GROUND WATER POLLUTION POTENTIAL OF LICKING COUNTY, OHIO

BY

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ABSTRACT

A ground water pollution potential map of Licking County has been prepared using the DRASTIC mapping process. The DRASTIC system consists of two major elements: the designation of mappable units, termed hydrogeologic settings, and the superposition of a relative rating system for pollution potential.

Hydrogeologic settings incorporate the major hydrogeologic factors that control ground water movement and occurence including depth to water, net recharge, aquifer media, soil media, topography, impact of the vadose zone media, and hydraulic conductivity of the aquifer. The relative ranking scheme uses a combination of weight and ratings to produce a numerical value called the pollution potential index that helps prioritize areas with respect to ground water contamination vulnerability. Hydrogeologic settings and the corresponding pollution potential indexes are displayed graphically on maps.

Licking County lies primarily within the Glaciated Central hydrogeologic region. The extreme eastern portion of the county lies within the Unglaciated Central hydrogeologic region. The glaciated portion of Licking County is covered by variable thicknesses of glacial till. Licking County is crossed by a complex network of buried valleys, many of which are relatively broad and deep. The buried valleys in western Licking County tend to be filled primarily with fine-grained till and lacustrine deposits. Discontinuous sand and gravel lenses interbedded within the tills typically are poor, low-yielding aquifers with very low vulnerability. Conversely, buried valleys in central and eastern Licking County commonly contain thick, extensive sand and gravel outwash deposits. These high-yielding aquifers tend to be highly vulnerable to contamination. Interbedded shales, siltstones, and sandstones of the Mississippian System are the principal aquifer in much of central and eastern Licking County. In eastern Licking County, interbedded sandstones, shale, coal, limestone, and flint of the Pennsylvanian System comprise the aquifer where these units are of sufficient thickness. Twelve hydrogeologic settings were identified in Licking County. Ground water pollution potential indexes ranged from 40 to 193.

Ground water pollution potential maps of Licking County have been prepared to assist planners, managers, and local officials in evaluating the potential for contamination from various sources of pollution. This information can be used to help direct resources and land use activities to appropriate areas, or to assist in protection, monitoring, and clean-up efforts.

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INTRODUCTION

The need for protection and management of ground water resources in Ohio has been clearly recognized. About 42 percent of Ohio citizens rely on ground water for drinking and household use from both municipal and private wells. Industry and agriculture also utilize significant quantities of ground water for processing and irrigation. In Ohio, approximately 700,000 rural households depend on private wells; 10,000 of these wells exist in Licking County.

The characteristics of the many aquifer systems in the state make ground water highly vulnerable to contamination. Measures to protect ground water from contamination usually cost less and create less impact on ground water users than clean up of a polluted aquifer. Based on these concerns for protection of the resource, staff of the Division of Water conducted a review of various mapping strategies useful for identifying vulnerable aquifer areas. They placed particular emphasis on reviewing mapping systems that would assist in state and local protection and management programs. Based on these factors and the quantity and quality of available data on ground water resources, the DRASTIC mapping process (Aller et al., 1987) was selected for application in the program.

Considerable interest in the mapping program followed successful production of a demonstration county map and led to the inclusion of the program as a recommended initiative in the Ohio Ground Water Protection and Management Strategy (Ohio EPA, 1986). Following this recommendation, the Ohio General Assembly funded the mapping program. A dedicated mapping unit has been established in the Division of Water, Water Resources Section to implement the ground water pollution potential mapping program on a county-wide basis in Ohio.

The purpose of this report and map is to aid in the protection of our ground water resources. This protection can be enhanced by understanding and implementing the results of this study which utilizes the DRASTIC system of evaluating an area's potential for ground water pollution. The mapping program identifies areas that are vulnerable to contamination and displays this information graphically on maps. The system was not designed or intended to replace site-specific investigations, but rather to be used as a planning and management tool. The map and report can be combined with other information to assist in prioritizing local resources and in making land use decisions.

APPLICATIONS OF POLLUTION POTENTIAL MAPS

The pollution potential mapping program offers a wide variety of applications in many counties. The ground water pollution potential map of Licking County has been prepared to assist planners, managers, and state and local officials in evaluating the relative vulnerability of areas to ground water contamination from various sources of pollution. This information can be used to help direct resources and land use activities to appropriate areas, or to assist in protection, monitoring, and clean-up efforts.

An important application of the pollution potential maps for many areas will be assisting in county land use planning and resource expenditure allocation related to solid waste disposal. A county may use the map to help identify areas that are more or less suitable for disposal activities. Once these areas have been identified, a county can collect more site-specific information and combine this with other local factors to determine site suitability.

Pollution potential maps may also be applied successfully where non-point source contamination is a concern. Non-point source contamination occurs where land use activities over large areas impact water quality. Maps providing information on relative vulnerability can be used to guide the selection and implementation of appropriate best management practices in different areas. Best management practices should be chosen based upon consideration of the chemical and physical processes that occur as a result of the practices, and the effect these processes may have in areas of moderate to high vulnerability to contamination. For example, the use of agricultural best management practices that limit the infiltration of nitrates or promote denitrification above the water table would be beneficial to implement in areas of relatively high vulnerability to contamination.

A pollution potential map can assist in developing ground water protection strategies. By identifying areas more vulnerable to contamination, officials can direct resources to areas where special attention or protection efforts might be warranted. This information can be utilized effectively at the local level for integration into land use decisions and as an educational tool to promote public awareness of ground water resources. Pollution potential maps may be used to prioritize ground water monitoring and/or contamination clean-up efforts. Areas that are identified as being vulnerable to contamination may benefit from increased ground water monitoring for pollutants or from additional efforts to clean up an aquifer.

Other beneficial uses of the pollution potential maps will be recognized by individuals in the county who are familiar with specific land use and management problems. Planning commissions and zoning boards can use these maps to help make informed decisions about the development of areas within their jurisdiction. Developments proposed to occur within ground-water sensitive areas may be required to show how ground water will be protected.

Regardless of the application, emphasis must be placed on the fact that the system is not designed to replace a site-specific investigation. The strength of the system lies in its ability to make a "first-cut approximation" by identifying areas that are vulnerable to contamination. Any potential applications of the system should also recognize the assumptions inherent in the system.

SUMMARY OF THE DRASTIC MAPPING PROCESS

The system chosen for implementation of a ground water pollution potential mapping program in Ohio, DRASTIC, was developed by the National Water Well Association for the United States Environmental Protection Agency. A detailed discussion of this system can be found in Aller et al. (1987).

The DRASTIC mapping system allows the pollution potential of any area to be evaluated systematically using existing information. The vulnerability to contamination is a combination of hydrogeologic factors, anthropogenic influences, and sources of contamination in any given area. The DRASTIC system focuses only on those hydrogeologic factors which influence ground water pollution potential. The system consists of two major elements: the designation of mappable units, termed hydrogeologic settings, and the superposition of a relative rating system to determine pollution potential.

The application of DRASTIC to an area requires the recognition of a set of assumptions made in the development of the system. DRASTIC evaluates the pollution potential of an area, under the assumption that a contaminant with the mobility of water is introduced at the surface and flushed into the ground water by precipitation. Most important, DRASTIC cannot be applied to areas smaller than 100 acres in size and is not intended or designed to replace site-specific investigations.

Hydrogeologic Settings and Factors

To facilitate the designation of mappable units, the DRASTIC system used the framework of an existing classification system developed by Heath (1984), which divides the United States into 15 ground water regions based on the factors in a ground water system that affect occurrence and availability.

Within each major hydrogeologic region, smaller units representing specific hydrogeologic settings are identified. Hydrogeologic settings form the basis of the system and represent a composite description of the major geologic and hydrogeologic factors that control ground water movement into, through, and out of an area. A hydrogeologic setting represents a mappable unit with common hydrogeologic characteristics and, as a consequence, common vulnerability to contamination (Aller et al., 1987).

Figure 1 illustrates the format and description of a typical hydrogeologic setting found within Licking County. Inherent within each hydrogeologic setting are the physical characteristics which affect the ground water pollution potential. These characteristics or factors identified during the development of the DRASTIC system include:

D - Depth to Water

R - Net Recharge

A - Aquifer Media

S - Soil Media

T - Topography

I - Impact of the Vadose Zone Media

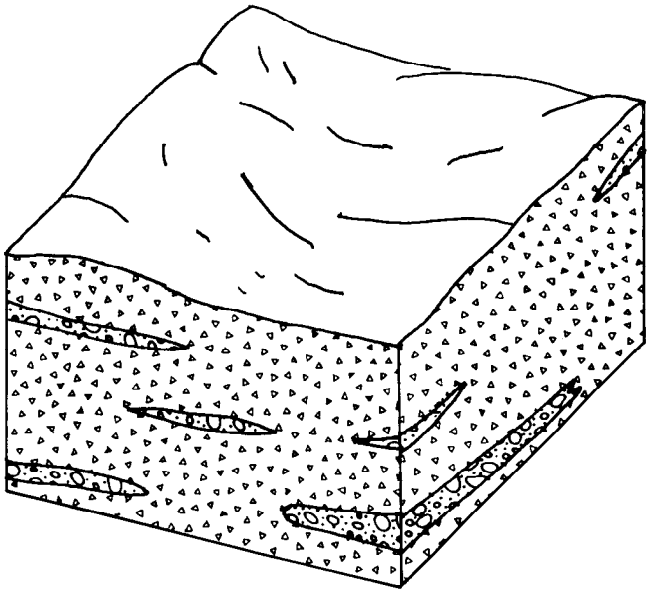
C - Conductivity (Hydraulic) of the Aquifer

These factors incorporate concepts and mechanisms such as attenuation, retardation, and time or distance of travel of a contaminant with respect to the physical characteristics of the hydrogeologic setting. Broad consideration of these factors and mechanisms coupled with existing conditions in a setting provide a basis for determination of the area's relative vulnerability to contamination.

Depth to water is considered to be the depth from the ground surface to the water table in unconfined aquifer conditions or the depth to the top of the aquifer under confined aquifer conditions. The depth to water determines the distance a contaminant would have to travel before reaching the aquifer. The greater the distance the contaminant has to travel, the greater the opportunity for attenuation to occur or restriction of movement by relatively impermeable layers.

Net recharge is the total amount of water reaching the land surface that infiltrates into the aquifer measured in inches per year. Recharge water is available to transport a contaminant from the surface into the aquifer and also affects the quantity of water available for dilution and dispersion of a contaminant. Factors to be included in the determination of net recharge include contributions due to infiltration of precipitation, in addition to infiltration from rivers, streams and lakes, irrigation, and artificial recharge.

Aquifer media represents consolidated or unconsolidated rock material capable of yielding sufficient quantities of water for use. Aquifer media accounts for the various physical characteristics of the rock that provide mechanisms of attenuation, retardation, and flow pathways that affect a contaminant reaching and moving through an aquifer.



7Af Sand and Gravel Interbedded in Glacial Till

This hydrogeologic setting is limited to western Licking County. It encompasses areas where sand and gravel lenses within the till are the aquifer. The total thickness of drift in these areas is less than that found in the 7D Buried Valley hydrogeologic setting. It was determined that for the Licking County area that the thickness of drift should exceed 140 feet for an area to be considered a buried valley. This number reflects a combined maximum drift thickness of 100 feet for end moraines and 40 feet for ground moraines. This hydrogeologic setting is usually associated with end moraines which have not been deposited over (superimposed on) previously existing buried valleys. Included areas are characterized by low relief and relatively flat to gently rolling topography. Soils are typically clay loams. The sand and gravel lenses comprising the aquifer are generally thin, discontinuous and isolated from each other. Till is the vadose zone material. Water yields average between 10 to 20 gpm and are adequate for domestic supplies. Depth to water is relatively shallow, averaging less than 35 feet. Recharge is moderate because of the low relief, shallow water table, and low permeability soils and till.

Figure 1. Format and description of the hydrogeologic setting - 7Af Sand and Gravel Interbedded in Glacial Till.

Soil media refers to the upper six feet of the unsaturated zone that is characterized by significant biological activity. The type of soil media influences the amount of recharge that can move through the soil column due to variations in soil permeability. Various soil types also have the ability to attenuate or retard a contaminant as it moves throughout the soil profile. Soil media is based on textural classifications of soils and considers relative thicknesses and attenuation characteristics of each profile within the soil.

Topography refers to the slope of the land expressed as percent slope. The slope of an area affects the likelihood that a contaminant will run off or be ponded and ultimately infiltrate into the subsurface. Topography also affects soil development and often can be used to help determine the direction and gradient of ground water flow under water table conditions.

The impact of the vadose zone media refers to the attenuation and retardation processes that can occur as a contaminant moves through the unsaturated zone above the aquifer. The vadose zone represents that area below the soil horizon and above the aquifer that is unsaturated or discontinuously saturated. Various attenuation, travel time, and distance mechanisms related to the types of geologic materials present can affect the movement of contaminants in the vadose zone. Where an aquifer is unconfined, the vadose zone media represents the materials below the soil horizon and above the water table. Under confined aquifer conditions, the vadose zone is simply referred to as a confining layer. The presence of the confining layer in the unsaturated zone significantly impacts the pollution potential of the ground water in an area.

Hydraulic conductivity of an aquifer is a measure of the ability of the aquifer to transmit water, and is also related to ground water velocity and gradient. Hydraulic conductivity is dependent upon the amount and interconnectivity of void spaces and fractures within a consolidated or unconsolidated rock unit. Higher hydraulic conductivity typically corresponds to higher vulnerability to contamination. Hydraulic conductivity considers the capability for a contaminant that reaches an aquifer to be transported throughout that aquifer over time.

Weighting and Rating System

DRASTIC uses a numerical weighting and rating system that is combined with the DRASTIC factors to calculate a ground water pollution potential index or relative measure of vulnerability to contamination. The DRASTIC factors are weighted from 1 to 5 according to their relative importance to each other with regard to contamination potential (Table 1). Each factor is then divided into ranges or media types and assigned a rating from 1 to 10 based on their significance to pollution potential (Tables 2-8). The rating for each factor is selected based on available information and professional judgement. The selected rating for each factor is multiplied by the assigned weight for each factor. These numbers are summed to calculate the DRASTIC or pollution potential index.

Once a DRASTIC index has been calculated, it is possible to identify areas that are more likely to be susceptible to ground water contamination relative to other areas. The higher the DRASTIC index, the greater the vulnerability to contamination. The index generated provides only a relative evaluation tool and is not designed to produce absolute answers or to represent units of vulnerability. Pollution potential indexes of various settings should be compared to each other only with consideration of the factors that were evaluated in determining the vulnerability of the area.

Pesticide DRASTIC

A special version of DRASTIC was developed to be used where the application of pesticides is a concern. The weights assigned to the DRASTIC factors were changed to reflect the processes that affect pesticide movement into the subsurface with particular emphasis on soils. Where other agricultural practices, such as the application of fertilizers, are a concern, general DRASTIC should be used to evaluate relative vulnerability to contamination. The process for calculating the Pesticide DRASTIC index is identical to the process used for calculating the general DRASTIC index. However, general DRASTIC and Pesticide DRASTIC numbers should not be compared because the conceptual basis in factor weighting and evaluation differs significantly. Table 1 lists the weights used for general and pesticide DRASTIC.

TABLE 1. ASSIGNED WEIGHTS FOR DRASTIC FEATURES

Feature	General DRASTIC Weight	Pesticide DRASTIC Weight
Depth to Water	5	5
Net Recharge	4	4
Aquifer Media	3	3
Soil Media	2	5
Topography	1	3
Impact of the Vadose Zone Media	5	4
Hydraulic Conductivity of the Aquifer	3	2

TABLE 2. RANGES AND RATINGS FOR DEPTH TO WATER

DEPTH TO WATER (FEET)	
Range	Rating
0-5	10
5-15	9
15-30	7
30-50	5
50-75	3
75-100	2
100+	1
Weight: 5	Pesticide Weight: 5

TABLE 3. RANGES AND RATINGS FOR NET RECHARGE

NET RECHARGE (INCHES)	
Range	Rating
0-2	1
2-4	3
4-7	6
7-10	8
10+	9
Weight: 4	Pesticide Weight: 4

TABLE 4. RANGES AND RATINGS FOR AQUIFER MEDIA

AQUIFER MEDIA		
Range	Rating	Typical Rating
Massive Shale	1-3	2
Metamorphic / Igneous	2-5	3
Weathered Metamorphic / Igneous	3-5	4
Glacial Till	4-6	5
Bedded Sandstone, Limestone and Shale Sequences	5-9	6
Massive Sandstone	4-9	6
Massive Limestone	4-9	6
Sand and Gravel	4-9	8
Basalt	2-10	9
Karst Limestone	9-10	10
Weight: 3	Pesticide Weight: 3	

TABLE 5. RANGES AND RATINGS FOR SOIL MEDIA

SOIL MEDIA	
Range	Rating
Thin or Absent	10
Gravel	10
Sand	9
Peat	8
Shrinking and / or Aggregated Clay	7
Sandy Loam	6
Loam	5
Silty Loam	4
Clay Loam	3
Muck	2
Nonshrinking and Nonaggregated Clay	1
Weight: 2	Pesticide Weight: 5

TABLE 6. RANGES AND RATINGS FOR TOPOGRAPHY

TOPOGRAPHY (PERCENT SLOPE)	
Range	Rating
0-2	10
2-6	9
6-12	5
12-18	3
18+	1
Weight: 1	Pesticide Weight: 3

TABLE 7. RANGES AND RATINGS FOR IMPACT OF THE VADOSE ZONE MEDIA

IMPACT OF THE VADOSE ZONE MEDIA		
Range	Rating	Typical Rating
Confining Layer	1	1
Silt/Clay	2-6	3
Shale	2-5	3
LImestone	2-7	6
Sandstone	4-8	6
Bedded Limestone, Sandstone, Shale	4-8	6
Sand and Gravel with significant Silt and Clay	4-8	6
Metamorphic/Igneous	2-8	4
Sand and Gravel	6-9	8
Basalt	2-10	9
Karst Limestone	8-10	10
Weight: 5	Pesticide Weight: 4	

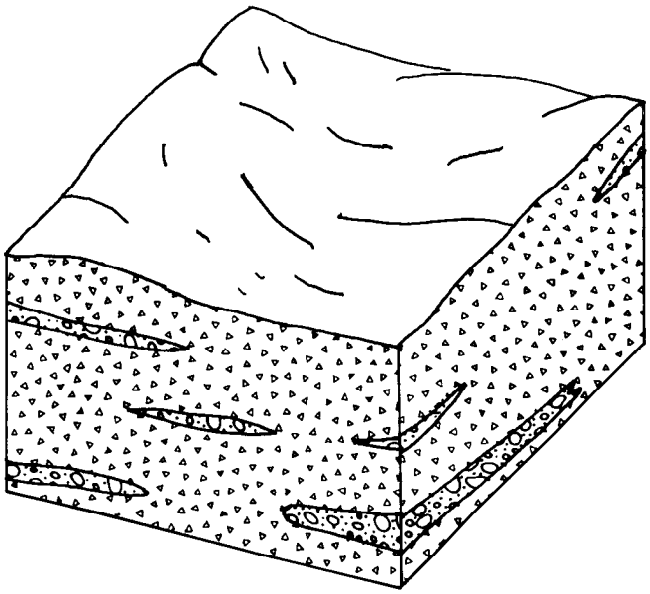
TABLE 8. RANGES AND RATINGS FOR HYDRAULIC CONDUCTIVITY

HYDRAULIC CONDUCTIVITY (GPD/FT^2)	
Range	Rating
1-100	1
100-300	2
300-700	4
700-1000	6
1000-2000	8
2000+	10
Weight: 3	Pesticide Weight: 2

Integration of Hydrogeologic Settings and DRASTIC Factors

Figure 2 illustrates the hydrogeologic setting 7Af1, Sand and Gravel Interbedded in Glacial Till, identified in mapping Licking County, and the pollution potential index calculated for the setting. Based on selected ratings for this setting, the pollution potential index is calculated to be 119. This numerical value has no intrinsic meaning, but can be readily compared to a value obtained for other settings in the county. DRASTIC indexes for typical hydrogeologic settings and values across the United States range from 65 to 223. The diversity of hydrogeologic conditions in Licking County produces settings indicating a wide range of vulnerability to ground water contamination. Calculated pollution potential indexes for the nine settings identified in the county range from 40 to 193.

