

BUILDING SITE DEVELOPMENT
Harper County, Kansas

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. These tables show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

BUILDING SITE DEVELOPMENT--Continued
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Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
007AE: Albion-----	55	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Shellabarger-----	45	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
007AS: Clairemont-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
007FU: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
007KA: Kanza-----	100	Very limited Flooding Depth to saturated zone	1.00 0.98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.98
095AD: Albion-----	100	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Slope	1.00
095DA: Dillwyn-----	60	Somewhat limited Depth to saturated zone	0.39	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.39
Plevna-----	40	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
095LA: Lincoln-----	100	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.03	Very limited Flooding	1.00
095NB: Nashville-----	60	Somewhat limited Slope	0.04	Somewhat limited Depth to soft bedrock Slope	0.64 0.04	Very limited Slope	1.00
Quinlan-----	40	Somewhat limited Depth to soft bedrock Slope	1.00 0.16	Very limited Depth to soft bedrock Slope	1.00 0.16	Very limited Depth to soft bedrock Slope	1.00 1.00
095SA: Shellabarger-----	100	Not limited		Not limited		Not limited	
095SC: Shellabarger-----	100	Not limited		Not limited		Somewhat limited Slope	0.12
095SD: Shellabarger-----	100	Not limited		Not limited		Somewhat limited Slope	0.12
095ZA: Zenda-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.95 0.50	Very limited Flooding Shrink-swell	1.00 0.50
191EA: Elandco-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
191EC: Elandco-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
191LS: Lincoln-----	100	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.03	Very limited Flooding	1.00
191OP: Wellsford-----	65	Very limited Depth to soft bedrock Shrink-swell	1.00 1.00	Very limited Shrink-swell Depth to soft bedrock	1.00 1.00	Very limited Depth to soft bedrock Shrink-swell	1.00 1.00
Elandco-----	35	Slope Very limited Flooding Shrink-swell	0.96 1.00 0.50	Slope Very limited Flooding Shrink-swell	0.96 1.00 0.50	Slope Very limited Flooding Shrink-swell	1.00 1.00 0.50

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Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
191PD: Pond Creek-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.00
191RA: Renfrow-----	70	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Grainola-----	30	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to soft bedrock	1.00 0.06	Very limited Shrink-swell	1.00
191TA: Tabler-----	100	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.95	Very limited Shrink-swell	1.00
191US: Ustifluvents-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
1439: Crisfield-----	100	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.87	Very limited Flooding	1.00
An: Kaski-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding	1.00	Very limited Flooding Shrink-swell	1.00 0.50
At: Attica-----	100	Not limited		Not limited		Not limited	
Be: Bethany-----	100	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Bh: Bethany-----	100	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Bm: Lincoln-----	100	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.03	Very limited Flooding	1.00
Bo: Gerlane-----	100	Very limited Flooding	1.00	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 1.00 0.15	Very limited Flooding	1.00
Bp: Woodward-----	65	Somewhat limited Slope	0.37	Somewhat limited Depth to soft bedrock Slope	0.42 0.37	Very limited Slope	1.00
Port-----	35	Very limited Flooding	1.00	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding	1.00
Br: Broken Alluvial Land	100	Very limited Flooding Slope Shrink-swell	1.00 1.00 0.50	Very limited Flooding Slope Shrink-swell	1.00 1.00 0.50	Very limited Flooding Slope Shrink-swell	1.00 1.00 0.50
Ca: Carwile-----	100	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
Cc: Case-----	70	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.00
Clark-----	30	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.00
Ce: Corbin-----	100	Somewhat limited Shrink-swell	0.50	Very limited Shrink-swell	1.00	Somewhat limited Shrink-swell	0.50
Cf: Corbin-----	100	Somewhat limited Shrink-swell	0.50	Very limited Shrink-swell	1.00	Somewhat limited Shrink-swell	0.50

