty clay loam, occasionally flooded	0 to 2	103	124	140	152
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	154	181	203	220
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	159	188	210	227
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	169	200	223	241
3755	Hord	Hord silt loam, rarely flooded	0 to 1	122	146	164	178
3773	Muir	Muir silt loam, 0 to 1 percent slopes	0 to 1	109	131	147	160
3775	Muir	Muir silt loam, rarely flooded	0 to 1	110	132	149	161
3776	Muir	Muir silt loam, 1 to 3 percent slopes	1 to 3	109	131	147	160
3777	Muir	Muir silt loam, 3 to 7 percent slopes	3 to 7	109	131	147	160
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	153	180	202	219
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	153	181	203	220
3868	Hastings	Hastings silt loam, 3 to 7 percent slopes	3 to 7	145	172	193	209

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Polk County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3870	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	87	106	120	131
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
3962	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	87	106	120	131
3966	Hastings	Hastings soils, 3 to 7 percent slopes, severely eroded	3 to 7	87	106	120	131
3968	Hastings	Hastings soils, 7 to 11 percent slopes, severely eroded	7 to 11	87	106	120	131
5732	Darr	Darr fine sandy loam, rarely flooded	0 to 1	291	341	378	407
6307	Barney	Barney-Alda complex, frequently flooded	0 to 1	133	158	177	192
6312	Barney	Barney loam, frequently flooded	0 to 1	612	710	784	841
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	135	160	179	194
6353	Leshara	Leshara silt loam, drained, rarely flooded	0 to 1	182	214	239	258
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	111	134	151	164
6509	Blendon	Blendon fine sandy loam, 1 to 3 percent slopes	1 to 3	111	134	151	164
6529	Janude	Janude sandy loam, very rarely flooded	0 to 2	145	172	193	209
6566	Thurman	Thurman loamy sand, 0 to 6 percent slopes	0 to 5	133	158	177	192
6569	Thurman	Thurman loamy sand, 6 to 11 percent slopes	6 to 11	133	158	177	192
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	296	345	384	413
6727	Thurman	Thurman fine sandy loam, 2 to 11 percent slopes	3 to 11	197	231	258	278
6840	Ortello	Ortello complex, 6 to 11 percent slopes	7 to 11	117	140	157	171
6842	Ortello	Ortello complex, 6 to 11 percent slopes, eroded	7 to 11	117	140	157	171
6858	Ortello	Ortello-Coly complex, 11 to 30 percent slopes	11 to 30	117	140	157	171
8401	Alda	Alda fine sandy loam, occasionally flooded	0 to 1	191	225	251	271
8403	Alda	Alda loam, occasionally flooded	0 to 1	274	320	356	383
8405	Alda	Alda sandy loam, occasionally flooded	0 to 2	514	597	660	708
8418	Boel	Boel loam, occasionally flooded	0 to 2	760	880	971	1040
8490	Gothenburg	Gothenburg fine sandy loam, frequently flooded	0 to 2	249	292	325	350
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	391	455	504	542
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	219	257	287	309

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Polk County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8562	Platte	Platte fine sandy loam, occasionally flooded	0 to 2	451	524	580	623
8563	Platte	Platte loam, occasionally flooded	0 to 1	436	507	561	602
8567	Platte	Platte-Alda complex, occasionally flooded	0 to 2	451	524	580	623
8580	Wann	Wann fine sandy loam, occasionally flooded	0 to 2	118	142	160	173
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	194	228	255	275
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	194	228	255	275
8817	Cozad	Cozad silt loam, 3 to 6 percent slopes	3 to 6	195	229	256	276
8825	Cozad	Cozad-variant complex	0 to 1	170	200	224	242
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	132	156	175	190
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	116	140	157	170
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	118	141	159	172
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	244	286	318	343
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Red Willow County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1032	Haigler	Haigler fine sandy loam, 0 to 1 percent slopes	0 to 1	405	472	522	561
1182	Las_Animas	Las Animas loam, occasionally flooded	0 to 2	736	853	941	1007
1197	Wann_variant	Las loam, occasionally flooded	0 to 1	111	134	151	164
1198	Las_Animas	Las Animas sand, occasionally flooded	0 to 1	359	418	463	498
1355	Bridget	Bridget silt loam, 0 to 1 percent slopes	0 to 1	161	190	212	230
1357	Bridget	Bridget silt loam, 3 to 6 percent slopes	3 to 6	159	188	211	228
1532	Sulco	Sulco silt loam, 9 to 30 percent slopes	9 to 30	233	273	304	327
1593	Sanborn	Haigler and Sanborn loams, rarely flooded	0 to 1	542	630	696	746
1615	Keith	Keith and Blackwood silt loams, 0 to 1 percent slopes	0 to 1	198	232	259	280
1620	Keith	Keith silt loam, 1 to 3 percent slopes	1 to 3	197	232	258	279
1629	Keith	Keith silt loam, 3 to 6 percent slopes	3 to 6	195	230	256	276
1630	Keith	Keith silt loam, 3 to 6 percent slopes, eroded	3 to 6	191	225	251	271
1632	Keith	Keith silt loam, 1 to 3 percent slopes, eroded	1 to 3	193	227	253	273
1826	Sulco	Sulco complex, 9 to 60 percent slopes	30 to 60	231	271	301	325
1833	Sulco	Sulco-Ulysses silt loams, 9 to 30 percent slopes, eroded	9 to 30	233	273	304	327
1853	Sulco	Sulco-McConaughy complex, 3 to 6 percent slopes, eroded	3 to 6	232	272	303	326
1861	Ulysses	Ulysses silt loam, 6 to 9 percent slopes, eroded	6 to 9	224	263	293	316
2115	Inavale	Inavale soils, frequently flooded	0 to 2	296	346	384	413
2176	McCook	McCook loam, occasionally flooded	0 to 2	185	217	243	262
2177	McCook	McCook silt loam, occasionally flooded	0 to 2	173	204	228	247
2288	Wann	Wann loam, occasionally flooded	0 to 2	143	169	189	205
2302	McCook	McCook loam, rarely flooded	0 to 1	142	168	188	204
2305	Bigbend	McCook and Bigbend loams	0 to 1	224	263	293	316
2321	Inavale	Inavale fine sand, 0 to 3 percent slopes	0 to 3	327	382	424	456
2335	Inavale	Inavale loamy fine sand, 0 to 3 percent slopes	0 to 3	290	339	376	405
2347	McCook	McCook silt loam, rarely flooded	0 to 2	192	226	252	272
2355	Inavale	Inavale soils, occasionally flooded	0 to 2	305	356	395	425
2360	Munjor	Munjor fine sandy loam, rarely flooded	0 to 2	163	192	215	232
2369	Munjor	Munjor fine sandy loam, 0 to 2 percent slopes	0 to 2	110	132	149	162
2370	Munjor	Munjor loam, 0 to 1 percent slopes	0 to 1	148	176	197	213
2524	Coly	Coly silt loam, 3 to 11 percent slopes	3 to 10	128	152	171	185

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Red Willow County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2529	Uly	Coly and Uly silt loams, 11 to 30 percent slopes	9 to 30	138	163	183	198
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	128	152	171	185
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2541	Coly	Coly silt loam, 11 to 17 percent slopes, eroded	11 to 20	128	152	171	185
2549	Coly	Coly-Nuckolls silt loams, 11 to 30 percent slopes	9 to 30	128	152	171	185
2557	Coly	Coly-Uly silt loams, 3 to 11 percent slopes, eroded	6 to 9	128	152	171	185
2559	Coly	Coly-Uly silt loams, 11 to 30 percent slopes	9 to 30	128	152	171	185
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	92	112	126	137
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	92	111	125	137
2669	Holdrege	Holdrege silt loam, 1 to 3 percent slopes, eroded	1 to 3	91	110	125	136
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	91	111	125	136
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	90	109	124	135
2809	Coly	Uly and Coly silt loams, 6 to 11 percent slopes, eroded	6 to 9	128	152	171	185
2818	Uly	Uly silt loam, 3 to 6 percent slopes, eroded	3 to 6	136	161	180	195
2819	Uly	Uly silt loam, 3 to 11 percent slopes	3 to 9	137	163	182	197
2820	Uly	Uly silt loam, 6 to 11 percent slopes	6 to 9	138	163	183	198
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	136	161	180	195
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	169	199	223	241
3563	Hobbs	Hobbs-McCook silt loams, occasionally flooded	0 to 2	159	188	210	227
4117	Holdrege	Holdrege and Keith silt loams, 0 to 1 percent slopes	0 to 1	107	129	145	157
4118	Holdrege	Holdrege and Keith silt loams, 1 to 3 percent slopes	1 to 3	107	129	145	158
4119	Holdrege	Holdrege and Keith silt loams, 1 to 3 percent slopes, eroded	1 to 3	108	130	147	159
4120	Holdrege	Holdrege and Keith silt loams, 3 to 7 percent slopes	3 to 6	107	129	145	158

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Red Willow County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
4121	Holdrege	Holdrege and Keith silt loams, 3 to 7 percent slopes, eroded	3 to 6	108	130	147	159
4151	Holdrege	Holdrege-Coly silt loams, 1 to 3 percent slopes, eroded	1 to 3	92	112	126	137
4152	Holdrege	Holdrege-Coly silt loams, 3 to 7 percent slopes, eroded	3 to 6	92	112	126	137
5157	Canyon	Canyon-Rock outcrop complex, 12 to 60 percent slopes	11 to 45	97	117	132	144
5159	Canyon	Canyon-Sarben complex, 30 to 60 percent slopes	30 to 60	97	117	132	144
5626	Duroc	Duroc silt loam, terrace, 0 to 1 percent slopes	0 to 1	94	114	129	141
6309	Barney	Barney loam, occasionally flooded	0 to 1	509	591	654	701
6315	Barney	Barney silty clay loam, frequently flooded	0 to 2	646	749	826	886
6316	Barney	Barney soils, frequently flooded	0 to 1	320	374	414	446
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	106	128	144	157
8580	Wann	Wann fine sandy loam, occasionally flooded	0 to 2	108	130	146	159
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	230	270	301	324
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	230	270	301	324
8817	Cozad	Cozad silt loam, 3 to 6 percent slopes	3 to 6	229	269	300	323
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	118	142	160	173
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	117	140	157	171
8883	Hord	Hord-Saltine complex	0 to 1	117	140	157	171
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	115	139	156	169
9002	Anselmo	Anselmo fine sandy loam, 1 to 3 percent slopes	1 to 3	115	139	156	169
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Richardson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3640	Kezan	Kezan silt loam, frequently flooded	0 to 2	130	154	173	187
3840	Geary	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	97	118	133	145
4165	Benfield	Kipson-Benfield silty clay loams, 7 to 17 percent slopes	5 to 17	72	88	101	110
4166	Kipson	Kipson-Sogn complex, 3 to 30 percent slopes	3 to 30	75	91	104	113
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	112	135	151	164
7083	Sarpy	Sarpy loamy fine sand, occasionally flooded	0 to 3	198	233	260	280
7090	Wabash	Wabash silty clay loam, occasionally flooded	0 to 1	90	109	124	135
7091	Wabash	Wabash silty clay, occasionally flooded	0 to 1	90	109	124	135
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	100	121	136	148
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	123	147	165	179
7203	Aksarben	Sarpy loamy fine sand, rarely flooded	0 to 3	67	81	93	102
7204	Aksarben	Sarpy loamy fine sand, rarely flooded	0 to 3	66	81	93	102
7205	Aksarben	Aksarben silty clay loam, 0 to 2 percent slopes	0 to 2	67	81	93	102
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	102	123	139	151
7259	Deroin	Deroin silty clay loam, 6 to 11 percent slopes, severely eroded	5 to 12	89	108	123	134
7346	Malmo	Malmo soils, 3 to 11 percent slopes, eroded	3 to 9	68	82	95	104
7350	Malmo	Malmo clay, 3 to 11 percent slopes, eroded	3 to 11	68	82	95	104
7352	Malmo	Malmo clay loam, 3 to 11 percent slopes, eroded	3 to 9	69	84	97	106
7422	Morrill_ variant	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	1299	1501	1653	1768
7431	Morrill	Morrill soils, 6 to 11 percent slopes, eroded	5 to 12	74	89	102	112
7432	Morrill_ variant	Morrill soils, 6 to 11 percent slopes, severely eroded	5 to 12	1298	1500	1652	1767
7447	Morrill	Morrill loam, 6 to 11 percent slopes	5 to 12	110	132	149	162
7448	Morrill	Morrill soils, 11 to 17 percent slopes	12 to 17	75	91	104	114
7463	Otoe	Otoe silty clay loam, 3 to 11 percent slopes, eroded	3 to 12	78	95	108	117
7464	Otoe	Otoe silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	78	95	108	117
7495	Pawnee	Pawnee and Mayberry clay loams, 3 to 11 percent slopes, eroded	3 to 9	59	72	84	92

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Richardson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7496	Mayberry	Pawnee and Mayberry clay loams, 6 to 11 percent slopes, eroded	9 to 12	84	102	115	126
7497	Malmo	Pawnee and Malmo clay loams, 3 to 11 percent slopes, eroded	3 to 12	69	84	97	106
7501	Pawnee	Pawnee clay loam, 4 to 8 percent slopes, eroded	4 to 8	71	86	99	108
7551	Benfield	Benfield silty clay loam, 3 to 11 percent slopes, eroded	3 to 9	73	88	101	111
7554	Benfield	Benfield-Kipson silty clay loams, 3 to 9 percent slopes, severely eroded	3 to 9	71	87	100	109
7596	Shelby	Shelby clay loam, 17 to 30 percent slopes	15 to 30	45	56	65	72
7641	Yutan	Yutan silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	94	114	128	140
7643	Yutan	Yutan silty clay loam, 3 to 11 percent slopes, eroded	3 to 12	93	112	127	138
7644	Yutan	Yutan silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	95	115	129	141
7680	Wymore	Wymore silty clay loam, 0 to 1 percent slopes	0 to 1	77	94	106	116
7681	Wymore	Wymore silty clay loam, 1 to 3 percent slopes	1 to 3	76	94	106	116
7689	Wymore	Wymore silty clay loam, 0 to 2 percent slopes	0 to 2	77	95	107	117
7691	Wymore	Wymore silty clay loam, 3 to 11 percent slopes	3 to 9	76	93	106	116
7692	Wymore	Wymore silty clay loam, 3 to 11 percent slopes, eroded	3 to 9	75	92	105	114
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	60	73	84	93
7741	Haynie	Haynie silt loam, occasionally flooded	0 to 1	202	237	264	285
7742	Albaton	Haynie and Albaton soils, occasionally flooded	0 to 1	60	74	85	93
7743	Haynie	Haynie and Sarpy soils, occasionally flooded	0 to 2	202	237	264	285
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	159	187	209	227
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	157	186	208	225
7871	Nodaway	Nodaway-Colo silt loams, occasionally flooded	0 to 2	153	180	202	219
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	89	108	122	133
8006	Ida	Ida silt loam, 11 to 17 percent slopes, eroded	11 to 17	184	217	242	261

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Richardson County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8008	Ida	Ida silt loam, 17 to 30 percent slopes, eroded	17 to 30	184	217	242	261
8011	Ida	Ida soils, 30 to 60 percent slopes	30 to 60	88	107	121	132
8016	Marshall	Marshall silty clay loam, 0 to 2 percent slopes	0 to 2	109	131	147	160
8019	Marshall	Marshall silty clay loam, 2 to 6 percent slopes	2 to 6	109	131	147	160
8025	Marshall	Marshall silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	109	131	147	160
8067	Monona	Monona silt loam, 1 to 6 percent slopes	1 to 5	134	158	178	193
8070	Monona	Monona silt loam, 11 to 17 percent slopes	11 to 17	134	159	178	193
8073	Monona	Monona silt loam, 17 to 30 percent slopes	17 to 30	133	158	177	192
8078	Monona	Monona silt loam, 6 to 11 percent slopes	6 to 11	134	158	178	193
8114	Pohocco	Pohocco silt loam, 11 to 17 percent slopes, eroded	11 to 17	122	147	165	179
8116	Pohocco	Pohocco silt loam, 2 to 6 percent slopes, eroded	2 to 5	123	147	165	179
8118	Pohocco	Pohocco silt loam, 6 to 11 percent slopes, eroded	6 to 11	122	147	165	179
8125	Pohocco	Pohocco silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	104	125	141	153
8131	Pohocco	Pohocco, eroded-Ida silt loams, 11 to 17 percent slopes	11 to 17	122	147	165	179
8132	Pohocco	Pohocco, eroded-Ida silt loams, 17 to 30 percent slopes	17 to 30	122	147	165	179
9827	Zoe	Slickspots-Wabash complex	0 to 1	103	124	140	152
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Rock County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2350	Inavale	Inavale-Barney complex, channeled, occasionally flooded	0 to 2	293	343	380	409
3195	Jansen	Jansen loamy sand, 0 to 2 percent slopes	0 to 3	282	330	366	394
3226	Labu	Labu-Sansarc silty clays, 11 to 40 percent slopes	11 to 40	82	100	113	124
3252	Meadin	Meadin sandy loam, 0 to 2 percent slopes	0 to 3	314	366	406	437
3260	O'Neill	O'Neill fine sandy loam, 0 to 2 percent slopes	0 to 2	351	410	454	488
3267	O'Neill	O'Neill sandy loam, 0 to 2 percent slopes	0 to 2	459	533	590	633
3268	O'Neill	O'Neill sandy loam, 2 to 6 percent slopes	2 to 6	459	533	590	633
3274	O'Neill	O'Neill-Meadin sandy loams, 2 to 6 percent slopes	2 to 6	472	549	607	651
3275	O'Neill	O'Neill-Meadin sandy loams, 6 to 11 percent slopes	6 to 11	440	511	566	607
3341	Wewela	Wewela fine sandy loam, 2 to 6 percent slopes	2 to 6	82	100	113	123
4200	Almeria	Almeria fine sandy loam, channeled, frequently flooded	0 to 2	331	386	428	460
4204	Almeria	Almeria loamy fine sand, occasionally flooded	0 to 2	268	314	349	376
4216	Blackloup	Blackloup loam, occasionally flooded	0 to 1	383	447	495	531
4243	Ord	Ord loam, rarely flooded	0 to 2	427	497	550	590
4364	Ipage	Ipage fine sand, terrace, 0 to 3 percent slopes	0 to 3	361	422	467	501
4365	Ipage	Ipage loamy fine sand, terrace, 0 to 3 percent slopes	0 to 3	346	404	447	481
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	128	152	170	184
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	344	401	445	478
4533	Els	Els loamy sand, 0 to 3 percent slopes	0 to 2	395	460	510	548
4542	Els	Els-Ipage complex, 0 to 3 percent slopes	0 to 3	395	460	510	548
4545	Els	Els-Ipage fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589
4548	Els	Els-Ipage-Tryon loamy sands, 0 to 6 percent slopes	0 to 3	412	480	531	570
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	430	500	553	594
4562	Elsmere	Elsmere-Selia loamy fine sands, 0 to 3 percent slopes	0 to 3	434	504	558	599
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	374	436	483	519
4650	Ipage	Ipage loamy sand, 0 to 3 percent slopes	0 to 3	365	426	472	507

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Rock County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	461	536	593	637
4669	Loup	Loup fine sandy loam, frequently ponded	0 to 2	309	361	400	430
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	168	199	222	240
4687	Marlake	Marlake loamy fine sand, frequently ponded	0 to 1	400	466	516	554
4706	McKelvie	McKelvie-Longpine-Ronson complex, 17 to 70 percent slopes	15 to 70	311	364	403	434
4721	Pivot	Pivot loamy sand, 0 to 3 percent slopes	0 to 3	280	328	364	392
4723	Pivot	Pivot-Valentine complex, 0 to 9 percent slopes	0 to 9	282	330	366	394
4730	Sandose	Sandose loamy fine sand, 0 to 3 percent slopes	0 to 3	96	116	130	142
4746	Tryon	Tryon loamy fine sand, 0 to 3 percent slopes	0 to 2	383	446	494	530
4751	Tryon	Tryon loamy fine sand, frequently ponded	0 to 2	379	442	489	526
4756	Tryon	Tryon-Els loamy sands, 0 to 3 percent slopes	0 to 2	371	432	479	515
4758	Tryon	Tryon-Ipage complex, 0 to 3 percent slopes	0 to 2	387	451	500	537
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	364	425	471	506
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	364	425	471	506
4807	Valentine	Valentine fine sand, rolling	9 to 24	364	425	471	506
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	364	425	471	506
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	347	404	448	482
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	338	394	437	470
4852	Valentine	Valentine-Boelus fine sands, 0 to 9 percent slopes	3 to 9	363	423	469	504
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	363	423	469	504
4868	Valentine	Valentine-Pivot complex, 0 to 9 percent slopes	3 to 9	328	382	424	456
4880	Valentine	Valentine-Simeon complex, 9 to 40 percent slopes, eroded	9 to 40	340	397	440	473
5286	Vetal	Vetal loam, 1 to 3 percent slopes	1 to 3	390	454	503	540
6319	Barney	Barney-Boel complex, channeled	0 to 2	262	307	341	367
6640	Boelus	Boelus loamy sand, 0 to 3 percent slopes	0 to 3	116	139	156	169
6662	Brunswick	Brunswick-Longpine fine sandy loams, 11 to 40 percent slopes	11 to 30	209	246	274	296