Hydrogeologic settings identified in an area are combined with the pollution potential indexes to create units that can be graphically displayed on maps. Pollution potential analysis in Licking County resulted in a map with symbols and colors that illustrate areas of ground water vulnerability. The map describing the ground water pollution potential of Licking County is included with this report.



SETTING 7Af1		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	NUMBER
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand & Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		DRASTIC	INDEX	119

Figure 2. Description of the hydrogeologic setting - 7Af1 Sand and Gravel Interbedded in Glacial Till.

INTERPRETATION AND USE OF A GROUND WATER POLLUTION POTENTIAL MAP

The application of the DRASTIC system to evaluate an area's vulnerability to contamination produces hydrogeologic settings with corresponding pollution potential indexes. The higher the pollution potential index, the greater the susceptibility to contamination. This numeric value determined for one area can be compared to the pollution potential index calculated for another area.

The map accompanying this report displays both the hydrogeologic settings identified in the county and the associated pollution potential indexes calculated in those hydrogeologic settings. The symbols on the map represent the following information:

7Af1 - defines the hydrogeologic region and setting
119 - defines the relative pollution potential

Here the first number (7) refers to the major hydrogeologic region and the upper and lower case letters (Af) refer to a specific hydrogeologic setting. The following number (1) references a certain set of DRASTIC parameters that are unique to this setting and are described in the corresponding setting chart. The second number (119) is the calculated pollution potential index for this unique setting. The charts for each setting provide a reference to show how the pollution potential index was derived.

The maps are color-coded using ranges depicted on the map legend. The color codes used are part of a national color-coding scheme developed to assist the user in gaining a general insight into the vulnerability of the ground water in the area. The color codes were chosen to represent the colors of the spectrum, with warm colors (red, orange, and yellow) representing areas of higher vulnerability (higher pollution potential indexes), and cool colors (greens, blues, and violet) representing areas of lower vulnerability to contamination. Large man-made features such as landfills, quarries, or strip mines have also been marked on the map for reference.

GENERAL INFORMATION ABOUT LICKING COUNTY

Demographics

Licking County, the third largest county in Ohio, occupies approximately 685 square miles in central Ohio (Figure 3). It is bounded to the east by Coshocton County and Muskingum County, to the south by Fairfield County and Perry County, to the north by Knox County, and to the west by Delaware County and Franklin County. Elevation ranges from 1360 feet in Liberty Township to 740 feet in Hanover Township.

The approximate population of Licking County according to the 1990 Census is 132,700 (Ohio Department of Development, 1990). The most rapid population growth is in the western third of the county which is in close proximity to the Greater Columbus area. About two thirds of the county's land area are used for farming. The remaining third is used for woodlands, residential, recreational, and industrial purposes. More specific information on land usage can be obtained from the ODNR, Division of Real Estate and Land Management's Resource Analysis Program.

Climate

The weather station at the Newark Water Works has a mean annual temperature of 51.5 degrees Fahrenheit for a thirty-year (1961-1990) period (U. S. Department of Commerce, 1992). According to Harstine (1991), the average temperature remains constant across Licking County. The mean annual precipitation recorded at the Newark Water Works is 41.48 inches, based on the same thirty-year (1961-1980) average (U. S. Department of Commerce, 1992). As noted by Harstine (1991), precipitation slightly increases eastward across Licking County.

Figure 3. Location of Licking County, Ohio.

Physiography and Topography

Licking County occupies portions of two major physiographic provinces (Frost, 1931 and Fenneman, 1938). The western portion lies in the Till Plains Section of the Central Lowlands Province and the eastern portion lies in the Kanawha Section of the Appalachian Plateau. The boundary between the two roughly follows a north-south line from Utica to Jacksontown. The upland immediately to the east of the large valley occupied by the present North Fork Licking River and South Fork Licking River marks the beginning of the Appalachian Plateau. This province may be further subdivided (Frost, 1931) into the Glaciated Appalachian Plateau and the Unglaciated Appalachian Plateau. The unglaciated Appalachian Plateau occupies a small, cresent-shaped area in far eastern Licking County. The glacial boundary as delineated by Forsyth (1966) approximately marks the split within the Appalachian Plateau.

Western Licking County is characterized by relatively flat to rolling topography associated with ground moraine and end moraine. Central and eastern Licking County is typified by higher relief and steep bedrock-controlled uplands. Broad stream valleys dissect the uplands in the central and eastern parts of the county. The topography becomes noticeably more "rugged" upon approaching the glacial boundary.

Modern Drainage

The vast majority of Licking County ultimately drains into the Muskingum River watershed. Most of the county is drained by the Licking River which merges with the Muskingum River in Zanesville. Major tributaries of the Licking River include North Fork Licking River, South Fork Licking River (including Buckeye Lake), Raccoon Creek, Dry Creek, Clear Fork, Rocky Fork, and Brushy Fork (south of Hanover). The far southeastern corner of Licking County drains into Jonathan Creek which flows into the Muskingum River in southern Muskingum County. The far northeastern corner of the county drains into Wakatomika Creek which eventually joins the Muskingum River in Dresden. The westernmost fringe of the county drains into the Scioto River watershed. The headwaters of the numerous small tributaries west of the drainage divide eventually flow into (moving north to south) Big Walnut Creek, Blacklick Creek, and Little Walnut Creek.

Pre- and Inter-glacial Drainage and Topography

The pre- and inter-glacial drainage of Licking County is discussed in detail in Stout et al. (1943), Dove (1960), Forsyth (1966), and Angle et al. (1993). The drainage changes over time in Licking County are numerous and complex. It is important to note that entire drainage systems, including tributaries, have changed and these various systems have been superimposed (overlapped) over time.

Prior to glaciation, Licking County was drained by the Teays Drainage System. The Teays River originated in the Appalachians and flowed northwest, entering Ohio near Portsmouth. In Ohio, the Teays flowed due north, roughly parallelling the present course of the Scioto River (Figure 4). In northern Pickaway County, the Teays veered to the northwest, running towards London and Urbana. The Teays then ran westward, eventually entering Indiana near Celina in Mercer County.

Licking County was drained by two major tributaries of the Teays (Figure 4). The Cambridge River, which originated in Tuscarawas County, flowed southwest, passing through Hanover, Newark and through the Buckeye Lake region. Upon entering Fairfield County, the Cambridge River turned westward, flowing towards Canal Winchester in Franklin County. Stout et al. (1943) and Dove (1960) disagree on the course of the Groveport River. Stout et al. (1943) believed that central Knox County was drained by a river which flowed from Mt. Vernon southward through Utica and joined the Cambridge River at Newark. Dove (1960) believed that there was a drainage divide or col at Utica at this time and that the Groveport River extended northward through Knox County. Dove (1960) speculated that a much shorter tributary flowed from Utica to Newark. Both sources agree that the Groveport River flowed through Homer to Johnstown, then south through Jersey and west of Pataskala, entered Fairfield County, and swung westward toward Canal Winchester. A tributary of the Groveport River flowed westward from Granville, joining the Groveport near Jersey.

As ice advanced through Ohio, the Teays Drainage System was eventually blocked. Flow backed up in the main trunk valley of the Teays as well as in many of the tributaries, forming several large lakes. Eventually these lakes created spillways, cut new channels, and new drainage systems evolved (Dove, 1960; Goldthwait et al., 1961; Forsyth, 1966). This downcutting was believed to be relatively rapid and in many places the new channels were cut over 100 feet deeper than the previous Teays valleys. This new drainage system is referred to as the Deep Stage due to this increased downcutting (Figure 5). In Licking County, many of the Deep Stage channels closely followed the previous Teays drainageways. The col or divide at Utica was breached and water from Knox County was diverted away from Homer and southwards through Utica toward Newark. Stout et al. (1943) referred to this river as the Utica River. The divide at Granville was also breached and this tributary flowed east toward

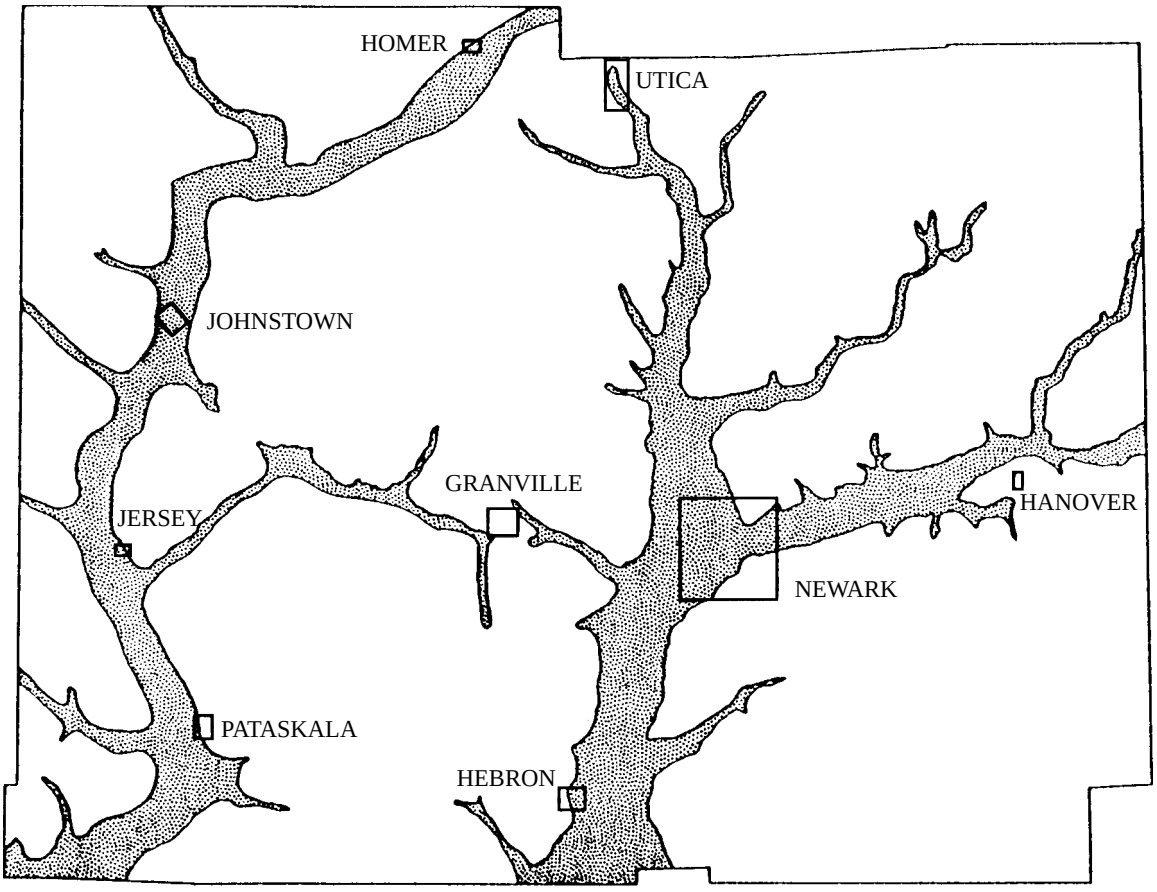


Figure 4. Pre - glacial (Teays Stage) Drainage in Licking County, Ohio. (After Dove, 1960)

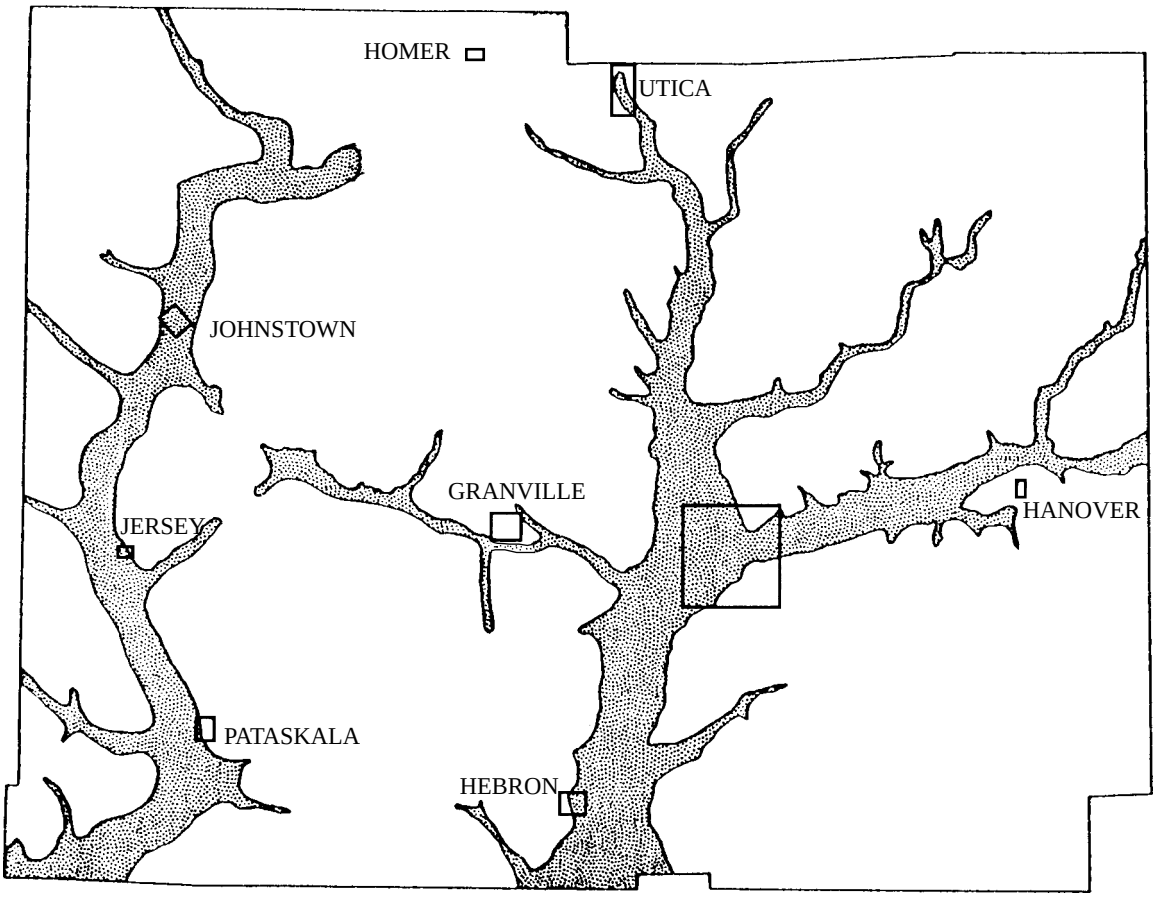


Figure 5. Pre - Illinoian (Deep Stage) Drainage in Licking County, Ohio (After Dove, 1960)

Newark, closely following the course of the present-day Raccoon Creek. This tributary merged with the major trunk stream, the Newark River (Dove, 1960). The Newark River very closely followed the course of the previous Teays-age Cambridge River.

