Estimation of Soil Properties Using the Atlas of Australian Soils

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CSIRO Land and Water, Canberra ACT
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CSIRO LAND and WATER

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1 Soil Information at the Continental Level

The Atlas of Australian Soils still provides the only consistent source of spatial information for the complete continent. The Atlas was completed in 1968 (Northcote et al. 1960-1968) and made available in digital form in 1990. While large areas have been surveyed in more detail during the last 30 years, the various surveys have not been compiled to produce a new national map. A major effort to prepare a compiled coverage is being undertaken as part of the National Land and Water Resources Audit. The new Australian Soil Resource Information System (ASRIS) will be completed early in 2001 but it will be restricted to the more intensively used areas of the country. With this in mind, we have updated an earlier set of interpreted soil variables (McKenzie and Hook 1992) that can be used with the Digital Atlas to increase its utility. The earlier interpretations have been useful for a range of applications including catchment hydrology, carbon sequestration studies and broad scale land evaluation.

The Digital Atlas provides a map of soil types but these are often of limited use by themselves. Estimates of typical ranges for soil properties associated with each soil type are needed to make the Atlas more useful. The interpretations of soil physical and nutrient properties presented in McKenzie and Hook (1992) were a first approximation. In this work we have increased the number of variables and relied heavily on the soil profile database held by CSIRO Land and Water. This database contains descriptions of soil type, morphology, chemistry and in some instances physical properties for over 7,000 profiles from across Australia. The locations of sites are shown in Figure 1. While this database provides a good coverage of the major soils of Australia, a much larger database incorporating State and Territory agency holdings is being compiled as part of the ASRIS Project. As with the earlier set of interpretations, the current estimates are still an interim measure and will be superseded in the intensive land use zone by ASRIS.

The purpose of this report is to provide an account of methods used for interpreting the soil types of the Factual Key (Northcote 1979) along with some notes on using these with the Digital Atlas of Australian Soils. There are many limitations on these estimates and users of any predictions should exercise considerable care and be aware of the limitations of the source data. It is always worth bearing in mind that a very large proportion of soil variation within a region occurs over short distances and cannot be resolved by reconnaissance scale maps. The qualitative nature of the Atlas and restrictions associated with the classification scheme and structure of the soil-landscape model impose further constraints. Caveats on the use of the Digital Atlas of Australian Soils are presented at the end of this report and they should be heeded.

2 Soil Properties

The Factual Key of Northcote (1979) is a soil classification system that uses field observable soil morphological data. It has been widely used in Australia during the last 30 years and most notably formed the basis for characterising soils in the Atlas of Australian Soils. The Factual Key can be used at several levels of generalisation. It is most common to allocate soils at the level of the Principle Profile Form. This report provides estimates of soil properties for those classes of the Factual Key found in the Atlas.

Soil taxonomic classes are not always good predictors of individual soil properties and Butler (1980) provides a very good overview of the relevant issues. McKenzie and Austin (1989) provide an evaluation of the predictive utility of the Factual Key for an area in Central New South Wales. The following sections describe the soil properties along with the methodological issues in providing estimates using the Factual Key.

Soil properties are estimated using a simple two-layer model of the soil consisting of an A and B horizon. The following properties have been estimated for both the A and B horizon: horizon thickness, texture, clay content, bulk density, grade of pedality and saturated hydraulic conductivity. The estimates of thickness, texture, bulk density and pedality have been used to estimate parameters that describe the soil water retention curve - these allow calculation of the available water capacity for each layer. The reliability of each estimate can be determined from the associated confidence interval. Several interpretations relating to the complete soil profile have also been provided and these are presence or absence of calcrete and gross nutrient status. The latter attribute is taken from McKenzie and Hook (1992).

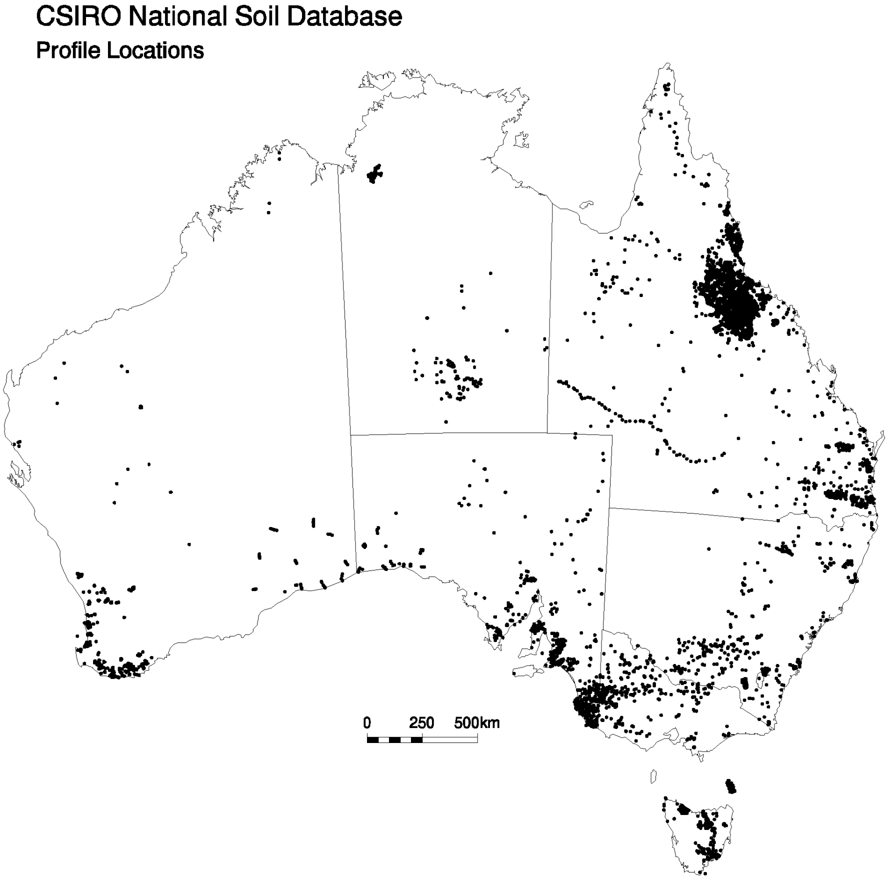

Figure 1: Locations of profiles held in the CSIRO National Soil Database

Interpretations

Summaries of the spreadsheet containing interpretations for the 725 soil types used in the Digital Atlas of Australian Soils are listed in Tables 1 and 2. The spreadsheet is available in digital form from the authors. Note that the spreadsheets have 726 records and include the designation "NS" for units without soil. The data are presented in Appendices One and Two.

As noted earlier, the interpretations for each soil type were based, wherever possible, on data held within the CSIRO National Soil Database. Data summaries were prepared for the soil types listed in the Digital Atlas and an example is presented in Appendix Three. The data summaries provided information on central tendency (mean or median) and dispersion (standard deviation, 5th and 95th percentiles) for each interpreted variable. The summaries from the database were used with other sources of information to assign an interpreted value for each variable. In each instance, an estimate has been made of the 5th percentile, median and 95th percentile to give users an indication of the confidence for each prediction. The resulting 90% confidence interval is often very broad. A qualitative estimate of the reliability has also been provided. This estimate is coded as "1" if more than 20 profile descriptions and ancillary data were available. A code of "2" is used when 5-20 profile descriptions were available with ancillary data. A code of "3" was used when interpretations were interpolated from interpretations of related soils. The most commonly used source of ancillary data was Northcote et al. (1975). It should be noted that the systematic structure of the Factual Key makes interpolation between classes relatively straightforward. The following sections consider each of the interpreted variables.