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Rock County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6664	Brunswick	Brunswick-Longpine loamy sands, 3 to 11 percent slopes	3 to 11	181	214	239	258
8420	Boel	Boel loamy fine sand, occasionally flooded	0 to 2	451	524	580	622
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	296	346	384	413
8928	Simeon	Simeon loamy sand, 3 to 11 percent slopes	3 to 9	255	298	332	357
8936	Simeon	Simeon-Meadin complex, 0 to 9 percent slopes	0 to 8	292	341	379	408
8947	Simeon	Simeon-Valentine sands, 11 to 60 percent slopes, eroded	15 to 30	278	326	362	389
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Saline County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2824	Uly	Uly silt loam, 11 to 30 percent slopes, eroded	11 to 30	133	158	177	265
3403	Longford	Longford silty clay loam, 3 to 7 percent slopes	3 to 6	93	113	128	139
3404	Longford	Longford silty clay loam, 3 to 7 percent slopes, eroded	2 to 6	93	112	127	138
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	161	190	212	230
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	161	190	212	230
3557	Hobbs	Hobbs silt loam, channeled, occasionally flooded	0 to 1	161	190	212	230
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	161	190	212	230
3640	Kezan	Kezan silt loam, frequently flooded	0 to 2	138	164	184	199
3709	Crete	Crete silt loam, terrace, 0 to 1 percent slopes	0 to 1	135	161	180	195
3713	Butler	Butler silt loam, terrace, 0 to 1 percent slopes	0 to 1	152	180	201	218
3775	Muir	Muir silt loam, rarely flooded	0 to 1	110	132	149	161
3776	Muir	Muir silt loam, 1 to 3 percent slopes	1 to 3	111	134	150	163
3777	Muir	Muir silt loam, 3 to 7 percent slopes	3 to 7	108	130	147	159
3818	Butler	Butler-Gayville silt loams, 0 to 1 percent slopes	0 to 1	147	174	195	211
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3822	Crete	Crete silt loam, terrace, 1 to 3 percent slopes	1 to 3	136	161	181	196
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3825	Crete	Crete silt loam, 1 to 3 percent slopes	1 to 3	132	157	176	191
3831	Crete	Crete silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	95	115	130	141
3839	Geary	Geary silty clay loam, 11 to 30 percent slopes	11 to 30	98	118	134	145
3840	Geary	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	99	120	135	147
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	153	180	202	219
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	153	181	203	220
3868	Hastings	Hastings silt loam, 3 to 7 percent slopes	3 to 7	123	147	166	180
3870	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	79	96	109	119
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Saline County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3962	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	81	100	112	123
3963	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, severely eroded	7 to 12	76	93	106	116
4182	Longford	Longford silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	93	112	127	138
7102	Wymore	Wymore silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	79	97	109	120
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	146	173	193	209
7219	Burchard	Burchard clay loam, 11 to 17 percent slopes, eroded	11 to 17	61	75	86	95
7227	Burchard	Burchard clay loam, 6 to 11 percent slopes	6 to 11	61	75	86	95
7228	Burchard	Burchard clay loam, 6 to 11 percent slopes, eroded	6 to 11	61	75	86	95
7229	Burchard	Burchard clay loam, 11 to 17 percent slopes	11 to 15	61	75	87	95
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	111	134	150	163
7258	Deroin	Deroin silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	87	106	120	131
7267	Burchard	Burchard-Steinauer clay loams, 11 to 30 percent slopes	11 to 30	61	75	87	95
7344	Malmo	Malmo, eroded-Pawnee complex, 6 to 11 percent slopes	6 to 12	70	85	98	107
7347	Malmo	Malmo silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	74	90	103	112
7348	Malmo	Malmo silty clay loam, 3 to 6 percent slopes, eroded	2 to 6	74	90	103	112
7417	Morrill	Morrill clay loam, 11 to 30 percent slopes	11 to 30	76	93	105	115
7418	Morrill	Morrill clay loam, 6 to 11 percent slopes	6 to 11	74	90	102	112
7422	Morrill	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	77	94	106	116
7464	Otoe	Otoe silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	78	95	108	117
7501	Pawnee	Pawnee clay loam, 4 to 8 percent slopes, eroded	4 to 8	71	86	99	108
7665	Mayberry	Mayberry silty clay loam, 3 to 6 percent slopes	3 to 6	71	87	99	109
7683	Wymore	Wymore silty clay loam, 3 to 6 percent slopes	3 to 6	76	93	105	115
7684	Wymore	Wymore silty clay loam, 3 to 6 percent slopes, eroded	3 to 6	74	90	103	113

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Saline County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7689	Wymore	Wymore silty clay loam, 0 to 2 percent slopes	0 to 2	79	97	109	120
7693	Wymore	Wymore silty clay loam, 2 to 6 percent slopes	2 to 7	79	97	109	120
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	150	178	199	216
7868	Nodaway	Nodaway silt loam, channeled, occasionally flooded	0 to 2	150	178	199	216
7890	Zook	Zook silt loam, occasionally flooded	0 to 1	100	121	136	148
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sarpy County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2106	Carr	Carr-Ticonic-Scroll complex, occasionally flooded	0 to 2	637	739	816	874
3537	Gibbon	Gibbon silty clay loam, occasionally flooded	0 to 2	89	108	122	133
4113	Hedville	Hedville, Sogn, and Contrary soils, 12 to 75 percent slopes	12 to 75	99	120	131	147
6452	Clamo	Clamo-Zook-Kezan silty clay loams, occasionally flooded	0 to 2	119	143	160	174
6460	Inglewood	Inglewood-Novina complex, occasionally flooded	0 to 2	573	665	735	787
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	133	158	177	192
7061	Muscotah	Muscotah silty clay loam, occasionally flooded	0 to 2	116	139	156	170
7210	Burchard	Burchard-Contrary-Steinauer complex, 7 to 16 percent slopes	7 to 16	62	76	88	96
7234	Judson	Judson silty clay loam, 2 to 6 percent slopes	2 to 6	95	115	130	142
7235	Judson	Judson-Nodaway channeled-Contrary complex, 3 to 10 percent slopes	1 to 6	95	115	130	142
7275	Dickinson	Dickinson-Monona complex, 6 to 20 percent slopes	7 to 20	257	301	334	360
7741	Haynie	Haynie silt loam, occasionally flooded	0 to 1	224	263	292	315
7810	Scroll	Scroll-Percival complex, occasionally flooded	0 to 2	507	589	651	698
7812	Kenridge	Smithland-Kenridge silty clay loams, occasionally flooded	0 to 2	108	130	146	159
7815	Ticonic	Ticonic-Sarpy-Carr complex, occasionally flooded	0 to 2	277	324	359	387
7862	Nishna	Nishna silty clay loam, occasionally flooded	0 to 2	85	103	117	128
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	111	134	150	163
7886	Onawa	Onawa-Lossing silty clays, occasionally flooded	0 to 2	95	115	130	141
8012	Ida	Ida-Pohocco-Monona silt loams, 11 to 30 percent slopes	10 to 26	168	199	222	240
8035	Marshall	Marshall-Contrary silty clay loams, 2 to 7 percent slopes	2 to 7	110	132	148	161
8040	Melia	Melia silt loam, 0 to 2 percent slopes	0 to 3	132	156	175	190
8041	Melia	Melia silty clay loam, 0 to 2 percent slopes	0 to 2	128	151	170	184
8100	Monona	Monona-Pohocco-Ida silt loams, 17 to 33 percent slopes	14 to 33	125	150	168	182

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sarpy County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8138	Pohocco	Pohocco-Ida-Monona complex, 6 to 17 percent slopes	6 to 18	112	134	151	164
8140	Pohocco	Pohocco-Judson silt loams, 11 to 40 percent slopes	20 to 54	115	138	156	169
8143	Pohocco	Pohocco-Monona silt loams, 11 to 54 percent slopes	13 to 54	115	138	156	169
8153	Contrary	Contrary-Marshall silty clay loams, 6 to 11 percent slopes	6 to 12	110	132	148	161
8155	Contrary	Contrary-Monona silty clay loams, 6 to 11 percent slopes	6 to 13	110	132	148	161
8157	Contrary	Contrary-Monona-Ida complex, 6 to 17 percent slopes	9 to 16	110	132	148	161
8408	Alda	Alda-Platte complex, occasionally flooded	0 to 2	642	745	822	881
8410	Alda	Alda-Platte-Lex complex, occasionally flooded	0 to 2	526	610	675	723
8442	Cass	Cass-Novina complex, occasionally flooded	0 to 2	395	460	509	547
8443	Cass	Cass-Wann fine sandy loams, occasionally flooded	0 to 2	221	259	289	311
8468	Gibbon	Gibbon loamy fine sand, overwash, occasionally flooded	0 to 2	116	140	157	171
8480	Gibbon	Gibbon-Wann complex, occasionally flooded	0 to 2	118	141	159	173
8486	Gilliam	Gilliam-Onawa complex, occasionally flooded	0 to 2	112	135	152	165
8510	Lex	Lex-Platte complex, occasionally flooded	0 to 2	517	601	664	712
8532	Novina	Novina-Gibbon complex, occasionally flooded	0 to 2	74	90	103	112
8560	Platte	Platte and Alda soils, frequently flooded	0 to 2	404	471	521	560
8566	Platte	Platte, Inglewood, and Barney soils, frequently flooded	0 to 2	423	492	545	585
8594	Wann	Wann-Caruso-Ingelwood complex, occasionally flooded	0 to 2	206	242	270	291
9700	Udarents	Udarents-Urban land complex, 1 to 14 percent slopes	1 to 14	--	--	--	--
9701	Udarents	Udarents-Urban land complex, footslope, 0 to 10 percent slopes	0 to 10	--	--	--	--
9702	Udarents	Udarents-Urban land complex, summit, 0 to 8 percent slopes	1 to 8	--	--	--	--
9706	Udorthents	Udorthents-Urban land-Pohocco complex, 0 to 39 percent slopes	0 to 46	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sarpy County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9711	Urban_land	Urban land-Udarents complex, 0 to 16 percent slopes	2 to 10	--	--	--	--
9713	Urban_land	Urban land-Udorthents complex, 0 to 10 percent slopes, occasionally flooded	0 to 6	--	--	--	--
9715	Urban_land	Urban land-Udorthents complex, drainageway, 0 to 8 percent slopes, occasionally flooded	0 to 6	--	--	--	--
9718	Urban_land	Urban land-Udorthents-Judson complex, 0 to 11 percent slopes	0 to 11	--	--	--	--
9719	Urban_land	Urban land-Udorthents-Marshall complex, 0 to 9 percent slopes	0 to 9	--	--	--	--
9720	Urban_land	Urban land-Udorthents-Pohocco complex, 0 to 16 percent slopes	0 to 16	--	--	--	--
9907	Fluvaquents, _silty	Fluvaquents, silty, frequently flooded and Tieville soils, rarely flooded	0 to 1	--	--	--	--
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Saunders County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	119	143	161	174
3911	Scott	Scott silt loam, terrace, frequently ponded	0 to 1	151	151	169	184
3948	Fillmore	Fillmore silt loam, terrace, occasionally ponded	0 to 1	170	201	224	242
4109	Hedville	Hedville cobbly loam, 7 to 30 percent slopes	6 to 30	75	91	104	114
6315	Barney	Barney silty clay loam, frequently flooded	0 to 2	460	535	592	635
6367	Obert	Obert silty clay loam, occasionally flooded	0 to 2	101	122	137	149
6368	Obert	Obert silty clay loam, frequently flooded	0 to 2	101	122	138	150
6457	Inglewood	Inglewood loamy fine sand, rarely flooded	0 to 3	377	439	487	523
6528	Janude	Janude loam, clayey substratum, rarely flooded	0 to 2	88	107	121	132
7049	Kenridge	Kenridge silty clay loam, occasionally flooded	0 to 2	108	130	146	159
7061	Muscotah	Muscotah silty clay loam, occasionally flooded	0 to 2	116	139	156	170
7067	Saltillo	Saltillo silt loam, occasionally flooded	0 to 2	122	146	164	178
7087	Sarpy	Sarpy-Haynie complex, occasionally flooded	0 to 3	445	518	573	615
7105	Yutan	Yutan silty clay loam, terrace, 2 to 6 percent slopes, eroded	2 to 5	97	117	132	144
7205	Aksarben	Aksarben silty clay loam, 0 to 2 percent slopes	0 to 2	117	141	158	172
7230	Judson	Judson silt loam, 0 to 2 percent slopes	0 to 2	111	134	150	163
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	111	134	150	163
7258	Deroin	Deroin silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	89	108	122	133
7266	Burchard	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	60	73	84	92
7268	Burchard	Burchard-Steinauer clay loams, 6 to 11 percent slopes, eroded	6 to 12	60	73	84	92
7280	Tomek	Tomek silt loam, 0 to 2 percent slopes	0 to 2	124	148	167	181
7297	Malcolm	Malcolm silt loam, 6 to 11 percent slopes, eroded	5 to 11	125	150	168	182
7340	Filbert	Filbert silt loam, 0 to 1 percent slopes	0 to 1	184	217	242	261
7353	Malmo	Malmo clay loam, 6 to 11 percent slopes, eroded	6 to 12	70	85	98	107
7422	Morrill	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	142	168	188	204
7507	Pawnee	Pawnee clay loam, 6 to 11 percent slopes, eroded	6 to 11	62	76	88	96

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Saunders County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7611	Steinauer	Steinauer clay loam, 11 to 30 percent slopes	11 to 30	68	82	95	104
7620	Steinauer	Steinauer clay loam, 20 to 40 percent slopes	20 to 40	81	99	112	122
7645	Yutan	Yutan silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	97	117	132	144
7646	Yutan	Yutan, eroded-Judson complex, 6 to 11 percent slopes	5 to 11	97	117	132	144
7647	Yutan	Yutan, eroded-Aksarben silty clay loams, 2 to 6 percent slopes	2 to 5	97	117	132	144
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	150	178	199	216
7852	Sarpy	Sarpy loamy fine sand, frequently flooded	0 to 4	437	508	562	603
7868	Nodaway	Nodaway silt loam, channeled, occasionally flooded	0 to 2	150	178	199	216
8013	Ida	Ida-Steinauer complex, 17 to 60 percent slopes	17 to 60	181	213	238	257
8110	Olmitz	Olmitz loam, 2 to 6 percent slopes	2 to 5	80	98	111	121
8119	Pohocco	Pohocco silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	115	138	155	168
8125	Pohocco	Pohocco silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	115	138	155	168
8145	Pohocco	Pohocco-Pahuk complex, 6 to 11 percent slopes, eroded	5 to 11	115	138	155	168
8146	Pohocco	Pohocco-Pahuk complex, 11 to 17 percent slopes, eroded	11 to 17	115	138	155	168
8401	Alda	Alda fine sandy loam, occasionally flooded	0 to 1	471	547	605	650
8420	Boel	Boel loamy fine sand, occasionally flooded	0 to 2	145	172	193	209
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	103	124	140	152
8477	Gibbon	Gibbon-Saltine loams, occasionally flooded	0 to 2	103	124	140	152
8503	Lex	Lex loam, occasionally flooded	0 to 2	448	521	577	619
8560	Platte	Platte and Alda soils, frequently flooded	0 to 2	404	471	521	560
8562	Platte	Platte fine sandy loam, occasionally flooded	0 to 2	555	644	712	763
8569	Platte	Platte-Barney complex, channeled, frequently flooded	0 to 2	387	451	500	537
8580	Wann	Wann fine sandy loam, occasionally flooded	0 to 2	107	128	144	157
9906	Fluvaquents	Fluvaquents, silty, frequently flooded	0 to 1	127	127	143	156
9971	Arents	Arents, earthen dam	to	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Saunders County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Scotts Bluff County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1001	Bankard	Bankard fine sand, channeled, frequently flooded	0 to 2	207	244	272	293
1004	Bankard	Bankard loamy fine sand, 0 to 2 percent slopes	0 to 2	233	273	304	327
1008	Bankard_ variant	Bankard loamy fine sand, wet variant	0 to 2	233	273	304	327
1030	Glenberg	Glenberg fine sandy loam, 0 to 2 percent slopes	0 to 2	183	215	240	260
1033	Glenberg	Glenberg fine sandy loam, frequently flooded	0 to 3	95	116	130	142
1114	Bankard	Bankard loamy fine sand, occasionally flooded	0 to 2	346	403	447	480
1180	Las_Animas	Las Animas fine sandy loam, occasionally flooded	0 to 2	375	437	484	520
1181	Las_Animas	Las Animas fine sandy loam, channeled, frequently flooded	0 to 2	82	100	113	124
1182	Las_Animas	Las Animas loam, occasionally flooded	0 to 2	553	642	709	760
1300	Bayard	Bayard fine sandy loam, 1 to 3 percent slopes	1 to 3	214	251	280	301
1301	Bayard	Bayard fine sandy loam, 3 to 6 percent slopes	3 to 6	220	258	288	310
1302	Bayard	Bayard fine sandy loam, 6 to 9 percent slopes	6 to 9	220	258	288	310
1303	Bayard	Bayard fine sandy loam, 9 to 20 percent slopes	9 to 20	220	258	288	310
1307	Bayard	Bayard very fine sandy loam, 1 to 3 percent slopes	1 to 3	158	186	208	225
1308	Bayard	Bayard very fine sandy loam, 3 to 6 percent slopes	3 to 6	158	186	208	225
1309	Bayard	Bayard very fine sandy loam, 6 to 9 percent slopes	6 to 9	158	186	208	225
1310	Bayard	Bayard very fine sandy loam, 9 to 20 percent slopes	9 to 20	158	186	208	225
1315	Bayard	Bayard-Dix complex, 3 to 9 percent slopes	3 to 9	157	185	207	224
1327	Bayard	Bayard fine sandy loam, 0 to 3 percent slopes	0 to 3	220	258	288	310
1361	Bridget	Bridget very fine sandy loam, 0 to 1 percent slopes	0 to 1	106	128	144	157
1362	Bridget	Bridget very fine sandy loam, 1 to 3 percent slopes	1 to 3	117	141	158	172
1363	Bridget	Bridget very fine sandy loam, 3 to 6 percent slopes	3 to 6	117	141	158	172

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Scotts Bluff County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1364	Bridget	Bridget very fine sandy loam, 6 to 9 percent slopes	6 to 9	117	141	158	172
1365	Bridget	Bridget very fine sandy loam, 9 to 20 percent slopes	9 to 20	117	141	158	172
1366	Bridget	Bridget-Otero complex, 3 to 6 percent slopes, eroded	3 to 5	106	128	144	157
1367	Bridget	Bridget-Otero complex, 6 to 9 percent slopes	5 to 9	103	124	139	152
1373	Chappell	Chappell-Dix complex, 1 to 3 percent slopes	1 to 3	341	397	441	473
1375	Chappell	Chappell-Dix complex, 3 to 6 percent slopes	3 to 5	341	397	441	473
1506	Altvan	Altvan-Dix complex, 3 to 9 percent slopes	3 to 9	685	794	876	939
1545	Dailey	Dailey loamy fine sand, 0 to 3 percent slopes	0 to 3	290	339	377	405
1549	Dailey	Dailey and Valent loamy fine sands, 0 to 3 percent slopes	0 to 3	89	108	122	134
1550	Dailey	Dailey and Valent loamy fine sands, 3 to 6 percent slopes	3 to 5	89	108	122	134
1570	Dix	Dix complex, 6 to 30 percent slopes	5 to 30	234	275	306	330
1574	Dix	Dix loamy coarse sand, 6 to 50 percent slopes	30 to 50	109	131	148	161
1575	Dix	Dix-Bayard complex, 6 to 20 percent slopes	5 to 20	353	412	456	490
1624	Keith_variant	Keith loam, alkali substratum variant, 0 to 3 percent slopes	0 to 3	191	225	251	271
1656	Laird	Laird fine sandy loam, 0 to 2 percent slopes	0 to 2	197	231	258	279
1700	Otero	Otero loamy fine sand, 0 to 6 percent slopes	3 to 5	172	203	227	245
1701	Otero	Otero fine sandy loam, 1 to 6 percent slopes	3 to 5	172	203	227	245
1702	Otero	Otero fine sandy loam, 6 to 12 percent slopes	6 to 9	172	203	227	245
1704	Otero	Otero loamy very fine sand, 0 to 3 percent slopes	0 to 3	138	164	184	199
1708	Otero_variant	Otero variant very fine sandy loam, 0 to 1 percent slopes	0 to 2	110	132	148	161
1709	Otero	Otero very fine sandy loam, 0 to 3 percent slopes	1 to 3	109	131	148	161
1710	Otero	Otero very fine sandy loam, 3 to 6 percent slopes	3 to 6	110	133	149	162