The Illinoian ice advance brought further change to Licking County. The large valley extending southward from Johnstown to Fairfield County was largely infilled by glacial till and fine-grained lacustrine (lake) deposits. Over 400 feet of glacial fill have been recorded in Jersey, Lima, and Etna Townships. The Illinoian ice and associated outwash deposits blocked the westerly flowing Newark River, creating a large lake near Hanover. Over 350 feet of glacial fill is found in this area. This lake eventually breached the local bedrock high, creating a new spillway and establishing the present course of the Licking River toward the east. Downcutting in this channel created the Black Hand Gorge (Carney, 1907; Dove, 1960; and Bork and Malcuit, 1987). Other drainage changes or diversions were created by the Illinoian ice advance. A former tributary which flowed westward from Kirkersville toward Pataskala was diverted eastward, establishing the present course of South Fork Licking River (Dove, 1960). Wakatomika Creek which flowed westward was blocked; the drainage diversion helped establish its present course to the southeast (Forsyth, 1966). Rocky Fork and Wilkins Run previously drained southwestward toward the present North Fork Licking River (Dove, 1960). Thick Illinoian till and kame deposits blocked and reversed this drainage, establishing the present course of Rocky Fork (Forsyth, 1966). Illinoian outwash and lacustrine deposits blocked Brushy Fork and diverted flow toward the north. Just south of the Licking County boundary in Perry County, the former westward drainage of Jonathan Creek was diverted toward the east (Forsyth, 1966).

During the most recent Wisconsinan ice advance, additional drainage changes took place. On the east side of the present North Fork Licking River Valley, the former southwesterly course of the unnamed drainage adjacent to Peat Moss Road was diverted to the northeast. In Mary Ann Township, the former westerly course of Lost Run was diverted toward the east, merging with Wilkins Run (Forsyth, 1966). Southeast of Newark, the former southerly course of Claylick Creek and Quarry Run were diverted to the north by thick lacustrine and till deposits in the vicinity of present Swamp Run (Forsyth, 1966). Dry Creek, which used to drain southward through Griffin Run, was diverted toward its present easterly course (Dove, 1960). The present easterly drainage courses of Otter Fork, Lake Fork, and Clear Fork Licking River were established during the Wisconsinan glaciation.

The evidence for many of the above drainage changes is speculative and was based upon the best available data of the time. Currently, research is being conducted at the ODNR, Division of Geological Survey (Ernie Slucher and Richard Pavey, personal communication) and at Denison University in Granville (Tod Frolking, personal communication) to recreate the bedrock topography and better understand the drainage history of Licking County and adjoining areas.

Glacial Geology

During the Pleistocene Epoch (2 million to 10,000 years before present (Y.B.P.)) several episodes of ice advance occurred in central Ohio. Older ice advances are now conventionally referred to as pre-Illinoian (formerly Kansan). Table 9 summarizes the Pleistocene deposits found in Licking County. Deposits are determined to be pre-Illinoian if they predate the most recent (Brunhes) magnetic reversal (about 730,000 Y.B.P.). Direct evidence for these deposits has not been positively identified at the surface or in sub-surface cores in Licking County; further research is needed to determine the age of older deposits in the bottoms of the deeper buried valleys. The effects of the glacial advances on pre-existing drainage have been documented in the preceding section. This discussion will focus on the glacial deposits and landforms.

Extensive Illinoian deposits have been identified in Licking County (Dove, 1960; Forsyth, 1966; and Szabo et al., 1993). Deposition of the Illinoian deposits occurred prior to 100,000 Y.B.P. The majority of earlier literature discusses Early Wisconsinan glaciation which tentatively occurred between 40,000 to 80,000 Y.B.P. Current thinking suggests that there was probably insufficient ice available in North America for a major ice advance into the Great Lakes area until the Late Wisconsinan Woodfordian sub-stage (approximately 25,000 Y.B.P.). The age of deposits previously determined to be early to mid-Wisconsinan in age needs to be re-evaluated.

The majority of the glacial deposits fall into four main type of deposits: glacial till, lacustrine, outwash, and ice-contact sand and gravel (kames). Drift is an older term that refers to the entire collective thickness of glacial deposits. Modern (post-glacial) alluvium or floodplain deposits also account for valley fill. Till is an unsorted, non-stratified mixture of sand, silt, clay, and gravel deposited directly by the ice sheet. There are two main types, or facies, of till. Lodgement till is "plastered" or "bull-dozed" at the base of actively moving ice. Lodgement till tends to be relatively dense and compacted; pebbles tend to be more angular and broken. "Melt-out" or ablation till is deposited as the ice melts or stagnates. Debris is laid down from the base or other portions of the ice sheet. Ablation till tends to be less dense, less compacted, and slightly coarser as meltwater has removed some of the fines. At the land surface, till accounts for two primary landforms: ground moraine and end moraine. Ground moraine is relatively flat-lying to gently rolling. End moraines are more ridge-like and their terrain is considered to be rolling or hummocky. End moraines tend to be more dissected by surrounding streams and commonly function as local divides. Ideally, end moraines should represent a thickening of till. Moraines in Licking County have been mapped by Dove, 1960; Goldthwait et al., 1961; Forsyth, 1966; and Forsyth, 1983. In Licking County, ground and end moraines may be deposited over bedrock uplands with as little as 10 feet or less of total drift present or they may overlie previous buried valleys containing over 300 feet of drift. Forsyth (1966) and Parkinson et al. (1992) depict the boundary between Wisconsinan and Illinoian-age tills.

Table 9. Generalized Glacial Stratigraphy of Licking County, Ohio. (After Forsyth, 1966 and Szabo et al., 1993)

AGE (years ago)	EPOCH	STAGE		SUBSTAGE	UNIT OR INTERVAL
25, 000	PLEISTOCENE	WISCONSINAN	LATE	Wood-fordian	Centerberg Till (2) Mt. Liberty Till (2) Navarre Till (3)
40,000			MIDDLE	Farmdalian (1)	Paleosol, Loess ?
70,000			EARLY	Altonian (1)	Knox Lake Till (2) Millbrook Till (3,4)
120,000		SANGAMONIAN			Paleosol, Loess ?, Unknown
730,000		ILLINOIAN			Millbrook Till (3,4) Gahanna Till (3)
2,000,000		PRE-ILLINOIAN			

(1) Usage of these terms is being reveiwed.
(2) After Forsyth, 1966.
(3) After Szabo et. al., 1993.
(4) Age duration of the Millbrook Till is currently unknown.

Lacustrine deposits were created from the lakes formed by the damming of streams by either ice sheets or deposits resulting from the ice sheets. The buried valleys may contain appreciable thicknesses of lacustrine deposits (Dove, 1960; Smith & Associates, 1960; Forsyth, 1966; and Angle et al., 1993). These deposits tend to be composed of fairly dense uniform silt and clay with minor fine sand. These sediments infer deposition into quiet, low-energy environments with little or no currents. They range from shallow ponds ("slackwater") in upland tributaries to relatively deep lakes in the trunks of major valleys.

Outwash deposits are created from active deposition of sediments by meltwater. These deposits are generally bedded or stratified and are sorted. Outwash deposits in Licking County are predominantly limited to stream valleys. Such outwash deposits may also be referred to as valley trains. Sorting and the degree of coarseness depend upon the nature and proximity of the melting ice sheet. Outwash is typically deposited by braided streams. Such streams have multiple channels which migrate across the width of the valley floor, leaving behind a complex record of deposition and erosion. As a stream continues to downcut older, now higher elevation, remnants of the valley floor are referred to as terraces. The majority of the terraces in Licking County represent deposition of outwash and finer stream alluvium. In a few areas, the terraces reflect erosional surfaces carved into more erosion-resistant till or bedrock. Jones (1959) and Forsyth (1966) have extensively studied the terraces in Licking County. Jagucki (1987) has extensively studied modern stream processes and terraces in Dry Creek and Clear Fork Licking River. The majority of the surficial outwash deposits in Licking County are Wisconsinan in age; surficial Illinoian outwash deposits are limited to eastern Licking County. Locally, outwash may exhibit some degree of cementation by calcite or silica which has precipitated from the ground water.

Loess is a deposit formed by wind-blown silt. Loess is derived from the wind picking up fine silt-sized particles covering the floodplains of the wide outwash valley floors. Loess is commonly found capping kames and the bedrock and till uplands to the east (downwind) of major river valleys. Thicknesses of loess exceeding 10 feet have been noted in Licking County. Loess is particularly important to the development of soils in the uplands of central and eastern Licking County (Frolking, 1988 and Parkinson et al., 1992). Frolking (personal communication) is conducting research on differentiating between Wisconsinan and Illinoian-age loess.

Kames and eskers are ice contact features. They are composed of masses of generally poorly-sorted sand and gravel and till deposited in depressions, holes, tunnels, or other cavities in the ice. As the ice melts, a mound of sediment remains behind. Typically, these deposits may collapse or flow as the surrounding ice ablates. These deposits commonly display high angle distorted or tilted beds, faults, and folds. Kames may be isolated features deposited upon valley floors. A number of kames may coalesce along the margin of the valley. These features may be referred to as kame terraces. They represent deposition between the melting ice sheet and the bedrock slopes flanking the ice-filled valley. Kame deposits in Licking

County are primarily found in the North Fork Licking River Valley and in the Licking River Valley between Newark and Hanover. These deposits may be cemented (Frolking, 1988) or loess-covered. Forsyth (1966) differentiates between Wisconsinan and Illinoian-aged kames and kame terraces.

Peat and muck are organic-rich deposits associated with low-lying depressional areas, kettles, bogs, and swamps. Muck is a dense, fine silt with a high content of organics and a dark black color. Peat is typically brownish and contains pieces of plant fibers, decaying wood, and mosses. The two deposits commonly occur together, along with lacustrine or slackwater clays and silts. The majority of peat and muck deposits are found along the North Fork Licking River and its tributaries, and in the Buckeye Lake area. Cranberry Island, a floating mass of sphagnum moss in Buckeye Lake, is a related deposit. Peat and muck deposits in Licking County have contained many important paleontological finds including mammoths, mastodons, and moose.

Alluvium is associated with the floodplains of most of the major drainageways in Licking County. The alluvium varies from a clayey-silt to a sandy-silt. Alluvium tends to coarsen within the actual channel area of streams where fines are washed away and the coarser sediments are reworked. Finer silts and clays are associated with overbank deposits which occur during flood events. Alluvium is discussed by Jones (1959), Jagucki (1987), and Parkinson et al. (1992).

Bedrock Geology

Bedrock underlying Licking County belongs to the Mississippian and Pennsylvanian Systems (Table 10). Rocks from both systems crop out at the surface in Licking County; there are many spectacular exposures of the Mississippian bedrock in eastern Licking County.

Various members of the Cuyahoga Formation comprise the bedrock in the majority of Licking County. In central and eastern Licking County, the Cuyahoga is overlain by the Logan Formation. Pennsylvanian rocks unconformably overlie the earlier Mississippian rocks. The Pennsylvanian rocks typically infill channels eroded into the underlying Mississippian sediments.

The Cuyahoga Formation varies considerably across Licking County. Previous studies include those by Carney (1906, 1909), Hyde (1915), Ver Steeg 1947), Crombie (1952), Franklin (1953, 1961), Swick (1956), Dove (1960), Root et al. 1961), Pinker (1970), DeLong (1972), and Bork and Malcuit (1979, 1985, 1987).

Table 10. Generalized Bedrock Stratigraphy of Licking County, Ohio. (After Hyde, 1915; Dove, 1960; Bork and Malcuit, 1925 and 1987.)

AGE	SYSTEM	SIGNIFICANT FORMATIONS	SIGNIFICANT MEMBERS	DESCRIPTIONS
325 to 280 Millon Years Ago	Pennsylvanian	Allegheny		Thin, interbedded dirty sandstones and shale. Minor coal, clay, limestone, and flint. Poor aquifer.
		Pottsville		Thin, interbedded dirty sandstones and shales. Poor aquifer.
355 to 325 Million Years Ago	Mississippian	Logan	Vinton	Thin interbedded fine sandstones, siltstone shale. Moderate aquifer.
			Allensville	Thin, interbedded siltstone, sandstone, and shale. Moderate aquifer.
			Byer	Thin, interbedded sandstone and siltstone, minor shale. Moderate aquifer.
			Berne	Thin, interbedded sandstone and conglomerate. Minor shale, siltstone. Moderate aquifer.
		Cuyahoga	Black Hand ("Toboso")	Massive coarse grained, sandstone, conglomerate, fines eastward. Moderate to good aquifer.
			Raccoon Shale ("Granville")	Interbedded siltstone, shale, fine sandstones. Moderate to poor aquifer.

A summarization of the previous research appears in Angle et al., 1993. Historically, the Cuyahoga has been divided into two main depositional facies which are referred to as tongues or provinces in earlier literature (Hyde, 1915; Ver Steeg, 1947; and Crombie, 1952). The Granville province extended from Granville westward. These sediments were deposited in quiet marine waters in an offshore, deltaic environment, not unlike the modern Mississippi River delta. These sediments were fine silts and muds, with thin beds of sand deposited by storm or flood events. These sediments translate into the sandy shales, shales, siltstones, and fine-grained sandstones presently observed. The Raccoon Shale Member identified in more recent reports roughly approximates the lithologies present in the Granville Province (Root et al., 1961 and Bork and Malcuit, 1979, 1985). The shales and siltstones exposed along State Route 16 near Granville provide an excellent example of these rocks. Adjacent to the Franklin County boundary, a slightly coarser facies of the Cuyahoga is encountered. Fine-grained sandstones associated with this facies crop out in New Albany, Reynoldsburg, and Blacklick and are discussed by Schmidt and Goldthwait (1958) and Schmidt (1993).

Older reports (including Hyde, 1915; Ver Steeg, 1947; and Crombie, 1952) describe the Toboso Tongue or Province extending south and east from Newark. Rocks of the Toboso Province are primarily medium- to coarse-grained sandstones and conglomerates. These sediments were deposited in higher energy shorelines such as offshore bars and shoals. Lithologically, rocks of the Toboso Province roughly approximate the unit now referred to in the literature as the Black Hand Member of the Cuyahoga Formation (Root et al., 1961; Franklin, 1961; and Bork and Malcuit, 1979, 1985). The Black Hand is noted for its thick, massive beds which contain numerous cross-beds and the presence of conglomerate zones, especially in the upper portion of the section (Franklin 1953, 1961). The Black Hand also displays a very distinctive "honeycomb" weathering pattern (Franklin, 1961 and Root et al., 1961). Excellent exposures can be found along State Route 16 south of Hanover, at the Black Hand Gorge, and at Camp Falling Rock Boy Scout Camp in Eden Township.

Overlying the Cuyahoga Formation in much of central and eastern Licking County is the Logan Formation. The Logan Formation is composed of four members (Table 10): the Berne, Byer, Allensville, and Vinton. The Berne is a thin conglomerate to coarse sandstone (Swick, 1956 and Franklin, 1961). The Berne has been interpreted as a near-shore or deltaic deposit that reworked and incorporated the coarser, conglomeratic pebbles from the underlying Black Hand (Swick, 1956). The Byer, Allensville, and Vinton are composed of alternating thin beds of fine-grained sandstone, shale, and siltstone. (Franklin, 1961 and Pinker, 1970). These units were deposited in deltaic and near-shore environments. Excellent exposures of these rocks exist south of Newark and near Hanover. The ability to differentiate these units varies between outcrops (Swick, 1956 and Pinker, 1970). Mapping presently being conducted by the ODNR, Division of Geological Survey (Ernie Slucher, personal communication) will re-examine the bedrock stratigraphy of Licking County.

Rocks of the Pennsylvanian System unconformably overlie the older Mississippian rocks in eastern Licking County. The basal rocks are interbedded shales, sitlstones, and fine-grained sandstones of the Pottsville Group (Franklin, 1961

and Dove, 1960). Unlike many portions of northeastern and southeastern Ohio, the basal Pottsville sediments in Licking County lack the massive, distinctive Sharon Sandstone or Conglomerate (Root et al., 1961 and DeLong, 1972). Pennsylvanian sediments may reach a thickness of up to 200 feet in the Flint Ridge area (DeLong, 1972). Exposures of Pennsylvanian System rocks occur along Interstate 70 and are commonly found capping exposures of the Black Hand and Logan. The Pennsylvanian rocks tend to be less resistant and weather easier than the Black Hand or Logan rocks (Dove, 1960 and Franklin, 1961).

The youngest rocks in Licking County belong to the Pennsylvanian Allegheny Group. The majority of these rocks are part of the Vanport Formation (Dove, 1960 and DeLong, 1972). In addition to the thin sandstones and shales, these units also contain thin interbedded limestones, underclay, coal, and flint. The flint beds in the Vanport in the vicinity of Flint Ridge are well documented and have major archeological significance (DeLong 1972). Coal was noted in isolated well logs in southeastern Licking County. Suburban Industries Landfill, on the Perry County/Licking County boundary was partially a previously existing strip-mining operation.

Hydrogeology

Ground water in Licking County is obtained from both glacial (unconsolidated) deposits and bedrock. Glacial deposits are utilized as the aquifer in the majority of the buried valleys. This includes the broad valleys occupied by modern streams in eastern and central Licking County and most portions of western Licking County. Bedrock aquifers are utilized in most of the uplands of central and eastern Licking County and along a narrow corridor paralleling the Franklin County boundary. In some portions of Licking County, bedrock and glacial aquifers are utilized almost equally. This is most common in Harrison, St. Albans, and Liberty Townships. In most of these instances, both the glacial and bedrock aquifers are relatively poor and low-yielding. These areas generally reflect predominantly clay-filled buried valleys cut into shaley bedrock. The driller selected the first available supply of water. Yields in these areas from both the bedrock or glacial aquifers tend to average less than 5 gallons per minute (gpm) (Dove, 1960 and Hartzell, 1982).