Table 1: Key to interpreted variables (ppfinterp.xls)

Variable	Data type	Description	Example value
PPF	Text	Principle profile form or higher level class	Dr2.12
Atext5	Integer	5^{th} percentile A horizon Northcote texture group	2
Atext50	Integer	Median A horizon Northcote texture group	3
Atext95	Integer	95^{th} percentile A horizon Northcote texture group	4
Btext5	Integer	5^{th} percentile B horizon Northcote texture group	5
Btext50	Integer	Median B horizon Northcote texture group	5
Btext95	Integer	95^{th} percentile B horizon texture group	6
Aclay5	Integer	5^{th} percentile A horizon clay %	15
Aclay50	Integer	Median A horizon clay %	20
Aclay95	Integer	95^{th} percentile A horizon clay %	30
Bclay5	Integer	5^{th} percentile B horizon clay %	40
Bclay50	Integer	Median B horizon clay %	45
Bclay95	Integer	95^{th} percentile B horizon clay %	50
Athick5	Numeric (x.xx)	5^{th} percentile A horizon thickness (m)	0.05
Athick50	Numeric (x.xx)	Median A horizon thickness (m)	0.12
Athick95	Numeric (x.xx)	95^{th} percentile A horizon thickness (m)	0.30
Bthick5	Numeric (x.xx)	5^{th} percentile B horizon thickness (m)	0.20
Bthick50	Numeric (x.xx)	Median B horizon thickness (m)	0.40
Bthick95	Numeric (x.xx)	95^{th} percentile B horizon thickness (m)	0.90
Solumthick5	Numeric (x.xx)	5^{th} percentile solum thickness (m)	0.30
Solumthick50	Numeric (x.xx)	Median solum thickness (m)	0.60
Solumthick95	Numeric (x.xx)	95^{th} percentile solum thickness (m)	1.00
Astruct5	Integer	5^{th} percentile A horizon grade of pedality	1
Astruct50	Integer	Median A horizon grade of pedality	1
Astruct95	Integer	95^{th} percentile A horizon grade of pedality	1
Bstruct5	Integer	5^{th} percentile B horizon grade of pedality	3
Bstruct50	Integer	Median B horizon grade of pedality	3
Bstruct95	Integer	95^{th} percentile B horizon grade of pedality	3
ABDensity5	Numeric (x.x)	5^{th} percentile A horizon bulk density (Mg/m^3)	1.4
ABDensity50	Numeric (x.x)	Median A horizon bulk density (Mg/m^3)	1.5
ABDensity95	Numeric (x.x)	95^{th} percentile A horizon bulk density (Mg/m^3)	1.6
BBDensity5	Numeric (x.x)	5^{th} percentile B horizon bulk density (Mg/m^3)	1.4
BBDensity50	Numeric (x.x)	Median B horizon bulk density (Mg/m^3)	1.6
BBDensity95	Numeric (x.x)	95^{th} percentile B horizon bulk density (Mg/m^3)	1.7
A Ks	Integer	A horizon log_{10} (saturated hydraulic conductivity mm/hr) – 50^{th} percentile	3
A Ks error	Integer	Log_{10}(Ks) error (ie plus or minus)	2
B Ks	Integer	B horizon log_{10} (saturated hydraulic conductivity mm/hr) – 50^{th} percentile	4
B Ks error	Integer	Log_{10}(Ks) error (ie plus or minus)	2
Calcrete	Integer	Absence (0) or Presence (1) of calcrete in or below the profile	0
Reliability	Integer	Reliability of interpretation (1: >20 profiles + ancillary data, 2: 5-20 profiles + ancillary, 3: interpolated from other PPF interpretations)	1
A 0.1 bar	Numeric (x.xx)	A horizon volumetric water content at 0.1 bar matric potential	0.26
A 15 bar	Numeric (x.xx)	A horizon volumetric water content at 15 bar matric potential	0.13
A AWHC mm/m	Numeric (xxx)	A horizon water holding capacity per unit depth	129 mm/m
A AWHC mm		A horizon water holding capacity	32 mm
A Reliability	Text	Reliability of water retention estimate for A horizon	
B 0.1 bar	Numeric (x.xx)	B horizon volumetric water content at 0.1 bar matric potential	0.33
B 15 bar	Numeric (x.xx)	B horizon volumetric water content at 15 bar matric potential	0.30
B AWHC mm/m	Numeric (xxx)	B horizon water holding capacity per unit depth	31 mm/m
B AWHC mm	Numeric (xxx)	B horizon water holding capacity	19 mm
B Reliability	Text	Reliability of water retention estimate for B horizon	
PAWHC mm	Numeric (xxx)	Available water holding capacity of the solum	51 mm
Nutrients	Integer	Nutrient Status low (1), moderate (2) and high (3)	1

Texture and Clay Content

Estimates have been made of the Northcote Texture Group for the notional A and B horizon. The Texture Groups are summarised in Table 2. An estimate of clay content has also been provided. Texture and particle size distribution (i.e. clay, silt and sand content) are not equivalent (McDonald et al. 1990). The estimated clay contents for each Texture Group are presented in Table 1 and were used as a guide. In many cases, the estimated clay content was increased or decreased depending on the type of soil. For example, soils with high levels of exchangeable sodium have a heavier field texture than suggested by the particle size analysis. In contrast, sub-plastic soils have a relatively light field texture but large clay content because of strong micro-aggregation. For example, Gn3.10 soils often have a clay loam texture but clay content in excess of 70%.

There are several structural features with the Factual Key that have a major impact on the degree to which estimates of texture can be derived. The Key uses soil texture as a differentiating character at several levels. At the highest level, four primary profile forms are recognized:

- Organic: Profiles with the top 0.30m containing ≥20% organic matter when the clay content is ≤15%, or ≥30% organic matter when the clay content is >15%.
- Uniform: Profiles with a small, if any, texture difference throughout.
- Gradational: Profiles with an increasing texture grade (ie. more clay rich) such that differences between horizons are less than 1.5 texture grades and the range down the profile exceeds a texture group.
- Duplex: Profiles with a clear to sharp transition between the A and B horizons and a texture contrast between these layers of ≥1.5 texture groups.

Subdivisions of the uniform primary profile form are made on the basis of texture with coarse (sand or sandy loam throughout the profile), medium (loam or clay loam throughout), fine (clay throughout) and cracking (shrink-swell clay throughout) classes being recognized.

From this it can be seen that estimation of texture for the uniform primary profile form is straightforward (eg. Uc profiles are by definition sands or sandy loams throughout the profile and Ug profiles are medium to heavy clays throughout). Uc, Um, Uf and Ug soils occupy around 58% of Australia. It is more difficult to be definite about other soil types. For example, duplex soils can have a range of surface textures (from sands to clay loams) - the only definite statement that can be made about these soils is that the B horizons have greater clay contents than A horizons and the former will always have texture of loam or heavier. Duplex soils occupy around 17.5% of Australia. Some other classes exhibit almost the full range of textures (eg. Gc and Gn soils) and these occupy the remaining 24.2% of Australia.

The discussion so far would suggest that reliable interpretations of texture are possible for only a limited part of the continent. However, many of the other criteria used throughout the Factual Key have some degree of correlation with texture. For example, Gn3.10 soils have gradational texture profiles, are not calcareous throughout, are strongly acid and have smooth-ped B horizons that are whole coloured and red. These soils nearly always have a loam to clay loam texture with a gradual increase throughout the profile. The reliability of estimates of texture for soil classes that do not have texture as a diagnostic or keying variable depends heavily on the strength of correlations between the relevant soil properties.