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Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Fa: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
Fm: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Fn: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Fu: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
Ge: Gerlane-----	100	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.61	Very limited Flooding	1.00
Gn: Grant-----	100	Not limited		Not limited		Not limited	
Gr: Grant-----	100	Not limited		Not limited		Not limited	
GRP: Gravel Pits-----	100	Not rated		Not rated		Not rated	
Gs: Grant-----	100	Not limited		Not limited		Somewhat limited Slope	0.12
INT: Aquolls-----	100	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Ka: Kanza-----	100	Very limited Flooding Depth to saturated zone	1.00 0.98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.98
Kk: Kaski-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
Km: Kirkland-----	100	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Kr: Kirkland-----	70	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Renfrow-----	30	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Kw: Kirkland-----	70	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Renfrow-----	30	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Mc: Minco-----	100	Not limited		Not limited		Not limited	
Mn: Minco-----	100	Not limited		Not limited		Not limited	
Mo: Minco-----	100	Not limited		Not limited		Somewhat limited Slope	0.12
Na: Nashville-----	100	Not limited		Somewhat limited Depth to soft bedrock	0.64	Not limited	
Ne: Nashville-----	100	Not limited		Somewhat limited Depth to soft bedrock	0.64	Not limited	
Nh: Nashville-----	100	Not limited		Somewhat limited Depth to soft bedrock	0.64	Somewhat limited Slope	0.12

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Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Nn: Nashville-----	100	Not limited		Somewhat limited Depth to soft bedrock	0.46	Somewhat limited Slope	0.12
No: Norge-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Pc: Pond Creek-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Pd: Pond Creek-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Pe: Pond Creek-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
Pg: Pond Creek-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
Ph: Dale-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
Pk: Port-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.50 0.08	Very limited Flooding Shrink-swell	1.00 0.50
Pm: Pratt-----	100	Not limited		Not limited		Somewhat limited Slope	0.48
Pn: Pratt-----	100	Not limited		Somewhat limited Depth to soft bedrock	0.42	Somewhat limited Slope	0.48
Po: Pratt-----	65	Somewhat limited Depth to saturated zone	0.98	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone Slope	0.98 0.48
Carwile-----	35	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
Pt: Pratt-----	50	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
Tivoli-----	50	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
Qa: Quinlan-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock	1.00
Qn: Quinlan-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock	1.00
Qu: Quinlan-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock Slope	1.00 0.12
Rc: Renfrow-----	65	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Vernon-----	35	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to soft bedrock	1.00 0.29	Very limited Shrink-swell	1.00
Re: Ruella-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock	1.00

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Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rh: Ruella-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock	1.00
Ru: Ruella-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock Slope	1.00 0.12
Sa: Lesho-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 0.95	Very limited Flooding Shrink-swell	1.00 0.50
Sb: Shellabarger-----	100	Not limited		Not limited		Not limited	
Se: Shellabarger-----	100	Not limited		Not limited		Not limited	
Sf: Shellabarger-----	100	Not limited		Not limited		Somewhat limited Slope	0.12
Sg: Shellabarger-----	100	Not limited		Not limited		Somewhat limited Slope	0.12
Sh: Zellmont-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Depth to soft bedrock	0.50 0.29	Somewhat limited Shrink-swell	0.50
SHH: Shellabarger-----	100	Not limited		Not limited		Not limited	
Sk: Zellmont-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Depth to soft bedrock	0.50 0.29	Somewhat limited Shrink-swell Slope	0.50 0.12
Sm: Zellmont, eroded---	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Depth to soft bedrock	0.50 0.29	Somewhat limited Shrink-swell Slope	0.50 0.12
Sn: Shellabarger-----	100	Not limited		Not limited		Not limited	
So: Shellabarger-----	70	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Slope	1.00
Albion-----	30	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Slope	1.00
Sp: Drummond-----	100	Very limited Shrink-swell	1.00	Somewhat limited Depth to saturated zone	0.95	Very limited Shrink-swell	1.00
Ta: Tabler-----	100	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.95	Very limited Shrink-swell	1.00
Th: Tivoli-----	100	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
Vr: Vernon-----	60	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell Slope	1.00 0.00
Renfrow-----	40	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell Slope	1.00 0.00
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Kingman-----	100	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00

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Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Wd: Quinlan-----	50	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock	1.00
Woodward-----	50	Not limited		Somewhat limited Depth to soft bedrock	0.42	Not limited	
We: Quinlan-----	50	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock	1.00
Woodward-----	50	Not limited		Somewhat limited Depth to soft bedrock	0.90	Not limited	
Ww: Quinlan-----	50	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock	1.00
Woodward-----	50	Not limited		Somewhat limited Depth to soft bedrock	0.42	Slope Somewhat limited Slope	0.12 0.12
Za: Canadian-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Zf: Zenda-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.95 0.50	Very limited Flooding Shrink-swell	1.00 0.50