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Scotts Bluff County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1711	Otero	Otero very fine sandy loam, 6 to 9 percent slopes	6 to 9	110	133	149	162
1712	Otero	Otero-Bayard fine sandy loams, 0 to 3 percent slopes	1 to 3	172	203	227	245
1713	Otero	Otero-Bayard fine sandy loams, 3 to 6 percent slopes	3 to 5	172	203	227	245
1714	Otero	Otero-Bayard fine sandy loams, 6 to 9 percent slopes	5 to 9	172	203	227	245
1715	Otero	Otero-Bayard very fine sandy loams, 0 to 1 percent slopes	0 to 1	172	203	227	245
1718	Otero	Otero-Epping complex, 9 to 60 percent slopes	9 to 30	138	164	184	180
1729	Rosebud	Rosebud loam, 6 to 9 percent slopes	5 to 9	125	150	168	182
1809	Satanta	Satanta fine sandy loam, 1 to 3 percent slopes	1 to 3	75	91	103	113
1826	Sulco	Sulco complex, 9 to 60 percent slopes	30 to 60	130	154	173	188
1880	Valent	Valent and Dwyer fine sands, rolling	9 to 24	335	391	434	466
1883	Valent	Valent and Dwyer loamy fine sands, rolling	9 to 24	353	411	456	490
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	335	391	434	466
1889	Valent	Valent fine sand, rolling	9 to 24	335	391	434	466
1891	Valent	Valent loamy fine sand, 0 to 3 percent slopes	0 to 3	343	401	444	477
1892	Valent	Valent loamy fine sand, 3 to 9 percent slopes	3 to 9	343	401	444	477
2302	McCook	McCook loam, rarely flooded	0 to 1	154	182	203	220
2307	McCook	McCook silty clay loam, gravel substratum variant	0 to 1	493	574	634	897
4680	Marlake	Marlake, frequently ponded	0 to 1	492	571	632	678
4895	Wildhorse	Wildhorse loamy fine sand, 0 to 3 percent slopes	0 to 3	341	397	441	473
5025	Pathfinder	Pathfinder loamy fine sand, rarely flooded	0 to 2	327	382	424	456
5051	Arvada	Arvada clay loam, 0 to 1 percent slopes	0 to 1	101	122	137	149
5123	Busher	Busher loamy very fine sand, 1 to 6 percent slopes	1 to 5	150	177	198	215
5133	Busher	Busher-Jayem loamy very fine sands, 0 to 3 percent slopes	0 to 3	161	190	212	229
5134	Busher	Busher-Jayem loamy very fine sands, 3 to 6 percent slopes	3 to 6	161	190	212	229
5137	Busher	Busher-Tassel complex, 0 to 6 percent slopes	0 to 6	149	177	198	214
5139	Busher	Busher-Tassel complex, 6 to 30 percent slopes	6 to 30	151	178	177	216

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Scotts Bluff County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5143	Busher	Busher-Tassel loamy very fine sands, 6 to 30 percent slopes	6 to 30	160	189	211	228
5144	Busher	Busher-Tassel loamy very fine sands, 9 to 20 percent slopes	9 to 20	153	181	202	219
5185	Keota	Keota-Epping silt loams, 6 to 9 percent slopes	5 to 9	131	156	175	189
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	158	186	192	213
5630	Gering	Gering loam, rarely flooded	0 to 1	448	521	576	619
5631	Gering	Gering loam, alkali, occasionally flooded	0 to 1	485	563	623	668
5632	Platte	Platte soils, occasionally flooded	0 to 3	516	599	663	711
5636	Haverson	Haverson fine sandy loam, rarely flooded	0 to 1	110	132	148	161
5643	Janise	Janise loam, occasionally flooded	0 to 1	303	354	392	422
5647	Janise	Janise soils, rarely flooded	0 to 3	150	177	198	214
5660	McGrew	McGrew fine sandy loam	0 to 1	399	465	514	552
5661	McGrew	McGrew loam	0 to 1	602	698	771	826
5662	McGrew	McGrew loam, alkali, occasionally flooded	0 to 1	486	565	624	670
5665	Minatare	Minatare-Janise complex, rarely flooded	0 to 1	263	308	343	369
5666	Minatare	Minatare-Janise soils, rarely flooded	0 to 1	376	439	486	522
5671	Yockey	Yockey silt loam, occasionally flooded	0 to 1	209	245	273	295
5672	Yockey	Yockey silt loam, alkali, occasionally flooded	0 to 1	174	205	229	248
5674	Yockey	Yockey fine sandy loam, occasionally flooded	0 to 1	107	129	145	157
5675	Yockey	Yockey loam, occasionally flooded	0 to 1	154	182	204	221
5811	Buffington	Buffington silty clay loam, 0 to 1 percent slopes	0 to 1	113	135	152	166
5812	Buffington	Buffington silty clay loam, 1 to 3 percent slopes	1 to 3	113	135	152	166
5813	Buffington	Buffington silty clay loam, alkali, 0 to 1 percent slopes	0 to 1	118	141	159	172
5830	Mitchell	Mitchell and Buffington soils, alkali, 0 to 3 percent slopes	0 to 1	156	184	206	223
5831	Mitchell	Mitchell fine sandy loam, 0 to 3 percent slopes	0 to 3	98	118	133	145
5832	Mitchell	Mitchell fine sandy loam, 3 to 6 percent slopes	3 to 5	98	118	133	145
5833	Mitchell	Mitchell fine sandy loam, 6 to 9 percent slopes	5 to 9	98	118	133	145
5834	Mitchell	Mitchell silt loam, 0 to 1 percent slopes	0 to 1	178	210	235	254
5835	Mitchell	Mitchell silt loam, 1 to 3 percent slopes	1 to 3	160	189	212	229

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Scotts Bluff County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5837	Mitchell	Mitchell silt loam, 3 to 6 percent slopes	3 to 6	178	210	235	254
5838	Mitchell	Mitchell silt loam, 6 to 9 percent slopes	6 to 9	178	210	235	254
5839	Mitchell	Mitchell silt loam, 9 to 20 percent slopes	9 to 20	144	170	191	207
5840	Mitchell	Mitchell silt loam, thin, 1 to 6 percent slopes	3 to 5	171	202	225	244
5841	Mitchell	Mitchell silt loam, thin, 6 to 9 percent slopes	5 to 9	171	202	225	244
5842	Mitchell	Mitchell silt loam, thin, 9 to 20 percent slopes	9 to 20	171	202	225	244
5843	Mitchell	Mitchell very fine sandy loam, 0 to 1 percent slopes	0 to 1	133	158	177	192
5844	Mitchell	Mitchell very fine sandy loam, 1 to 3 percent slopes	1 to 3	133	158	177	192
5845	Mitchell	Mitchell very fine sandy loam, 3 to 6 percent slopes	3 to 6	133	158	177	192
5846	Mitchell	Mitchell very fine sandy loam, 6 to 9 percent slopes	6 to 9	133	158	177	192
5848	Mitchell	Mitchell-Epping complex, 3 to 9 percent slopes	3 to 9	134	159	178	193
5849	Mitchell	Mitchell-Epping complex, 9 to 30 percent slopes	9 to 30	134	159	178	193
5852	Mitchell_ variant	Mitchell silt loam, wet variant, 0 to 1 percent slopes	0 to 1	134	159	178	193
5855	Scoville	Scoville fine sand, 0 to 1 percent slopes	0 to 1	234	274	305	329
5856	Scoville	Scoville fine sand, 1 to 3 percent slopes	1 to 3	230	270	300	324
5857	Scoville	Scoville loamy fine sand, 0 to 1 percent slopes	0 to 1	200	244	272	294
5858	Scoville	Scoville loamy fine sand, 0 to 3 percent slopes	0 to 3	200	235	262	283
5864	Tripp	Tripp fine sandy loam, 0 to 3 percent slopes	0 to 3	81	98	111	122
5873	Tripp	Tripp very fine sandy loam, 0 to 1 percent slopes	0 to 1	88	107	121	132
5874	Tripp	Tripp very fine sandy loam, 1 to 3 percent slopes	1 to 3	89	108	122	133
5875	Tripp	Tripp very fine sandy loam, 3 to 6 percent slopes, eroded	3 to 6	81	99	112	122
5877	Tripp	Tripp very fine sandy loam, 6 to 9 percent slopes, eroded	6 to 9	81	99	112	122
5900	Alice	Alice fine sandy loam, 0 to 1 percent slopes	0 to 1	171	201	225	243

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Scotts Bluff County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5901	Alice	Alice fine sandy loam, 0 to 3 percent slopes	0 to 3	121	145	144	177
5902	Alice	Alice fine sandy loam, 3 to 6 percent slopes	3 to 6	121	145	144	177
5904	Alice	Alice loamy fine sand, 0 to 3 percent slopes	0 to 3	107	129	146	158
5906	Alice	Alice-Dix complex, 3 to 6 percent slopes	3 to 6	175	206	230	249
5910	Angora	Angora very fine sandy loam, 1 to 6 percent slopes	1 to 6	112	134	151	164
5915	Ashollow	Ashollow loamy very fine sand, 3 to 9 percent slopes	3 to 9	195	229	255	276
5916	Ashollow	Ashollow loamy very fine sand, 9 to 20 percent slopes	9 to 20	190	224	249	269
5926	Blueridge	Blueridge gravelly loamy sand, 20 to 50 percent slopes	20 to 50	255	299	332	358
5928	Blueridge	Blueridge-Bayard complex, 6 to 20 percent slopes	6 to 20	381	445	492	529
5929	Blueridge	Blueridge gravelly sandy loam, 20 to 30 percent slopes	20 to 30	289	338	375	404
5935	Creighton	Creighton very fine sandy loam, 3 to 6 percent slopes	3 to 6	158	187	209	226
5936	Creighton	Creighton very fine sandy loam, 6 to 11 percent slopes	6 to 11	158	187	209	226
5944	Duroc	Duroc loam, 1 to 6 percent slopes	3 to 5	100	121	136	148
5963	Jayem	Jayem fine sandy loam, 1 to 3 percent slopes	1 to 3	148	155	196	212
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	148	155	196	212
5967	Jayem	Jayem fine sandy loam, 6 to 9 percent slopes	6 to 9	148	155	196	212
5968	Jayem	Jayem fine sandy loam, 9 to 20 percent slopes	9 to 20	148	155	196	212
5976	Jayem	Jayem loamy very fine sand, 0 to 3 percent slopes	0 to 3	119	143	160	174
5979	Jayem	Jayem loamy very fine sand, 3 to 6 percent slopes	3 to 6	119	143	160	174
5980	Jayem	Jayem loamy very fine sand, 6 to 9 percent slopes	6 to 9	120	143	160	174
5986	Orella	Orella clay, 0 to 3 percent slopes	1 to 3	132	156	176	190
5989	Epping	Rock outcrop-Epping complex	9 to 60	108	130	147	159
6021	Shingle	Shingle complex, 3 to 9 percent slopes	3 to 9	121	145	163	177

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Scotts Bluff County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6022	Busher	Tassel-Busher complex, 3 to 30 percent slopes	3 to 30	124	133	167	181
6025	Tassel	Tassel loamy very fine sand, 20 to 50 percent slopes	30 to 50	122	134	165	179
6027	Tassel	Tassel soils, 20 to 50 percent slopes	20 to 50	103	125	141	153
6031	Tassel	Tassel-Ashollow-Rock outcrop complex, 9 to 60 percent slopes	9 to 60	83	101	114	124
6033	Tassel	Tassel-Busher loamy very fine sands, 3 to 30 percent slopes	3 to 30	122	147	165	179
6035	Tassel	Tassel-Busher-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	123	148	166	180
6044	Tassel	Tassel-Rock outcrop complex, 20 to 60 percent slopes	20 to 60	123	148	166	180
6050	Epping	Rock outcrop-Epping complex, 20 to 60 percent slopes	20 to 60	150	178	199	216
6051	Tassel	Rock outcrop-Tassel complex	9 to 60	103	125	141	153
6105	Sarben	Sarben loamy very fine sand, 3 to 9 percent slopes	3 to 9	144	171	191	207
6200	Epping	Epping silt loam, 1 to 3 percent slopes	1 to 3	111	133	150	163
6201	Epping	Epping silt loam, 3 to 30 percent slopes	3 to 30	111	133	150	163
6203	Epping	Epping-Badland complex, 3 to 60 percent slopes	3 to 60	102	123	139	151
6204	Epping	Epping-Keota silt loams, 3 to 30 percent slopes	3 to 30	148	175	196	213
6240	Keota	Keota silt loam, 1 to 3 percent slopes	1 to 3	131	156	175	189
6241	Keota	Keota silt loam, 3 to 6 percent slopes	3 to 5	131	156	175	189
6312	Barney	Barney loam, frequently flooded	0 to 1	462	537	594	637
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	387	450	499	536
8495	Gothenburg	Gothenburg soils, frequently flooded	0 to 2	278	377	418	450
9826	Slickspots	Slickspots-Keith complex	0 to 1	--	--	--	--
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9973	Badland	Badland	3 to 50	--	--	--	--
9976	Pits	Borrow pit	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Seward County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2521	Coly	Coly-Hobbs silt loams, 0 to 30 percent slopes	2 to 30	136	161	180	195
2536	Coly	Coly silt loam, 30 to 60 percent slopes	30 to 60	128	152	171	185
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	136	161	181	196
2835	Uly	Uly-Hobbs silt loams, 0 to 30 percent slopes, eroded	3 to 30	136	161	181	196
2836	Uly	Uly-Hobbs silt loams, 11 to 30 percent slopes	11 to 30	137	162	181	197
3256	Meadin	Meadin soils, 7 to 30 percent slopes, eroded	7 to 31	434	505	559	600
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	120	144	161	175
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	161	190	212	230
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	165	195	218	236
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	161	190	212	230
3642	Kezan	Kezan silt loam, occasionally flooded	0 to 2	131	155	174	189
3709	Crete	Crete silt loam, terrace, 0 to 1 percent slopes	0 to 1	135	161	180	195
3713	Butler	Butler silt loam, terrace, 0 to 1 percent slopes	0 to 1	150	178	199	215
3731	Massie	Massie silty clay loam, frequently ponded	0 to 1	97	117	132	144
3773	Muir	Muir silt loam, 0 to 1 percent slopes	0 to 1	109	131	147	160
3774	Muir	Muir silty clay loam, rarely flooded	0 to 1	97	117	132	144
3775	Muir	Muir silt loam, rarely flooded	0 to 1	106	128	144	157
3776	Muir	Muir silt loam, 1 to 3 percent slopes	1 to 3	106	128	144	157
3777	Muir	Muir silt loam, 3 to 7 percent slopes	3 to 7	106	128	144	157
3819	Butler	Butler-Olbut complex, 0 to 1 percent slopes	0 to 1	150	178	199	216
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3822	Crete	Crete silt loam, terrace, 1 to 3 percent slopes	1 to 3	106	128	144	157
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3825	Crete	Crete silt loam, 1 to 3 percent slopes	1 to 3	106	128	144	157
3839	Geary	Geary silty clay loam, 11 to 30 percent slopes	11 to 30	98	118	134	145
3840	Geary	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	103	124	140	152
3846	Geary	Geary silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	103	124	140	152
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	153	180	202	219
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	153	181	203	220

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Seward County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3868	Hastings	Hastings silt loam, 3 to 7 percent slopes	3 to 7	123	147	166	180
3870	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	109	131	148	160
3872	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, severely eroded	3 to 7	76	93	106	116
3876	Hastings	Hastings silty clay loam, 1 to 3 percent slopes, eroded	1 to 3	109	131	148	160
3877	Hastings	Hastings silty clay loam, 11 to 17 percent slopes, severely eroded	12 to 17	76	93	106	116
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
3962	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	109	131	148	160
3963	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, severely eroded	7 to 12	76	93	106	116
3964	Hastings	Hastings silty clay loam, terrace, 3 to 7 percent slopes, eroded	3 to 7	102	123	139	151
3965	Hastings	Hastings soils, 1 to 3 percent slopes, severely eroded	1 to 3	87	106	119	130
4182	Longford	Longford silty clay loam, 7 to 11 percent slopes, eroded	6 to 11	94	114	129	141
6364	Obert	Obert silty clay loam, frequently ponded	0 to 1	114	137	154	168
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	112	135	151	164
7203	Aksarben	Sarpy loamy fine sand, rarely flooded	0 to 3	117	141	158	172
7204	Aksarben	Sarpy loamy fine sand, rarely flooded	0 to 3	117	141	158	172
7206	Aksarben	Aksarben silty clay loam, 2 to 6 percent slopes	2 to 6	69	85	97	106
7207	Aksarben	Aksarben silty clay loam, 2 to 6 percent slopes	2 to 6	69	85	97	106
7215	Burchard	Burchard loam, 6 to 11 percent slopes	6 to 11	71	87	99	109
7216	Burchard	Burchard loam, 11 to 17 percent slopes	11 to 15	71	87	99	109
7219	Burchard	Burchard clay loam, 11 to 17 percent slopes, eroded	11 to 17	61	75	86	95
7227	Burchard	Burchard clay loam, 6 to 11 percent slopes	6 to 11	67	81	93	102
7228	Burchard	Burchard clay loam, 6 to 11 percent slopes, eroded	6 to 11	66	81	93	102
7229	Burchard	Burchard clay loam, 11 to 17 percent slopes	11 to 15	60	74	85	93
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	102	124	139	152
7256	Deroin	Deroin silty clay loam, 11 to 30 percent slopes, severely eroded	12 to 31	90	109	123	134

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Seward County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7258	Deroin	Deroin silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	87	106	120	131
7259	Deroin	Deroin silty clay loam, 6 to 11 percent slopes, severely eroded	5 to 12	90	109	123	134
7265	Burchard	Burchard-Steinauer clay loams, 11 to 17 percent slopes	12 to 17	67	81	93	102
7266	Burchard	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	66	81	93	102
7267	Burchard	Burchard-Steinauer clay loams, 11 to 30 percent slopes	11 to 30	61	75	87	108
7418	Morrill	Morrill clay loam, 6 to 11 percent slopes	6 to 11	74	90	102	112
7422	Morrill	Morrill clay loam, 6 to 11 percent slopes, eroded	6 to 11	75	91	104	114
7501	Pawnee	Pawnee clay loam, 4 to 8 percent slopes, eroded	4 to 8	71	86	99	108
7507	Pawnee	Pawnee clay loam, 6 to 11 percent slopes, eroded	6 to 11	58	71	82	91
7511	Pawnee	Pawnee clay loam, 6 to 11 percent slopes	7 to 12	59	72	83	91
7517	Pawnee	Pawnee soils, 6 to 11 percent slopes, severely eroded	7 to 12	56	69	80	88
7547	Shelby	Shelby clay loam, 6 to 11 percent slopes, eroded	5 to 12	44	55	64	71
7548	Shelby	Shelby clay loam, 6 to 11 percent slopes	6 to 11	44	55	64	71
7611	Steinauer	Steinauer clay loam, 11 to 30 percent slopes	11 to 30	68	83	95	105
7612	Steinauer	Steinauer clay loam, 11 to 30 percent slopes, eroded	11 to 30	68	82	94	104
7614	Steinauer	Steinauer clay loam, 6 to 11 percent slopes, eroded	6 to 11	68	83	95	105
7617	Steinauer	Steinauer loam, 11 to 30 percent slopes	11 to 30	72	87	100	109
7619	Steinauer	Steinauer clay loam, 30 to 50 percent slopes	30 to 50	81	99	112	122
7620	Steinauer	Steinauer clay loam, 20 to 40 percent slopes	20 to 40	81	99	112	122
7641	Yutan	Yutan silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	93	112	127	138
7642	Yutan	Yutan silty clay loam, 3 to 6 percent slopes, eroded	3 to 7	97	117	132	144
7644	Yutan	Yutan silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	97	117	132	144
7645	Yutan	Yutan silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	97	117	132	144