Glacial aquifers in Licking County are highly variable. They range from thin, isolated, discontinuous lenses of sand and gravel interbedded in thick sequences of glacial till or lacustrine deposits to relatively thick, extensive outwash or valley train deposits. Yields from non-buried valley glacial deposits typically range from 5 to 20 gpm (Dove, 1960 and Hartzell, 1982). In many of these areas, drift is relatively thin and the aquifer consists of thin, discontinuous lenses of sand and gravel. Buried valleys in Licking County contain both very low-yielding and extremely high-yielding aquifers. Sand and gravel lenses within the deep buried valley sytems in western Licking County typically have average yields ranging from less than 5 gpm to 15 gpm, whereas maximum yields average from 10 to 25 gpm (Dove, 1960 and Hartzell, 1982). Lower yielding wells are particularly common in areas where surficial streams are lacking; this tends to greatly reduce the amount of available recharge to pumping wells. In stream valleys such as Lake Fork Licking River, Otter

Fork Licking River, Brushy Fork, and Wilkins Run maximum yields range from 25 to 100 gpm (Dove, 1960 and Hartzell, 1982). In valleys including much of South Fork Licking River, Raccoon Creek, and the Licking River east of Marne, maximum yields average from 100 to 500 gpm (Dove, 1960 and Hartzell, 1982). In the trunk of the North Fork Licking River valley extending from St. Louisville to the Greater Newark area and eastward into the Licking River valley, maximum yields over 500 gpm may be found (Dove, 1960 and Hartzell, 1982). Maximum yields generally require test drilling and proper completion and development of a screened, large diameter well. Exceptional reported sustained yields include yields over 1800 gpm in St. Louisville (Smith & Associates, 1960 and Angle et al., 1993), yields over 1500 gpm in Newark (Hartzell, 1982), and yields over 1000 gpm in Kirkersville (SS&S Associates, 1992).

Bedrock aquifers also vary throughout Licking County. The sandy shales, fine-grained sandstones, and siltstones of the Cuyahoga Formation adjacent to the Franklin County boundary typically yield 10 to 25 gpm (Dove, 1960; Hartzell, 1982; and Schmidt, 1993). The shaley portions of the Cuyahoga Formation in western and central Licking County constitute relatively poor aquifers; yields generally average 5 gpm and seldom exceed 10 gpm (Dove, 1960 and Hartzell, 1982). In these areas, the upper, weathered portion of the bedrock produces the greatest yield. Such wells are drilled deeper to provide added water storage within the well. In areas where sufficient thicknesses of the Black Hand Member or the Logan Formation exist, yields typically average 10 to 25 gpm (Dove, 1960 and Hartzell, 1982). Drillers have loosely referred to the productive zones of the Black Hand as the "Big Injun" or "Injun Sand". The informal usage of these terms has spread throughout much of east-central Ohio (Ver Steeg, 1947) and refer to almost any clean, relatively high-yielding Mississippian sandstone. Regional studies of the Black Hand (Mayer, 1982; Norris and Mayer, 1982; and Majchszak, 1984) report similar yields and hydraulic conductivities elsewhere in Ohio. Exceptional yields of over 100 gpm are possible when larger diameter wells encounter major fractured zones and when overlying saturated sand and gravel provide additional recharge to the system (Dove, 1960 and Raab et al., 1993).

Where Pennsylvanian System rocks are thick enough to constitute the aquifer, the yields tend to be slightly reduced, averaging 5 to 10 gpm (Dove, 1960 and Hartzell, 1982). Higher yields in these areas generally may be obtained by drilling through the Pennsylvanian rocks into the underlying Mississippian sandstones (Hartzell, 1982).

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APPENDIX A

DESCRIPTION OF THE LOGIC IN FACTOR SELECTION

Depth to Water

This factor was primarily evaluated using information from water well log records on file at the Ohio Department of Natural Resources, Division of Water, Water Resources Section (WRS). Approximately 12,000 water well log records are on file for Licking County. Data from roughly 6,000 well logs were plotted on U.S.G.S. 7-1/2 minute topographic maps during the course of the project. Static water levels and information as to the depth of saturated zones were taken from the well log records. The Water Resources of Licking County (Dove, 1960) and Hartzell (1982) provided generalized depth to water information throughout Licking County. The reports of Robert C. Smith & Associates (1960), SS&S Associates, Inc. (1991, 1992), Hydro Group (1992), Raab et al. (1992), Raab et al. 1993), Angle and Raab (1993), and Angle et al. (1993) provided detailed water level data for localized areas. Topographic and geomorphic trends were utilized in areas where other data sources were lacking.

Determination of the depth to water proved to be complicated in Licking County. Many areas had highly variable depths to water. Generally in these areas, more than one aquifer was being utilized and a determination as to which aquifer should be rated had to be made first. The uppermost aquifer was typically rated in such cases. Care was necessary in some areas to insure that the uppermost aquifer was not a "perched" water table created by poor surficial drainage. Confined aquifers represented another complication in determining the depth to water. For the purpose of this study, confined aquifers were limited to deep buried valleys where the sand and gravel lenses or underlying bedrock were isolated from the surface by a minimum of 150 feet of dense, clayey glacial till. For confined aquifers, DRASTIC considers the depth to water to be equal to the top of the confining layer; therefore, the depth to water was determined to be over 100 feet even if the static water level was less than 100 feet.

Depths of 5 to 15 feet (DRASTIC value = (9)) were typical of areas near floodplains, in broad valley floors adjacent to streams, and in upland areas underlying larger streams. Areas immediately adjacent to Buckeye Lake had a depth to water from 5 to 15 feet. Depths of 15 to 30 feet (7) were common in the gently rolling upland areas adjacent to Franklin County, in the upland headwaters of stream drainages, and along the broad terraces of the Licking River and its major tributaries. These terraces generally set above the floodplain level of the modern river. Depths of 30 to 50 feet (5) were common along the margins of buried valley systems, particularly in the kame/kettle areas overlying buried valley deposits east of Newark. Portions of the buried valley systems having a depth of water of 30 to

50 feet or greater are distant from surficial streams and floodplains. Depths of 30 to 50 feet were common in lower relief bedrock uplands in western Licking County, and in the lower regions between bedrock highs in eastern Licking County.

In western and central Licking County, depths of 50 to 75 feet (3) and 75 to 100 feet (2) represent buried valley complexes in which the majority of water wells had to penetrate greater depths to encounter a water-bearing sand or gravel lens. These greater depths to water help to define the "semi-confined" nature of these deeper buried valley deposits. In many of these areas, moraines overlie the buried valleys increasing the amount of glacial till cover. In some limited areas, bedrock underlying the buried valleys had to be utilized as the aquifer; these areas have a depth to water of at least 50 to 75 feet. Depths of 50 to 75 feet are also common in the bedrock highs surrounding Granville. In eastern Licking County, the narrow linear ridge tops were assigned a depth to water from 75 to 100 feet and the steep slopes adjacent to these ridges were assigned depths of 50 to 75 feet. Water levels in these regions varied considerably; the assigned values represented a "compromise".

Depths of greater than 100 feet (1) were assigned to the portions of buried valleys in which confining conditions occurred. These areas occurred predominantly in the large valley trending southward from Johnstown and some valleys to the northeast of Pataskala.

Net Recharge

This factor was evaluated using many criteria, including depth to water, topography, soil type, surface drainage, vadose zone material, and annual precipitation. Recharge is the precipitation that reaches or recharges the aquifer after evapotranspiration and runoff. Two important man-made activities greatly affect recharge by increasing the amount of runoff. Tile drainage in agricultural areas diverts precipitation from the shallow ground water table into streams or ditches. Contaminants transported through tile drainage become a surface water problem. Tile drainage is prevalent in the clayey soils and flat-lying topography of western Licking County. Because of the variability from field to field, this factor is not illustrated by the ratings. Urbanization is another factor that cuts recharge. The increased pavement, buildings, shopping centers, and storm sewer systems greatly increase runoff. Areas identified as urban (i.e., solid pink or purple blocks) on the U.S.G.S. 7-1/2 minute topographic maps were considered to be areas with reduced recharge. In Licking County, such areas were limited to greater Newark. In the Buried Valley (7D) setting underlying most of Newark, recharge ratings were reduced from 7 to 10 inches per year (DRASTIC rating = 8) to 4 to 7 inches per year (6). Areas with a recharge of 4 to 7 inches per year or less were not further reduced due to affects of urbanization.

Values of 7 to 10 inches per year (8) of recharge were assigned to areas with highly permeable soils and vadose materials, shallow depths to water, gentle slopes, and surficial streams. These areas were typically limited to buried valleys containing abundant outwash adjacent to modern drainages or lakes. Values of 4 to 7 inches

per year were assigned to margins and tributaries of buried valleys, kame deposits, and upland areas containing modern drainages. Values of 4 to 7 inches per year were utilized in the "saddles" between ridge tops in eastern Licking County. Depths to water in these areas were typically in the 30 to 50 feet range or less, and the slope did not usually exceed 6 to 12 percent. Ranges of 4 to 7 inches per year were assigned along the boundary of Franklin County and eastern Knox County where the depth to water and slope are both moderate. Values of 2 to 4 inches per year (3) were selected for buried valley areas (7D hydrogeologic setting) which were primarily filled with dense, clayey till and lacustrine deposits. In these areas the depth to water typically ranged from 50 to 100 feet and slopes did not exceed 6 to 12 percent. These clay-filled valleys are located primarily in western and west-central Licking County, particularly south of Johnstown, northeast of Pataskala, and west of Alexandria.

In the bedrock uplands of eastern Licking County, ratings of 2 to 4 inches per year were utilized in areas with a depth to water of 30 to 50 feet with slopes greater than 12 percent. Areas with depths to water from 30 to 50 feet and slopes from 6 to 12 percent received a recharge rating of 2 to 4 inches if they were overlain by low permeability clay loam soils. Settings with depths to water of 50 to 75 feet and slopes ranging from 2 to 12 percent were given a rating of 2 to 4 inches per year. Areas with depths to water over 75 feet and slopes over 12 percent received ratings of 2 to 4 inches per year for particularly permeable soils (i.e., shrink-swell (aggregated) clays, sand, or thin to absent). A rating of 0 to 2 inches per year (1) was given to settings where the depth to water was 50 to 75 feet and the slope was greater than 12 percent. Areas with a depth to water from 75 to 100 feet and a slope greater than 12 percent were also evaluated as having from 0 to 2 inches of recharge per year.

An assumption of the DRASTIC system is that confined settings receive 0 to 2 inches of recharge per year. This recharge rate was applied to the Buried Valley settings which exhibited confined conditions.

Aquifer Media

Information on aquifer media was obtained from the reports of Smith & Associates (1960), Dove (1960), Forsyth (1966), DeLong (1972), Bork and Malcuit (1979, 1985), Mayer (1982), Norris and Mayer (1982), Hartzell (1982), Hallfrisch and Sugar (1986), Jagucki (1987), Aller and Ballou (1990), SS&S Associates, (1991, 1992), Hydro Group (1992), Raab et al. (1992), Raab et al. (1993), Angle and Raab (1993), and Angle et al. (1993). The water well log records on file at the WRS were also an invaluable source of data. Field observations at outcrops, excavations, gravel pits, and quarries also helped to verify ratings in complex areas. Where more than one aquifer was present, the uppermost aquifer was rated.

The aquifer media rating for bedrock varied across Licking County. Immediately adjacent to Franklin County, the Cuyahoga Formation consists of fine-grained sandstones, sandy shales, and siltstones. The Till over Bedded Sedimentary Rock hydrogeologic setting (7Aa) was utilized and an aquifer rating of (4) was applied. In the area north of Pataskala and south and west of Granville, the Cuyahoga becomes finer-grained and is composed primarily of siltstones and

shales. The Till Over Shale (7Ae) hydrogeologic setting was used and an aquifer rating of (3) was selected. North and east of Granville and south and east of Newark, the fine-grained sandstones and sandy shales of the Logan Formation occur. The Blackhand Sandstone Member of the Cuyahoga Formation outcrops in east-central Licking County and is comprised of coarser-grained sandstone and thin conglomerate zones. Aquifer ratings selected for these formations ranged from (5) to (6) and were based upon both the maximum yield and average yield of the formations in various localities. The hydrogeologic settings of Till Over Bedded Sedimentary Rock (7Aa) or Till Over Sandstone (7Ad) were employed, depending upon the relative proportions of shale and sandstone. Particularly in southeastern Licking County, bedrock is comprised of shales, siltstones, fine-grained sandstones, thin limestones, coal and flint of the Pennsylvanian System. An aquifer rating of (4) was applied to these units. The Till Over Bedded Sedimentary Rock (7Aa) hydrogeologic setting was utilized where the Pennsylvanian sediments were thick enough to comprise the aquifer. In the unglaciated portions of eastern Licking County, bedrock aquifer ratings remained the same as in the glaciated areas. The Alternating Sandstone, Limestone, Shale - Thin Soil (6Da) hydrogeologic setting was used in the unglaciated upland areas.

Ratings for the aquifers in the glacial deposits varied considerably across Licking County; particularly in the Buried Valley (7D) hydrogeologic setting. The glacial deposits consist of layers or lenses of silty-sand, sand, sand and gravel, or gravel. The deposits range from thin, discontinuous lenses interbedded in clayey glacial till and lacustrine deposits to broad outwash or valley train deposits created by meltwater streams. The ratings varied with the relative coarseness and degree of sorting ("cleanliness") of the deposits. The depositional environment or facies of the deposits were also an important factor in determining appropriate ratings.

Thin lenses of saturated fine sand and silty-sand, commonly referred to by drillers as "quicksand" or "shooting sand," were considered to be the poorest glacial aquifers and were given a rating of (4). These deposits were limited to portions of the buried valley between Pataskala and Granville. The poor quality of these areas was noted by Dove (1960) and Hartzell (1982). This area includes the Beechwood Trails subdivision which has historically experienced numerous ground water quantity problems. Thin, discontinuous lenses of sand or dirty, poorly sorted sand and gravel were given aquifer ratings of (5) or (6). These lenses were typically encountered in the broad buried valleys of western and central Licking County. The distribution and nature of well logs in these areas was an important factor in determining the ratings within the Buried Valley (7D) hydrogeologic setting. In areas where the lenses were extremely deep and isolated and the drillers were trying to develop "anything they could find," a rating of (5) was applied. In areas where the number of wells increased and the wells were developed in shallower, more commonly utilized lenses, a rating of (6) was selected. Similar logic was used in determining ratings for areas with thinner drift. Ratings for the Sand and Gravel Interbedded in Glacial Till hydrogeologic setting were limited to (5) and (6).

A rating of (7) was applied to kame and outwash terrace deposits found along the margins and in the headwaters of the prominent buried valley complexes in central and eastern Licking County. A rating of (8) was reserved for the coarsest, best-sorted, highest-yielding outwash aquifers in Licking County. This rating was

limited to portions of the buried valleys underlying the North Fork Licking River, South Fork Licking River, and the Licking River. This aquifer's rating extended from St. Louisville south to Buckeye Lake and east of Newark to Hanover.

Soil Media

This factor was primarily evaluated using data obtained from the Soil Survey of Licking County (Parkinson et al., 1992) Information on every indicated soil type was analyzed and appropriate ratings were selected. Computer-generated maps derived from digitized data were supplied by the ODNR, Division of Soil and Water, Ohio Capability Analysis Program (OCAP). These maps proved to be very useful in helping to delineate the boundaries of various soil types. Table 11 lists the soil types encountered in Licking County and gives information on the soil's parent material or setting and the corresponding DRASTIC index.

Glaciation and bedrock type were two of the main factors influencing soil types in Licking County. Major differences in soils can be noted between the glaciated and unglaciated portions of the county. Soil ratings were based upon the most restrictive layer or horizon within the soil profile.

Clay loam (3) was the most common soil type in the glaciated uplands of western and central Licking County. Clay loam was also encountered in the floors of broad valleys containing fine-grained lacustrine sediments at the surface. Silt loam (4) was common in modern alluvium and floodplains. Silt loam typically capped the broad outwash terraces of central Licking County. Silt loam was also encountered in the uplands of north central Licking County where the till very thinly overlies bedrock. Loam (5) and sandy loam (6) were encountered on kames, on some outwash terraces, and underlying faster-flowing modern streams in outwash-filled valleys. In these stretches, the streams have the ability to consistently rework their channel and wash away fines. Loam and sandy loam soils were also found capping sandstone ridges having a thin mantle of till. Peat (8) soils were found in a few isolated kettles occupying the floors of buried valleys. Gravel (10) soils were encountered along some stretches of the North Fork Licking River adjacent to Knox County that contained particularly coarse outwash.

Table 11. Soils of Licking County, Ohio. (After Parkinson et al., 1992)

Soil Name	Parent Material or Setting	DRASTIC Rating	Soil Media
Alford	caps outwash terraces	4	silt loam
Algiers	alluvium	4	silt loam
Amanda	till	3	clay loam
Bennington	till	3	clay loam
Berks	weathered bedrock	10	thin or absent
Brownsville	weathered bedrock	5	loam
Carkuske	kettles, bogs	8	peat
Centerburg	till	3	clay loam
Chili	kames, outwash terraces	6	sandy loam
Cincinnati	Illinoian till, loess	3	clay loam
Clarksburg	colluvium	3	clay loam
Condit	lacustrine, depressions	3	clay loam
Coshocton	weathered shale	3	clay loam
Crane	depressions on low terraces	4	silt loam
Fairpoint	strip-mined areas	3	clay loam
Fitchville	lacustrine, slackwater	4	silt loam
Fox	kames, outwash terraces	6	sandy loam
Frankstown	weathered bedrock, cherty	10	thin or absent
Glenford	lacustrine, slackwater	4	silt loam
Gernsey	weathered shale	7	shrink/swell clay
Hazleton	sandstone cliffs	10	thin or absent
Hickory	Illinoian till	3	clay loam
Homewood	Illinoian till	3	clay loam
Keene	weathered bedrock ridgetops	3	clay loam
Killbuck	alluvium	3	clay loam
Luray	lacustrine, slactwater	3	clay loam
Mechanicsburg	weathered bedrock	5	loam
Medway	alluvium	5	loam
Melvin	alluvium	4	silt loam
Mentor	colluvium, terraces	4	silt loam
Mertz	weathered bedrock, cherty	4	silt loam
Negley	Illinoian outwash, kames	3	clay loam
Ockley	outwash terraces	4	silt loam
Orrville	alluvium	5	loam
Parke	Illinoian outwash terraces	4	silt loam
Pewamo	till	3	clay loam
Rigley	weathered sandstone ridges	6	sandy loam
Rush	outwash terraces	4	silt loam
Sebring	lacustrine, slackwater	3	clay loam
Shoals	alluvium	4	silt loam
Sleeth	outwash terraces	4	silt loam
Sloan	alluvium	4	silt loam
Stonelick	outwash terraces	6	sandy loam
Tioga	weathered bedrock	6	sandy loam
Titusville	Illinoian till	3	clay loam
Wallkill	floodplain	3	clay loam
Westland	outwash terraces	5	loam

In the unglaciated portions of Licking County and along the steep bedrock slopes and ridges with a very thin till cover, the bedrock type or lithology was the major factor controlling soil type. Clay loam (3) and silt loam (4) soils were weathering products of shales and siltstones. Loam (5) and sandy loam (6) were weathering products of sandstones. Shrink-swell (aggregated) clays were products of weathering of flints ("flintclay") or clay bedrock ("underclay") and were limited to far southeastern Licking County. Where the bedrock was less than 36 inches from the surface, particularly in areas of steep slopes and high erosion, soils were considered to be thin or absent and given a rating of (10).