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Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
007AE: Albion-----	55	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Somewhat limited Slope	0.16
Shellabarger-----	45	Somewhat limited Slope	0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
007AS: Clairemont-----	100	Very limited Flooding	1.00	Somewhat limited Flooding Cutbanks cave	0.80 0.10	Very limited Flooding Salinity	1.00 1.00
007FU: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
007KA: Kanza-----	100	Very limited Flooding Depth to saturated zone	1.00 0.75	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 1.00 0.80	Very limited Flooding Depth to saturated zone Droughty	1.00 0.75 0.04
095AD: Albion-----	100	Somewhat limited Slope	0.37	Very limited Cutbanks cave Slope	1.00 0.37	Somewhat limited Slope	0.37
095DA: Dillwyn-----	60	Somewhat limited Depth to saturated zone	0.19	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Droughty Depth to saturated zone	0.22 0.19
Plevna-----	40	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.80	Very limited Flooding Depth to saturated zone	1.00 1.00
095LA: Lincoln-----	100	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding Depth to saturated zone	1.00 0.60 0.03	Somewhat limited Droughty Flooding	0.92 0.60
095NB: Nashville-----	60	Somewhat limited Slope	0.04	Somewhat limited Depth to soft bedrock Cutbanks cave Slope	0.64 0.10 0.04	Somewhat limited Depth to bedrock Slope	0.65 0.04
Quinlan-----	40	Somewhat limited Depth to soft bedrock Slope	1.00 0.16	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 0.16 0.10	Very limited Depth to bedrock Droughty Slope	1.00 0.87 0.16
095SA: Shellabarger-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
095SC: Shellabarger-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
095SD: Shellabarger-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
095ZA: Zenda-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Somewhat limited Depth to saturated zone Flooding Cutbanks cave	0.95 0.60 0.10	Somewhat limited Flooding	0.60
191EA: Elandco-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Somewhat limited Flooding Cutbanks cave	0.60 0.10	Somewhat limited Flooding	0.60
191EC: Elandco-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Somewhat limited Flooding Cutbanks cave	0.80 0.10	Very limited Flooding	1.00

BUILDING SITE DEVELOPMENT--Continued
Harper County, Kansas

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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
191LS: Lincoln-----	100	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding Depth to saturated zone	1.00 0.80 0.03	Very limited Flooding Droughty	1.00 0.90
191OP: Wellsford-----	65	Very limited Depth to soft bedrock Shrink-swell Slope	1.00 1.00 0.96	Very limited Depth to soft bedrock Slope Too clayey Cutbanks cave	1.00 0.96 0.28 0.10	Very limited Depth to bedrock Droughty Slope	1.00 1.00 0.96
Elandco-----	35	Very limited Flooding Shrink-swell	1.00 0.50	Somewhat limited Flooding Cutbanks cave	0.80 0.10	Very limited Flooding	1.00
191PD: Pond Creek-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
191RA: Renfrow-----	70	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.12 0.10	Not limited	
Grainola-----	30	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave Depth to soft bedrock	0.28 0.10 0.06	Somewhat limited Depth to bedrock Content of large stones	0.06 0.03
191TA: Tabler-----	100	Very limited Shrink-swell	1.00	Somewhat limited Depth to saturated zone Too clayey Cutbanks cave	0.95 0.28 0.10	Not limited	
191US: Ustifluvents-----	100	Very limited Low strength Slope	1.00 1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
1439: Crisfield-----	100	Somewhat limited Flooding	0.40	Very limited Cutbanks cave Depth to saturated zone	1.00 0.87	Somewhat limited Droughty	0.31
An: Kaski-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Somewhat limited Flooding Cutbanks cave	0.80 0.10	Very limited Flooding	1.00
At: Attica-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Be: Bethany-----	100	Very limited Shrink-swell	1.00	Somewhat limited Cutbanks cave Too clayey	0.10 0.03	Not limited	
Bh: Bethany-----	100	Very limited Shrink-swell	1.00	Somewhat limited Cutbanks cave Too clayey	0.10 0.03	Not limited	
Bm: Lincoln-----	100	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding Depth to saturated zone	1.00 0.60 0.03	Somewhat limited Droughty Flooding	0.65 0.60
Bo: Gerlane-----	100	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding Too clayey Depth to saturated zone	1.00 0.60 0.28 0.15	Somewhat limited Droughty Flooding	0.86 0.60