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Seward County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7680	Wymore	Wymore silty clay loam, 0 to 1 percent slopes	0 to 1	76	94	106	116
7681	Wymore	Wymore silty clay loam, 1 to 3 percent slopes	1 to 3	77	94	106	116
7684	Wymore	Wymore silty clay loam, 3 to 6 percent slopes, eroded	3 to 6	77	94	106	116
7699	Wymore	Wymore soils, 6 to 11 percent slopes, eroded	7 to 9	73	88	101	110
7750	Nodaway	Nodaway silt loam, occasionally flooded	0 to 2	152	180	202	218
7867	Nodaway	Nodaway silt loam, channeled, frequently flooded	0 to 2	148	175	196	212
8119	Pohocco	Pohocco silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	107	128	145	157
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	131	155	174	189
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	131	155	174	189
8852	Hall	Hall-Olbut complex, 1 to 3 percent slopes	1 to 3	114	137	154	167
8863	Hord	Hord-Hastings complex, 3 to 6 percent slopes	3 to 6	115	138	155	169
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	116	140	157	170
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	116	140	157	170
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sheridan County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1006	Bankard	Bankard loamy fine sand, channeled, frequently flooded	0 to 2	112	139	156	169
1182	Las_Animas	Las Animas loam, occasionally flooded	0 to 2	109	132	148	161
1320	Beckton	Beckton silt loam, 0 to 2 percent slopes	0 to 2	96	117	132	143
1350	Bridget	Bridget loam, 0 to 1 percent slopes	0 to 1	164	193	216	234
1361	Bridget	Bridget very fine sandy loam, 0 to 1 percent slopes	0 to 1	123	147	165	179
1362	Bridget	Bridget very fine sandy loam, 1 to 3 percent slopes	1 to 3	123	147	165	179
1545	Dailey	Dailey loamy fine sand, 0 to 3 percent slopes	0 to 3	89	108	123	134
1546	Dailey	Dailey loamy fine sand, 3 to 9 percent slopes	3 to 9	89	108	123	134
1617	Keith	Keith loam, 0 to 1 percent slopes	0 to 1	170	200	224	242
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	170	200	224	242
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	170	200	224	242
1625	Keith	Keith loam, gravelly substratum, 0 to 1 percent slopes	0 to 1	289	338	375	404
1626	Keith	Keith loam, gravelly substratum, 1 to 3 percent slopes	1 to 3	289	338	375	404
1627	Keith	Keith loam, gravelly substratum, 3 to 6 percent slopes	3 to 6	289	338	375	404
1662	Lodgepole	Lodgepole silt loam, occasionally ponded	0 to 1	168	198	221	239
1690	Manvel	Manvel silty clay loam, 3 to 6 percent slopes	2 to 6	115	138	155	168
1698	Minnequa	Minnequa silty clay loam, 6 to 12 percent slopes	5 to 12	125	149	168	182
1726	Rosebud	Rosebud loam, 1 to 3 percent slopes	1 to 3	159	187	210	227
1809	Satanta	Satanta fine sandy loam, 1 to 3 percent slopes	1 to 3	156	185	207	224
1812	Satanta	Satanta fine sandy loam, 3 to 6 percent slopes	3 to 6	156	185	207	224
1813	Satanta	Satanta fine sandy loam, 6 to 9 percent slopes	6 to 9	156	185	207	224
1822	Satanta	Satanta-Canyon complex, 12 to 20 percent slopes	11 to 15	182	215	240	259
1823	Satanta	Satanta-Canyon complex, 6 to 12 percent slopes	6 to 11	155	184	205	222
1884	Valent	Valent complex, rolling and hilly	9 to 60	335	391	434	466
1885	Valent	Valent fine sand, 0 to 3 percent slopes	0 to 3	335	391	434	466
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	335	391	434	466

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sheridan County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
1889	Valent	Valent fine sand, rolling	9 to 24	335	391	434	466
1891	Valent	Valent loamy fine sand, 0 to 3 percent slopes	0 to 3	331	387	429	461
1892	Valent	Valent loamy fine sand, 3 to 9 percent slopes	3 to 9	331	387	429	461
1894	Valent	Valent loamy fine sand, 9 to 20 percent slopes	9 to 17	331	387	429	461
2001	McCook	McCook loam, channeled, frequently flooded	0 to 2	197	232	259	279
2302	McCook	McCook loam, rarely flooded	0 to 1	210	247	275	296
2360	Munjor	Munjor fine sandy loam, rarely flooded	0 to 2	112	135	152	165
2361	Munjor	Munjor fine sandy loam, channeled, frequently flooded	0 to 2	112	135	152	165
3160	Doger	Doger and Dunday loamy fine sands, 0 to 2 percent slopes	0 to 3	223	261	291	314
3201	Johnstown	Johnstown loam, 0 to 2 percent slopes	0 to 1	415	483	534	573
3210	Kadoka	Kadoka silt loam, 0 to 2 percent slopes	0 to 2	135	160	180	195
3211	Kadoka	Kadoka silt loam, 2 to 6 percent slopes	2 to 6	135	160	180	195
3212	Kadoka	Kadoka silt loam, 6 to 11 percent slopes	6 to 9	135	160	180	195
3228	Lute	Lute loam, 0 to 2 percent slopes	0 to 2	326	381	422	454
4205	Almeria	Almeria loamy fine sand, channeled, frequently flooded	0 to 2	260	305	339	365
4223	Bolent	Bolent loamy fine sand, occasionally flooded	0 to 2	93	112	127	138
4232	Calamus	Calamus loamy fine sand, rarely flooded	0 to 2	157	186	208	225
4455	Crowther	Crowther loam, 0 to 1 percent slopes	0 to 1	203	239	266	287
4456	Crowther	Crowther mucky peat	0 to 1	253	297	330	355
4524	Els	Els fine sand, calcareous, 0 to 3 percent slopes	0 to 2	332	388	430	462
4536	Els	Els, calcareous-Hoffland complex, 0 to 3 percent slopes	0 to 2	332	388	430	462
4539	Els	Els, calcareous-Ipage complex, 0 to 3 percent slopes	0 to 2	333	388	430	462
4540	Els	Els, calcareous-Selia fine sands, 0 to 3 percent slopes	0 to 2	331	386	430	462
4541	Els	Els, calcareous-Tryon complex, 0 to 3 percent slopes	0 to 2	334	389	432	464
4545	Els	Els-Ipage fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	436	507	561	602
4576	Gannett	Gannett loam, 0 to 1 percent slopes	0 to 1	605	702	776	831

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sheridan County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4579	Gannett	Gannett mucky peat	0 to 1	614	713	787	843
4635	Hoffland	Hoffland fine sandy loam, 0 to 1 percent slopes	0 to 1	443	515	570	612
4636	Hoffland	Hoffland fine sandy loam, frequently ponded	0 to 1	435	506	560	601
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	375	437	484	520
4643	Ipage	Ipage fine sand, calcareous, 0 to 3 percent slopes	0 to 3	360	419	465	499
4649	Ipage	Ipage loamy fine sand, alkali substratum, 0 to 3 percent slopes	0 to 3	172	203	226	245
4683	Marlake	Marlake fine sandy loam, frequently ponded	0 to 1	548	636	703	753
4713	Orpha	Orpha loamy fine sand, 3 to 9 percent slopes	3 to 9	384	447	495	532
4716	Orpha	Orpha-Niobrara complex, 9 to 30 percent slopes	9 to 30	385	449	497	534
4717	Orpha	Orpha-Niobrara loamy fine sands, 9 to 30 percent slopes	9 to 30	363	423	468	503
4718	Orpha	Orpha-Rock outcrop complex, 30 to 60 percent slopes	20 to 45	341	398	441	474
4740	Tryon	Tryon fine sandy loam, 0 to 3 percent slopes	0 to 1	489	568	628	674
4743	Tryon	Tryon fine sandy loam, frequently ponded	0 to 1	483	562	621	666
4780	Valentine	Valentine complex, rolling and hilly	9 to 24	342	399	442	475
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	363	423	469	504
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	342	399	442	475
4794	Valentine	Valentine fine sand, 9 to 17 percent slopes	9 to 17	344	401	445	478
4800	Valentine	Valentine fine sand, hilly	17 to 60	342	399	442	475
4807	Valentine	Valentine fine sand, rolling	9 to 24	342	399	442	475
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	348	405	449	483
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	127	150	169	183
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	322	376	417	448
4894	Wildhorse	Wildhorse fine sand, 0 to 3 percent slopes	0 to 3	342	399	443	476
4897	Wildhorse	Wildhorse-Hoffland complex, 0 to 3 percent slopes	0 to 3	343	400	443	477
4898	Wildhorse	Wildhorse-Ipage, calcareous complex, 0 to 3 percent slopes	0 to 3	343	400	443	477
5060	Bufton	Bufton silty clay loam, 1 to 3 percent slopes	1 to 3	117	140	158	171

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sheridan County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5100	Alliance	Alliance loam, 0 to 1 percent slopes	0 to 1	158	187	209	226
5101	Alliance	Alliance loam, 1 to 3 percent slopes	1 to 3	158	187	209	226
5102	Alliance	Alliance loam, 3 to 6 percent slopes	3 to 6	158	187	209	226
5115	Bufton	Bufton silty clay loam, 9 to 20 percent slopes	9 to 20	115	138	155	168
5117	Bufton	Bufton-Orella complex, 3 to 9 percent slopes	3 to 9	116	140	157	170
5119	Busher	Busher fine sandy loam, 0 to 3 percent slopes	0 to 3	210	246	274	296
5120	Busher	Busher fine sandy loam, 3 to 6 percent slopes	3 to 6	210	246	274	296
5121	Busher	Busher fine sandy loam, 6 to 9 percent slopes	6 to 9	210	246	274	296
5137	Busher	Busher-Tassel complex, 0 to 6 percent slopes	0 to 6	210	247	275	297
5139	Busher	Busher-Tassel complex, 6 to 30 percent slopes	6 to 30	210	247	275	297
5141	Busher	Busher-Tassel fine sandy loams, 9 to 30 percent slopes	9 to 15	126	150	168	183
5188	Keya	Keya loam, 0 to 2 percent slopes	0 to 2	154	182	204	221
5205	Oglala	Oglala-Canyon complex, 3 to 6 percent slopes	3 to 6	171	202	225	244
5207	Oglala	Oglala-Canyon complex, 6 to 9 percent slopes	6 to 11	171	202	225	244
5210	Oglala	Oglala-Canyon complex, 9 to 30 percent slopes	9 to 20	171	202	225	244
5221	Onita	Onita silty clay loam, 0 to 1 percent slopes	0 to 1	109	131	274	296
5232	Ponderosa	Ponderosa very fine sandy loam, 3 to 6 percent slopes	3 to 6	103	124	139	152
5233	Ponderosa	Ponderosa very fine sandy loam, 6 to 9 percent slopes	6 to 9	103	124	139	152
5234	Ponderosa	Ponderosa-Tassel-Vetal complex, 6 to 30 percent slopes	6 to 30	95	115	130	142
5260	Thirtynine	Thirtynine loam, 1 to 3 percent slopes	1 to 3	233	273	304	327
5261	Thirtynine	Thirtynine loam, 3 to 6 percent slopes	3 to 6	233	273	304	327
5262	Thirtynine	Thirtynine loam, 6 to 9 percent slopes	6 to 9	233	273	304	327
5265	Tuthill	Tuthill fine sandy loam, 0 to 3 percent slopes	0 to 3	242	284	316	340
5266	Tuthill	Tuthill fine sandy loam, 3 to 6 percent slopes	3 to 6	242	284	316	340
5267	Tuthill	Tuthill fine sandy loam, 6 to 9 percent slopes	6 to 11	242	284	316	340

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sheridan County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5268	Tuthill	Tuthill loamy fine sand, 0 to 3 percent slopes	0 to 3	212	249	277	299
5269	Tuthill	Tuthill loamy fine sand, 3 to 9 percent slopes	3 to 9	212	249	277	299
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	216	253	282	304
5288	Vetal	Vetal loamy fine sand, 0 to 3 percent slopes	0 to 3	172	203	227	245
5351	Enning	Enning-Minnequa complex, 6 to 20 percent slopes	9 to 20	120	144	162	176
5352	Enning	Enning-Rock outcrop complex, 11 to 40 percent slopes	9 to 40	120	144	162	176
5640	Haverson	Haverson loam, frequently flooded	0 to 3	215	253	282	304
5849	Mitchell	Mitchell-Epping complex, 9 to 30 percent slopes	9 to 30	109	132	148	161
5942	Duroc	Duroc loam, 0 to 1 percent slopes	0 to 1	75	92	105	114
5943	Duroc	Duroc loam, 1 to 3 percent slopes	1 to 3	74	90	102	112
5947	Duroc	Duroc very fine sandy loam, 1 to 3 percent slopes	1 to 3	64	78	90	98
5965	Jayem	Jayem fine sandy loam, 0 to 3 percent slopes	0 to 3	162	191	214	231
5966	Jayem	Jayem fine sandy loam, 3 to 6 percent slopes	3 to 6	162	191	214	231
5967	Jayem	Jayem fine sandy loam, 6 to 9 percent slopes	6 to 9	162	191	214	231
5988	Orella	Orella silty clay loam, 3 to 30 percent slopes	3 to 30	149	176	198	214
6043	Tassel	Tassel-Ponderosa-Rock outcrop association, 9 to 70 percent slopes	9 to 70	103	125	140	153
6045	Tassel	Tassel-Rock outcrop complex, 9 to 70 percent slopes	9 to 70	112	135	151	165
6203	Epping	Epping-Badland complex, 3 to 60 percent slopes	3 to 60	102	123	138	150
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	142	171	192	208
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sherman County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	531	617	682	731
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	128	152	171	185
2558	Coly	Coly-Uly silt loams, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	153	180	202	218
2610	Hersh	Hersh-Valentine complex, 11 to 24 percent slopes	9 to 24	152	180	202	218
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	92	112	126	138
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	92	112	126	138
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	92	112	126	138
2672	Holdrege	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	83	101	115	125
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	137	163	183	198
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	137	163	183	198
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	137	163	183	198
2844	Uly	Uly-Coly silt loams, 6 to 11 percent slopes, eroded	6 to 11	136	161	180	196
3310	Ronson	Ronson fine sandy loam, 0 to 2 percent slopes	0 to 3	129	153	172	186
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	165	195	218	236
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	165	195	218	236
3912	Scott	Scott silty clay loam, frequently ponded	0 to 1	103	124	140	152
4213	Almeria	Almeria loam, occasionally flooded	0 to 2	379	441	489	608
4225	Bolent	Bolent loamy sand, occasionally flooded	0 to 2	90	109	123	134
4258	Almeria	Almeria soils, occasionally flooded	0 to 2	440	512	566	608
4266	Loup	Loup loam, occasionally flooded	0 to 1	642	744	822	881
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	151	179	200	217
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	378	440	488	524
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	461	536	593	637
4673	Loup	Loup loam, frequently ponded	0 to 2	667	773	854	915
4807	Valentine	Valentine fine sand, rolling	9 to 24	352	410	455	489

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sherman County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	331	386	428	460
4855	Valentine	Valentine-Bolent complex, 0 to 6 percent slopes	3 to 6	363	423	469	504
6313	Barney	Barney loam, channeled, frequently flooded	0 to 2	538	625	690	740
6636	Boelus	Boelus loamy fine sand, 0 to 3 percent slopes	0 to 3	106	127	143	156
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	301	351	390	420
8469	Gibbon	Gibbon silt loam, rarely flooded	0 to 2	111	133	150	163
8478	Gibbon	Gibbon-Saltine silt loams, rarely flooded	0 to 1	111	133	150	163
8581	Wann	Wann fine sandy loam, rarely flooded	0 to 2	206	242	269	291
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	192	226	252	272
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	192	226	252	272
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	130	154	173	188
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	118	142	159	173
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	118	142	159	173
8872	Hord	Hord silt loam, 3 to 6 percent slopes	3 to 6	113	136	153	166
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	114	137	154	168
9726	Ustorthents	Ustorthents, steep	9 to 30	104	126	142	154
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	91	110	124	135
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sioux County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
1006	Bankard	Bankard loamy fine sand, channeled, frequently flooded	0 to 2	81	99	112	122
1030	Glenberg	Glenberg fine sandy loam, 0 to 2 percent slopes	0 to 2	124	148	166	180
1031	Glenberg	Glenberg fine sandy loam, channeled, frequently flooded	0 to 2	125	149	168	182
1114	Bankard	Bankard loamy fine sand, occasionally flooded	0 to 2	77	95	107	117
1180	Las_Animas	Las Animas fine sandy loam, occasionally flooded	0 to 2	162	191	214	231
1181	Las_Animas	Las Animas fine sandy loam, channeled, frequently flooded	0 to 2	82	93	113	124
1188	Las_Animas	Las Animas-Lisco complex, occasionally flooded	0 to 2	91	110	125	136
1300	Bayard	Bayard fine sandy loam, 1 to 3 percent slopes	1 to 3	214	251	280	301
1301	Bayard	Bayard fine sandy loam, 3 to 6 percent slopes	3 to 6	202	238	265	286
1326	Bayard	Bayard fine sandy loam, 0 to 1 percent slopes	0 to 1	200	236	263	283
1363	Bridget	Bridget very fine sandy loam, 3 to 6 percent slopes	3 to 6	116	140	157	171
1364	Bridget	Bridget very fine sandy loam, 6 to 9 percent slopes	6 to 9	116	140	157	171
1365	Bridget	Bridget very fine sandy loam, 9 to 20 percent slopes	9 to 20	116	139	157	170
1618	Keith	Keith loam, 1 to 3 percent slopes	1 to 3	161	191	213	231
1621	Keith	Keith loam, 3 to 6 percent slopes	3 to 6	160	189	211	228
1704	Otero	Otero loamy very fine sand, 0 to 3 percent slopes	0 to 3	94	114	128	140
1818	Satanta	Satanta very fine sandy loam, 1 to 3 percent slopes	1 to 3	158	186	208	225
1819	Satanta	Satanta very fine sandy loam, 3 to 6 percent slopes	3 to 6	159	188	210	228
1884	Valent	Valent complex, rolling and hilly	9 to 60	335	391	434	466
1885	Valent	Valent fine sand, 0 to 3 percent slopes	0 to 3	335	391	434	466
1886	Valent	Valent fine sand, 3 to 9 percent slopes	3 to 9	335	391	434	466
1889	Valent	Valent fine sand, rolling	9 to 24	336	392	435	468
1891	Valent	Valent loamy fine sand, 0 to 3 percent slopes	0 to 3	348	405	449	483
1892	Valent	Valent loamy fine sand, 3 to 9 percent slopes	3 to 9	343	401	444	477

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sioux County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
4895	Wildhorse	Wildhorse loamy fine sand, 0 to 3 percent slopes	0 to 3	354	413	458	492
5000	Interior	Interior silty clay, channeled, frequently flooded	0 to 2	121	145	163	177
5004	Lohmiller	Lohmiller silty clay loam, rarely flooded	0 to 2	106	128	144	156
5005	Lohmiller	Lohmiller silty clay loam, channeled, frequently flooded	0 to 2	111	133	150	163
5006	Lohmiller	Lohmiller silty clay, occasionally flooded	0 to 2	94	114	129	140
5025	Pathfinder	Pathfinder loamy fine sand, rarely flooded	0 to 2	327	382	424	456
5050	Arvada	Arvada loam, 0 to 3 percent slopes	0 to 3	99	120	135	147
5055	Bufton	Bufton clay loam, 0 to 1 percent slopes	0 to 1	112	135	152	165
5056	Bufton	Bufton clay loam, 1 to 3 percent slopes	1 to 3	114	137	154	167
5101	Alliance	Alliance loam, 1 to 3 percent slopes	1 to 3	146	173	194	210
5102	Alliance	Alliance loam, 3 to 6 percent slopes	3 to 6	146	172	193	209
5111	Bahl	Bahl clay, 0 to 6 percent slopes	0 to 6	123	148	166	180
5112	Bufton	Bufton clay loam, 3 to 9 percent slopes	3 to 9	112	136	153	166
5113	Bufton	Bufton clay loam, 9 to 20 percent slopes	9 to 20	114	143	161	175
5122	Busher	Busher loamy very fine sand, 0 to 3 percent slopes	0 to 3	153	181	203	219
5125	Busher	Busher loamy very fine sand, 3 to 6 percent slopes	3 to 6	153	181	203	219
5126	Busher	Busher loamy very fine sand, 6 to 9 percent slopes	6 to 9	149	176	197	213
5136	Busher	Busher-Phiferson complex, 0 to 6 percent slopes	0 to 6	154	182	204	221
5137	Busher	Busher-Tassel complex, 0 to 6 percent slopes	0 to 6	149	177	198	214
5139	Busher	Busher-Tassel complex, 6 to 30 percent slopes	6 to 30	151	178	200	216
5191	Norrest	Norrest clay loam, 1 to 3 percent slopes	1 to 3	84	102	115	126
5192	Norrest	Norrest clay loam, 3 to 9 percent slopes	6 to 9	83	101	115	125
5197	Norrest	Norrest silty clay loam, 9 to 20 percent slopes	9 to 20	94	114	129	140
5201	Oglala	Oglala very fine sandy loam, 1 to 3 percent slopes	1 to 3	136	162	181	196
5202	Oglala	Oglala very fine sandy loam, 3 to 6 percent slopes	3 to 6	135	160	179	195
5203	Oglala	Oglala very fine sandy loam, 6 to 9 percent slopes	6 to 9	133	157	186	191
5206	Oglala	Oglala-Canyon complex, 3 to 9 percent slopes	3 to 9	135	160	180	195