Topography

Topography was evaluated by determining the percentage of slope obtained from the USGS 7-1/2 minute quadrangle maps and from the Soil Survey of Licking County. The broad, flat-lying floors of many buried valleys and floodplains of modern streams had slopes ranging from 0 to 2 percent (10). Slopes in the uplands of western Licking County range from 0 to 2 percent (10) up to 2 to 6 percent (9) for ground moraine areas, to a range of 2 to 6 percent (9) up to 6 to 12 percent (5) for end moraines. The topography in the uplands of central and eastern Licking County are bedrock-controlled and the slopes range from 0 to 2 percent (10) and 2 to 6 percent (9) along the narrow ridge tops to 6 to 12 percent (5), 12 to 18 percent, and greater than 18 percent (1) on hill slopes.

Impact of the Vadose Zone Media

This factor was evaluated using the reports of Smith & Associates (1960), Dove (1960), Forsyth (1966), DeLong (1972), Bork and Malcuit (1979, 1985), Hartzell (1982), Hallfrisch and Sugar (1986), SS&S Associates (1991, 1992), Hydro Group (1992), Parkinson et al. (1992), Raab et al. (1992), Raab et al. (1993), Angle and Raab (1993), Szabo et al. (1993), Angle et al. (1993). Water well logs on file at the ODNR, WRS also provided considerable information on vadose materials. Field observations were utilized to help verify ratings in complex areas when possible.

Bedrock was rated as the vadose zone in much of central and eastern Licking County. In glaciated Licking County, bedrock was chosen as the vadose material when the overlying till became relatively thin (i.e., typically less than 20 feet thick). Adjacent to the Franklin County boundary, the fine-grained sandstones, sandy shales, and siltstones of the Cuyahoga Formation were given a rating of (5) for the vadose media. West and south of Granville where the Cuyahoga Formation becomes finer-grained, shale was selected as the vadose material and given a rating of (4). The alternating fine-grained sandstones, siltstones, and shales of the Logan Formation in central and eastern Licking County were rated as a (5). In areas where the coarser sandstones and conglomerates of the Blackhand Sandstone and the base of the Logan Formation were encountered, a vadose media rating of (6) was

applied. In these areas where the vadose media was rated as a (6), the bedrock was usually extensively weathered, highly fractured, and jointed. Where the fine-grained sandstones, shales, and siltstones of the Pennsylvanian System's Pottsville Group overlaid the rocks of the Mississippian System, a vadose media rating of (5) was utilized. In eastern Licking County, particularly in the unglaciated regions, the Pennsylvanian sediments thicken and tend to fine. The bedrock sequences contain relatively dense, impermeable beds of limestone, clay, and flint. A vadose media rating of (4) was applied to these sequences.

Glacial till was selected as the vadose zone media for much of western and central Licking County. This includes end moraine and ground moraine in upland areas. Till was selected as the vadose media in buried valleys which lack significant outwash and alluvial fill. Ratings for till varied in part with the depth to water and thickness of till. Where the depth to water is shallow and the vadose zone is thin, the till is typically weathered, fractured, and less dense (compacted). In these settings the vadose media rating for till varies from (5) to (4). As the depth to water increases, the till typically is unweathered, fracturing decreases significantly, and the density and compaction of the till increases. Szabo et al. (1993) noted that the older Illinoian-age tills tend to be somewhat finer-grained. In these settings, which are commonly associated with the deeper buried valleys, the vadose media rating for till varies from (3) to (2). In portions of the buried valleys where confining conditions exist, the vadose zone media is considered to be the confining layer which has a rating of (1). In all instances of confining conditions in Licking County, till forms the confining layer.

Vadose zone media within the broad buried valleys of central and eastern Licking County tend to be very complex. Where the valley fill is dominated by coarse outwash, sand and gravel with significant silt and clay is selected as the vadose zone media and ratings vary from (6) to (8). The significant silt and clay refer to zones of sandy-silt to silty-clay lacustrine, till, and alluvial units interbedded with the sand and gravel. In the margins of the buried valleys and in tributary buried valleys, these fines tend to increase and the ratings range from (5) to (6). Kames tend to contain till and are typically dirtier than outwash deposits. Sand and gravel with significant silt and clay was chosen as the vadose media for the kame deposits to the north and east of Newark. Ratings for these areas ranged from (5) to (7).

The depth to water is relatively shallow for many upland areas adjacent to modern streams. In some of these areas, the vadose media is comprised primarily of alluvium. In such areas, silt and clay with ratings of (4) to (5), or sand and gravel with significant silt and clay and ratings of (5) to (6) were selected for the vadose zone media, depending on the coarseness of the alluvium.

Hydraulic Conductivity

Hydraulic conductivity data was found in Smith & Associates (1960), Dove (1960), Hallfrisch and Sugar (1986), Bair et al. (1989), SS&S Associates (1991, 1992), Hydro Group (1992), Chapman and Bair (1992), Raab et al., (1992), Raab et al. (1993), Angle and Raab (1993), and Angle et al. (1993). These reports furnished direct hydraulic

conductivity data for a number of sites. In some instances, hydraulic conductivity was approximated by taking the transmisivity and dividing by an estimated value for saturated thickness. Textbook tables (Freeze and Cherry, 1979; Fetter, 1980; and Driscoll, 1986) were useful in obtaining estimated values for a variety of sediments.

Values for hydraulic conductivity roughly followed the aquifer ratings; i.e., the more highly rated aquifers have higher hydraulic conductivities. For sand and gravel aquifers, the hydraulic conductivity is a function of coarseness, stratification, sorting, and cleanliness (absence of fines). For sand and gravel aquifers with ratings of (4) or (5), a hydraulic conductivity range of 1-100 gallons per day (gpd)/ft^2 was selected. For sand and gravel aquifers with an aquifer media rating of (6), hydraulic conductivity ranges varied from 100-300 gpd/ft^2 (2) to 300-700 gpd/ft^2 (4). For an aquifer rating of (7), hydraulic conductivity ranges varied from 700-1000 gpd/ft^2 (6)to 1000-2000 gpd/ft^2 (8). The highest rated (8) sand and gravel aquifers were given hydraulic conductivity ranges from 1000-2000 gpd/ft^2 (8) to greater than 2000 gpd/ft^2 (10).

Ranges of hydraulic conductivity values varied less in the bedrock aquifers. The primary porosity of the bedrock was less a factor than bedding planes, fractures, joints, and the effects of weathering. For the shaley portions of the Cuyahoga Formation in the Shale Over Till (7Ae) hydrogeologic setting, a hydraulic conductivity range of 1-100 gpd/ft^2 (1) was selected. The sandy portions of the Cuyahoga Formation (7Aa-Till Over Bedded Sedimentary Rocks hydrogeologic setting) adjacent to Franklin County received a hydraulic conductivity rating of 1-100 gpd/ft^2 (1). The aquifers in the Pennsylvanian System rocks (7Aa - Till Over Bedded Sedimentary Rocks and 6Da - Alternating Sandstone, Limestone, Shale - Thin Soil hydrogeologic settings) in eastern Licking County were given a hydraulic conductivity range of 1-100 gpd/ft^2 (1). In central to eastern Licking County, the hydraulic conductivity ranges for the Logan Formation (7Aa - Till Over Bedded Sedimentary Rocks) varied from 1-100 gpd/ft^2 (1) to 100-300 gpd/ft^2 (2). Aquifers in the Blackhand Sandstone (7Ad - Till Over Sandstone hydrogeologic setting) were given a hydraulic conductivity range of 100-300 gpd/ft^2 (2).

APPENDIX B

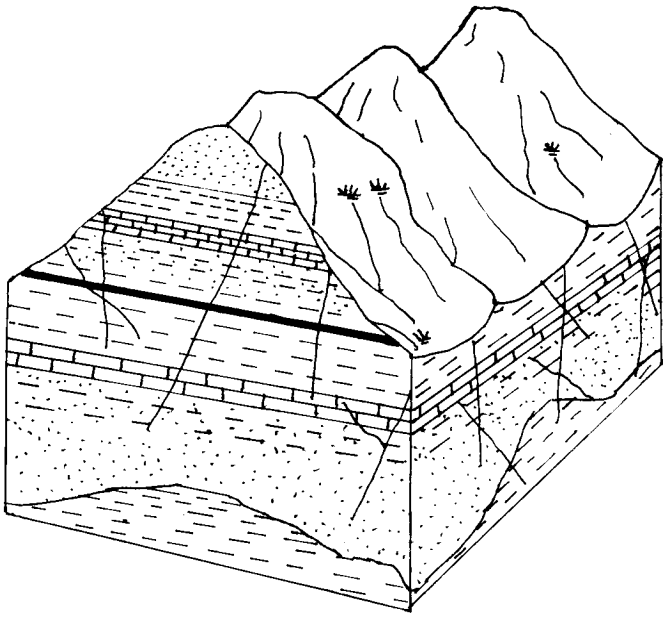
DESCRIPTION OF HYDROGEOLOGIC SETTINGS AND CHARTS

Ground water pollution potential mapping in Licking County resulted in the identification of twelve hydrogeologic settings within the Glaciated Central Region. The list of these settings, the range of pollution potential index calculations, and the number of index calculations for each setting are provided in Table 12. Computed pollution potential indexes for Licking County range from 40 to 193.

Table 12. Hydrogeologic Settings Mapped in Licking County, Ohio.

Hydrogeologic Settings	Range of GWPP Indexes	Number of Index Calculations
6Da - Thin Regolith Over Bedded Sedimentary Rock	66 - 91	37
6Db - Thick Regolith Over Bedded Sedimentary Rock	90 - 98	3
6Fa - River Alluvium w/Overbank Deposits	118 - 135	6
7Aa - Glacial Till Over Bedded Sedimentary Rock	44 - 124	103
7Ad - Glacial Till Over Sandstone	69 - 120	72
7Ae - Glacial Till Over Shale	55 - 109	32
7Af - Sand & Gravel Interbedded in Glacial Till	71 - 137	13
7Bb - Outwash Over Bedded Sedimentary Rock	115 - 142	5
7D - Buried Valley	40 - 193	203
7Ea - River Aluvium w/Overbank Deposits	115 - 123	6
7Ec - Alluvium Over Sedimentary Rock	106 - 135	28
7Ed - Alluvium Over Till	126 - 137	4

The following information provides a description of each hydrogeologic setting identified in the county, a block diagram illustrating the characteristics of the setting, and a listing of the charts for each unique combination of pollution potential indexes calculated for each setting. The charts provide information on how the ground water pollution potential index was derived and are a quick and easy reference for the accompanying ground water pollution potential map. A complete discussion of the rating and evaluation of each factor in the hydrogeologic settings is provided in Appendix A, Description of the Logic in Factor Selection.



6Da Thin Regolith Over Bedded Sedimentary Rock

This hydrogeologic setting is limited to upland areas in Licking County beyond the glacial boundary. The glacial boundary closely follows the boundary mapped by Forsyth (1966). In far southeastern Licking County, the map of DeLong (1972) was helpful for determining the glacial boundary. The Soil Survey of Licking County (Parkinson et al., 1992) also proved useful in delineating the boundary. The area is characterized by high relief with broad, steeply-dipping slopes and narrow, somewhat flatter ridgetops. The vadose zone and aquifers consist of slightly-dipping, fractured alternating sandstones, shales, limestones, flint, and coal of the Pennsylvanian System. Multiple aquifers are typically present. Depth to water is generally fairly deep, and shallower perched zones overlie low permeability shales and limestones. Soils are generally thin to absent on steeper slopes. On gentler slopes, soils vary with the bedrock lithology. Small supplies of ground water are obtained from intersecting bedding planes or vertical fractures. Ground water yields average under 10 gallons per minute (gpm). Recharge is generally limited due to the steep slopes, deep aquifers, and layers of impermeable bedrock.

GWPP index values for the hydrogeologic setting of Thin regolith over bedded sedimentary rock range from 66 to 91 with the total number of GWPP index calculations equaling 37.

Setting: 6Da1		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Shrink-Swell Clay	2	7	14
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	0-100	3	1	3
		GWPP	INDEX	74

Setting: 6Da2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Thin to Absent	2	10	20
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	0-100	3	1	3
		GWPP	INDEX	86

Setting: 6Da3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Shrink-Swell Clay	2	7	14
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	0-100	3	1	3
		GWPP	INDEX	79

Setting: 6Da4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	0-100	3	1	3
		GWPP	INDEX	71

Setting: 6Da5		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Shrink-Swell Clay	2	7	14
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	77

Setting: 6Da6		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Thin or Absent	2	10	20
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	80

Setting: 6Da7		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	83

Setting: 6Da8		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	77

Setting: 6Da9		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	81

Setting: 6Da10		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Shrink-Swell Clay	2	7	14
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	85

Setting: 6Da11		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Shrink-Swell Clay	2	7	14
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	0-100	3	1	3
		GWPP	INDEX	76

Setting: 6Da12		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbeddded ss/sh/ls/Coal	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	73

Setting: 6Da13		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Shrink-Swell Clay	2	7	14
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	0-100	3	1	3
		GWPP	INDEX	80

Setting: 6Da14		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	72

Setting: 6Da15		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	71

Setting: 6Da16		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Thin or Absent	2	10	20
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	89

Setting: 6Da17		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	68

Setting: 6Da18		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	66

Setting: 6Da19		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	70

Setting: 6Da20		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	91

Setting: 6Da21		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/Coal	3	4	12
Soil Media	Loam	2	5	10
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	76

Setting: 6Da22		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Thin or Absent	2	10	20
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	81

Setting: 6Da23		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	83

Setting: 6Da24		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	78

Setting: 6Da25		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Thin or Absent	2	10	20
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	88

Setting: 6Da26		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	74

Setting: 6Da27		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	72

Setting: 6Da28		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	77

Setting: 6Da29		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	67

Setting: 6Da30		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	73

Setting: 6Da31		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	76

Setting: 6Da32		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	78

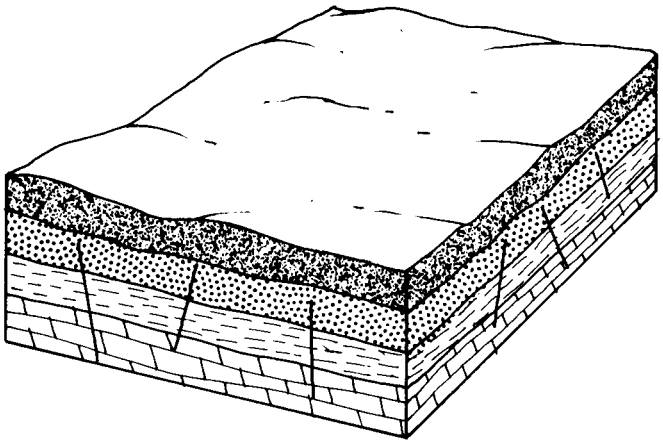
Setting: 6Da33		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	80

Setting: 6Da34		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Sandy Loam	2	6	12
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	72

Setting: 6Da35		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Sandy Loam	2	6	12
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	78

Setting: 6Da36		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Sandy Loam	2	6	12
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	74

Setting: 6Da37		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	91



6Db Thick Regolith Over Bedded Sedimentary Rock

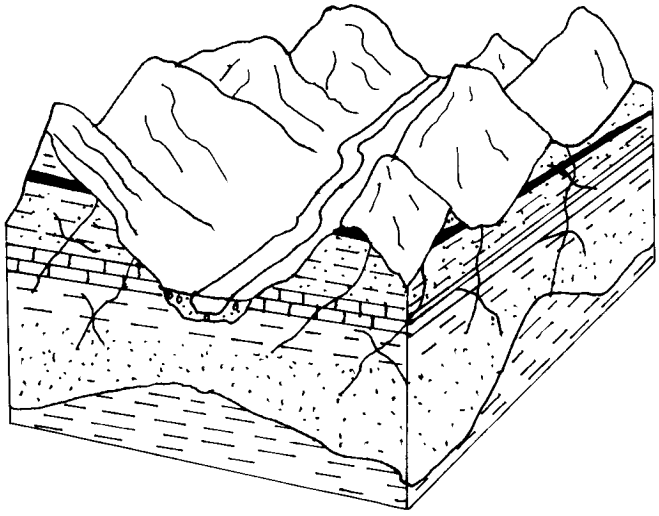
This hydrogeologic setting is limited to the unglaciated portions of eastern Licking County. The setting is characterized by areas of moderate relief found at the foot of steeper slopes. It is a transitional area between the steeper, higher elevation uplands and the stream valley floors. Depth to water is intermediate and averages between 30 and 50 feet Soils vary from clay loam to loam and are developed on bedrock colluvium. The aquifer is the underlying alternating sandstone and shale of the Mississippian System. Ground water yields average about 10 gpm. Recharge is relatively low due to the fine-grained nature of the sediments and the moderately steep slope.