Horizon and Solum Thickness

The thickness of individual soil layers and depth of the overall soil profile are used sparingly as keying criteria in the Factual Key. This has been rectified in the new Australian Soil Classification (Isbell 1996) which includes depth at the Family level. Regardless of how well horizon thickness relates to a taxonomic class, in many landscapes, variations in thickness and total depth often occur at the scale of the hillslope. The resolution of the Atlas of Australian Soils is too coarse to represent this variation so the values for polygons are general averages by necessity.

Because thickness is used sparingly in the Factual Key, estimation has to rely on empirical correlations for particular soil types. For example, the Gn3.10 soil noted earlier is nearly always deep with an average depth between 2–3 m.

A major difficulty associated with the Factual Key, Atlas of Australian Soils and existing soil databases is the imprecise definition of the depth of soil or regolith that can be exploited by plant roots. The solum depth (i.e. depth of the A and B horizons) is not necessarily associated with the depth of root growth and in many landscapes, plants exploit deeper layers (C and D horizons) - these layers are not recorded in a consistent form in historical datasets.

Table 2: Texture grades and groups used in the Factual Key – estimated clay contents are adapted from McDonald et al. (1990).

Texture Group Number	Texture Group	Estimated Clay Content (Min., Mean, Max.)			Texture Grade
1	Sands	0	5	8	Sand Clayey Sand Loamy Sand
2	Sandy Loams	8	15	20	Sandy Loam Fine Sandy Loam Light Sandy Loam
3	Loams	10	20	30	Loam Loam, Fine Sandy Silt Loam Sandy Clay Loam
4	Clay Loams	20	30	40	Clay Loam Silty Clay Loam Fine Sandy Clay Loam
5	Light Clays	35	40	50	Sandy Clay Silty Clay Light Clay Light Medium Clay
6	Clays	45	55	100	Medium Clay Heavy Clay

A further problem is the large portion of censored data in existing databases. This is because the depth of characterisation has been limited by the method of observation (e.g. soil augers or backhoe pits are often restricted to one or two metres) or survey purpose (e.g. many agriculturally focussed surveys were only concerned with the first metre). Many of the frequency distributions for individual Principle Profile Forms generated from the CSIRO database were bimodal with peaks at around 1m and again at a larger depth (see Appendix Three). In these instances, the interpreted depth relied on the calculated median depth from the database records along with a qualitative adjustment to compensate for the apparently censored data.

Some Principle Profile Forms by definition are comprised of an A horizon only (e.g. Uc1, Um1 and Uf1 subdivisions). These are often young soils forming in alluvium or similar materials. They have an accumulation of organic carbon in the A horizon and minimal evidence of pedogenesis. However, the depth of material available for root exploration is much greater than the A horizon and this depth is difficult to estimate. The depth of solum is equivalent to the thickness of the A horizon.

Bulk Density

Bulk density data have not been collected in routine soil surveys despite their importance for a range of purposes. The CSIRO database at the time of the analysis had bulk density determinations for 1,755 soil layers although these were biased to soils used for agriculture and the Bago-Maragle forest soil survey study (McKenzie and Ryan 1999).

Bulk density is not used as a diagnostic criterion in the Factual Key although certain defining features have good correlations. For example, the hardsetting criterion is used to discriminate at the Section level between various forms of A horizons in duplex soils. Hardsetting A horizons nearly always have bulk densities of ≥1.4 Mg m^{-3}. Likewise, the presence of A2 horizons, colour mottling and pH can be used to make inferences. Mottled B horizons in duplex soils with bleached A2 horizons and alkaline reaction trends will invariably be sodic and as a consequence have bulk densities ≥1.6 Mg m^{-3}.

The uncertainty associated with bulk density estimates will be greater than those for texture. Bulk density data are not available for many groups of soils and there are many instances where bulk density will have little if any correlation with generalised soil types; for example, where land management practices have led to increases in bulk density across a range of soil types.

Grade of Pedality

Grade of pedality has been estimated because it is an explanatory variable used by Williams *et al*. (1992) for predicting the water retention curve (see below). Grade of pedality is estimated as single grain (1), massive (2), weak (3) moderate (4) or strong (5). Williams *et al.* (1992) convert these to a binary variable and this equals 1 for massive or single grain soils or 2 for soils with a grade of structure ranging from weak to strong. Pedality is used throughout the Factual Key either directly or through related variables (e.g. fabric, presence of hardsetting etc.).

Saturated Hydraulic Conductivity

Saturated hydraulic conductivity (K_s) is a strong determinant of the soil water regime. It typically exhibits substantial short-range variation and is relatively difficult to measure - there are few reliable sets of K_s data for Australia (Cresswell et al. 1999). Despite these problems, K_s can be related to soil morphological criteria and the classes of the Factual Key (Talsma and Hallam 1980; McKenzie and Jacquier 1997; Bird et al. 1996). The estimates of K_s presented here are based on experience gained in CSIRO Land and Water (McKenzie et al. 1991; Geeves et al. 1995; McKenzie and Jacquier 1997) and published data sets (e.g. Forrest et al. 1985; Williams 1983).

K_s has been estimated using the classes presented in Table 3. The median values for each class are approximately equidistant on a logarithmic scale (i.e. –1, -0.5, 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0 using $\log_{10}$). Estimates of confidence intervals are given in terms of ± number of classes – this provides an assymetric estimate for the confidence interval for the back-transformed data. This is more realistic for K_s data because they are generally log-normally distributed. For example, a soil horizon may have an estimated K_s of 100 mm/hr (Class 8) ± 1 class when variability is low (i.e. range is 30 – 300) or 100 mm hr^{-1} ± 2 classes when the estimate is less certain (i.e. range of 10 – 1000).

The descriptive names are approximately the same as McDonald and Isbell (1990). Descriptive names are provided for classes 2, 4, 6, 8, and 10 to provide a more approximate classification. The intervening class values are the boundaries for the descriptive class (i.e. the slow class has a mid-point of 1.0 mm/hr, a lower bound of 0.3 mm/hr and upper bound of 3.0 mm/hr). Descriptive names can be used for intervening classes if required (eg. class 3 would be “very slow to slow”)

Table 3: Definition of classes for K_s.

Class	Median mm/hr	$\log_{10}$	Descriptive Name
1	0.03	-1.5	
2	0.1	-1.0	Very slow
3	0.3	-0.5	
4	1.0	0.0	Slow
5	3.0	0.5	
6	10	1.0	Moderate
7	30	1.5	
8	100	2.0	High
9	300	2.5	
10	1000	3.0	Extreme
11	3000	3.5	

Soil Water Retention and Available Water Capacity

The soil water retention curve, like K_s, is slow and expensive to measure. Several pedotransfer functions have been published to predict the curve from more readily observed data. Equation 7 from Williams et al. (1992) has been used here because it has been derived from a relatively large data set and testing on independent data sets has shown it to be robust (Paydar and Cresswell 1996).

Estimates have been provided of the volumetric water content at 0.1 bar and 15 bar for each layer. Available water capacity is presented on a per unit depth basis, as a total for each horizon, and as a total for the solum. The last estimate is likely to be the most useful. The available water capacities have been calculated as the difference in volumetric water content at matric potentials of –0.1 bar and –15 bar for a specified depth increment.