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sioux County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5210	Oglala	Oglala-Canyon complex, 9 to 30 percent slopes	9 to 20	140	165	185	201
5225	Pierre	Pierre clay, 1 to 6 percent slopes	1 to 6	107	129	145	158
5226	Pierre	Pierre clay, 6 to 20 percent slopes	6 to 20	108	130	146	159
5230	Ponderosa	Ponderosa loamy very fine sand, 6 to 9 percent slopes	6 to 9	90	109	123	135
5231	Ponderosa	Ponderosa loamy very fine sand, 9 to 20 percent slopes	9 to 20	91	111	125	137
5234	Ponderosa	Ponderosa-Tassel-Vetal complex, 6 to 30 percent slopes	6 to 30	91	111	125	137
5241	Samsil	Pierre-Samsil, moderately deep silty clays, 6 to 25 percent slopes	6 to 25	90	109	123	134
5242	Samsil	Samsil-Rock outcrop complex, 9 to 50 percent slopes	9 to 50	88	106	120	131
5247	Savo	Savo silty clay loam, 0 to 3 percent slopes	0 to 2	105	126	142	155
5248	Savo	Savo silty clay loam, 3 to 6 percent slopes	2 to 6	108	130	146	159
5253	Schamber	Schamber gravelly sandy loam, 3 to 30 percent slopes	3 to 30	378	440	488	524
5260	Thirtynine	Thirtynine loam, 1 to 3 percent slopes	1 to 3	173	204	228	246
5261	Thirtynine	Thirtynine loam, 3 to 6 percent slopes	3 to 6	173	205	228	247
5262	Thirtynine	Thirtynine loam, 6 to 9 percent slopes	6 to 9	174	206	230	248
5281	Vetal	Vetal fine sandy loam, 0 to 3 percent slopes	0 to 3	158	186	208	225
5291	Vetal	Vetal very fine sandy loam, 1 to 3 percent slopes	1 to 3	176	208	232	251
5292	Vetal	Vetal very fine sandy loam, 3 to 6 percent slopes	3 to 6	176	208	232	251
5355	Hisle	Hisle-Slickspots complex, 0 to 6 percent slopes	0 to 6	82	100	113	123
5358	Kyle	Kyle silty clay, 0 to 1 percent slopes	0 to 1	96	116	131	143
5359	Kyle	Kyle silty clay, 1 to 6 percent slopes	1 to 6	96	116	131	143
5600	Bigwinder	Bigwinder fine sandy loam, frequently flooded	0 to 3	452	526	582	625
5610	Craft	Craft loam, 0 to 2 percent slopes	0 to 2	160	189	211	229
5611	Craft	Craft loam, occasionally flooded	0 to 2	161	190	213	230
5612	Craft	Craft loam, channeled, frequently flooded	0 to 2	504	586	648	695
5620	Draknab	Draknab loamy fine sand, 0 to 3 percent slopes	0 to 3	290	339	377	405
5656	Lisco	Lisco very fine sandy loam, occasionally flooded	0 to 2	138	163	183	198
5834	Mitchell	Mitchell silt loam, 0 to 1 percent slopes	0 to 1	150	177	199	215

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sioux County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
5835	Mitchell	Mitchell silt loam, 1 to 3 percent slopes	1 to 3	152	180	201	218
5837	Mitchell	Mitchell silt loam, 3 to 6 percent slopes	3 to 6	147	173	194	210
5838	Mitchell	Mitchell silt loam, 6 to 9 percent slopes	6 to 9	147	173	194	210
5839	Mitchell	Mitchell silt loam, 9 to 20 percent slopes	9 to 20	144	170	191	207
5843	Mitchell	Mitchell very fine sandy loam, 0 to 1 percent slopes	0 to 1	101	122	137	149
5844	Mitchell	Mitchell very fine sandy loam, 1 to 3 percent slopes	1 to 3	102	123	138	151
5845	Mitchell	Mitchell very fine sandy loam, 3 to 6 percent slopes	3 to 6	102	123	138	151
5848	Mitchell	Mitchell-Epping complex, 3 to 9 percent slopes	3 to 9	90	109	123	134
5849	Mitchell	Mitchell-Epping complex, 9 to 30 percent slopes	9 to 30	144	170	191	207
5855	Scoville	Scoville fine sand, 0 to 1 percent slopes	0 to 1	234	274	305	322
5856	Scoville	Scoville fine sand, 1 to 3 percent slopes	1 to 3	230	270	300	324
5857	Scoville	Scoville loamy fine sand, 0 to 1 percent slopes	0 to 1	208	244	272	294
5858	Scoville	Scoville loamy fine sand, 0 to 3 percent slopes	0 to 3	200	235	262	183
5862	Skilak	Skilak silty clay loam, 6 to 20 percent slopes	10 to 20	160	189	212	229
5873	Tripp	Tripp very fine sandy loam, 0 to 1 percent slopes	0 to 1	89	108	122	133
5874	Tripp	Tripp very fine sandy loam, 1 to 3 percent slopes	1 to 3	84	102	116	126
5900	Alice	Alice fine sandy loam, 0 to 1 percent slopes	0 to 1	171	201	225	243
5901	Alice	Alice fine sandy loam, 0 to 3 percent slopes	0 to 3	186	219	245	264
5902	Alice	Alice fine sandy loam, 3 to 6 percent slopes	3 to 6	194	228	254	274
5915	Ashollow	Ashollow loamy very fine sand, 3 to 9 percent slopes	3 to 9	195	229	255	276
5916	Ashollow	Ashollow loamy very fine sand, 9 to 20 percent slopes	9 to 20	190	224	249	269
5926	Blueridge	Blueridge gravelly loamy sand, 20 to 50 percent slopes	20 to 50	255	299	332	358
5928	Blueridge	Blueridge-Bayard complex, 6 to 20 percent slopes	6 to 20	381	445	492	529
5976	Jayem	Jayem loamy very fine sand, 0 to 3 percent slopes	0 to 3	119	143	160	175

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Sioux County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
5979	Jayem	Jayem loamy very fine sand, 3 to 6 percent slopes	3 to 6	119	143	160	175
5980	Jayem	Jayem loamy very fine sand, 6 to 9 percent slopes	6 to 9	119	143	160	175
5983	Rock_outcrop	Rock outcrop-Tassel complex, 9 to 70 percent slopes	9 to 70	--	--	--	--
5984	Olney	Olney loam, 3 to 9 percent slopes	3 to 6	133	157	177	191
5985	Phiferson	Phiferson-Tassel-Rock outcrop complex, 6 to 30 percent slopes	6 to 30	107	129	146	158
5987	Orella	Orella clay, 1 to 30 percent slopes	1 to 30	131	155	174	189
6012	Sarben	Sarben-Busher complex, 0 to 3 percent slopes	0 to 3	103	124	140	152
6013	Sarben	Sarben-Busher complex, 3 to 9 percent slopes	3 to 9	101	122	137	149
6031	Tassel	Tassel-Ashollow-Rock outcrop complex, 9 to 60 percent slopes	9 to 60	83	101	114	124
6036	Tassel	Tassel-Busher-Rock outcrop complex, 6 to 30 percent slopes	6 to 30	86	104	118	128
6043	Tassel	Tassel-Ponderosa-Rock outcrop association, 9 to 70 percent slopes	9 to 70	86	105	118	129
6048	Orella	Orella-Badland complex, 3 to 50 percent slopes	3 to 30	133	158	177	192
6105	Sarben	Sarben loamy very fine sand, 3 to 9 percent slopes	3 to 9	148	175	196	212
6109	Sarben	Sarben loamy very fine sand, 9 to 30 percent slopes	9 to 30	148	175	196	212
6201	Epping	Epping silt loam, 3 to 30 percent slopes	3 to 30	104	126	142	154
6203	Epping	Epping-Badland complex, 3 to 60 percent slopes	3 to 60	102	123	139	151
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	164	193	216	234
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9973	Badland	Badland	3 to 50	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Stanton County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	528	614	678	727
2110	Inavale	Inavale loamy fine sand, occasionally flooded	0 to 3	299	349	388	417
2351	Inavale	Inavale-Boel complex, 0 to 6 percent slopes, occasionally flooded	0 to 6	297	347	385	414
2352	Inavale	Inavale-Boel complex, channeled, occasionally flooded	0 to 3	299	349	388	417
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	91	110	125	136
3521	Cass	Cass fine sandy loam, occasionally flooded	0 to 2	225	264	294	317
3537	Gibbon	Gibbon silty clay loam, occasionally flooded	0 to 2	82	100	113	123
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	161	190	212	230
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	161	190	212	230
3640	Kezan	Kezan silt loam, frequently flooded	0 to 2	130	154	173	187
3710	Cass	Cass fine sandy loam, rarely flooded	0 to 2	222	261	291	313
3774	Muir	Muir silty clay loam, rarely flooded	0 to 1	95	115	130	142
4241	Ord_variant	Ord fine sandy loam, occasionally flooded	0 to 2	146	172	193	209
4244	Ord	Ord loam, occasionally flooded	0 to 2	354	413	458	492
4245	Ord_variant	Ord silt loam, occasionally flooded	0 to 1	224	263	293	316
4265	Loup	Loup fine sandy loam, occasionally flooded	0 to 2	432	503	556	597
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	413	480	532	571
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	346	404	448	481
4796	Valentine	Valentine fine sand, 9 to 24 percent slopes	9 to 24	346	404	448	481
6312	Barney	Barney loam, frequently flooded	0 to 1	307	358	397	427
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	100	121	136	148
6342	Lawet	Lawet silty clay loam, rarely flooded	0 to 1	145	172	193	209
6364	Obert	Obert silty clay loam, frequently ponded	0 to 1	129	153	171	186
6384	Shell	Shell loam, occasionally flooded	0 to 1	176	207	231	250
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	177	208	233	252
6387	Shell_variant	Shell variant silty clay loam, 0 to 1 percent slopes	0 to 1	137	162	182	197
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	156	184	206	223
6533	Loretto	Loretto fine sandy loam, 0 to 2 percent slopes	0 to 2	69	84	97	106

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Stanton County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6545	Moody	Moody silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	144	170	191	207
6555	Shell	Shell silty clay loam, 0 to 1 percent slopes	0 to 1	151	178	200	216
6603	Alcester	Alcester silty clay loam, 2 to 6 percent slopes	2 to 6	121	145	163	177
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	91	111	125	136
6637	Boelus	Boelus loamy fine sand, 2 to 6 percent slopes	2 to 6	101	122	137	150
6668	Clarno	Clarno loam, 2 to 6 percent slopes	2 to 6	76	93	106	116
6669	Clarno	Clarno loam, 6 to 11 percent slopes	6 to 11	76	93	106	116
6674	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	231	271	301	325
6685	Crofton	Crofton silt loam, 2 to 6 percent slopes, eroded	2 to 6	232	272	303	326
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	231	271	301	325
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	232	272	303	326
6701	Thurman	Thurman loamy fine sand, 1 to 3 percent slopes	1 to 3	298	348	386	416
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	298	348	386	416
6706	Thurman	Thurman loamy fine sand, 6 to 11 percent slopes	6 to 11	298	348	386	416
6713	Thurman	Thurman loamy fine sand, thick, 0 to 2 percent slopes	0 to 2	283	331	368	396
6758	Nora	Nora silty clay loam, 11 to 17 percent slopes	11 to 17	111	134	151	164
6764	Hadar	Hadar loamy fine sand, 2 to 6 percent slopes	2 to 6	94	114	129	140
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	111	134	151	164
6775	Nora_variant	Nora-Crofton complex, 2 to 6 percent slopes, eroded	2 to 6	136	161	181	196
6778	Nora_variant	Nora-Crofton complex, 6 to 11 percent slopes, eroded	6 to 11	136	161	181	196
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	231	271	301	325
6790	Loretto	Loretto fine sandy loam, 2 to 6 percent slopes	2 to 6	69	84	97	106

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Stanton County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6792	Loretto	Loretto loam, 2 to 6 percent slopes	2 to 6	90	109	123	134
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	144	170	191	207
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	335	391	434	466
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	78	96	109	119
8418	Boel	Boel loam, occasionally flooded	0 to 2	764	885	976	1046
8908	Ovina	Ovina loamy fine sand, 0 to 3 percent slopes	0 to 3	127	151	170	184
9810	Riverwash	Riverwash	0 to 3	339	395	238	471
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	84	102	115	126
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Thayer County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2376	Roxbury	Roxbury silty clay loam, rarely flooded	0 to 1	87	105	119	130
2824	Uly	Uly silt loam, 11 to 30 percent slopes, eroded	11 to 30	136	162	181	197
2834	Uly	Uly-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	136	162	181	197
2900	Wakeen	Wakeen and Kipson silty clay loams, 6 to 11 percent slopes	7 to 11	77	94	106	116
2901	Wakeen_ variant	Wakeen and Kipson variant silty clay loams, 6 to 11 percent slopes, severely eroded	7 to 11	162	186	214	232
2905	Wakeen	Wakeen silty clay loam, 12 to 30 percent slopes	11 to 30	76	93	106	116
3186	Jansen	Jansen loam, 6 to 11 percent slopes	6 to 11	514	597	660	708
3188	Jansen	Jansen sandy clay loam, 6 to 11 percent slopes, eroded	7 to 11	401	467	517	555
3190	Jansen	Jansen-Meadin complex, 6 to 11 percent slopes, eroded	5 to 11	414	481	533	572
3191	Jansen	Jansen-Meadin complex, 11 to 30 percent slopes, eroded	11 to 30	443	515	570	612
3246	Meadin	Meadin loam, 2 to 30 percent slopes	3 to 30	623	722	798	855
3247	Meadin	Meadin loam, 6 to 30 percent slopes	6 to 30	651	755	834	893
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	89	108	123	134
3521	Cass	Cass fine sandy loam, occasionally flooded	0 to 2	225	264	294	317
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	169	199	223	241
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241
3557	Hobbs	Hobbs silt loam, channeled, occasionally flooded	0 to 1	161	190	212	230
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	165	195	218	236
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	97	117	132	144
3770	Muir	Muir silt loam, 3 to 7 percent slopes, eroded	3 to 7	109	131	147	160
3775	Muir	Muir silt loam, rarely flooded	0 to 1	109	131	148	160
3776	Muir	Muir silt loam, 1 to 3 percent slopes	1 to 3	109	131	147	160
3779	Meadin	Muir-Meadin complex, 0 to 3 percent slopes	0 to 3	615	714	788	845
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	146	173	194	210
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3825	Crete	Crete silt loam, 1 to 3 percent slopes	1 to 3	109	132	148	161
3829	Crete	Crete silty clay loam, 1 to 3 percent slopes	1 to 3	93	112	127	138

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Thayer County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3831	Crete	Crete silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	97	117	132	144
3833	Geary	Geary-Uly complex, 11 to 30 percent slopes	11 to 30	117	141	158	171
3834	Geary_variant	Geary silty clay loam, 3 to 11 percent slopes, severely eroded	3 to 11	104	125	141	153
3837	Geary_variant	Geary silty clay loam, 11 to 17 percent slopes, eroded	11 to 17	103	124	140	152
3839	Geary	Geary silty clay loam, 11 to 30 percent slopes	11 to 30	97	118	133	144
3840	Geary	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	100	121	137	149
3841	Geary_variant	Geary silty clay loam, 11 to 30 percent slopes, severely eroded	11 to 30	104	125	141	153
3846	Geary	Geary silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	100	121	137	149
3851	Geary	Geary-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	110	132	148	161
3857	Jansen	Geary and Jansen soils, 7 to 11 percent slopes	5 to 11	504	585	647	694
3860	Jansen	Geary and Jansen soils, 11 to 30 percent slopes	11 to 30	620	719	794	851
3861	Jansen	Geary and Jansen soils, 7 to 11 percent slopes, eroded	6 to 11	621	720	795	852
3862	Jansen	Geary and Jansen soils, 7 to 11 percent slopes, severely eroded	5 to 11	371	433	480	515
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	130	155	173	188
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	130	155	173	188
3867	Hastings_ variant	Hastings silty clay loam, 3 to 11 percent slopes, severely eroded	3 to 11	279	327	363	390
3868	Hastings	Hastings silt loam, 3 to 7 percent slopes	3 to 7	130	155	173	188
3869	Hastings	Hastings silt loam, 7 to 11 percent slopes	6 to 11	130	155	173	188
3870	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	106	128	144	157
3873	Hastings	Hastings silty clay loam, 0 to 1 percent slopes	0 to 1	109	132	148	161
3914	Scott	Scott soils, frequently ponded	0 to 1	110	132	149	162
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	119	143	161	174
3955	Geary_variant	Geary silty clay loam, 7 to 11 percent slopes, severely eroded	7 to 11	104	125	141	153
3962	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	106	128	144	157

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Thayer County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
3969	Hastings_ variant	Hastings soils, eroded	3 to 11	346	404	448	481
4161	Kipson	Kipson silt loam, 7 to 30 percent slopes	7 to 30	80	98	111	121
4162	Kipson	Kipson soils, 11 to 30 percent slopes	11 to 30	81	99	112	122
4174	Lancaster_ variant	Lancaster loam, 7 to 16 percent slopes, severely eroded	7 to 16	120	144	162	175
4175	Lancaster_ variant	Lancaster soils, 7 to 11 percent slopes, severely eroded	7 to 11	59	72	83	91
7552	Benfield	Benfield silty clay loam, 6 to 11 percent slopes, eroded	7 to 11	67	81	93	102
8436	Cass	Cass loam, occasionally flooded	0 to 2	298	349	387	416
8441	Cass	Cass very fine sandy loam, rarely flooded	0 to 1	236	277	308	332
8493	Gothenburg	Gothenburg loamy sand, frequently flooded	0 to 2	345	402	446	479
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	140	166	186	202
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	122	146	164	178
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Thomas County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3180	Jansen	Jansen fine sandy loam, 0 to 2 percent slopes	0 to 2	383.0	446.2	494.3	530.8
3207	Josburg	Josburg-Dunn loamy fine sands, 0 to 2 percent slopes	0 to 2	78.6	96.1	108.8	118.9
3249	Meadin	Meadin loamy sand, 0 to 2 percent slopes	0 to 2	283.6	331.7	368.3	396.3
3251	Meadin	Meadin loamy sand, 2 to 30 percent slopes	2 to 30	283.6	331.7	368.3	396.3
4201	Almeria	Almeria fine sandy loam, occasionally flooded	0 to 2	371.0	432.5	479.1	514.7
4226	Bolent	Bolent-Almeria complex, channeled, frequently flooded	0 to 2	295.3	345.2	383.2	412.3
4270	Bolent	Bolent-Calamus loamy sands, rarely flooded	0 to 2	323.0	377.1	418.3	449.7
4390	Natick	Natick sand, 0 to 3 percent slopes	0 to 3	309.4	361.4	401.0	431.2
4391	Thedford	Thedford fine sand, 0 to 3 percent slopes	0 to 3	333.2	388.9	431.2	463.5
4450	Blownout_ land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	N/A	N/A	N/A	N/A
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	354.8	413.7	458.5	492.7
4490	Dunday	Dunday loamy fine sand, 3 to 9 percent slopes	3 to 9	351.4	409.8	454.2	488.1
4514	Josburg	Josburg-Dunn complex, 9 to 20 percent slopes	9 to 20	78.6	96.1	108.8	118.9
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	398.9	464.5	514.3	552.3
4721	Pivot	Pivot loamy sand, 0 to 3 percent slopes	0 to 3	289.3	338.2	375.5	404.0
4770	Mullen	Mullen loamy fine sand, 0 to 3 percent slopes	0 to 3	133.1	157.9	177.1	192.0
4771	Valentine	Valentine-Mullen complex, 0 to 9 percent slopes	0 to 9	372.6	434.3	481.2	516.9
4800	Valentine	Valentine fine sand, hilly	17 to 60	379.8	442.5	490.2	526.5
4807	Valentine	Valentine fine sand, rolling	9 to 24	373.6	435.4	482.3	518.1
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	373.6	435.4	482.3	518.1
4851	Valentine	Valentine-Birdwood complex, 9 to 80 percent slopes	9 to 80	371.5	433.0	479.7	515.3
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	373.8	435.6	482.6	518.4
4867	Valentine	Valentine-Libory complex, 0 to 9 percent slopes	0 to 9	372.6	434.3	481.2	516.9
4875	Valentine	Valentine-Dunday complex, 0 to 9 percent slopes	3 to 9	376.5	438.8	486.1	522.1
8929	Simeon	Simeon sand, 0 to 3 percent slopes	0 to 3	258.9	303.2	337.0	362.9