GWPP index values for the hydrogeologic setting of thick regolith over bedded sedimentary rock range from 90 to 98 with the total number of GWPP index calculations equaling 3.

Setting: 6Db1		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	98

Setting: 6Db2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	100

Setting: 6Db3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	98



6Fa River Alluvium with Overbank Deposits

This hydrogeologic setting is limited to small tributary stream valleys within the uplands of eastern Licking County. These streams begin and end within the unglaciated portions of Licking County or adjoining counties. The setting is characterized by narrow, flat-bottomed stream valleys flanked by bedrock uplands. Depth to water is typically shallow. Soils are predominantly silt loams. The alluvium is primarily composed of fine-grained floodplain (overbank) sediments and contains minor lenses of sand and gravel. The alluvial deposits are commonly saturated; however, the alluvium is too thin to be utilized as an aquifer. The aquifer is the underlying fractured interbedded sandstones, limestones, and shales of the Pennsylvanian System. In most areas, the alluvium is in direct connection with the underlying bedrock aquifer. Ground water yields average under 10 gpm. Recharge is moderate and is higher than along the surrounding steep bedrock slopes.

GWPP index values for the hydrogeologic setting of river alluvium with overbank deposits range from 118 to 135 with the total number of GWPP index calculations equaling 6.

Setting: 6Fa1		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	118

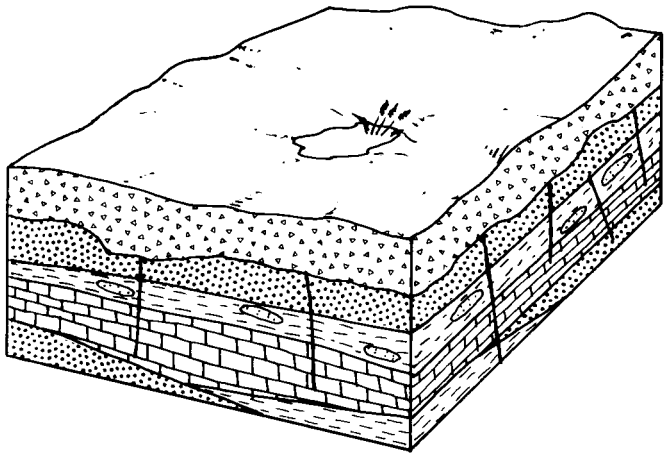
Setting: 6Fa2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh/ls/Coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	118

Setting: 6Fa3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	125

Setting: 6Fa4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	123

Setting: 6Fa5		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh/ls	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	135

Setting: 6Fa6		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh/ls	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	131



7Aa Glacial Till Over Bedded Sedimentary Rock

This hydrogeologic setting is highly variable and widespread across Licking County. Topography varies from flat to rolling, low relief areas in western portions of the county to steep, high relief areas in central and eastern Licking County. The aquifer consists of interbedded sandstones, siltstones, and shales of the Mississippian System in western and central Licking County and interbedded sandstones, limestones, shale, and coal of the Pennsylvanian System in eastern Licking County. Yields range from 10 to 25 gpm for the Mississippian System bedrock to 5 to 10 gpm for the Pennsylvanian System bedrock. The aquifer is typically overlain by varying thicknesses of glacial till. The till cover has an average thickness of 20 to 30 feet in western Licking County and thins eastward to an average of 5 to 10 feet. Soils may be thin to absent along a limited number of particularly steep slopes. Typically, the till weathers to clay loam soils. Depth to water is extremely variable, averaging from 15 to 50 feet in western Licking County to 50 to 100 feet in eastern Licking County. Recharge is moderate to low, depending upon the slope, the thickness of the till cover, and the depth.

GWPP index values for the hydrogeologic setting of glacial till over bedded sedimentary rock range from 44 to 124 with the total number of GWPP index calculations equaling 103.

Setting: 7Aa1		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	110

Setting: 7Aa2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	99

Setting: 7Aa3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	95

Setting: 7Aa4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	120

Setting: 7Aa5		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	119

Setting: 7Aa6		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	82

Setting: 7Aa7		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	109

Setting: 7Aa8		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	73

Setting: 7Aa9		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	63

Setting: 7Aa10		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	77

Setting: 7Aa11		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	65

Setting: 7Aa12		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	67

Setting: 7Aa13		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	80

Setting: 7Aa14		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	114

Setting: 7Aa15		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	90

Setting: 7Aa16		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	90

Setting: 7Aa17		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	80

Setting: 7Aa18		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	78

Setting: 7Aa19		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	75

Setting: 7Aa20		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	77

Setting: 7Aa21		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	115

Setting: 7Aa22		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	102

Setting:7Aa23		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	73

Setting: 7Aa24		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	88

Setting: 7Aa25		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	86

Setting: 7Aa26		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	86

Setting: 7Aa27		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	6	18
Soil Media	Loam	2	5	10
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	112

Setting: 7Aa28		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	118

Setting: 7Aa29		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	120

Setting: 7Aa30		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	92

Setting: 7Aa31		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	96

Setting: 7Aa32		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	81

Setting: 7Aa33		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	71

Setting: 7Aa34		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	98

Setting: 7Aa35		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Loam	2	5	10
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	94

Setting: 7Aa36		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	114

Setting: 7Aa37		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	104

Setting: 7Aa38		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	106

Setting: 7Aa39		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP		78

Setting: 7Aa40		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	76

Setting: 7Aa41		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	82

Setting: 7Aa42		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	88

Setting: 7Aa43		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Loam	2	5	10
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	65

Setting: 7Aa44		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	98

Setting: 7Aa45		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	112

Setting: 7Aa46		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Loam	2	5	10
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	73

Setting: 7Aa47		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	104

Setting: 7Aa48		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	100

Setting: 7Aa49		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	76

Setting: 7Aa50		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	124

Setting: 7Aa51		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity		3	1	3
		GWPP	INDEX	117

Setting: 7Aa52		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	86

Setting: 7Aa53		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	80

Setting: 7Aa54		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Thin/Absent	2	10	20
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	77

Setting: 7Aa55		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	94

Setting: 7Aa56		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	114

Setting: 7Aa57		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	92

Setting: 7Aa58		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	86

Setting: 7Aa59		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	88

Setting: 7Aa60		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	116

Setting: 7Aa61		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Loam	2	5	10
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	65

Setting: 7Aa62		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	61

Setting: 7Aa63		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Thin/Absent	2	10	20
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	77

Setting: 7Aa64		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	115

Setting: 7Aa65		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	69

Setting: 7Aa66		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	67

Setting: 7Aa67		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	65

Setting: 7Aa68		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	72

Setting: 7Aa69		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	100

Setting: 7Aa70		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	105

Setting: 7Aa71		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	73

Setting: 7Aa72		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	112

Setting: 7Aa73		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	109

Setting: 7Aa74		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	102

Setting: 7Aa75		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	68

Setting: 7Aa76		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	66

Setting: 7Aa77		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	90

Setting: 7Aa78		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	77

Setting: 7Aa79		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	100+	5	1	5
Net Recharge	0-2	4	1	4
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Confining Layer (Till)	5	1	5
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	44

Setting: 7Aa80		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	88

Setting: 7Aa81		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam 12-18%	2	3	6
Topography	Interbedded ss/sh	1	3	3
Impact of Vadose Zone	1-100	5	5	25
Hydraulic Conductivity		3	1	3
		GWPP	INDEX	86

Setting: 7Aa82		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	92

Setting: 7Aa83		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	95

Setting: 7Aa84		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls/coal	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/coal	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	68

Setting: 7Aa85		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	70

Setting: 7Aa86		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	68

Setting: 7Aa87		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	1-100	5	4	20
Hydraulic Conductivity		3	1	3
		GWPP	INDEX	66

Setting: 7Aa88		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	70

Setting: 7Aa89		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	73

Setting: 7Aa90		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Sandy Loam	2	6	12
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	77

Setting: 7Aa91		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Sandy Loam	2	6	12
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	72

Setting: 7Aa92		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Shrink-Swell Clay	2	7	14
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	76

Setting: 7Aa93		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	75

Setting: 7Aa94		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Thin or Absent	2	10	20
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	80

Setting: 7Aa95		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Sandy Loam	2	6	12
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	115

Setting: 7Aa96		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	71

Setting: 7Aa97		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	83

Setting: 7Aa98		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	85

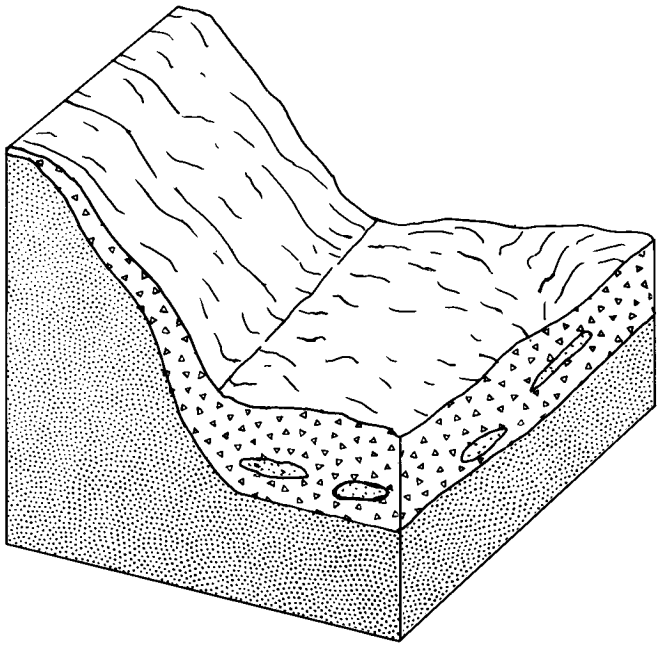
Setting: 7Aa99		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	72

Setting: 7Aa100		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	77

Setting: 7Aa101		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Interbedded ss/sh/ls	3	4	12
Soil Media	Sandy Loam	2	6	12
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh/ls	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	78

Setting: 7Aa102		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	6	18
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	118

Setting: 7Aa103		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	6	18
Soil Media	Silty Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	116



7Ad Glacial Till Over Sandstone

This hydrogeologic setting is located in central Licking County, primarily between Newark and Hanover. Relief is typically high and the topography is dominated by steep bedrock highs. The overlying glacial till is typically less than 10 feet thick and seldom exceeds 20 feet. Where the till is over 5 feet thick, clay loam or silt loam soils tend to develop. Where the till is less than 5 feet, loam or sandy loam soils are found or soils may be thin to absent. The aquifer consists of Mississippian System sandstone belonging to either the Blackhand Member of the Cuyahoga Formation or the lower portion of the Logan Formation. Depth to water is typically deep, averaging between 50 to 100 feet. Due to the thinness of the overlying till, the vadose zone media is generally considered to be weathered, fractured sandstone with some shale. Yields commonly range from 15 to 25 gpm; the higher yielding wells intersect fractures within the bedrock. Recharge is moderate to limited due to the steep slopes and the depth to water.

GWPP index values for the hydrogeologic setting of glacial till over sandstone range from 69 to 120 with the total number of GWPP index calculations equaling 66.

Setting: 7Ad1		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	78

Setting: 7Ad2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	110

Setting: 7Ad3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	99

Setting: 7Ad4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	74

Setting: 7Ad5		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	89

Setting: 7Ad6		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	93

Setting: 7Ad7		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	93

Setting: 7Ad8		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	95

Setting: 7Ad9		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/sig Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	120

Setting: 7Ad10		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	100+	5	1	5
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	69

Setting: 7Ad11		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	100+	5	1	5
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	73

Setting: 7Ad12		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	78

Setting: 7Ad13		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	76

Setting: 7Ad14		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	105

Setting: 7Ad15		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	101

Setting: 7Ad16		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	79

Setting: 7Ad17		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	78

Setting: 7Ad18		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	83

Setting: 7Ad19		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	83

Setting: 7Ad20		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	111

Setting: 7Ad21		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	81

Setting: 7Ad22		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	127

Setting: 7Ad23		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	101

Setting: 7Ad24		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	84

Setting: 7Ad25		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	86

Setting: 7Ad26		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	74

Setting: 7Ad27		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	115

Setting: 7Ad28		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	113

Setting: 7Ad29		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	78

Setting: 7Ad30		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	96

Setting: 7Ad31		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	76

Setting: 7Ad32		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	76

Setting: 7Ad33		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	80

Setting: 7Ad34		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	108

Setting: 7Ad35		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	94

Setting: 7Ad36		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	98

Setting: 7Ad37		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	112

Setting: 7Ad38		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	92

Setting: 7Ad39		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	115

Setting: 7Ad40		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	88

Setting: 7Ad41		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	5	10
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	92

Setting: 7Ad42		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	73

Setting: 7Ad43		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	76

Setting: 7Ad44		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	100

Setting: 7Ad45		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	88

Setting: 7Ad46		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	90

Setting: 7Ad47		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	102

Setting: 7Ad48		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	80

Setting: 7Ad49		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	78

Setting: 7Ad50		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	94

Setting: 7Ad51		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Sandstone	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	86

Setting: 7Ad52		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	114

Setting: 7Ad53		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	71

Setting: 7Ad54		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	18+%	1	1	1
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	81

Setting: 7Ad55		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	75

Setting: 7Ad56		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	110

Setting: 7Ad57		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	87

Setting: 7Ad58		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	98

Setting: 7Ad59		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	120

Setting: 7Ad60		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	71

Setting: 7Ad61		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Thin or Absent	2	10	20
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	86

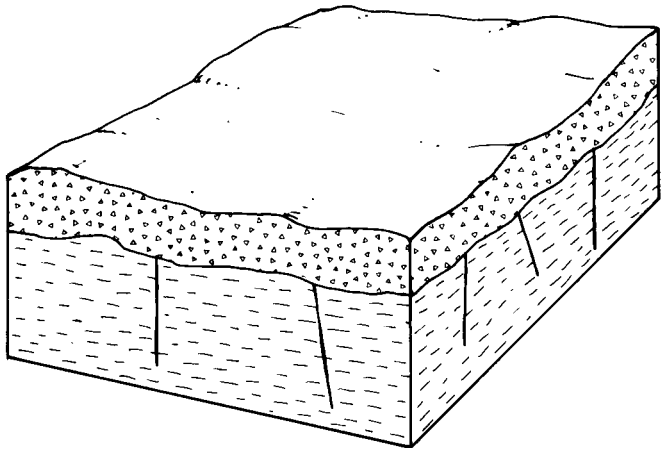
Setting: 7Ad62		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	74

Setting: 7Ad63		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	12-18%	1	3	3
Impact of Vadose Zone	Interbedded ss/sh/ls/coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	78

Setting: 7Ad64		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	2-4	4	3	12
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh/ls/coal	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	80

Setting: 7Ad65		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	78

Setting: 7Ad66		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	18+%	1	1	1
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	72



7Ae Glacial Till Over Shale

This hydrogeologic setting is limited to west central Licking County. Relief varies from low to relatively high, and the topography ranges from gently rolling ground moraine and hummocky end moraine to steeper bedrock uplands. The steepest areas within this setting are nearby Granville. Thickness of the overlying till varies from less than 5 feet to over 100 feet, with an average thickness of 30 to 50 feet. The till commonly weathers to clay loam or silt loam soils. Where the till thinly overlies bedrock on steep slopes, loam soils become more common. The aquifer consists of interbedded shales and siltstones of the Mississippian Cuyahoga Formation. Depth to water typically ranges from 30 to 50 feet in lower relief areas and from 50 to 75 feet in steeper upland areas. Recharge is moderate where the slope is gentle and depth to water is less than 50 feet, recharge decreases as the topography steepens and the depth to the aquifer increases. Yields average from 3 to 5 gpm and rarely exceed 10 gpm. Wells obtain their water supply from intersecting fractures and joints within the fine-grained bedrock. The uppermost 10 to 20 feet of bedrock immediately underlying the glacial cover is typically weathered and can produce an adequate supply of water for domestic use. Wells are drilled deeper to obtain additional storage within the well.

GWPP index values for the hydrogeologic setting of glacial till over shale range from 55 to 109 with the total number of GWPP index calculations equaling 31.