There are situations where empirical methods of prediction such as Williams et al. (1992) fail. The predictive equations are *unreliable* when applied to soils with a clay content exceeding 60% - this is outside of the range of soils on which the equations were developed. Reliability is also determined by evaluating the parameters in the soil water retention curves used for calculating the water retention properties against arbitrary thresholds. Properties are labeled as *unreliable* if the Campbell *b* parameter (refer Williams et al. 1992) is predicted to be greater than 26 or if the Campbell air entry potential (refer Williams et al. 1992) is less than -0.120 bar. Properties are labeled as *low* reliability if the Campbell *b* parameter is predicted to be 2 - 22, or if the Campbell air entry potential is less than -0.09 bar. All of the water retention estimates provided here are first approximations based on limited information.

Note that the total available water capacity for the solum is constrained by limitations associated with the estimate of solum thickness noted earlier. There are many other physical and practical reasons why an estimate of available water capacity as presented here is only an approximate, and sometimes erroneous, estimate of the actual plant available water capacity (see Hillel 1980). Despite these limitations, it provides a reasonable first approximation of the water storage capacity of a soil. Note that if better estimates of layer thickness are available, then they should be used in conjunction with the estimate of available water per unit depth to calculate a more reliable profile available water capacity. Estimates of the parameters of the soil water retention curves used for calculating the water retention properties are available from the authors.

Nutrient Status

The rating system for gross nutrient status prepared by McKenzie and Hook (1992) has been included. The interpretations relate to the behaviour of profiles under agricultural development. Profiles with a low status (class 1) exhibit major responses to N, P and K along with most micronutrients. Profiles with a moderate nutrient status (class 2) respond to N and P with occasional responses to some micronutrients. It is uncommon for profiles with a high nutrient status (class 3) to respond to N and P except after intensive farming. The main sources of information for the assessment of nutrient status were Stace *et al*. (1968) and Northcote *et al.* (1975).

Coarse Fragments and Calcrete

Coarse fragment content does not usually correlate strongly with Principal Profile Form unless prefixes have been used (see below). Attempts were made to estimate coarse fragment percentages but they were deemed too unreliable to be useful. Most soil types can have coarse fragment abundances ranging from zero to moderate (i.e. <50%).

The Atlas of Australian Soils makes provision for very gravelly soils through the use of prefixes. Soils with a KS- prefix have more than 60% ironstone coarse fragments throughout the profile. Similarly, soils with a K- prefix have 60% or more coarse fragments other than ironstone. A default coarse fragment content of 60% can be used for these soils.

The presence or absence of calcrete is a keying property in parts of the Factual Key. The listing of Principle Profile Forms with calcrete presented here however is bound to be an underestimate for two reasons. Some Principle Profile Forms have a range of possible substrates, including calcrete, as a keying criterion (e.g. Uc2.1) but it is misleading to record calcrete as being present. Second, many Principle Profile Forms may overlie calcrete but this feature is not used as a keying criterion.

3 Generating Spatial Estimates of Soil Properties with the Atlas

Several general strategies, with large differences in resource requirements, can be used to develop interpretations from the Digital Atlas of Australian Soils. A preliminary understanding of the structure of the Atlas is necessary to appreciate the advantages and disadvantages of each strategy.

- The Atlas of Australian Soils uses 725 soil profile classes, normally at the level of Principle Profile Form (e.g. Ug5.15).
- The legend of the Atlas defines 3,060 map unit types. The map unit types have various combinations of the 725 soil profile classes. The map unit type descriptions identify dominant and subdominant soil profile classes.
- Many of the map unit types occur more than once and the Digital Atlas has 22,560 polygons.

McKenzie and Hook (1992) prepared interpretations of the 725 soil profile classes. The dominant soil in each map unit type was then identified and the interpreted values for each soil profile class were ascribed to the map unit type.

Another possible strategy would be to prepare interpretations for each of the 3,060 map units. McKenzie and Hook (1992) recognized that some soil profile classes required different interpretations depending on location. For example, a Uc1.22 soil in Western Australia may be very shallow whereas the same soil type in South Australia may be deep. Undertaking interpretations for each map unit clearly requires an excellent geographic knowledge of Australian soils.

A third possible strategy would be to provide interpretations for individual polygons. This would be a time consuming task but the level of experience needed would not differ greatly from the second strategy.

In this work, we have restricted ourselves to a revision of the McKenzie and Hook (1992) interpretations because of resource limitations. Two spreadsheets have been produced and the first was described above (Table 1). A second spreadsheet lists the dominant Principle Profile Form for each of the 3,060 map unit types (Table 4) and it is available from the authors. The spreadsheet also includes the subdominant Principle Profile Forms identified for each map unit type. The original map unit descriptions for the Atlas (Northcote et al. 1960-68) vary greatly in their detail. Some units have more than 20 Principle Profile Forms described while others record only a dominant taxon. The number of taxa recorded is a function of both mapping detail and landscape complexity - the two cannot be readily separated. As a compromise, we have listed the five most common Principle Profile Forms to provide a general idea of within-unit variability. Note that a large number of map units have only one or two subdominant Principle Profile Forms.

Table 4: Spreadsheet description for map unit types (tr11-00_atlasmap.txt). Note that Subdominant Principle Profile Forms are listed in approximate order of dominance.

Variable	Data type	Description	Example value
MAP_UNIT	Text	Map unit code	CC12
PPF1	Text	Dominant Principle Profile Form	Ug5.2
PPF2	Text	Subdominant Principle Profile Form	Dd2.33
PPF3	Text	Subdominant Principle Profile Form	Dy3.33
PPF4	Text	Subdominant principle profile form	Dy2.1
PPF5	Text	Subdominant principle profile form	Ug5.5

4 Concluding Caveats

Use of the interpretations requires an appreciation of the limitations associated with reconnaissance scale soil-landscape maps. Some of the more significant issues are as follows.

- Reconnaissance scale soil-landscape maps usually have a low predictive capability for individual soil properties (Beckett and Webster 1971). This predictive capability is further diminished by the uncertainty associated with each interpretation.

- The quality of the Atlas mapping varies substantially and an indication of reliability is provided with the original explanatory notes published during the 1960's (Northcote et al. 1960-68). These should be referred to when drawing conclusions about a particular region.

- A major restriction of the Atlas is the lack of information on the area within each polygon occupied by the component soil types – area-weighted averages cannot be calculated. While a dominant soil type can be specified for each unit, it may occupy a very limited area within a given unit (perhaps 20%). Any analysis based on an interpretation of the dominant soil is therefore of restricted value. An alternative is to calculate average values for the most common soils. However, an average value can be also misleading when there is a clear dominant soil and the minor soils have sharply contrasting properties. These problems are particularly evident for the Nullarbor Plain and many of the forested areas in south-eastern Australia.

- Very large variation within each map unit is normal. As noted earlier, some units have up to 20 soils listed. It is common for the within-unit variation to be as great as the between-unit variation. This is an inescapable problem with reconnaissance scale soil-landscape mapping. An indication of the variation within map units can be generated using the list of dominant and subdominant soils.

- As a consequence, it is essential to use the estimated value and confidence interval when making judgements on soil character and behaviour for any area.

- Some soil types are far more variable with respect to the interpreted properties than others.

- Many landscape processes (e.g. erosion, salinization etc.) do not correlate in a simple way with the Atlas units because the description of soils is based on profile morphology. Profile morphology may have a poor or complex relationship with soil physical and chemical properties and, as a consequence, soil processes. Furthermore, landscape processes require more information before synoptic predictions can be made.