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Thomas County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8939	Simeon	Simeon-Valentine complex, 0 to 9 percent slopes	0 to 3	258.9	303.2	337.0	362.9
8941	Simeon	Simeon-Valentine complex, 11 to 30 percent slopes	11 to 30	258.9	303.2	337.0	362.9
9903	Fluvaquents, _sandy	Fluvaquents, sandy, frequently flooded	0 to 1	N/A	N/A	N/A	N/A
9983	Pits	Gravel pit	0 to 30	302.0	352.9	391.7	421.3
9986	Water	Miscellaneous water, sewage lagoon	to	N/A	N/A	N/A	N/A
9999	Water	Water	to	N/A	N/A	N/A	N/A

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Thurston County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3514	Lamo	Lamo silt loam, overwash, occasionally flooded	0 to 1	92	111	126	137
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	91	110	124	136
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	157	186	208	225
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	165	195	218	236
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	105	127	143	155
6400	Calco	Calco silt loam, overwash, occasionally flooded	0 to 2	120	144	162	176
6401	Calco	Calco silty clay loam, occasionally flooded	0 to 2	108	130	146	159
6567	Thurman	Thurman loamy sand, 2 to 6 percent slopes	2 to 6	293	343	381	409
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	133	157	177	192
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	89	108	122	133
6629	Belfore	Belfore-Moody silty clay loams, 0 to 1 percent slopes	0 to 1	92	112	126	138
6630	Belfore	Belfore-Moody silty clay loams, 1 to 3 percent slopes	1 to 3	94	114	128	140
6667	Crofton	Brunswick-Pivot complex, 11 to 30 percent slopes	11 to 30	229	268	299	322
6681	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	229	268	299	322
6685	Crofton	Crofton silt loam, 2 to 6 percent slopes, eroded	2 to 6	231	271	301	325
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	229	268	299	322
6721	Thurman	Thurman soils, 6 to 17 percent slopes	11 to 17	293	343	381	409
6748	Nora	Nora silt loam, 1 to 6 percent slopes, eroded	1 to 7	123	147	166	180
6749	Nora	Nora silt loam, 11 to 17 percent slopes	11 to 17	128	152	171	186
6750	Nora_variant	Nora silt loam, 11 to 17 percent slopes, eroded	11 to 17	148	175	196	212
6751	Nora	Nora silt loam, 17 to 30 percent slopes	17 to 30	128	152	170	185
6752	Nora	Nora silt loam, 17 to 30 percent slopes, eroded	17 to 30	123	147	166	180
6754	Nora	Nora silt loam, 2 to 6 percent slopes, eroded	2 to 6	148	175	196	212
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	128	152	171	186
6756	Nora_variant	Nora silt loam, 6 to 11 percent slopes, eroded	6 to 11	148	175	196	212

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Thurston County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6758	Nora	Nora silty clay loam, 11 to 17 percent slopes	11 to 17	112	134	151	164
6759	Nora_variant	Nora silty clay loam, 11 to 17 percent slopes, eroded	11 to 15	136	161	180	195
6766	Nora_variant	Nora silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	135	160	179	194
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	114	136	153	167
6768	Nora_variant	Nora silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	135	160	179	194
6782	Nora	Nora-Moody silty clay loams, 6 to 11 percent slopes	7 to 11	112	134	151	164
6802	Leisy	Leisy fine sandy loam, 6 to 11 percent slopes	7 to 11	56	69	80	88
6807	Moody	Moody silty clay loam, 0 to 1 percent slopes	0 to 1	143	169	190	206
6808	Moody	Moody silty clay loam, 0 to 2 percent slopes	0 to 2	142	169	189	204
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	143	169	190	206
6812	Moody	Moody silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	145	172	192	208
6813	Moody	Moody silty clay loam, 6 to 11 percent slopes	6 to 11	143	169	190	206
6814	Moody	Moody silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	145	172	192	208
6836	Nora_variant	Nora variant silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	133	158	177	192
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	330	386	428	460
6848	Ortello	Ortello fine sandy loam, 6 to 11 percent slopes, eroded	5 to 11	330	386	428	460
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	129	153	172	186
7053	Kennebec	Kennebec silt loam, overwash, occasionally flooded	0 to 2	120	143	161	175
7083	Sarpy	Sarpy loamy fine sand, occasionally flooded	0 to 3	441	513	567	609
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	78	96	109	119
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	124	149	167	181
7213	Burchard	Burchard silt loam, 6 to 11 percent slopes	5 to 11	77	94	107	117

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Thurston County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7214	Burchard	Burchard silt loam, 11 to 17 percent slopes	11 to 17	79	97	110	120
7219	Burchard	Burchard clay loam, 11 to 17 percent slopes, eroded	11 to 17	60	73	85	93
7228	Burchard	Burchard clay loam, 6 to 11 percent slopes, eroded	6 to 11	61	74	86	94
7230	Judson	Judson silt loam, 0 to 2 percent slopes	0 to 2	108	130	146	159
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	108	130	146	159
7234	Judson	Judson silty clay loam, 2 to 6 percent slopes	2 to 6	97	117	132	144
7612	Steinauer	Steinauer clay loam, 11 to 30 percent slopes, eroded	11 to 30	71	86	99	108
7618	Steinauer	Steinauer soils, 11 to 30 percent slopes	11 to 30	66	81	93	101
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	60	73	84	93
7711	Albaton	Albaton silty clay, frequently flooded	0 to 1	84	102	116	126
7713	Albaton	Albaton silty clay loam, occasionally flooded	0 to 1	70	86	98	107
7716	McPaul	McPaul silt loam, occasionally flooded	0 to 1	244	286	319	343
7741	Haynie	Haynie silt loam, occasionally flooded	0 to 1	202	237	264	285
7744	Haynie	Haynie silt loam, rarely flooded	0 to 2	202	238	265	286
7770	Colo	Colo silty clay loam, occasionally flooded	0 to 2	101	122	137	149
7772	Coleridge	Colo and Lamo silty clay loams, occasionally flooded	0 to 1	100	121	137	149
7788	Luton	Luton silty clay, occasionally flooded	0 to 2	76	93	106	115
7791	Luton	Luton silty clay, rarely flooded	0 to 1	67	82	94	103
7850	Sarpy	Sarpy fine sand, 3 to 11 percent slopes	3 to 11	415	483	535	574
7856	Sarpy	Sarpy soils, occasionally flooded	0 to 1	524	908	673	721
7874	Omadi	Omadi silt loam, rarely flooded	0 to 2	171	202	225	243
7876	Onawa	Onawa and Haynie soils, occasionally flooded	0 to 1	120	144	161	175
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	91	110	124	136
7889	Onawet	Onawet silty clay loam, frequently flooded	0 to 1	305	356	395	425
7892	Zook	Zook silty clay, occasionally flooded	0 to 2	73	89	102	112
8005	Ida	Ida silt loam, 11 to 17 percent slopes	11 to 17	184	217	242	261
8006	Ida	Ida silt loam, 11 to 17 percent slopes, eroded	11 to 17	184	217	242	261
8007	Ida	Ida silt loam, 17 to 30 percent slopes	17 to 30	184	217	242	261
8008	Ida	Ida silt loam, 17 to 30 percent slopes, eroded	17 to 30	184	217	242	261
8009	Ida	Ida silt loam, 30 to 60 percent slopes	30 to 60	88	107	121	123
8010	Ida	Ida silt loam, 6 to 11 percent slopes, eroded	6 to 11	184	217	242	261

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Thurston County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8011	Ida	Ida soils, 30 to 60 percent slopes	30 to 60	88	107	121	131
8067	Monona	Monona silt loam, 1 to 6 percent slopes	1 to 5	134	159	179	194
8068	Monona	Monona silt loam, 1 to 6 percent slopes, eroded	2 to 7	119	143	161	175
8070	Monona	Monona silt loam, 11 to 17 percent slopes	11 to 17	134	159	179	194
8071	Monona	Monona silt loam, 11 to 17 percent slopes, eroded	11 to 17	133	157	176	191
8073	Monona	Monona silt loam, 17 to 30 percent slopes	17 to 30	134	159	179	194
8078	Monona	Monona silt loam, 6 to 11 percent slopes	6 to 11	134	159	179	194
8079	Monona	Monona silt loam, 6 to 11 percent slopes, eroded	5 to 11	133	157	176	191
8114	Pohocco	Pohocco silt loam, 11 to 17 percent slopes, eroded	11 to 17	121	145	163	177
9810	Riverwash	Riverwash	0 to 3	334	389	432	464
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	247	290	323	347
9931	Ida	Gullied land-Ida complex, 30 to 60 percent slopes	30 to 60	133	157	176	191
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Miscella- neous_water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Valley County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2100	Boel	Boel fine sandy loam, occasionally flooded	0 to 3	543	630	696	746
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2540	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes, moist	6 to 60	180	212	236	255
2545	Coly	Coly-Hobbs silt loams, 3 to 17 percent slopes, eroded	3 to 17	128	152	171	185
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	128	152	171	185
2595	Hersh	Hersh fine sandy loam, 0 to 3 percent slopes	0 to 3	153	180	202	218
2596	Hersh	Hersh fine sandy loam, 3 to 6 percent slopes	3 to 6	153	180	202	218
2597	Hersh	Hersh fine sandy loam, 6 to 11 percent slopes	6 to 11	153	180	202	218
2598	Hersh	Hersh fine sandy loam, 11 to 17 percent slopes	11 to 17	153	180	202	218
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	95	115	130	141
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	95	115	130	141
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	95	115	130	141
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	95	115	130	141
2672	Holdrege	Holdrege silty clay loam, 3 to 7 percent slopes, eroded	3 to 6	84	102	115	125
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	137	159	179	194
2822	Uly	Uly silt loam, 11 to 17 percent slopes, eroded, moist	11 to 17	148	175	196	212
2823	Uly	Uly silt loam, 11 to 17 percent slopes, eroded	11 to 17	137	159	179	194
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	138	163	183	198
2833	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded, moist	17 to 30	148	175	196	212
2844	Uly	Uly-Coly silt loams, 6 to 11 percent slopes, eroded	6 to 11	136	159	179	194
2845	Uly	Uly-Coly silt loams, 11 to 17 percent slopes, eroded	11 to 17	136	161	181	196
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	166	196	218	236
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	166	196	218	236
3726	Detroit	Detroit silt loam, 0 to 1 percent slopes	0 to 1	91	111	125	136

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Valley County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	153	181	202	219
3910	Scott	Scott silt loam, frequently ponded	0 to 1	117	141	158	171
3946	Fillmore_ variant	Fillmore variant silt loam, frequently ponded	0 to 1	1775	1301	1433	1533
4266	Loup	Loup loam, occasionally flooded	0 to 1	356	414	459	493
4376	Loup	Loup fine sandy loam, rarely flooded	0 to 2	365	425	471	506
4646	Ipage	Ipage loamy fine sand, 0 to 3 percent slopes	0 to 3	398	434	481	551
4650	Ipage	Ipage loamy sand, 0 to 3 percent slopes	0 to 3	393	425	471	543
4807	Valentine	Valentine fine sand, rolling	9 to 24	392	426	472	543
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	432	502	555	596
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	342	399	442	475
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	342	399	442	475
6313	Barney	Barney loam, channeled, frequently flooded	0 to 2	101	121	137	149
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	132	157	176	190
6383	Saltine	Saltine-Leshara silt loams, occasionally flooded	0 to 1	150	177	198	214
6508	Blendon	Blendon fine sandy loam, 0 to 2 percent slopes	0 to 2	416	484	535	575
8420	Boel	Boel loamy fine sand, occasionally flooded	0 to 2	440	512	566	607
8469	Gibbon	Gibbon silt loam, rarely flooded	0 to 2	106	127	143	156
8815	Cozad	Cozad silt loam, 0 to 1 percent slopes	0 to 1	213	251	279	301
8816	Cozad	Cozad silt loam, 1 to 3 percent slopes	1 to 3	213	251	279	301
8817	Cozad	Cozad silt loam, 3 to 6 percent slopes	3 to 6	213	251	279	301
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	116	139	156	169
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	116	139	156	169
8925	Simeon	Simeon loamy sand, 0 to 3 percent slopes	0 to 3	258	302	335	361
8927	Simeon	Simeon loamy sand, 3 to 30 percent slopes	3 to 30	258	302	335	361
9037	Gates	Gates very fine sandy loam, 3 to 6 percent slopes, eroded	3 to 6	161	190	212	229
9038	Gates	Gates very fine sandy loam, 6 to 11 percent slopes, eroded	6 to 11	161	190	212	229
9940	Histosols	Histosols, wet	0 to 1	423	492	544	584
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Washington County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3521	Cass	Cass fine sandy loam, occasionally flooded	0 to 2	201	237	264	285
3642	Kezan	Kezan silt loam, occasionally flooded	0 to 2	135	161	180	195
3643	Kennebec	Kezan-Kennebec silt loams, drained, occasionally flooded	0 to 2	127	151	169	184
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	101	122	138	150
6327	Fontanelle	Fontanelle silty clay loam, frequently flooded	0 to 1	107	128	144	157
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	175	207	231	220
6456	Inglewood	Inglewood loamy fine sand, occasionally flooded	0 to 2	374	437	484	519
6505	Belfore	Belfore silty clay loam, terrace, 0 to 2 percent slopes	0 to 2	93	112	127	138
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	121	145	163	177
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	93	112	127	138
6680	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	230	240	300	324
6681	Crofton	Crofton silt loam, 17 to 30 percent slopes, eroded	17 to 30	219	258	287	310
6686	Crofton	Crofton silt loam, 30 to 60 percent slopes	30 to 60	230	240	300	324
6768	Nora	Nora silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	115	182	204	221
6774	Nora	Nora-Crofton complex, 11 to 17 percent slopes, eroded	11 to 17	115	182	204	221
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	154	183	204	221
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	220	258	287	310
7050	Kennebec	Kennebec silt loam, occasionally flooded	0 to 2	127	151	169	184

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Washington County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7080	Sarpy	Sarpy fine sand, occasionally flooded	0 to 2	415	483	535	574
7083	Sarpy	Sarpy loamy fine sand, occasionally flooded	0 to 3	446	518	573	615
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	80	98	110	121
7210	Burchard	Burchard-Contrary-Steinauer complex, 7 to 16 percent slopes	7 to 16	63	76	88	96
7228	Burchard	Burchard clay loam, 6 to 11 percent slopes, eroded	6 to 11	68	83	95	104
7234	Judson	Judson silty clay loam, 2 to 6 percent slopes	2 to 6	95	114	129	140
7235	Judson	Judson-Nodaway channeled-Contrary complex, 3 to 10 percent slopes	1 to 6	96	116	130	142
7266	Burchard	Burchard-Steinauer clay loams, 11 to 17 percent slopes, eroded	12 to 17	68	83	95	104
7703	Grable	Grable silt loam, occasionally flooded	0 to 2	709	822	906	971
7710	Albaton	Albaton silty clay, occasionally flooded	0 to 2	147	174	195	211
7711	Albaton	Albaton silty clay, frequently flooded	0 to 1	75	91	104	113
7741	Haynie	Haynie silt loam, occasionally flooded	0 to 1	202	237	264	285
7763	Onawa	Onawa silty clay loam, occasionally flooded	0 to 2	97	117	132	143
7767	Blyburg	Blyburg silty clay loam, rarely flooded	0 to 2	142	168	189	204
7779	Cooper	Cooper silty clay loam, rarely flooded	0 to 2	91	110	124	135
7780	Forney	Forney silt loam, overwash, rarely flooded	0 to 2	92	111	125	136
7787	Luton	Luton silty clay, occasionally flooded	0 to 2	65	80	91	100
7791	Luton	Luton silty clay, rarely flooded	0 to 1	63	77	89	97
7796	Moville	Moville silt loam, rarely flooded	0 to 2	142	167	188	203

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Washington County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
7802	Percival	Percival silty clay, occasionally flooded	0 to 2	389	452	501	538
7808	Salix	Salix silty clay loam, rarely flooded	0 to 2	127	150	169	183
7820	Wathena	Wathena fine sandy loam, occasionally flooded	0 to 2	308	359	398	428
7821	Wathena	Wathena fine sandy loam, rarely flooded	0 to 2	308	359	398	428
7874	Omadi	Omadi silt loam, rarely flooded	0 to 2	176	208	232	250
7880	Onawa	Onawa silty clay, occasionally flooded	0 to 1	91	110	124	135
7885	Onawa	Onawa-Haynie complex, occasionally flooded	0 to 2	91	110	124	135
7888	Onawet	Onawet silty clay, depressional, frequently flooded	0 to 1	264	309	343	369
8008	Ida	Ida silt loam, 17 to 30 percent slopes, eroded	17 to 30	169	199	222	240
8010	Ida	Ida silt loam, 6 to 11 percent slopes, eroded	6 to 11	169	199	222	240
8012	Ida	Ida-Pohocco-Monona silt loams, 11 to 30 percent slopes	10 to 26	169	199	222	240
8016	Marshall	Marshall silty clay loam, 0 to 2 percent slopes	0 to 2	106	128	144	156
8019	Marshall	Marshall silty clay loam, 2 to 6 percent slopes	2 to 6	106	128	144	156
8032	Marshall	Marshall-Pohocco silty clay loams, 6 to 11 percent slopes, eroded	5 to 11	106	128	144	156
8035	Marshall	Marshall-Contrary silty clay loams, 2 to 7 percent slopes	2 to 7	110	132	149	161
8076	Monona	Monona silt loam, 2 to 6 percent slopes, eroded	2 to 5	119	142	160	173
8083	Monona	Monona silt loam, bench, 0 to 2 percent slopes	0 to 2	119	142	160	173
8084	Monona	Monona silt loam, bench, 2 to 6 percent slopes	2 to 5	119	142	160	173

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Washington County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
8093	Monona	Monona-Ida silt loams, 17 to 30 percent slopes, eroded	17 to 30	119	142	160	173
8097	Monona	Monona-Pohocco complex, 6 to 11 percent slopes, eroded	5 to 11	119	142	160	173
8100	Monona	Monona-Pohocco-Ida silt loams, 17 to 33 percent slopes	14 to 33	126	150	168	182
8108	Napier	Napier-Nodaway-Gullied land complex, 0 to 60 percent slopes	5 to 11	148	174	195	211
8136	Pohocco	Pohocco-Ida complex, 11 to 17 percent slopes, eroded	11 to 17	112	134	151	164
8138	Pohocco	Pohocco-Ida-Monona complex, 6 to 17 percent slopes	6 to 18	112	134	151	164
8142	Pohocco	Pohocco-Monona complex, 11 to 17 percent slopes, eroded	11 to 17	112	134	151	164
8153	Contrary	Contrary-Marshall silty clay loams, 6 to 11 percent slopes	6 to 12	110	132	149	162
8155	Contrary	Contrary-Monona silty clay loams, 6 to 11 percent slopes	6 to 13	110	132	149	162
8157	Contrary	Contrary-Monona-Ida complex, 6 to 17 percent slopes	9 to 16	110	132	149	162
8436	Cass	Cass loam, occasionally flooded	0 to 2	302	353	391	421
8485	Gilliam	Gilliam-Eudora silt loams, occasionally flooded	0 to 2	113	136	152	165
8563	Platte	Platte loam, occasionally flooded	0 to 1	423	493	545	585
8566	Platte	Platte, Inglewood, and Barney soils, frequently flooded	0 to 2	423	493	545	585
9903	Fluvaquents,_sandy	Fluvaquents, sandy, frequently flooded	0 to 1	285	333	370	398
9906	Fluvaquents,_silty	Fluvaquents, silty, frequently flooded	0 to 1	121	145	162	176
9932	Gullied_land	Gullied land-Napier complex, 5 to 60 percent slopes	30 to 90	77	94	106	116
9970	Aquolls	Aquolls	0 to 1	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Washington County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Wayne County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
3513	Lamo	Lamo silt loam, occasionally flooded	0 to 2	92	111	125	137
3518	Lamo	Lamo silty clay loam, occasionally flooded	0 to 2	88	107	121	132
3537	Gibbon	Gibbon silty clay loam, occasionally flooded	0 to 2	82	100	113	123
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	161	190	212	230
3755	Hord	Hord silt loam, rarely flooded	0 to 1	112	134	151	164
3775	Muir	Muir silt loam, rarely flooded	0 to 1	114	136	153	167
3950	Fillmore	Fillmore complex, frequently ponded	0 to 1	116	139	157	170
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	346	404	448	481
4834	Valentine	Valentine loamy fine sand, rolling	9 to 24	347	405	448	482
6300	Aowa	Aowa silt loam, occasionally flooded	0 to 2	141	168	188	203
6323	Coleridge	Coleridge silt loam, occasionally flooded	0 to 2	120	144	162	175
6324	Coleridge	Coleridge silty clay loam, occasionally flooded	0 to 2	99	119	134	146
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	358	418	463	498
6363	Obert	Obert silt loam, frequently ponded	0 to 1	146	173	194	210
6364	Obert	Obert silty clay loam, frequently ponded	0 to 1	117	140	157	171
6384	Shell	Shell loam, occasionally flooded	0 to 1	176	207	231	250
6385	Shell	Shell silt loam, occasionally flooded	0 to 1	172	202	226	244
6510	Blendon	Blendon fine sandy loam, 2 to 6 percent slopes	2 to 6	373	435	482	517
6511	Blendon	Blendon fine sandy loam, clayey substratum, 1 to 6 percent slopes	1 to 5	117	141	158	172
6533	Loretto	Loretto fine sandy loam, 0 to 2 percent slopes	0 to 2	103	124	140	152
6555	Shell	Shell silty clay loam, 0 to 1 percent slopes	0 to 1	151	178	200	216
6577	Trent	Trent silty clay loam	0 to 1	120	144	162	176
6600	Alcester	Alcester silt loam, 2 to 6 percent slopes	2 to 6	132	157	176	191