Setting: 7Ae1		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	91

Setting: 7Ae2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	87

Setting: 7Ae3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	92

Setting: 7Ae4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	106

Setting: 7Ae5		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	107

Setting: 7Ae6		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Shale	3	3	9
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	64

Setting: 7Ae7		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	96

Setting: 7Ae8		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	80

Setting: 7Ae9		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	97

Setting: 7Ae10		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	69

Setting: 7Ae11		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	73

Setting: 7Ae12		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	57

Setting: 7Ae13		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Sandy Loam	2	6	12
Topography	12-18%	1	3	3
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	84

Setting: 7Ae14		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	67

Setting: 7Ae15		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	74

Setting: 7Ae16		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	82

Setting: 7Ae17		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	78

Setting: 7Ae18		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	70

Setting: 7Ae19		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	98

Setting: 7Ae20		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	94

Setting: 7Ae21		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	92

Setting: 7Ae22		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	72

Setting: 7Ae23		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	70

Setting: 7Ae24		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	65

Setting: 7Ae25		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	60

Setting: 7Ae26		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Shale	3	3	9
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	74

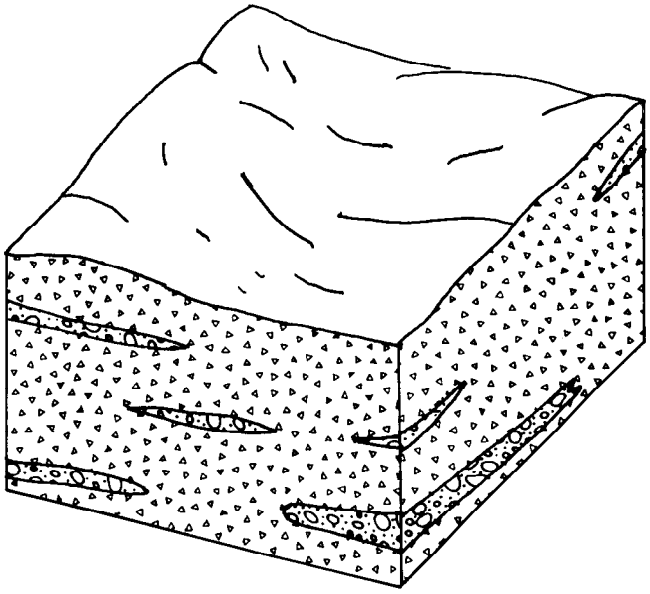
Setting: 7Ae27		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Shale	3	3	9
Soil Media	Loam	2	5	10
Topography	12-18%	1	3	3
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	59

Setting: 7Ae28		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	55

Setting: 7Ae29		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Shale	3	3	9
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	57

Setting: 7Ae30		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	109

Setting: 7Ae31		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	0-2	4	1	4
Aquifer Media	Shale	3	3	9
Soil Media	Silt Loam	2	4	8
Topography	12-18%	1	3	3
Impact of Vadose Zone	Shale	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	62



7Af Sand and Gravel Interbedded in Glacial Till

This hydrogeologic setting is limited to western Licking County. It encompasses areas where sand and gravel lenses within the till are the aquifer. The total thickness of drift in these areas is less than that found in the 7D Buried Valley hydrogeologic setting. It was determined that for the Licking County area that the thickness of drift should exceed 140 feet for an area to be considered a buried valley. This number reflects a combined maximum drift thickness of 100 feet for end moraines and 40 feet for ground moraines. This hydrogeologic setting is usually associated with end moraines which have not been deposited over (superimposed on) previously existing buried valleys. Included areas are characterized by low relief and relatively flat to gently rolling topography. Soils are typically clay loams. The sand and gravel lenses comprising the aquifer are generally thin, discontinuous and isolated from each other. Till is the vadose zone material. Water yields average between 10 to 20 gpm and are adequate for domestic supplies. Depth to water is relatively shallow, averaging less than 35 feet. Recharge is moderate because of the low relief, shallow water table, and low permeability soils and till.

GWPP index values for the hydrogeologic setting of sand and gravel interbedded in glacial till range from 71 to 137 with the total number of GWPP index calculations equaling 13.

Setting: 7Af1		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	119

Setting: 7Af2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	134

Setting: 7Af3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	129

Setting: 7Af4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	118

Setting: 7Af5		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	0-100	3	1	3
		GWPP	INDEX	102

Setting: 7Af6		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	109

Setting: 7Af7		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	108

Setting: 7Af8		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	115

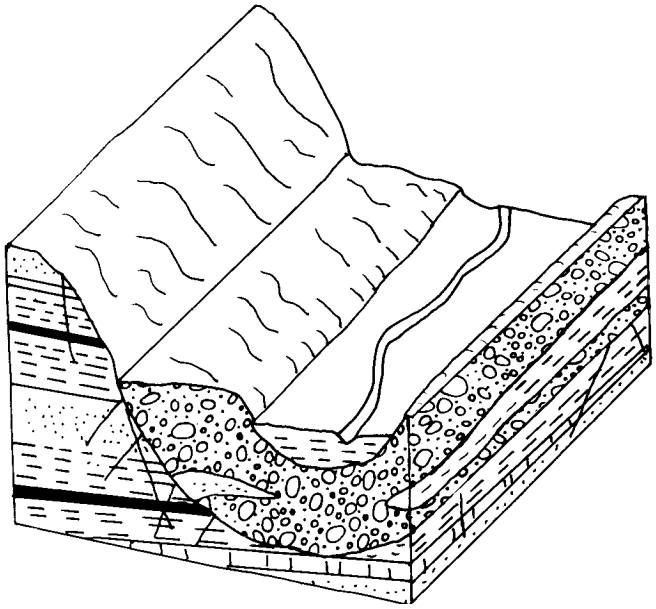
Setting: 7Af9		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	137

Setting: 7Af10		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	71

Setting: 7Af11		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	113

Setting: 7Af12		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	124

Setting: 7Af13		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	126



7Bb Outwash Over Bedded Sedimentary Rock

This hydrogeologic setting consists of relatively small areas limited to the valley floor of the Licking River, Wakatomika Creek, and Brushy Fork. These areas consist of outwash terraces which overlie segments of stream valleys that do not contain an adequate amount of drift to be considered buried valleys. Relief is low and the flat to rolling terraces are at higher elevations than the modern floodplain. Vadose zone media consists of bedded sandy to gravelly outwash interbedded with finer lacustrine and floodplain sediments. The outwash terraces are generally not thick enough to comprise the aquifer. Underlying sandstones and shales of the Mississippian System serve as the aquifer. Wells intersect fractures or bedding planes in the bedrock and yields average 15 to 25 gpm. The overlying terraces may be in direct contact with the aquifer or there may be finer alluvial sediments between them. Depth to water is shallow to moderate and is typically less than 50 feet. Soils vary from clay loam to sandy loam depending on whether fine alluvial material caps the coarser outwash. Recharge is moderately high because of the flat topography and relatively permeable soils and vadose.

GWPP index values for the hydrogeologic setting of outwash over bedded sedimentary rock range from 115 to 142 with the total number of GWPP index calculations equaling 5.

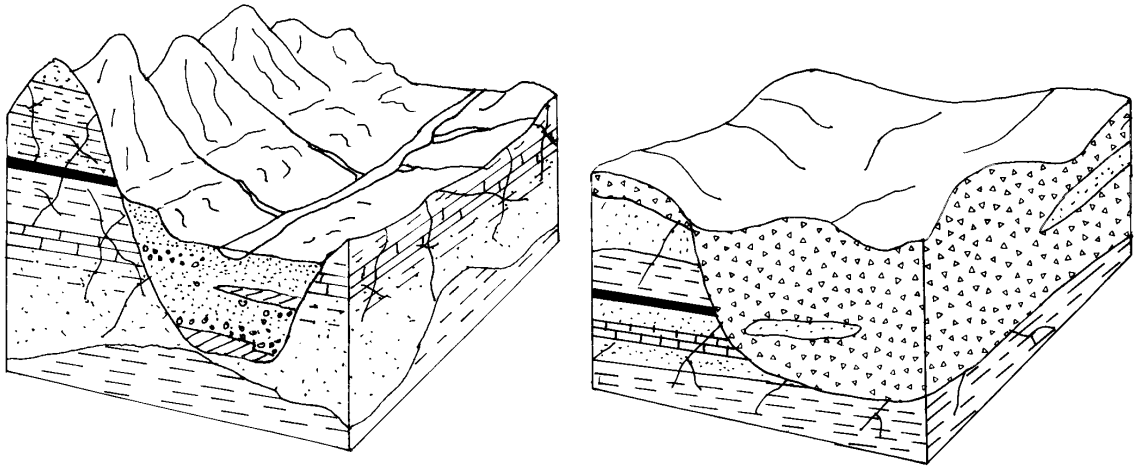
Setting: 7Bb1		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	121

Setting: 7Bb2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	117

Setting: 7Bb3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	115

Setting: 7Bb4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	127

Setting: 7Bb5		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	142



(A) (B)

7D Buried Valleys

This hydrogeologic setting varied across Licking County. There were two common types or varieties of buried valleys within the county.

The first type of buried valley (Block diagram A) is occupied by a modern stream valley, contains abundant outwash or kame deposits, and is easy to distinguish from the surrounding steep bedrock and till uplands. Such valleys are common to eastern Licking County. Valley floors are relatively flat and margins may be rolling. These valleys contain variable thicknesses of sand and gravel and finer-grained till and lacustrine sediments. The upper 20 to 30 feet is typically composed of sand and gravel outwash or kame deposits. Depth to water is usually less than 30 feet for the trunk of the valley and 30 to 50 feet for the margins. Yields up to 1000 gpm have been reported; typical yields are in the 25 to 100 gpm range. Soils are typically sandy loams or loams. The streams are commonly in direct hydraulic connection with the aquifer. Recharge is typically high.

The second type of buried valley (Block diagram B) extends across upland areas in western Licking County. They are typically not easily distinguished from the surrounding topography. The relief varies from moderate to high rolling to relatively steep topography where moraines overlie the valleys. They typically are overlain by only an intermittent stream or no stream at all. The aquifer consists of thin lenses of sand and gravel interbedded in thick sequences of glacial till and lacustrine deposits. Yields commonly range from 10 to 25 gpm, but may average less than 5 gpm in some areas. Soils are typically clay loams or silt loams derived from weathering till. Depth of water is typically 30 to 50 feet and may be as deep as 50 to 75 feet. Recharge is typically moderate to low.

GWPP index values for the hydrogeologic setting of buried valley range from 40 to 193 with the total number of GWPP index calculations equaling 204.

Setting: 7D1		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	113

Setting: 7D2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	129

Setting: 7D3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	119

Setting: 7D4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	103

Setting: 7D5		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	76

Setting: 7D6		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	75

Setting: 7D7		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	82

Setting: 7D8		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	81

Setting: 7D9		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	109

Setting: 7D10		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	2	10
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	58

Setting: 7D11		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	126

Setting: 7D12		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	134

Setting: 7D13		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	102

Setting: 7D14		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	118

Setting: 7D15		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	136

Setting: 7D16		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	100+	5	1	5
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Confining Layer (Till)	5	1	5
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	48

Setting: 7D17		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	124

Setting: 7D18		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	100+	5	1	5
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Confining Layer (Till)	5	1	5
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	47

Setting: 7D19		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	98

Setting: 7D20		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	0-100	3	1	3
		GWPP	INDEX	120

Setting: 7D21		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	108

Setting: 7D22		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	112

Setting: 7D23		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	128

Setting: 7D24		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	124

Setting: 7D25		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	124

Setting: 7D26		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	134

Setting: 7D27		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	141

Setting: 7D28		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	151

Setting: 7D29		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	170

Setting: 7D30		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	164

Setting: 7D31		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	139

Setting: 7D32		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	123

Setting: 7D33		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	137

Setting: 7D34		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	140

Setting: 7D35		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	154

Setting: 7D36		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	168

Setting: 7D37		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	179

Setting: 7D38		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	152

Setting: 7D39		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	150

Setting: 7D40		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	175

Setting: 7D41		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	164

Setting: 7D42		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	155

Setting: 7D43		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	125

Setting: 7D44		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	142

Setting: 7D45		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	145

Setting: 7D46		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	173

Setting: 7D47		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	169

Setting: 7D48		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	129

Setting: 7D49		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	123

Setting: 7D50		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	119

Setting: 7D51		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	100+	5	1	5
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Confining Layer (Till)	5	1	5
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	44

Setting: 7D52		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	100+	5	1	5
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	0-2	1	10	10
Impact of Vadose Zone	Confining Layer (Till)	5	1	5
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	45

Setting: 7D53		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	100+	5	1	5
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Confining Layer (Till)	5	1	5
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	40

Setting: 7D54		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Gravel	2	10	20
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	179

Setting: 7D55		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	154

Setting: 7D56		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	175

Setting: 7D57		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	182

Setting: 7D58		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	180

Setting: 7D59		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	144

Setting: 7D60		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	133

Setting: 7D61		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	140

Setting: 7D62		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	168

Setting: 7D63		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	118

Setting: 7D64		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Peat	2	8	16
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	151

Setting: 7D65		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	73

Setting: 7D66		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	72

Setting: 7D67		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	78

Setting: 7D68		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	163

Setting: 7D69		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	140

Setting: 7D70		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	143

Setting: 7D71		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	134

Setting: 7D72		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	135

Setting: 7D73		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	146

Setting: 7D74		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	151

Setting: 7D75		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Peat	2	8	16
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	177

Setting: 7D76		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	178

Setting: 7D77		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	131

Setting: 7D78		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	8	40
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	193

Setting: 7D79		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	155

Setting: 7D80		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	129

Setting: 7D81		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	159

Setting: 7D82		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Loam	2	5	10
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	151

Setting: 7D83		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	8	40
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	187

Setting: 7D84		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	149

Setting: 7D85		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	159

Setting: 7D86		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	149

Setting: 7D87		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	115

Setting: 7D88		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	147

Setting: 7D89		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	145

Setting: 7D90		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	118

Setting: 7D91		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	77

Setting: 7D92		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	71

Setting: 7D93		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	77

Setting: 7D94		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	89

Setting: 7D95		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	92

Setting: 7D96		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Loam	2	5	10
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	138

Setting: 7D97		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and ravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	84

Setting: 7D98		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	174

Setting: 7D99		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7 (Urban)	4	6	24
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	166

Setting: 7D100		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	8	40
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	183

Setting: 7D101		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	163

Setting: 7D102		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7 (Urban)	4	6	24
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	160

Setting: 7D103		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7 (Urban)	4	6	24
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	176

Setting: 7D104		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	158

Setting: 7D105		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7 (Urban)	4	6	24
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	164

Setting: 7D106		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	120

Setting: 7D107		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	150

Setting: 7D108		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	160

Setting: 7D109		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	127

Setting: 7D110		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	136

Setting: 7D111		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7 (Urban)	4	6	24
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	8	40
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	185

Setting: 7D112		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	8	40
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	189

Setting: 7D113		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7 (Urban)	4	6	24
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	168

Setting: 7D114		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	176

Setting: 7D115		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	176

Setting: 7D116		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Sandy Loam	2	6	12
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	8	40
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	176

Setting: 7D117		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Loam	2	5	10
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	8	40
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	174

Setting: 7D118		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	170

Setting: 7D119		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	2000+	3	10	30
		GWPP	INDEX	188

Setting: 7D120		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	153

Setting: 7D121		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	114

Setting: 7D122		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	163

Setting: 7D123		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	64

Setting: 7D124		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	116

Setting: 7D125		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	149

Setting: 7D126		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	167

Setting: 7D127		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	10+	4	9	36
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Gravel	2	10	20
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	9	45
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	188

Setting: 7D128		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	115

Setting: 7D129		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	100

Setting: 7D130		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	99

Setting: 7D131		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	112

Setting: 7D132		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	83

Setting: 7D133		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	86

Setting: 7D134		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	130

Setting: 7D135		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	138

Setting: 7D136		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	125

Setting: 7D137		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	109

Setting: 7D138		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	130

Setting: 7D139		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	132

Setting: 7D140		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	121

Setting: 7D141		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	100+	5	1	5
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Confining Layer (Till)	5	1	5
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	53

Setting: 7D142		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	92

Setting: 7D143		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	115

Setting: 7D144		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	130

Setting: 7D145		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	149

Setting: 7D146		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	156

Setting: 7D147		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	110

Setting: 7D148		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	110

Setting: 7D149		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	116

Setting: 7D150		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	104

Setting: 7D151		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	2	10
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	58

Setting: 7D152		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	100+	5	1	5
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Confining Layer (Till)	5	1	5
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	54

Setting: 7D153		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	104

Setting: 7D154		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	114

Setting: 7D155		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	111

Setting: 7D156		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	115

Setting: 7D157		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	95

Setting: 7D158		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	117

Setting: 7D159		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	175

Setting: 7D160		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	177

Setting: 7D161		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	73

Setting: 7D162		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	75-100	5	2	10
Net Recharge	0-2	4	1	4
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	2	10
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	54

Setting: 7D163		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	68

Setting: 7D164		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	121

Setting: 7D165		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	4	12
Soil Media	Sandy Loam	2	6	12
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	105

Setting: 7D166		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	150

Setting: 7D167		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	166

Setting: 7D168		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	130

Setting: 7D169		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	148

Setting: 7D170		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	159

Setting: 7D171		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	154

Setting: 7D172		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	138

Setting: 7D173		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	158

Setting: 7D174		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	162

Setting: 7D175		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	176

Setting: 7D176		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	124

Setting: 7D177		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	12-18%	1	3	3
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	84

Setting: 7D178		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	137

Setting: 7D179		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	125

Setting: 7D180		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	153

Setting: 7D181		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	149

Setting: 7D182		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	137

Setting: 7D183		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	174

Setting: 7D184		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	175

Setting: 7D185		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	168

Setting: 7D186		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Peat	2	8	16
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	183

Setting: 7D187		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	177

Setting: 7D188		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Till	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	119

Setting: 7D189		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	136

Setting: 7D190		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	7	21
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	700-1000	3	6	18
		GWPP	INDEX	130

Setting: 7D191		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	157

Setting: 7D192		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	161

Setting: 7D193		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	105

Setting: 7D194		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	138

Setting: 7D195		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	128

Setting: 7D196		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Loam	2	5	10
Topography	0-2	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	134

Setting: 7D197		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	144

Setting: 7D198		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	157

Setting: 7D199		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	8	40
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	185

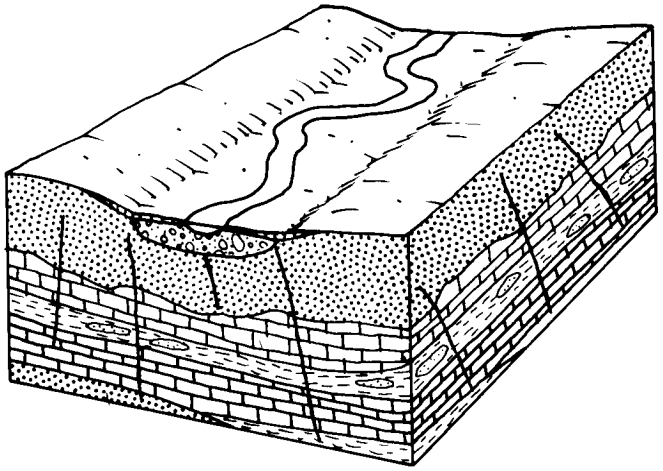
Setting: 7D200		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-20	5	7	35
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	8	24
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	7	35
Hydraulic Conductivity	1000-2000	3	8	24
		GWPP	INDEX	168

Setting: 7D201		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	50-75	5	3	15
Net Recharge	2-4	4	3	12
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	3	15
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	84

Setting: 7D202		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	112

Setting: 7D203		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Clay Loam	2	3	6
Topography	6-12%	1	5	5
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	110

Setting: 7D204		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	7-10	4	8	32
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	146



7Ea River Alluvium with Overbank Deposits

This hydrogeologic setting is limited to small tributary stream valleys in the glaciated portions of eastern Licking County. The streams begin and run their courses in areas with thin glacial cover near the glacial boundary. Fill in valleys is typically less than 50 feet. They therefore differ from the 7D Buried Valley hydrogeologic setting. This setting is similar to the 6Fa River Alluvium with Overbank Deposits in adjacent unglaciated areas, with the exception that the 7Ea setting contains thicker alluvium. This setting differs from the 7Ec Alluvium over bedded Sedimentary Rock setting in that bedrock is not the aquifer, and it also differs from the 7Ed Alluvium over Glacial Till settings in that till is generally thin to absent. The 7Ea hydrogeologic setting is characterized by narrow, flat-bottomed stream valleys flanked by steeper bedrock uplands. Depth to water is typically shallow, averaging 15 to 30 feet in depth. Soils are predominantly silt loams and developed in alluvium. The alluvium is composed of fine-grained floodplain (overbank) deposits and contains lenses of sand and gravel depth. The vadose zone media is composed of the silty to clayey alluvium. Lower, coarser portions of the alluvium are saturated and supply sufficient water for domestic wells . Yields in wells developed from the sand and gravel lenses average 10 to 15 gpm. Recharge is moderate because of the relatively shallow water table, the presence of modern streams, and the lower permeability of the overbank deposits.