- The spatial arrangement of soils within a landscape may have an overriding impact on landscape processes (e.g. erodible soils along stream banks). The Digital Atlas and its associated tables provide limited information on spatial arrangement.

- The interpretations have been prepared using published information supported by restricted first hand experience. The interpretations will be revised in the future when better information is available. In the interim, they should be used cautiously.

Despite these daunting limitations, the Digital Atlas of Australian Soils in conjunction with the interpretations of McKenzie and Hook (1992) have been useful for a range of applications at the continental level. The improved interpretations described in this report will hopefully increase the utility of the Digital Atlas and encourage more informed application of soil information for natural resource research, planning and management

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Appendix One: Interpreted Soil Properties

ppf	Atext5	Aclay5	Atext50	Aclay50	Atext95	Aclay95	Btext5	Bclay5	Btext50	Bclay50	Btext95	Bclay95	Athick5	Athick50	Athick95	Bthick5	Bthick50	Bthick95	Solumthick5	Solumthick50	Solumthick95	Astruct5	Astruct50	Astruct95	Bstruct5	Bstruct50	Bstruct95	ABDensity5	ABDensity50	ABDensity95	BBDensity5	BBDensity50	BBDensity95	AKs	AKserror	BKs	BKserror	Calcrete	Reliability	A 0.1bar	A 15bar	A AWHC m	A AWHC m	A Reliabili	B 0.1bar	B 15 bar	B AWHC m	B AWHC m	B Reliabilit	PAWHC	Nutrients
Db0.33	2	15	3	25	4	35	5	40	6	50	6	60	0.02	0.08	0.3	0.3	0.5	0.7	0.5	0.7	1.5	2	2	2	4	5	5	1.3	1.4	1.5	1.5	1.6	1.7	3	2	4	2	0		0.27	0.12	147	12		0.37	0.30	65.00	33	unreliable	44	1
Db0.43	2	15	3	25	4	35	5	40	6	50	6	60	0.02	0.08	0.3	0.3	0.5	0.7	0.5	0.7	1.5	2	2	2	4	5	5	1.3	1.4	1.5	1.5	1.7	1.9	3	2	3	2	0		0.27	0.12	147	12		0.33	0.30	31.00	16	unreliable	27	1
Db1.1	1	8	3	20	4	30	5	40	6	50	6	70	0.05	0.15	0.4	0.1	0.7	1.8	0.2	0.8	1.9	2	2	4	3	4	5	1	1.6	1.8	1.1	1.6	1.9	7	2	7	2	0	1	0.25	0.12	130	19		0.37	0.30	65.00	46	unreliable	65	1
Db1.11	1	8	3	20	4	30	5	40	6	50	6	70	0.05	0.15	0.3	0.1	0.8	1.7	0.5	1	2	2	2	3	3	4	5	1	1.3	1.6	1.1	1.5	1.8	7	2	7	2	0	2	0.28	0.12	157	24		0.4	0.30	94.00	75		99	1
Db1.12	1	8	3	20	4	30	4	35	6	50	6	70	0.05	0.2	0.8	0.1	0.5	0.9	0.2	0.8	1.2	2	2	4	3	4	5	1	1.4	1.7	1.1	1.5	1.8	7	2	7	2	0	1	0.27	0.12	147	29		0.4	0.30	94.00	47		76	1
Db1.13	2	15	4	30	4	40	5	40	6	50	6	70	0.05	0.1	0.3	0.2	0.8	1.9	0.3	1	2	2	2	5	3	4	5	1.1	1.4	1.8	1.2	1.6	1.9	7	2	6	2	0	1	0.29	0.15	146	15		0.37	0.30	65.00	52	unreliable	67	1
Db1.2	1	8	2	15	3	20	5	40	6	50	6	70	0.1	0.3	0.5	0.1	0.5	1.2	0.4	0.8	1.5	1	2	3	2	4	5	1	1.6	1.8	1.1	1.6	1.9	7	2	7	3	0	1	0.22	0.09	132	40		0.37	0.30	65.00	33	unreliable	72	2
Db1.21	1	8	2	20	2	30	5	40	6	50	6	70	0.1	0.2	0.3	0.4	0.5	0.7	0.5	0.7	1	2	2	3	3	3	4	1	1.3	1.6	1.1	1.5	1.8	7	2	7	2	0	2	0.25	0.09	156	31		0.4	0.30	94.00	47		78	2
Db1.22	1	8	2	15	3	20	5	40	6	50	6	70	0.2	0.3	0.7	0.1	0.3	0.6	0.4	0.7	1.2	2	2	3	2	3	5	1	1.3	1.6	1.1	1.5	1.8	7	2	7	2	0	1	0.25	0.09	156	47		0.4	0.30	94.00	28		75	2
Db1.23	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.5	0.3	0.7	1.3	0.5	0.9	1.5	1	2	3	3	4	5	1.1	1.5	1.8	1.2	1.6	1.9	7	2	6	2	0	1	0.26	0.12	138	28		0.37	0.30	65.00	46	unreliable	73	2
Db1.3	1	8	3	20	4	30	4	30	6	50	6	70	0.1	0.2	0.3	0.2	0.7	1.2	0.2	0.9	1.3	2	3	4	3	4	5	1.1	1.6	1.8	1.1	1.6	1.9	7	2	6	2	0	1	0.30	0.18	119	24		0.37	0.30	65.00	46	unreliable	70	1
Db1.31	1	8	3	20	4	30	5	40	6	50	6	70	0.05	0.1	0.2	0.4	0.9	1.8	0.5	1	2	2	2	3	4	4	5	1.1	1.6	1.8	1.1	1.6	1.9	7	2	5	2	0	3	0.25	0.12	130	13		0.37	0.30	65.00	59	unreliable	72	1
Db1.32	1	8	3	20	4	30	5	40	6	50	6	70	0.05	0.1	0.2	0.4	0.9	1.8	0.5	1	2	2	2	3	4	4	5	1.1	1.6	1.8	1.1	1.6	1.9	7	2	5	2	0	2	0.25	0.12	130	13		0.37	0.30	65.00	59	unreliable	72	1
Db1.33	2	15	3	20	4	30	4	35	6	50	6	70	0.1	0.2	0.3	0.2	0.7	1.3	0.4	0.9	1.5	2	2	4	3	4	5	1.1	1.6	1.8	1.1	1.6	1.9	7	2	4	2	0	1	0.25	0.12	130	26		0.37	0.30	65.00	46	unreliable	72	1
Db1.4	1	5	2	20	4	30	5	40	6	50	6	70	0.1	0.3	0.5	0.1	0.5	1.1	0.4	0.8	1.4	2	2	3	3	4	5	1.1	1.6	1.8	1.1	1.6	1.9	7	2	6	3	0	1	0.22	0.09	132	40		0.37	0.30	65.00	33	unreliable	72	1
Db1.41	1	8	2	15	3	20	5	40	6	50	6	70	0.1	0.15	0.2	0.4	0.6	0.8	0.5	0.8	1	2	2	3	3	4	4	1.1	1.6	1.8	1.1	1.6	1.9	7	2	6	2	0	2	0.22	0.09	132	20		0.37	0.30	65.00	39	unreliable	59	1
Db1.42	1	8	3	20	3	30	5	40	5	50	6	70	0.1	0.3	0.5	0.1	0.3	0.4	0.3	0.6	0.9	1	2	3	3	4	5	1.1	1.6	1.8	1.1	1.6	1.9	7	2	5	2	0	2	0.25	0.12	130	39		0.36	0.26	95.00	29		68	1
Db1.43	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.5	0.2	0.6	1.3	0.4	0.9	1.6	1	2	3	2	4	5	1.2	1.6	1.8	1.3	1.6	1.9	7	2	4	2	0	1	0.25	0.12	130	26		0.37	0.30	65.00	39	unreliable	65	1
Db1.52	2	15	3	20	4	30	4	30	5	40	6	60	0.1	0.2	0.5	0.1	0.4	0.7	0.3	0.7	0.9	2	2	2	2	2	2	1.1	1.6	1.8	1.1	1.6	1.9	7	2	6	2	0	2	0.25	0.12	130	26		0.3	0.18	124.00	50		76	1
Db1.61	2	15	3	20	4	30	4	30	5	40	6	60	0.1	0.2	0.5	0.1	0.4	0.7	0.3	0.7	0.9	2	2	2	2	2	2	1.1	1.6	1.8	1.1	1.6	1.9	7	2	6	2	0	3	0.25	0.12	130	26		0.3	0.18	124.00	50		76	1
Db1.62	2	15	3	20	4	30	4	30	5	40	6	60	0.1	0.2	0.5	0.1	0.4	0.7	0.3	0.7	0.9	2	2	2	2	2	2	1.1	1.6	1.8	1.1	1.6	1.9	7	2	6	2	0	3	0.25	0.12	130	26		0.3	0.18	124.00	50		76	1
Db1.81	1	8	2	15	3	25	5	40	6	50	6	60	0.1	0.2	0.3	0.4	0.6	0.8	0.5	0.8	1	1	3	3	2	2	3	1.2	1.6	1.8	1.2	1.6	1.9	7	2	6	2	0	3	0.26	0.13	129	26		0.33	0.21	121.00	72		98	1
Db2.1	2	15	3	20	4	30	4	30	5	40	6	70	0.1	0.2	0.5	0.2	0.6	1.6	1.3	0.8	1.7	2	2	4	3	4	5	1.2	1.6	1.9	1.2	1.7	2	7	2	6	3	0	1	0.25	0.12	130	26		0.33	0.26	74.00	45	unreliable	71	2
Db2.12	2	15	3	20	4	30	4	40	5	50	6	70	0.1	0.2	0.4	0.3	0.5	0.8	0.4	0.7	0.9	2	2	3	3	4	4	1.2	1.6	1.9	1.2	1.7	2	7	2	6	2	0	2	0.25	0.12	130	26		0.33	0.26	74.00	37	unreliable	63	2