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Wayne County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6603	Alcester	Alcester silty clay loam, 2 to 6 percent slopes	2 to 6	121	145	163	177
6628	Belfore	Belfore silty clay loam, 0 to 2 percent slopes	0 to 2	94	114	128	140
6630	Belfore	Belfore-Moody silty clay loams, 1 to 3 percent slopes	1 to 3	94	114	128	140
6637	Boelus	Boelus loamy fine sand, 2 to 6 percent slopes	2 to 6	101	122	137	150
6674	Crofton	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
6685	Crofton	Crofton silt loam, 2 to 6 percent slopes, eroded	2 to 6	230	270	300	323
6687	Crofton	Crofton silt loam, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	323
6693	Crofton	Crofton-Nora complex, 2 to 6 percent slopes, eroded	2 to 6	230	270	300	324
6694	Crofton	Crofton-Nora complex, 6 to 11 percent slopes, eroded	6 to 11	231	271	301	325
6699	Crofton	Crofton-Nora silt loams, 6 to 11 percent slopes, eroded	6 to 11	230	270	300	324
6703	Thurman	Thurman loamy fine sand, 2 to 6 percent slopes	2 to 6	295	345	383	412
6707	Thurman	Thurman loamy fine sand, 6 to 17 percent slopes	7 to 15	295	345	383	412
6709	Thurman	Thurman loamy fine sand, loamy subsoil, 2 to 6 percent slopes	2 to 7	137	163	182	198
6715	Thurman	Thurman-Valentine complex, undulating	2 to 6	296	346	384	413
6728	Thurman	Thurman fine sandy loam, 6 to 11 percent slopes	7 to 11	366	427	473	508
6749	Nora	Nora silt loam, 11 to 17 percent slopes	11 to 17	129	153	172	187
6750	Nora_variant	Nora silt loam, 11 to 17 percent slopes, eroded	11 to 17	146	173	194	210
6754	Nora_variant	Nora silt loam, 2 to 6 percent slopes, eroded	2 to 6	146	173	194	210

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Wayne County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
6755	Nora	Nora silt loam, 6 to 11 percent slopes	6 to 11	123	147	166	180
6756	Nora_variant	Nora silt loam, 6 to 11 percent slopes, eroded	6 to 11	146	173	194	210
6758	Nora	Nora silty clay loam, 11 to 17 percent slopes	11 to 17	111	134	151	164
6766	Nora_variant	Nora silty clay loam, 2 to 6 percent slopes, eroded	2 to 6	135	160	179	194
6767	Nora	Nora silty clay loam, 6 to 11 percent slopes	6 to 11	114	136	153	167
6768	Nora	Nora silty clay loam, 6 to 11 percent slopes, eroded	5 to 11	112	134	151	164
6775	Nora_variant	Nora-Crofton complex, 2 to 6 percent slopes, eroded	2 to 6	136	161	181	196
6778	Nora_variant	Nora-Crofton complex, 6 to 11 percent slopes, eroded	6 to 11	136	161	181	196
6781	Nora	Nora-Moody silty clay loams, 11 to 17 percent slopes	11 to 17	111	134	151	164
6782	Nora	Nora-Moody silty clay loams, 6 to 11 percent slopes	7 to 11	111	134	151	164
6785	Hadar	Hadar-Thurman complex, 6 to 17 percent slopes	5 to 10	87	105	119	130
6786	Hadar	Hadar-Thurman complex, 6 to 11 percent slopes	7 to 11	100	121	137	149
6789	Crofton	Crofton-Nora complex, 11 to 17 percent slopes, eroded	11 to 15	230	270	300	324
6801	Leisy	Leisy loam, 0 to 6 percent slopes	1 to 5	76	93	105	115
6802	Leisy	Leisy fine sandy loam, 6 to 11 percent slopes	7 to 11	55	68	79	87
6806	Moody	Moody silt loam, 2 to 6 percent slopes	2 to 7	156	184	206	223
6811	Moody	Moody silty clay loam, 2 to 6 percent slopes	2 to 6	142	168	188	204
6813	Moody	Moody silty clay loam, 6 to 11 percent slopes	6 to 11	142	168	188	204
6814	Moody	Moody silty clay loam, 6 to 11 percent slopes, eroded	6 to 11	143	169	189	205

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Wayne County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
6845	Ortello	Ortello fine sandy loam, 3 to 6 percent slopes	1 to 5	330	386	428	460
6847	Ortello	Ortello fine sandy loam, 6 to 11 percent slopes	6 to 11	269	315	350	377
6860	Crofton	Crofton silt loam, 8 to 17 percent slopes, eroded	8 to 17	219	258	287	309
7054	Kennebec	Kennebec silty clay loam, occasionally flooded	0 to 1	106	128	144	156
7099	Zook	Zook silty clay loam, occasionally flooded	0 to 1	80	97	110	120
7153	Kennebec	Kennebec silt loam, rarely flooded	0 to 2	125	150	168	182
7231	Judson	Judson silt loam, 2 to 6 percent slopes	2 to 6	108	130	146	159
7716	McPaul	McPaul silt loam, occasionally flooded	0 to 1	201	236	264	284
7717	McPaul	McPaul silt loam, wet, occasionally flooded	0 to 1	193	228	254	274
7772	Coleridge	Colo and Lamo silty clay loams, occasionally flooded	0 to 1	100	121	137	149
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Webster County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2304	McCook	McCook fine sandy loam, very rarely flooded	0 to 3	215	252	281	303
2321	Inavale	Inavale fine sand, 0 to 3 percent slopes	0 to 3	320	373	414	445
2326	Inavale	Inavale fine sandy loam, 0 to 3 percent slopes	0 to 3	371	433	479	515
2327	Inavale	Inavale fine sandy loam, rarely flooded	0 to 2	231	270	301	324
2335	Inavale	Inavale loamy fine sand, 0 to 3 percent slopes	0 to 3	311	364	403	434
2347	McCook	McCook silt loam, rarely flooded	0 to 2	387	451	499	536
2360	Munjor	Munjor fine sandy loam, rarely flooded	0 to 2	430	500	554	594
2363	Munjor_ variant	Munjor fine sandy loam, slightly wet variant	0 to 1	432	515	570	612
2366	Munjor	Munjor loamy fine sand, rarely flooded	0 to 2	349	407	451	485
2375	Roxbury	Roxbury silt loam, rarely flooded	0 to 1	111	134	150	163
2521	Coly	Coly-Hobbs silt loams, 0 to 30 percent slopes	2 to 30	128	152	171	185
2524	Coly	Coly silt loam, 3 to 11 percent slopes	3 to 10	136	161	180	195
2537	Coly	Coly silt loam, 6 to 11 percent slopes	7 to 11	136	161	180	195
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	136	161	180	195
2560	Coly	Coly-Uly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2570	Holdrege	Nuckolls and Holdrege silt loams, 3 to 6 percent slopes	3 to 6	94	113	128	140
2571	Holdrege	Nuckolls and Holdrege silt loams, 6 to 11 percent slopes	6 to 9	94	114	128	140
2583	Nuckolls	Nuckolls-Hobbs complex, 11 to 30 percent slopes	9 to 30	162	191	214	232
2667	Holdrege	Holdrege silt loam, 0 to 1 percent slopes	0 to 1	99	120	135	147
2668	Holdrege	Holdrege silt loam, 1 to 3 percent slopes	1 to 3	99	120	135	147
2669	Holdrege	Holdrege silt loam, 1 to 3 percent slopes, eroded	1 to 3	97	118	133	145
2670	Holdrege	Holdrege silt loam, 3 to 7 percent slopes	3 to 7	95	115	130	141
2671	Holdrege	Holdrege silt loam, 3 to 7 percent slopes, eroded	3 to 7	92	112	126	138
2830	Uly	Uly-Coly silt loams, 11 to 30 percent slopes	9 to 30	136	161	181	196
2834	Uly	Uly-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	143	170	190	206
2902	Wakeen	Wakeen silt loam, 3 to 11 percent slopes	3 to 10	88	107	121	132

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Webster County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2903	Wakeen	Wakeen silt loam, 3 to 11 percent slopes, eroded	3 to 10	90	109	124	135
2904	Wakeen	Wakeen silt loam, 11 to 30 percent slopes	10 to 20	89	108	122	133
3247	Meadin	Meadin loam, 6 to 30 percent slopes	6 to 30	428	498	551	591
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	158	187	209	227
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	154	181	203	220
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	162	192	214	232
3572	Humbarger_ variant	Humbarger silt loam, very rarely flooded	0 to 1	680	788	870	932
3731	Massie	Massie silty clay loam, frequently ponded	0 to 1	125	150	168	182
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	117	141	159	172
3833	Geary	Geary-Uly complex, 11 to 30 percent slopes	11 to 30	117	141	158	171
3835	Geary	Geary silt loam, 11 to 30 percent slopes	11 to 30	115	138	155	169
3838	Geary	Geary silt loam, 7 to 11 percent slopes	7 to 11	122	147	165	179
3844	Geary	Geary silt loam, 3 to 7 percent slopes	3 to 7	128	152	171	186
3851	Geary	Geary-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	112	135	151	164
3852	Geary	Geary and Hobbs soils	10 to 30	120	144	162	176
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	147	174	195	211
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	146	173	193	210
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	123	147	165	180
4123	Holdrege	Holdrege and Uly soils, 3 to 7 percent slopes, eroded	3 to 7	93	113	128	139
4138	Holdrege	Holdrege silt loam, 7 to 11 percent slopes	6 to 11	93	113	127	139
4147	Holdrege	Holdrege soils, 3 to 7 percent slopes, severely eroded	3 to 7	85	104	117	128
4148	Holdrege	Holdrege soils, 7 to 11 percent slopes, severely eroded	7 to 10	85	103	117	128
4160	Kipson	Kipson complex, 7 to 30 percent slopes	9 to 30	82	100	113	124
4161	Kipson	Kipson silt loam, 7 to 30 percent slopes	7 to 30	112	134	151	164
4168	Rock_outcrop	Rock Outcrop-Kipson complex, 7 to 45 percent slopes	7 to 45	--	--	--	--
7261	Deroin	Deroin soils, 3 to 6 percent slopes, severely eroded	3 to 5	95	115	130	142
7262	Deroin	Deroin soils, 6 to 11 percent slopes, severely eroded	7 to 10	96	116	131	142
8470	Gibbon	Gibbon silt loam, occasionally flooded	0 to 2	106	128	144	157
8473	Gibbon	Gibbon silty clay loam, rarely flooded	0 to 1	89	108	122	133
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	136	161	181	196
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	122	146	164	178

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Webster County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	503	584	646	692
9900	Fluvaquents	Fluvaquents, frequently flooded	0 to 2	67	104	118	128
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	261	306	340	366
9921	Ustorthents	Ustorthents	3 to 30	265	311	340	371
9975	Mine_or_ quarry	Mine or quarry	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Wheeler County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2534	Coly	Coly silt loam, 17 to 30 percent slopes	17 to 30	128	152	171	185
2538	Coly	Coly silt loam, 6 to 11 percent slopes, eroded	6 to 11	128	152	171	185
2539	Coly	Coly-Hobbs silt loams, 3 to 60 percent slopes	6 to 60	128	152	171	185
2555	Coly	Coly-Uly silt loams, 11 to 17 percent slopes, eroded	11 to 17	128	152	171	185
2595	Hersh	Hersh fine sandy loam, 0 to 3 percent slopes	0 to 3	152	180	201	218
2817	Uly	Uly silt loam, 3 to 6 percent slopes	3 to 6	136	161	181	196
2821	Uly	Uly silt loam, 6 to 11 percent slopes, eroded	6 to 11	135	160	180	195
2831	Uly	Uly-Coly silt loams, 17 to 30 percent slopes, eroded	17 to 30	136	162	181	196
2844	Uly	Uly-Coly silt loams, 6 to 11 percent slopes, eroded	6 to 11	136	161	180	195
3105	Nimbro	Nimbro silt loam, 0 to 2 percent slopes	0 to 2	140	166	186	201
3529	Gibbon	Gibbon loam, occasionally flooded	0 to 2	90	109	123	134
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	158	187	209	226
4205	Almeria	Almeria loamy fine sand, channeled, frequently flooded	0 to 2	84	103	116	127
4210	Almeria	Almeria-Calamus complex, channeled, frequently flooded	0 to 1	294	344	382	410
4216	Blackloup	Blackloup loam, occasionally flooded	0 to 1	383	447	495	531
4243	Ord	Ord loam, rarely flooded	0 to 2	364	425	471	506
4257	Tryon	Tryon loamy fine sand, rarely flooded	0 to 1	374	435	482	518
4370	Libory	Libory loamy fine sand, 0 to 3 percent slopes	0 to 3	114	137	154	167
4376	Loup	Loup fine sandy loam, rarely flooded	0 to 2	443	515	570	612
4450	Blownout_land	Blown-out land-Valentine complex, 0 to 60 percent slopes	24 to 60	--	--	--	--
4485	Dunday	Dunday loamy fine sand, 0 to 3 percent slopes	0 to 3	340	396	439	472
4488	Dunday	Dunday loamy fine sand, 3 to 6 percent slopes	3 to 6	340	396	439	472
4533	Els	Els loamy sand, 0 to 3 percent slopes	0 to 2	373	434	481	517
4545	Els	Els-Ipage fine sands, 0 to 3 percent slopes	0 to 3	426	496	549	589
4553	Elsmere	Elsmere loamy fine sand, 0 to 3 percent slopes	0 to 3	417	485	537	577
4560	Elsmere	Elsmere-Ipage loamy fine sands, 0 to 3 percent slopes	0 to 3	440	512	567	608

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Wheeler County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
4561	Elsmere	Elsmere-Loup complex, 0 to 3 percent slopes	0 to 2	417	486	538	577
4562	Elsmere	Elsmere-Selia loamy fine sands, 0 to 3 percent slopes	0 to 3	417	485	537	576
4641	Ipage	Ipage fine sand, 0 to 3 percent slopes	0 to 3	356	416	461	495
4650	Ipage	Ipage loamy sand, 0 to 3 percent slopes	0 to 3	367	428	455	510
4662	Loup	Loup fine sandy loam, 0 to 1 percent slopes	0 to 2	360	420	466	500
4669	Loup	Loup fine sandy loam, frequently ponded	0 to 2	448	521	577	619
4687	Marlake	Marlake loamy fine sand, frequently ponded	0 to 1	386	450	498	535
4746	Tryon	Tryon loamy fine sand, 0 to 3 percent slopes	0 to 2	370	431	478	513
4751	Tryon	Tryon loamy fine sand, frequently ponded	0 to 2	383	446	494	530
4757	Almeria	Almeria-Inavale complex, channeled, frequently flooded	0 to 2	274	320	356	383
4781	Valentine	Valentine fine sand, 0 to 3 percent slopes	0 to 3	363	423	469	504
4791	Valentine	Valentine fine sand, 3 to 9 percent slopes	3 to 9	363	423	469	504
4807	Valentine	Valentine fine sand, rolling	9 to 24	363	423	469	504
4810	Valentine	Valentine fine sand, rolling and hilly	17 to 60	366	427	473	508
4814	Valentine	Valentine loamy fine sand, 0 to 3 percent slopes	0 to 3	325	379	420	452
4818	Valentine	Valentine loamy fine sand, 3 to 9 percent slopes	3 to 9	340	396	440	472
4857	Valentine	Valentine-Dunday loamy fine sands, 3 to 9 percent slopes	3 to 9	338	395	438	471
4861	Valentine	Valentine-Els fine sands, 0 to 9 percent slopes	3 to 9	363	423	469	504
6352	Leshara	Leshara silt loam, occasionally flooded	0 to 1	180	212	237	256
6640	Boelus	Boelus loamy sand, 0 to 3 percent slopes	0 to 3	108	130	146	159
6641	Boelus	Boelus loamy sand, 3 to 6 percent slopes	3 to 6	90	109	123	134
6791	Loretto	Loretto loam, 0 to 2 percent slopes	0 to 2	87	106	120	130
8841	Hall	Hall silt loam, 1 to 3 percent slopes	1 to 3	108	130	146	159
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	118	141	159	172
9001	Anselmo	Anselmo fine sandy loam, 0 to 1 percent slopes	0 to 1	198	233	260	280
9002	Anselmo	Anselmo fine sandy loam, 1 to 3 percent slopes	1 to 3	198	233	260	280
9004	Anselmo	Anselmo fine sandy loam, 3 to 6 percent slopes	3 to 6	198	233	260	280

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

Wheeler County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	**Soil Series**	**Texture**	**Slope %**	**3' Drain Depth**	**4' Drain Depth**	**5' Drain Depth**	**6' Drain Depth**
9030	Gates	Gates silt loam, 6 to 11 percent slopes, eroded	6 to 11	160	240	268	229
9035	Gates	Gates very fine sandy loam, 1 to 3 percent slopes	1 to 3	160	240	268	229
9036	Gates	Gates very fine sandy loam, 3 to 6 percent slopes	3 to 6	160	240	268	229
9038	Gates	Gates very fine sandy loam, 6 to 11 percent slopes, eroded	6 to 11	160	240	268	229
9042	Gates	Gates-Hersh complex, 0 to 3 percent slopes	0 to 3	118	142	159	173
9903	Fluvaquents	Fluvaquents, sandy, frequently flooded	0 to 1	324	379	420	452
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

York County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
2533	Coly	Coly silt loam, 11 to 30 percent slopes	11 to 30	128	152	171	185
2824	Uly	Uly silt loam, 11 to 30 percent slopes, eroded	11 to 30	141	168	188	203
2834	Uly	Uly-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	136	161	180	195
2836	Uly	Uly-Hobbs silt loams, 11 to 30 percent slopes	11 to 30	137	162	181	197
3545	Hobbs	Hobbs silt loam, channeled, frequently flooded	0 to 2	160	189	211	229
3553	Hobbs	Hobbs silt loam, frequently flooded	0 to 2	169	199	223	241
3561	Hobbs	Hobbs silt loam, occasionally flooded	0 to 2	165	195	218	236
3731	Massie	Massie silty clay loam, frequently ponded	0 to 1	97	117	132	144
3755	Hord	Hord silt loam, rarely flooded	0 to 1	122	146	164	178
3820	Butler	Butler silt loam, 0 to 1 percent slopes	0 to 1	128	152	171	185
3824	Crete	Crete silt loam, 0 to 1 percent slopes	0 to 1	118	141	159	172
3825	Crete	Crete silt loam, 1 to 3 percent slopes	1 to 3	121	145	163	177
3840	Geary	Geary silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	100	121	136	149
3846	Geary	Geary silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	100	121	136	149
3851	Hobbs	Geary-Hobbs silt loams, 0 to 30 percent slopes	6 to 30	165	195	218	236
3864	Hastings	Hastings silt loam, 0 to 1 percent slopes	0 to 1	153	180	202	219
3866	Hastings	Hastings silt loam, 1 to 3 percent slopes	1 to 3	153	181	203	220
3868	Hastings	Hastings silt loam, 3 to 7 percent slopes	3 to 7	145	171	192	208
3869	Hastings	Hastings silt loam, 7 to 11 percent slopes	6 to 11	134	159	178	193
3870	Hastings	Hastings silty clay loam, 3 to 7 percent slopes, eroded	3 to 7	78	95	108	118
3910	Scott	Scott silt loam, frequently ponded	0 to 1	105	126	142	154
3952	Fillmore	Fillmore silt loam, frequently ponded	0 to 1	116	140	157	170
3962	Hastings	Hastings silty clay loam, 7 to 11 percent slopes, eroded	7 to 11	76	93	106	116
8840	Hall	Hall silt loam, 0 to 1 percent slopes	0 to 1	130	154	173	187
8863	Hord	Hord-Hastings complex, 3 to 6 percent slopes	3 to 6	115	138	155	169
8869	Hord	Hord silt loam, 0 to 1 percent slopes	0 to 1	116	140	157	170
8870	Hord	Hord silt loam, 1 to 3 percent slopes	1 to 3	116	140	157	170
9967	Sanitary_ landfill	Sanitary landfill	0 to 30	--	--	--	--
9971	Arents	Arents, earthen dam	to	--	--	--	--
9983	Pits	Gravel pit	0 to 30	--	--	--	--

van Schilfgaarde (ND DRAIN) - barrier at 10 feet **Values below are in feet**

York County		5" Tile Diameter		1' Drawdown		T = 14 days	
Soil Code	Soil Series	Texture	Slope %	3' Drain Depth	4' Drain Depth	5' Drain Depth	6' Drain Depth
9986	Water	Miscellaneous water, sewage lagoon	to	--	--	--	--
9999	Water	Water	to	--	--	--	--