BUILDING SITE DEVELOPMENT--Continued
Harper County, Kansas

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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Bp: Woodward-----	65	Somewhat limited Slope	0.37	Somewhat limited Depth to soft bedrock	0.42	Somewhat limited Depth to bedrock	0.42
				Slope	0.37	Slope	0.37
Port-----	35	Very limited Flooding	1.00	Somewhat limited Cutbanks cave Flooding	0.80	Very limited Flooding	1.00
				Cutbanks cave	0.10		
Br: Broken Alluvial Land	100	Very limited Flooding	1.00	Very limited Slope	1.00	Very limited Flooding	1.00
		Slope	1.00	Flooding	0.80	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
Ca: Carwile-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Shrink-swell	1.00	Too clayey	0.28		
				Cutbanks cave	0.10		
Cc: Case-----	70	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Clark-----	30	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Ce: Corbin-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
CF: Corbin-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Fa: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Fm: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Fn: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Fu: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Ge: Gerlane-----	100	Very limited Flooding	1.00	Very limited Cutbanks cave Depth to saturated zone	1.00 0.61	Somewhat limited Flooding	0.60
				Flooding	0.60		
Gn: Grant-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Gr: Grant-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
GRP: Gravel Pits-----	100	Not rated		Not rated		Not rated	
Gs: Grant-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
INT: Aquolls-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Frost action	0.50	Cutbanks cave	0.10		
Ka: Kanza-----	100	Very limited Flooding	1.00	Very limited Cutbanks cave	1.00	Very limited Flooding	1.00
		Depth to saturated zone	0.75	Depth to saturated zone	1.00	Depth to saturated zone	0.75
				Flooding	0.80	Droughty	0.04
Kk: Kaski-----	100	Very limited Flooding	1.00	Somewhat limited Flooding	0.60	Somewhat limited Flooding	0.60
		Shrink-swell	0.50	Cutbanks cave	0.10		

BUILDING SITE DEVELOPMENT--Continued
Harper County, Kansas

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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Km: Kirkland-----	100	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.50 0.10	Not limited	
Kr: Kirkland-----	70	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.50 0.10	Not limited	
Renfrow-----	30	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.12 0.10	Not limited	
Kw: Kirkland-----	70	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.50 0.10	Not limited	
Renfrow-----	30	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.12 0.10	Not limited	
Mc: Minco-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Mn: Minco-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Mo: Minco-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Na: Nashville-----	100	Not limited		Somewhat limited Depth to soft bedrock Cutbanks cave	0.64 0.10	Somewhat limited Depth to bedrock	0.65
Ne: Nashville-----	100	Not limited		Somewhat limited Depth to soft bedrock Cutbanks cave	0.64 0.10	Somewhat limited Depth to bedrock	0.65
Nh: Nashville-----	100	Not limited		Somewhat limited Depth to soft bedrock Cutbanks cave	0.64 0.10	Somewhat limited Depth to bedrock	0.65
Nn: Nashville-----	100	Not limited		Somewhat limited Depth to soft bedrock Cutbanks cave	0.46 0.10	Somewhat limited Depth to bedrock	0.46
No: Norge-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Pc: Pond Creek-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Pd: Pond Creek-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Pe: Pond Creek-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Pg: Pond Creek-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Ph: Dale-----	100	Somewhat limited Shrink-swell Flooding	0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
Pk: Port-----	100	Somewhat limited Shrink-swell Flooding	0.50 0.40	Somewhat limited Cutbanks cave Depth to saturated zone	0.10 0.08	Somewhat limited Salinity	0.13
Pm: Pratt-----	100	Not limited		Very limited Cutbanks cave	1.00	Not limited	