Db2.13	2	15	3	20	4	30	5	40	5	50	6	70	0.05	0.1	0.4	0.2	0.7	1.6	0.2	0.9	1.8	2	2	4	3	4	5	1.2	1.6	1.9	1.2	1.7	2	7	2	4	2	0	2	0.25	0.12	130	13		0.33	0.26	74.00	52	unreliable	65	2
Db2.2	2	15	3	20	4	30	5	40	6	50	6	70	0.1	0.3	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	2	4	3	4	5	1.3	1.6	1.9	1.3	1.7	2	7	2	6	3	0	2	0.25	0.12	130	39		0.33	0.30	31.00	22	unreliable	61	2
Db2.21	2	15	3	20	4	30	5	40	6	50	6	70	0.1	0.3	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	3	4	3	4	5	1.3	1.6	1.9	1.3	1.7	2	7	2	6	2	0	2	0.30	0.18	119	36		0.33	0.30	31.00	22	unreliable	57	2
Db2.22	1	8	3	20	4	30	5	40	5	50	6	70	0.1	0.3	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	2	2	3	4	5	1.3	1.6	1.9	1.3	1.7	2	7	2	5	2	0	3	0.25	0.12	130	39		0.33	0.26	74.00	52	unreliable	91	2
Db2.31	2	15	3	20	4	30	5	40	6	50	6	70	0.1	0.3	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	3	4	3	4	5	1.3	1.6	1.9	1.3	1.7	2	7	2	6	2	0	3	0.30	0.18	119	36		0.33	0.30	31.00	22	unreliable	57	1
Db2.32	2	15	2	20	4	30	5	40	6	50	6	70	0.1	0.3	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	2	3	3	4	5	1.3	1.6	1.9	1.3	1.7	2	7	2	5	2	0	2	0.22	0.09	132	40		0.33	0.30	31.00	22	unreliable	61	1
Db2.33	1	8	2	15	3	20	5	40	6	50	6	70	0.1	0.15	0.4	0.2	0.4	0.7	0.4	0.6	0.9	1	2	3	3	4	5	1.3	1.6	1.9	1.3	1.7	2	7	2	4	2	0	2	0.22	0.09	132	20		0.33	0.30	31.00	13	unreliable	32	1
Db2.4	1	8	2	15	3	30	5	40	6	50	6	70	0.1	0.3	0.4	0.1	0.5	1.2	0.3	0.7	1.4	1	2	3	3	4	5	1.3	1.6	1.9	1.4	1.8	2	7	2	4	2	0	1	0.22	0.09	132	40		0.3	0.30	0.00	0	unreliable	40	1
Db2.41	1	5	1	8	3	20	5	40	6	50	6	70	0.1	0.2	0.3	0.1	0.5	1.2	0.3	0.7	1.4	1	2	2	3	4	5	1.3	1.6	1.9	1.4	1.8	2	7	2	4	2	0	2	0.19	0.06	132	26		0.3	0.30	0.00	0	unreliable	26	1
Db2.42	1	8	2	15	2	20	5	40	6	50	6	70	0.1	0.3	0.4	0.1	0.5	1.2	0.3	0.7	1.4	1	2	3	3	4	5	1.3	1.6	1.9	1.4	1.8	2	7	2	4	2	0	2	0.22	0.09	132	40		0.3	0.30	0.00	0	unreliable	40	1
Db2.43	1	8	2	15	3	20	5	40	6	50	6	70	0.1	0.2	0.3	0.3	0.9	1.3	0.5	1	1.6	1	2	2	4	4	5	1.3	1.6	1.9	1.4	1.8	2	7	2	3	2	0	2	0.22	0.09	132	26		0.3	0.30	0.00	0	unreliable	26	1
Db3.1	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.4	0.7	0.3	0.6	0.8	1	2	5	3	4	5	1.8	1.2	1.5	1	1.5	1.8	8	2	7	2	0	1	0.29	0.12	169	34		0.4	0.30	94.00	38		71	2
Db3.11	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.4	0.7	0.3	0.6	0.8	1	2	5	3	4	5	0.8	1.2	1.5	1	1.5	1.8	8	2	7	2	0	3	0.29	0.12	169	34		0.4	0.30	94.00	38		71	2
Db3.12	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.3	0.1	0.3	0.6	0.2	0.6	0.9	2	2	5	3	4	5	0.8	1.2	1.5	1	1.5	1.8	8	2	7	2	0	2	0.29	0.12	169	34		0.4	0.30	94.00	28		62	2
Db3.13	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.3	0.6	0.2	0.6	0.9	2	2	5	2	4	4	0.8	1.3	1.6	1.2	1.6	1.9	8	2	6	3	0	2	0.28	0.12	157	31		0.37	0.30	65.00	20	unreliable	51	2
Db3.2	1	8	2	15	3	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.4	0.7	0.3	0.6	1.4	2	2	4	2	3	4	0.8	1.2	1.5	1	1.5	1.8	8	2	7	2	0	1	0.26	0.09	167	33		0.4	0.30	94.00	38		71	2
Db3.21	1	8	2	15	3	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.4	0.7	0.3	0.6	1.4	2	2	4	2	3	4	0.8	1.2	1.5	1	1.5	1.8	8	2	7	2	0	3	0.26	0.09	167	33		0.4	0.30	94.00	38		71	2
Db3.22	1	8	2	15	3	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.4	0.7	0.3	0.6	1.4	2	2	4	2	3	4	0.8	1.2	1.5	1	1.5	1.8	8	2	7	2	0	3	0.26	0.09	167	33		0.4	0.30	94.00	38		71	2
Db3.23	1	8	2	15	3	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.1	0.7	0.3	0.6	1.4	2	2	4	2	3	4	0.8	1.2	1.5	1	1.5	1.8	8	2	6	2	0	3	0.26	0.09	167	33		0.4	0.30	94.00	9		43	2
Db3.32	1	8	2	15	3	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.4	0.7	0.3	0.6	1.4	2	2	4	2	3	4	0.8	1.2	1.5	1	1.5	1.8	8	2	7	2	0	3	0.26	0.09	167	33		0.4	0.30	94.00	38		71	2
Db3.41	1	5	1	8	2	20	5	40	6	50	6	70	0.1	0.2	0.4	0.3	0.5	0.8	0.4	0.7	1	1	3	4	3	4	5	0.8	1.2	1.5	1	1.4	1.7	8	2	7	2	0	2	0.26	0.09	174	35		0.41	0.31	107.00	54		88	2
Db3.43	1	8	2	15	3	30	5	40	6	50	6	70	0.1	0.3	0.4	0.3	0.5	0.8	0.5	0.8	1	1	2	2	3	4	5	0.8	1.2	1.5	1	1.5	1.8	8	2	6	2	0	3	0.26	0.09	167	50		0.4	0.30	94.00	47		97	2
Db4.1	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.5	0.9	0.5	1	1.2	3	4	5	4	4	5	0.8	1.2	1.6	1	1.6	1.9	8	2	6	2	0	3	0.34	0.18	164	33		0.37	0.30	65.00	33	unreliable	66	2
Db4.11	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.5	0.9	0.5	1	1.2	3	4	5	4	4	5	0.8	1.2	1.6	1	1.6	1.9	8	2	6	2	0	3	0.34	0.18	164	33		0.37	0.30	65.00	33	unreliable	66	2
Db4.13	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.5	0.9	0.5	1	1.2	3	4	5	4	4	5	0.8	1.2	1.6	1.1	1.7	2	8	2	5	2	0	3	0.34	0.18	164	33		0.33	0.30	31.00	16	unreliable	48	2
Db4.21	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.3	0.2	0.6	0.9	0.6	1	1.2	3	4	5	4	4	5	0.8	1.2	1.6	1.1	1.7	2	8	2	6	2	0	3	0.34	0.18	164	33		0.33	0.30	31.00	19	unreliable	52	2
Dd1.1	1	8	4	30	4	40	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	4	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	5	3	0	1	0.29	0.15	146	15		0.37	0.30	65.00	46	unreliable	60	2
Dd1.11	2	15	3	20	4	30	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	4	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	5	2	0	3	0.27	0.12	147	15		0.37	0.30	65.00	46	unreliable	61	2
Dd1.12	2	15	3	20	4	30	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	4	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	5	2	0	2	0.27	0.12	147	15		0.37	0.30	65.00	46	unreliable	61	2
Dd1.13	3	20	4	30	4	40	5	40	6	50	6	70	0.05	0.1	0.3	0.2	0.7	1.3	0.4	0.8	1.5	2	2	5	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	3	2	0	1	0.29	0.15	146	15		0.37	0.30	65.00	46	unreliable	60	2
Dd1.2	2	15	3	20	3	30	4	40	5	50	6	70	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	3	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	5	3	0	3	0.27	0.12	147	15		0.36	0.26	95.00	67		81	2