Multiply lateral effects by a factor of 3 for interceptor drainage situations

This page is intentially left blank for transition to **Table 2 – Nebraska Hydric Soil Components, Classes and Assessment Groups**

TABLE 2 - Nebraska Hydric Soil Components, Classes and Assessment Groups

Hydric Component Name	**Local Phase**	**Landform**	**Wetland Class** (Brinson, 1995)	**NE HGM Subclasses** (Jasmer, Steinle, LaGrange 1997)	**NE Assessment Model** (NRCS)	**Groundwater interception Risk?**	**NE Wetland Complex** (LaGrange "Guide to Nebraska Wetlands" 2004)	**Notes**
Albaton	---	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding; Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	Missouri River	Cedar County Albaton in Backswamps could be subject to interception risk
Albaton	---	drainageway, hillslope	slope	Slope Wetlands	Slope Wetlands	Yes	-----	
Albaton	ponded	depression, Oxbow	Riverine (Oxbow)	Floodplain Depressions	Wooded Riverine	No	Missouri River	
Albaton variant	---	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	Yes	Niobrara	Keya Paha Co.
Almeria	---	flood plain	Riverine	Riverine Floodplain Rapid Permeability, w/minimal out of bank flooding	Wooded Riverine; Intermittent Stream	No	Sandhills, Sandhill Borders;	
Aquolls	frequently ponded	depression	depressional or Riverine (Oxbow)	Floodplain Depressions; Playa Depressions; Sandhill Depressions, endosaturated	Wooded Riverine; Sandhills Wetlands; Playa Wetlands	---	-----	
Aquolls	---	swale	depressional or slope	Slope Wetlands; Floodplain Depressions; Playa Depressions; Sandhill Depressions, endosaturated	----	---	-----	
Aquolls	---	flood plain	Riverine	Riverine Channel	Wooded Riverine; Intermittent Stream	No	-----	
Aquolls	---	drainageway, hillslope	slope	Slope Wetlands	Slope Wetlands	Yes	-----	
Baltic	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding	Wooded Riverine	No	Missouri River	
Barney	---	flood plain	riverine	Riverine Floodplain Rapid Permeability, w/regular out of bank flooding	Wooded Riverine	Yes	Niobrara River	Springs along Niobrara River breaks may contribute to the hydrology.
Barney	---	flood plain	riverine	Riverine Floodplain Rapid Permeability, w/regular out of bank flooding	Wooded Riverine	No	Platte, Elkhorn River Complexes	
Barney variant	---	flood plain	riverine	Riverine Floodplain Rapid Permeability, w/regular out of bank flooding	Wooded Riverine	No	Missouri River	Cedar Co.
Bigwinder	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding	Wooded Riverine	Yes	Niobrara River	Western Niobrara River
Blackloup	---	flood plain	riverine	Riverine Floodplain Rapid Permeability, w/minimal out of bank flooding	Wooded Riverine	No	Sandhills, Sandhill Borders;	
Calco	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding	Wooded Riverine; Intermittent Stream	No	-----	
Calco	---	drainageway	slope	Slope Wetlands	Slope Wetlands; Intermittent stream	Yes	-----	Assessment: If no channel - Slope Wetlands, If Channel - Intermittent Stream
Clamo	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine; Intermittent Stream	No	-----	

Hydric Component Name	**Local Phase**	**Landform**	**Wetland Class** (Brinson, 1995)	**NE HGM Subclasses** (Jasmer, Steinle, LaGrange 1997)	**NE Assessment Model** (NRCS)	**Groundwater interception Risk?**	**NE Wetland Complex** (LaGrange "Guide to Nebraska Wetlands" 2004)	**Notes**
Clamo	---	drainageway	slope	Slope Wetlands	Slope Wetlands; Intermittent stream	Yes	-----	Assessment: If no channel - Slope Wetlands, If Channel - Intermittent Stream
Clawhammer	---	interdune	Flats	Mineral Soil Flats	Sandhills Wetlands	No	Sandhills	
Colo	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding; Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	-----	
Colo	---	drainageway	slope	Slope Wetlands	Slope Wetlands; Intermittent stream	Yes	-----	Assessment: If no channel - Slope Wetlands, If Channel - Intermittent Stream
Corley	---	playa	Depressional	Playa Depressions	Playa Wetlands	No	-----	Washington Co. Normally, groundwater interception, not a risk but should be assessed.
Crowther	---	interdune	Depressional	Sandhill Alkaline Depressions	Sandhills Wetlands	No	Sandhills	Often associated with Saline Sandhills Wetlands
Cullison	---	sand sheet	Depressional	Sandhill Depressions, episaturated	Sandhills Wetlands	Yes	Loup/Platte River Sandhills	
Cullison	---	interdune	Depressional	Sandhill Alkaline Depressions	Sandhills Wetlands	No	Sandhills	Often associated with Saline Sandhills Wetlands
Cutcomb	---	flood plain	slope	Organic Soil Flats	Other Wetlands	Yes	Lower North Platte	Fen - recharge on flood plain landscape - Endangered Land type - See Richardson and Valpraskas p. 225
Cutcomb	---	interdune	Organic Soil Flats	Organic Soil Flats	Other Wetlands	Yes	Sandhills	Fen - Organic Flats landscape - Endangered Land type
Fillmore	---	playa	Depressional	Playa Depressions	Playa Wetlands	No	Rainwater Basin, Todd Valley, Central Table Playa	Normally, groundwater interception not a risk but should be assessed.
Fillmore variant	---	playa	Depressional	Playa Depressions	Playa Wetlands	No	Central Table Playa	Custer and Valley Counties. Normally, groundwater interception not a risk but should be assessed.
Fluvaquents	frequently flooded	flood plain	Riverine	Riverine Channel	Wooded Riverine; Intermittent Stream	--	----	Most River systems in the State
Fluvaquents	frequently flooded	drainageway	slope	Slope Wetland	Slope Wetlands	Yes	----	Slope Wetland for most fluvaquents in drainageway landform.
Fluvaquents	frequently flooded	depression	Depressional	Sandhill Depressions, episaturated	Sandhills Wetlands	Yes	Loup/Platte River Sandhills	Assumed perched water in Loup/Platte River Sandhills complex area
Fluvaquents, loamy	frequently flooded	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	Sandhills, Sandhill Borders	
Fluvaquents, sandy	frequently flooded	flood plain	Riverine	Riverine Floodplain Rapid Permeability, w/regular out of bank flooding	Wooded Riverine	--	----	Most River systems in the State
Fluvaquents, silty	frequently flooded	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	Missouri River	
Fontanelle	depressional, frequently flooded	oxbow	Riverine (Oxbow)	Floodplain Depressions	Wooded Riverine	No	Missouri River	

Hydric Component Name	**Local Phase**	**Landform**	**Wetland Class** (Brinson, 1995)	**NE HGM Subclasses** (Jasmer, Steinle, LaGrange 1997)	**NE Assessment Model** (NRCS)	**Groundwater interception Risk?**	**NE Wetland Complex** (LaGrange "Guide to Nebraska Wetlands" 2004)	**Notes**
Forney	---	meanders	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding;	Wooded Riverine	No	Missouri River	
Forney	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding;	Wooded Riverine	No	Missouri River	
Gannett	frequently ponded, overwash	flood plain	riverine	Floodplain Depressions	Wooded Riverine	No	----	Overwash phase mapped in Chase County
Gannett	---	flood plain	riverine	Riverine Floodplain Rapid Permeability, w/regular out of bank flooding	Wooded Riverine	No	Sandhills, Sandhill Borders	
Gannett	frequently ponded	interdune	Flats	Mineral Soil Flats	Sandhills Wetlands	No	Sandhills, Sandhill Borders; Veg Zone 1 and 2	
Gannett	frequently ponded	interdune	Flats	Mineral Soil Flats	Sandhills Wetlands	Yes	Sandhills, Sandhill Borders; Veg Zone 3 and 4	
Gannett variant	occasionally flooded	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	----	Chase, Perkins, Hayes, Lincoln
Gothenburg	---	flood plain, channel	riverine	Riverine Channel	Wooded Riverine	No	Central Platte, Lower North Platte, Western Alkaline	
Gus	---	interdune	Flats	Mineral Soil Flats	Sandhills Wetlands	No	Sandhills	
Histosols	---	flood plain, fen	slope	Organic Soil Flats	Other Wetlands	Yes	-----	Fen - Endangered Land type - Backswamps on North Loup; See Richardson and Valpraskas p. 225
Histosols	---	flood plain, fen	slope	Organic Soil Flats	Other Wetlands	Yes	Sandhills	Fen - Endangered Land type - Calamus River See Richardson and Valpraskas p. 225
Hoffland	---	interdune	Flats	Sandhill Alkaline Depressions	Sandhills Wetlands	No	Sandhills	Often associated with Saline Sandhills Wetlands
Holly Springs	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding;	Wooded Riverine	No	Missouri River	
Kezan	---	flood plain	riverine	Riverine Channel	Wooded Riverine; Intermittent Stream	No	-----	
Kezan	---	drainageway	slope	Slope Wetland	Slope Wetlands; Intermittent stream	Yes	-----	Assessment: If no channel - Slope Wetlands, If Channel - Intermittent Stream
Lamo	wet	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine; Intermittent Stream	No	-----	Thurston Co.
Lamo	wet	drainageway	slope	Slope Wetland	Slope Wetlands; Intermittent stream	Yes	-----	Assessment: If no channel - Slope Wetlands, If Channel - Intermittent Stream
Lamo variant	---	drainageway, flood plain	slope or riverine	Slope Wetland; Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Slope Wetlands; Intermittent stream	Yes	-----	Box Butte County Assessment: If no channel - Slope Wetlands, If Channel - Intermittent Stream

Hydric Component Name	**Local Phase**	**Landform**	**Wetland Class** (Brinson, 1995)	**NE HGM Subclasses** (Jasmer, Steinle, LaGrange 1997)	**NE Assessment Model** (NRCS)	**Groundwater interception Risk?**	**NE Wetland Complex** (LaGrange "Guide to Nebraska Wetlands" 2004)	**Notes**
Las Animas	---	flood plain	slope or riverine	Western Alkaline Floodplain Depressions	Slope Wetlands; Intermittent stream	Yes	-----	Deuel, Cheyenne and Kimball County.Assessment: If no channel - Slope Wetlands, If Channel - Intermittent Stream
Lawet	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding	Wooded Riverine	No	-----	Most River systems in the State
Lawet	---	drainageway	slope	Slope Wetland	Slope Wetlands; Intermittent stream	Yes	-----	Assessment: If no channel - Slope Wetlands, If Channel - Intermittent Stream
Lawet	---	depression	Riverine (Oxbow)	Floodplain Depressions	Wooded Riverine	No	Central Platte	Dawson Co.
Lawet variant	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	Central Platte	Merrick Co.
Lawet variant	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	Lower North Platte	Lincoln Co.
Lisco	wet, occasionally flooded	flood plain	riverine	Western Alkaline Floodplain Depressions	Wooded Riverine	No	-----	Box Butte and Dawes Co.,
Lodgepole	frequently ponded	playa	Depressional	Playa Depressions	Playa Wetlands	No	Southwest Playa	Normally, groundwater interception not a risk but should be assessed.
Loup	---	flood plain	riverine	Riverine Floodplain Rapid Permeability, w/minimal out of bank flooding	Wooded Riverine; Intermittent Stream	No	-----	
Loup	loamy substratum	sand sheet	Depressional	Sandhill Depressions, episaturated	Sandhills Wetlands	Yes	Loup/Platte River Sandhills	Loup/Platte River Sandhills water is perched
Loup	---	interdune	Flats	Mineral Soil Flats	Sandhills Wetlands	Yes	Loup/Platte River Sandhills; Sandhills, Sandhill Borders, Veg Zone 3 and 4	
Loup	---	interdune	Flats	Mineral Soil Flats	Sandhills Wetlands	No	Sandhills, Sandhill Borders, Veg Zone 1 and 2	
Luton	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding;	Wooded Riverine	No	Missouri, Elkhorn, Lower Platte	
Luton	---	meanders	Riverine (Oxbow)	Floodplain Depressions	Wooded Riverine	No	Missouri, Elkhorn, Lower Platte	
Marlake	---	sand sheet	Depressional	Sandhill Depressions, episaturated	Sandhills Wetlands	Yes	Loup/Platte River Sandhills; Sandhills, Sandhill Borders, Veg Zone 3 and 4	Loup/Platte River Sandhills water is perched
Marlake	---	flood plain	Riverine	Western Alkaline Floodplain Depressions	Wooded Riverine	Yes	Lower North Platte, Western Alkali	Probably recharge on flood plain landscape
Marlake	---	depression	Depressional, Lacustrian Fringe	Sandhill Depressions, endosaturated	Sandhills Wetlands	No	Sandhills, Sandhill Borders, Veg Zone 1 and 2	
Massie	---	playa	Depressional	Playa Depressions	Playa Wetlands	No	Rainwater Basin	Herbaceous Marsh vegetation. Normally, groundwater interception, not a risk but should be assessed.
McCuligan	---	flood plain	riverine	Western Alkaline Floodplain Depressions	Wooded Riverine	No	Western Alkali	

Hydric Component Name	**Local Phase**	**Landform**	**Wetland Class** (Brinson, 1995)	**NE HGM Subclasses** (Jasmer, Steinle, LaGrange 1997)	**NE Assessment Model** (NRCS)	**Groundwater interception Risk?**	**NE Wetland Complex** (LaGrange "Guide to Nebraska Wetlands" 2004)	**Notes**
Medihemists	---	fen	Organic Soil Flats, Lacustrian Fringe	Organic Soil Flats	Other Wetlands	Yes	Sandhills	Fen - Endangered Land type; associated with Sandhill lakes
Mollic Fluvaquents	---	swale	slope	Slope Wetland	Slope Wetlands	Yes	-----	MLRA 71 drainageways
Napa	---	flood plain	riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	Elkhorn, Lower Platte	Fine Natraquert. Colfax County
Ness	---	playa	Depressional	Playa Depressions	Playa Wetlands	No	Southwest Playa	Minor component. Normally, groundwater interception, not a risk but should be assessed.
Nishna	---	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	Lower Platte	
Norway	---	flood plain	Riverine	Riverine Channel	Wooded Riverine	No	Missouri River	
Obert	---	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine; Intermittent Stream	No		Eastern NE Rivers and Streams
Olbut	---	playa (Saline)	Depressional	Saline Depressions	Playa Wetlands	No	Rainwater Basin	saline-sodic soil
Onawet	---	oxbow lake	Riverine (Oxbow)	Floodplain Depressions	Wooded Riverine	No	Missouri River	
Orwet	---	drainageway	slope	Slope Wetland	Slope Wetlands; Intermittent stream	Yes	-----	Assessment: If no channel - Slope Wetlands, If Channel - Intermittent Stream
Orwet	---	flood plain	Riverine	Riverine Floodplain Rapid Permeability, w/regular out of bank flooding	Wooded Riverine; Intermittent Stream	Yes	Niobrara River Complex	
Orwet	---	flood plain	Riverine	Riverine Floodplain Rapid Permeability, w/regular out of bank flooding	Wooded Riverine; Intermittent Stream	No	Platte, Elkhorn River Complexes	
Owego	---	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding;	Wooded Riverine	No	Missouri River	
Platte	wet	flood plain	Riverine	Riverine Floodplain Rapid Permeability, w/regular out of bank flooding	Wooded Riverine	No	Central Platte	Wet Phase, Merrick Co.
Rusco variant	---	depression	Depressional	Playa Depressions	Playa Wetlands	No	-----	Nance and Garfield Counties. Normally, groundwater interception, not a risk but should be assessed.
Salmo	---	flood plain	Riverine	Saline Depressions	Other Wetlands	Yes	Eastern Saline	Hydrology from saline seeps and springs from uplands, as well as from groundwater. - Wetland type at risk
Saltillo	---	flood plain	Riverine	Saline Depressions	Other Wetlands	Yes	Eastern Saline	Hydrology from saline seeps and springs from uplands, as well as from groundwater. - Wetland type at risk
Scott	---	playa	Depressional	Playa Depressions	Playa Wetlands	No	Rainwater Basin, Todd Valley, Central Table Playa	Normally, groundwater interception, not a risk but should be assessed.
Scott variant	---	playa	Depressional	Playa Depressions	Playa Wetlands	No	Southwest Playa	Hayes and Hitchcock Co. Normally, groundwater interception, not a risk but should be assessed.
Silver Creek	overblown, ponded	swale, Playa	Depressional	Saline Depressions	Playa Wetlands	Yes	Central Platte; Loup/Platte River Sandhills	Sand sheet over silt terraces.

Hydric Component Name	**Local Phase**	**Landform**	**Wetland Class** (Brinson, 1995)	**NE HGM Subclasses** (Jasmer, Steinle, LaGrange 1997)	**NE Assessment Model** (NRCS)	**Groundwater interception Risk?**	**NE Wetland Complex** (LaGrange "Guide to Nebraska Wetlands" 2004)	**Notes**
Solomon (and other "wet" designated soils in the Niobrara Delta area).	wet	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Other Wetlands	---	Missouri River; Niobrara River	Man induced wetness; includes other Map Units and soils designated as "Wet" in the Niobrara and Missouri confluence area.
spring - minor component	---	drainageway, spring	slope	Slope Wetlands, Canyon Springs	Slope Wetlands; Other Wetlands	Yes	Niobrara River	Wetlands situated on slopes that receive water from springs and seeps discharging due to an aquatard (e.g., sand over bedrock). May be Fens. Normally too small to be shown on soil map.Also found in MLRA 106.
spring - minor component	---	drainageway, spring	slope	Slope Wetlands, Sandhill Springs	Slope Wetlands; Other Wetlands	Yes	Sandhills	Wetlands situated on slopes that receive water from Sandhill springs. May be Fens. Normally too small to be shown on soil map.
Tieville	rarely flooded	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/minimal out of bank flooding;	Wooded Riverine	No	Missouri River	
Tryon	silty substratum, wet	stream terrace	Depressional	Sandhill Depressions, episaturated	Sandhills Wetlands	Yes	Loup/Platte River Sandhills;	
Tryon	---	interdune	Flats	Mineral Soil Flats	Sandhills Wetlands	Yes	Loup/Platte River Sandhills; Sandhills and Sandhills borders Veg. Zone 3 and 4	
Tryon	---	interdune	Flats	Mineral Soil Flats	Sandhills Wetlands	No	Sandhills, Sandhill Borders Veg zones 1 and 2.	
Wabash	---	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	Lower Platte, Missouri River, Eastern Saline	
Wabash	depressional	flood plain	Riverine	Floodplain Depressions	Wooded Riverine	No	Missouri River	Nemaha Co.
Wet alluvial land	---	depression, flood plain	Riverine (Oxbow)	Floodplain Depressions; Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	----	-----	minor component
Zoe	---	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine; Intermittent Stream	No	-----	Eastern NE Rivers and Streams
Zook	---	flood plain	Riverine	Riverine Floodplain Moderate to Slow Permeability, w/regular out of bank flooding	Wooded Riverine	No	-----	Eastern NE Rivers and Streams
Zook	---	drainageway	slope	Slope Wetland	Slope Wetlands; Intermittent stream	Yes	-----	Assessment: If no channel - Slope Wetlands, If Channel - Intermittent Stream