GWPP index values for the hydrogeologic setting of river alluvium with over bank deposits range from 91 to 97 with the total number of GWPP index calculations equaling 6.

Setting: 7Ea1		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	2-6%	1	9	9
Impact of Vadose Zone	Silt/Clay	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	115

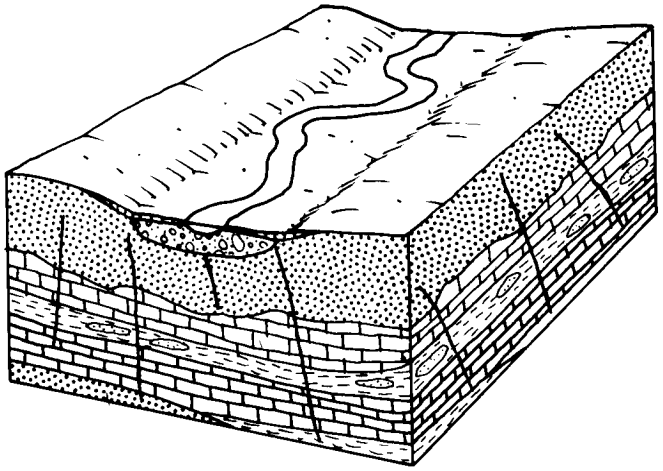
Setting: 7Ea2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	118

Setting: 7Ea3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Silt/Clay	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	120

Setting: 7Ea4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	123

Setting: 7Ea5		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	121

Setting: 7Ea6		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	5	15
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	120



7Ec Alluvium over Bedded Sedimentary Rock

This hydrogeologic setting is predominantly located in upland areas of central and eastern Licking County. The setting consists of small tributary streams in upland areas with thin glacial cover. The setting differs from the 7Ed Alluvium Over Glacial Till setting in that sand and gravel lenses capable of sustaining a well are lacking. The setting is characterized by narrow, flat-bottomed stream valleys flanked by steeper bedrock uplands. Depth to water is typically shallow, averaging 10 to 30 feet. In some limited areas, depth to water is greater and the overlying alluvium is not in direct hydraulic connection with water in the bedrock aquifer. Soils range from clay loams to sandy loams, but are usually silt loams developed in alluvium. The aquifer is underlying interbedded sandstones and shales of the Mississippian System. Wells are developed in fractures and bedding planes and typically have yields averaging 10 to 20 gpm. The vadose zone media may be the alluvium or the underlying bedrock, depending upon the depth to water. Recharge is moderate because of the shallow depth to water, presence of modern streams, and the relatively low permeability bedrock and fine-grained alluvium.

GWPP index values for the hydrogeologic setting of alluvium over bedded sedimentary rock range from 106 to 135 with the total number of GWPP index calculations equaling 28.

Setting: 7Ec1		**GENERAL**		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	4	20
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	109

Setting: 7Ec2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	124

Setting: 7Ec3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	119

Setting: 7Ec4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	120

Setting: 7Ec5		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	110

Setting: 7Ec6		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	108

Setting: 7Ec7		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	117

Setting: 7Ec8		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	116

Setting: 7Ec9		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	106

Setting: 7Ec10		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	135

Setting: 7Ec11		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	125

Setting: 7Ec12		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	112

Setting: 7Ec13		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	115

Setting: 7Ec14		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	127

Setting: 7Ec15		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	107

Setting: 7Ec16		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh	5	6	30
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	113

Setting: 7Ec17		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	128

Setting: 7Ec18		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	115

Setting: 7Ec19		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Interbedded ss/sh	3	4	12
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	121

Setting: 7Ec20		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	114

Setting: 7Ec21		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Shale	3	3	9
Soil Media	Sandy Loam	2	6	12
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	1-100	3	1	3
		GWPP	INDEX	118

Setting: 7Ec22		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	6-12%	1	5	5
Impact of Vadose Zone	Sandstone	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	113

Setting: 7Ec23		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Till	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	118

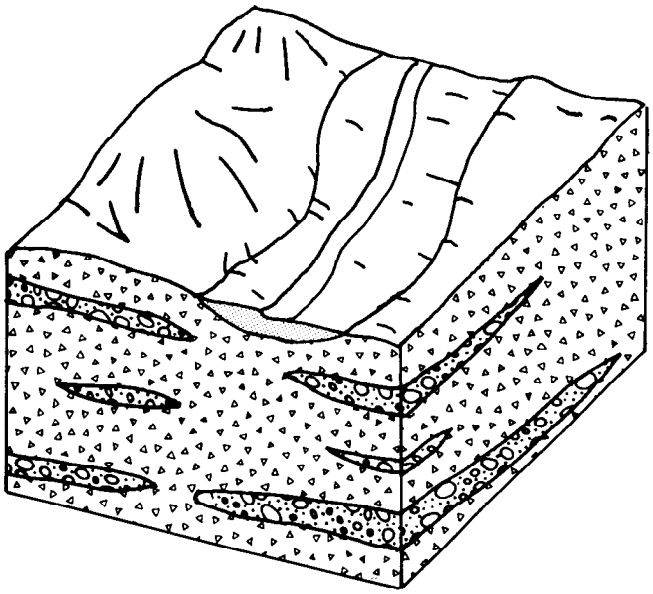
Setting: 7Ec24		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	30-50	5	5	25
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	2-6%	1	9	9
Impact of Vadose Zone	Silt/Clay	5	4	20
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	107

Setting: 7Ec25		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	123

Setting: 7Ec26		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	125

Setting: 7Ec27		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Clay Loam	2	3	6
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	121

Setting: 7Ec28		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sandstone	3	5	15
Soil Media	Loam	2	5	10
Topography	0-2%	1	10	10
Impact of Vadose Zone	Interbedded ss/sh	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	135



7Ed Alluvium over Glacial Till

This hydrogeologic setting is limited to western and central Licking County. This setting is similar to the 7Af Sand and Gravel Interbedded in Glacial Till, except that the 7Ed setting contains streams with alluvial fill. Depth to water is typically shallow, averaging 10 to 20 feet. Soils are silt loams. The alluvium is typically saturated; however, there is not sufficient thickness in which to develop wells. The aquifer consists of thin, discontinuous lenses of sand and gravel interbedded in glacial till. Yields from the sand and gravel lenses average from 10 to 20 gpm. These sand and gravel lenses are generally not in direct hydraulic connection with the overlying alluvium. The total thickness of drift is much less than that of the 7D Buried Valley setting. The vadose zone media is alluvium or till depending upon the depth to water and the thickness of the alluvium. Recharge is moderate because of the relatively shallow depth to water, the presence of streams, and the relatively low permeability of the alluvium and till.

GWPP index values for the hydrogeologic setting of alluvium over glacial till range from 126 to 137 with the total number of GWPP index calculations equaling 4.

Setting: 7Ed1		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	126

Setting: 7Ed2		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	131

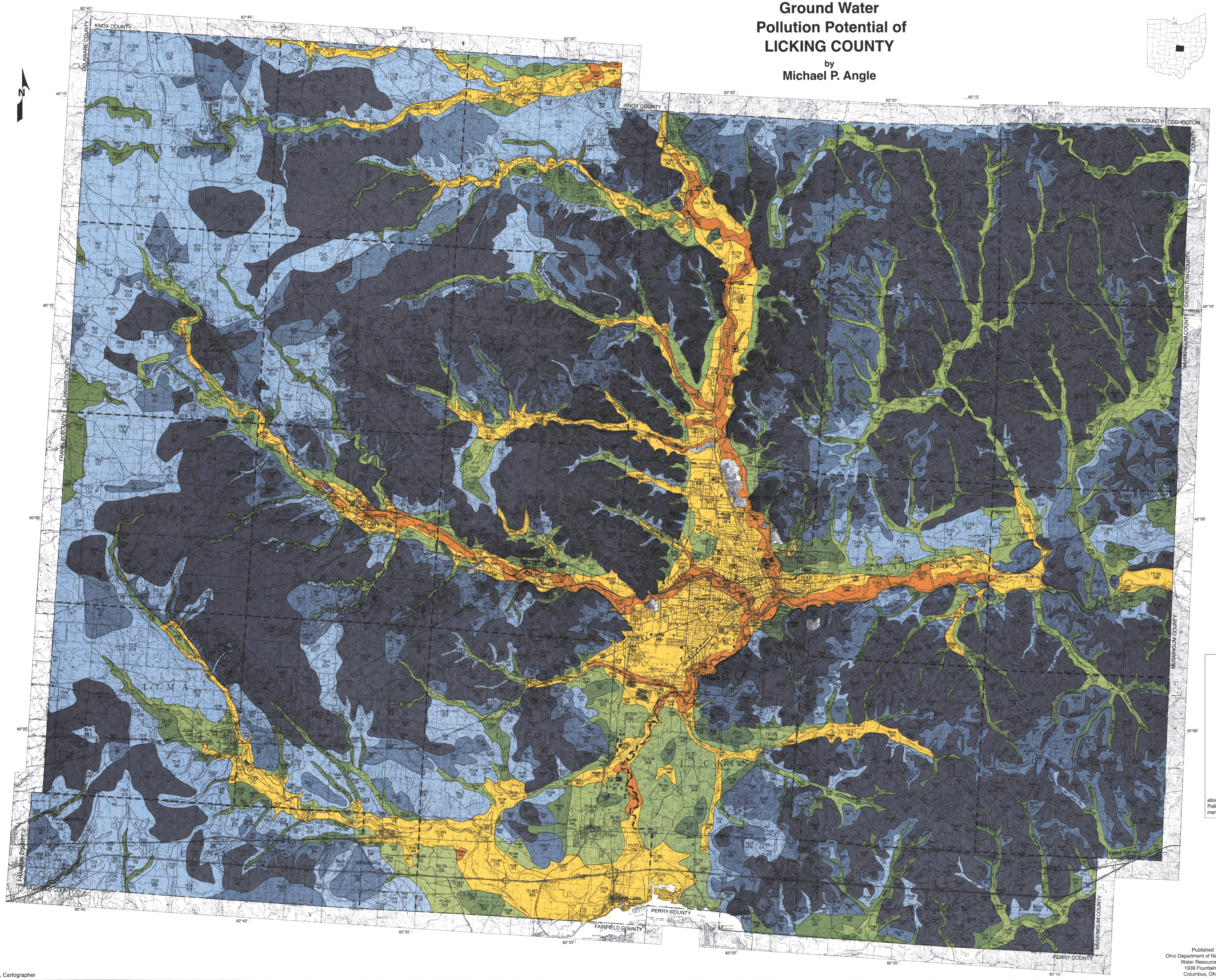
Setting: 7Ed3		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	5-15	5	9	45
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Silt/Clay	5	5	25
Hydraulic Conductivity	100-300	3	2	6
		GWPP	INDEX	136

Setting: 7Ed4		GENERAL		
FEATURE	RANGE	WEIGHT	RATING	INDEX
Depth to Water	15-30	5	7	35
Net Recharge	4-7	4	6	24
Aquifer Media	Sand and Gravel	3	6	18
Soil Media	Silt Loam	2	4	8
Topography	0-2%	1	10	10
Impact of Vadose Zone	Sand and Gravel w/Silt and Clay	5	6	30
Hydraulic Conductivity	300-700	3	4	12
		GWPP	INDEX	137

Ground Water Pollution Potential of LICKING COUNTY

by

Michael P. Angle



Miles

Kilometers

CONTOUR INTERVAL 10 FEET OR 20 FEET

County Line

Township Line

Incorporated City Limit

Pollution Potential Index Range

Higher	180 - 199
	160 - 179
	140 - 159
to	120 - 139
	100 - 119
	80 - 99
Lower	< 79

Description of Map Symbols

Hydrogeologic Region — 7Ad6 / 98 — Hydrogeologic Setting — Relative Pollution Potential

Observation Well Site *

Gravel Pit / Quarry

*Observation well sites indicate the location of wells used to collect ground water level information. These wells are part of the state observation well network. Hydrographs of the water levels recorded in these and other State observation wells can be obtained through ODNR-Division of Water.

Hydrogeologic Settings

- 6Da – Thin Regolith Over Bedded Sedimentary Rock
- 6Db – Thick Regolith Over Bedded Sedimentary Rock
- 6Fa – River Alluvium w/Overbank Deposits
- 7Aa – Glacial Till Over Bedded Sedimentary Rock
- 7Ad – Glacial Till Over Sandstone
- 7Ae – Glacial Till Over Shale
- 7Af – Sand & Gravel Interbedded in Glacial Till
- 7Bb – Outwash Over Bedded Sedimentary Rock
- 7D – Buried Valley
- 7Ea – River Aluvium w/Overbank Deposits
- 7Ec – Alluvium Over Sedimentary Rock
- 7Ed – Alluvium Over Till

A more detailed description of the hydrogeologic settings and the evaluation of the pollution potential may be found in the publication "Ground Water Pollution Potential of Licking County," GWPP Report No. 31, Ohio Department of Natural Resources, Division of Water.

The ground water pollution potential of this county has been mapped using the methodology described in U.S. EPA Publication EPA/600-2-87/035, "DRASTIC: A Standardized System for Evaluating Ground Water Pollution Potential Using Hydrogeologic Settings" (Aller et al., 1987).

David S. Orr, Cartographer

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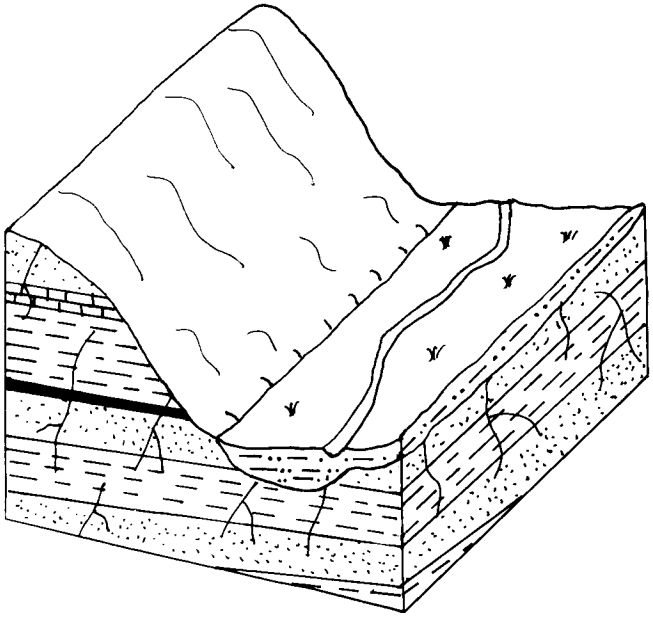
George V. Voinovich
Governor
Donald C. Anderson
Director

ERRATA SHEET LICKING COUNTY
Ground Water Pollution Potential Report No. 31

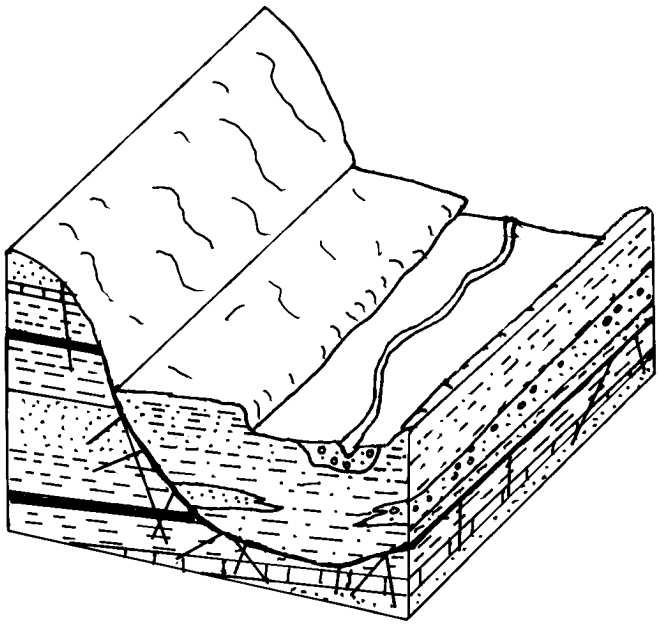
Change on Map

Just above the northeast corner of Buckeye Lake
Change 7Ad14 to 7Ad4
74 74

Changes in Report



This block diagram replaces the previous block diagram for the 7Ec setting.



This block diagram replaces the previous block diagram for the 7Ea setting.