Dd1.21	2	15	3	20	4	30	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	5	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	3	2	0	3	0.27	0.12	147	15		0.37	0.30	65.00	46	unreliable	61	2
Dd1.22	2	15	3	20	4	30	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	4	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	5	2	0	3	0.27	0.12	147	15		0.37	0.30	65.00	46	unreliable	61	2
Dd1.23	3	20	4	30	4	40	5	40	6	50	6	70	0.05	0.1	0.3	0.2	0.7	1.3	0.4	0.8	1.5	2	2	5	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	3	2	0	3	0.29	0.15	146	15		0.37	0.30	65.00	46	unreliable	60	2
Dd1.3	1	8	3	20	4	30	5	40	6	50	6	70	0.05	0.15	0.3	0.2	0.9	2.4	0.3	1	2.5	2	2	5	3	4	5	1.3	1.5	1.8	1.4	1.6	1.9	7	2	5	3	0	1	0.26	0.12	138	21		0.37	0.30	65.00	59	unreliable	80	1
Dd1.31	1	8	3	20	4	30	5	40	6	50	6	70	0.05	0.15	0.3	0.2	0.9	2.4	0.3	1	2.5	2	2	5	3	4	5	1.3	1.5	1.8	1.4	1.6	1.9	7	2	5	2	0	3	0.26	0.12	138	21		0.37	0.30	65.00	59	unreliable	80	1
Dd1.32	3	20	4	30	5	40	5	40	6	50	6	70	0.05	0.15	0.3	0.2	0.9	2.4	0.3	1	2.5	2	3	4	4	4	5	1.3	1.5	1.8	1.4	1.6	1.9	7	2	4	2	0	2	0.34	0.22	117	18		0.37	0.30	65.00	59	unreliable	77	1
Dd1.33	1	8	3	20	4	30	5	40	6	50	6	70	0.05	0.15	0.2	0.3	0.7	1.4	0.2	0.8	1.5	2	3	4	3	4	5	1.3	1.5	1.8	1.4	1.6	1.9	7	2	3	2	0	1	0.30	0.18	128	19		0.37	0.30	65.00	46	unreliable	65	1
Dd1.4	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.15	0.3	0.3	1	1.8	0.4	1.1	2.1	2	2	3	3	4	5	1.3	1.5	1.9	1.4	1.7	2	7	2	3	2	0	1	0.26	0.12	138	21		0.33	0.30	31.00	31	unreliable	52	1
Dd1.41	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.15	0.3	0.3	1	1.8	0.4	1.1	2.1	2	2	3	3	4	5	1.3	1.5	1.9	1.4	1.7	2	7	2	3	2	0	3	0.26	0.12	138	21		0.33	0.30	31.00	31	unreliable	52	1
Dd1.42	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.15	0.3	0.3	1	1.8	0.4	1.1	2.1	1	2	3	3	4	5	1.3	1.5	1.9	1.4	1.7	2	7	2	3	2	0	2	0.26	0.12	138	21		0.33	0.30	31.00	31	unreliable	52	1
Dd1.43	1	8	3	20	4	30	5	40	6	50	6	60	0.1	0.15	0.3	0.3	1	1.9	0.4	1.2	2.2	2	2	3	3	4	5	1.3	1.5	1.9	1.4	1.7	2	7	2	2	1	0	1	0.26	0.12	138	21		0.33	0.30	31.00	31	unreliable	52	1
Dd1.52	1	8	3	20	4	30	5	35	5	40	6	50	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	2	2	2	2	1.3	1.4	1.8	1.4	1.7	1.9	7	2	5	2	0	3	0.27	0.12	147	15		0.29	0.18	116.00	81		96	2
Dd1.81	1	8	3	20	4	30	5	35	5	40	6	50	0.1	0.15	0.3	0.3	1	1.8	0.4	1.1	2.1	1	2	2	2	2	2	1.3	1.5	1.9	1.4	1.8	2	7	2	3	2	0	3	0.26	0.12	138	21		0.28	0.18	109.00	109		130	1
Dd2.11	2	15	3	20	4	30	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	4	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	5	2	0	2	0.27	0.12	147	15		0.37	0.30	65.00	46	unreliable	61	2
Dd2.12	2	15	3	20	4	30	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	4	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	5	2	0	3	0.27	0.12	147	15		0.37	0.30	65.00	46	unreliable	61	2
Dd2.13	1	8	3	20	4	30	5	40	6	50	6	70	0.05	0.15	0.4	0.3	0.6	1.3	0.3	0.8	1.7	2	2	4	3	4	5	1.3	1.5	1.8	1.4	1.6	1.9	7	2	3	2	0	2	0.26	0.12	138	21		0.37	0.30	65.00	39	unreliable	60	2
Dd2.2	2	15	3	20	3	30	4	40	5	50	6	70	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	3	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	5	2	0	3	0.27	0.12	147	15		0.36	0.26	95.00	67		81	
Dd2.22	2	15	3	20	4	30	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.7	1.4	0.4	0.8	2	2	2	4	3	4	5	1.3	1.4	1.8	1.4	1.6	1.9	7	2	5	2	0	3	0.27	0.12	147	15		0.37	0.30	65.00	46	unreliable	61	2
Dd2.31	1	8	3	20	4	30	5	40	6	50	6	70	0.05	0.15	0.3	0.2	0.9	2.4	0.3	1	2.5	2	2	5	3	4	5	1.3	1.5	1.8	1.4	1.6	1.9	7	2	5	2	0	3	0.26	0.12	138	21		0.37	0.30	65.00	59	unreliable	80	1
Dd2.32	1	8	3	20	4	30	5	40	6	50	6	70	0.05	0.15	0.3	0.2	0.9	2.4	0.3	1	2.5	2	3	4	4	4	5	1.3	1.5	1.8	1.4	1.6	1.9	7	2	4	2	0	3	0.30	0.18	128	19		0.37	0.30	65.00	59	unreliable	78	1
Dd2.33	1	8	2	20	4	30	5	40	6	50	6	70	0.05	0.2	0.5	0.3	0.7	1.5	0.8	1.2	1.8	1	2	3	2	3	5	1.3	1.5	1.8	1.4	1.7	1.9	7	2	2	1	0	2	0.23	0.09	139	28		0.33	0.30	31.00	22	unreliable	50	1
Dd2.41	1	8	2	20	3	30	5	40	6	50	6	70	0.05	0.2	0.5	0.3	0.7	1.5	0.8	1.2	1.8	2	2	3	3	4	5	1.3	1.5	1.8	1.4	1.7	1.9	7	2	3	2	0	3	0.23	0.09	139	28		0.33	0.30	31.00	22	unreliable	50	1
Dd2.42	2	15	3	20	4	30	5	40	6	50	6	70	0.05	0.2	0.5	0.3	0.7	1.5	0.8	1.2	1.8	2	2	3	3	4	5	1.3	1.5	1.8	1.4	1.7	1.9	7	2	3	2	0	3	0.26	0.12	138	28		0.33	0.30	31.00	22	unreliable	49	1
Dd2.43	2	15	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.3	0.3	0.9	1.7	0.5	1.1	1.9	2	2	3	3	4	5	1.3	1.5	1.8	1.3	1.7	1.9	7	2	2	1	0	2	0.26	0.12	138	28		0.33	0.30	31.00	28	unreliable	56	1
Dd3.1	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.3	0.2	0.6	1.2	0.2	0.7	1.3	1	2	4	3	4	5	1	1.2	1.6	1.4	1.6	1.9	8	2	5	3	0	2	0.29	0.12	169	17		0.37	0.30	65.00	39	unreliable	56	2
Dd3.11	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.3	0.2	0.6	1.2	0.2	0.7	1.3	1	2	4	3	4	5	1	1.2	1.6	1.4	1.6	1.9	8	2	5	3	0	3	0.29	0.12	169	17		0.37	0.30	65.00	39	unreliable	56	2
Dd3.12	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.3	0.2	0.6	1.2	0.2	0.7	1.3	2	2	4	3	4	5	1	1.2	1.6	1.4	1.6	1.9	8	2	5	2	0	3	0.29	0.12	169	17		0.37	0.30	65.00	39	unreliable	56	2
Dd3.13	1	8	3	30	4	40	5	40	6	50	6	60	0.05	0.1	0.2	0.2	0.7	1.2	0.2	0.8	1.3	1	2	4	3	4	5	1	1.2	1.6	1.4	1.6	1.9	8	2	3	2	0	2	0.29	0.12	169	17		0.37	0.30	65.00	46	unreliable	63	2
Dd3.21	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.8	1.2	0.2	1	1.5	2	2	3	3	4	5	1	1.2	1.6	1.4	1.6	1.9	8	2	3	2	0	3	0.29	0.12	169	17		0.37	0.30	65.00	52	unreliable	69	2
Dd3.32	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.8	1.2	0.2	1	1.5	2	2	3	3	4	5	1	1.2	1.6	1.4	1.6	1.9	8	2	3	2	0	3	0.29	0.12	169	17		0.37	0.30	65.00	52	unreliable	69	1