BUILDING SITE DEVELOPMENT--Continued
Harper County, Kansas

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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Pn: Pratt-----	100	Not limited		Very limited Cutbanks cave Depth to soft bedrock	1.00 0.42	Somewhat limited Depth to bedrock Droughty	0.42 0.14
Po: Pratt-----	65	Somewhat limited Depth to saturated zone	0.75	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Somewhat limited Depth to saturated zone	0.75
Carwile-----	35	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.28 0.10	Very limited Depth to saturated zone	1.00
Pt: Pratt-----	50	Somewhat limited Slope	0.63	Very limited Cutbanks cave Slope	1.00 0.63	Somewhat limited Slope	0.63
Tivoli-----	50	Somewhat limited Slope	0.63	Very limited Cutbanks cave Slope	1.00 0.63	Somewhat limited Droughty Slope	0.98 0.63
Qa: Quinlan-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 1.00
Qn: Quinlan-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 1.00
Qu: Quinlan-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 1.00
Rc: Renfrow-----	65	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.12 0.10	Not limited	
Vernon-----	35	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Depth to dense layer Depth to soft bedrock Cutbanks cave	0.50 0.50 0.29 0.10	Very limited Sodium content Depth to bedrock Droughty	1.00 0.29 0.15
Re: Ruella-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 1.00
Rh: Ruella-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 1.00
Ru: Ruella-----	100	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 1.00
Sa: Lesho-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 0.95 0.60	Somewhat limited Flooding Salinity	0.60 0.13
Sb: Shellabarger-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Se: Shellabarger-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Sf: Shellabarger-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	

BUILDING SITE DEVELOPMENT--Continued
Harper County, Kansas

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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sg: Shellabarger-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Sh: Zellmont-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to dense layer Depth to soft bedrock Cutbanks cave	0.50 0.29 0.10	Somewhat limited Depth to bedrock	0.29
SHH: Shellabarger-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Sk: Zellmont-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to dense layer Depth to soft bedrock Cutbanks cave	0.50 0.29 0.10	Somewhat limited Depth to bedrock	0.29
Sm: Zellmont, eroded----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to dense layer Depth to soft bedrock Cutbanks cave	0.50 0.29 0.10	Somewhat limited Depth to bedrock	0.29
Sn: Shellabarger-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
So: Shellabarger-----	70	Somewhat limited Slope	0.37	Somewhat limited Slope Cutbanks cave	0.37 0.10	Somewhat limited Slope	0.37
Albion-----	30	Somewhat limited Slope	0.37	Very limited Cutbanks cave Slope	1.00 0.37	Somewhat limited Slope	0.37
Sp: Drummond-----	100	Very limited Shrink-swell	1.00	Somewhat limited Depth to saturated zone Too clayey Cutbanks cave	0.95 0.28 0.10	Very limited Salinity Droughty	1.00 0.68
Ta: Tabler-----	100	Very limited Shrink-swell	1.00	Somewhat limited Depth to saturated zone Too clayey Cutbanks cave	0.95 0.28 0.10	Not limited	
Th: Tivoli-----	100	Somewhat limited Slope	0.63	Very limited Cutbanks cave Slope	1.00 0.63	Very limited Droughty Slope	1.00 0.63
Vr: Vernon-----	60	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Depth to dense layer Cutbanks cave	0.50 0.50 0.10	Very limited Sodium content Droughty	1.00 0.15
Renfrow-----	40	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.12 0.10	Not limited	
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Kingman-----	100	Very limited Flooding	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60	Very limited Depth to saturated zone Flooding	1.00 0.60
		Depth to saturated zone	1.00	Cutbanks cave	0.10		

BUILDING SITE DEVELOPMENT--Continued
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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Wd: Quinlan-----	50	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 1.00
Woodward-----	50	Not limited		Somewhat limited Depth to soft bedrock Cutbanks cave	0.42 0.10	Somewhat limited Depth to bedrock	0.42
We: Quinlan-----	50	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 1.00
Woodward-----	50	Not limited		Somewhat limited Depth to soft bedrock Cutbanks cave	0.90 0.10	Somewhat limited Depth to bedrock	0.90
Ww: Quinlan-----	50	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 1.00
Woodward-----	50	Not limited		Somewhat limited Depth to soft bedrock Cutbanks cave	0.42 0.10	Somewhat limited Depth to bedrock	0.42
Za: Canadian-----	100	Somewhat limited Flooding	0.40	Very limited Cutbanks cave	1.00	Not limited	
Zf: Zenda-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Somewhat limited Depth to saturated zone Flooding Cutbanks cave	0.95 0.60 0.10	Somewhat limited Flooding	0.60