Appendix One: Interpreted Soil Properties

ppf	Atext5	Aclay5	Atext50	Aclay50	Atext95	Aclay95	Btext5	Bclay5	Btext50	Bclay50	Btext95	Bclay95	Athick5	Athick50	Athick95	Bthick5	Bthick50	Bthick95	Solumthick5	Solumthick50	Solumthick95	Astruct5	Astruct50	Astruct95	Bstruct5	Bstruct50	Bstruct95
Dd3.33	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.8	1.2	0.2	1	1.5	2	2	3	3	4	5
Dd3.42	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.8	1.2	0.2	1	1.5	1	2	2	3	4	5
Dd3.43	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.8	1.2	0.2	1	1.5	1	2	2	3	4	5
Dd3.51	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.3	0.2	0.6	1.2	0.2	0.7	1.3	1	2	4	3	4	5
Dd4.13	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.2	0.2	0.7	1.2	0.2	0.8	1.3	2	3	5	3	4	5
Dd4.23	1	8	3	30	4	40	5	40	6	50	6	60	0.05	0.1	0.2	0.2	0.7	1.2	0.2	0.8	1.3	1	2	4	3	4	5
Dd4.43	1	8	3	30	4	40	5	40	6	50	6	70	0.05	0.1	0.4	0.2	0.8	1.2	0.2	1	1.5	1	2	2	3	4	5
Dd4.63	1	8	3	30	4	40	5	35	6	40	6	50	0.05	0.1	0.4	0.2	0.8	1.2	0.2	1	1.5	1	2	2	2	2	3
Dg1.41	2	15	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.5	0.3	0.9	1.5	0.5	1.1	1.8	2	2	2	3	4	4
Dg1.43	2	15	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.5	0.3	0.9	1.5	0.5	1.1	1.8	2	2	2	3	4	4
Dg1.81	2	15	3	20	4	30	5	30	6	40	6	50	0.1	0.2	0.5	0.3	0.9	1.5	0.5	1.1	1.8	2	2	2	2	2	3
Dg2.21	2	15	3	20	3	30	5	40	6	50	6	70	0.1	0.2	0.5	0.3	0.9	1.5	0.5	1.1	1.8	2	2	2	3	4	4
Dg2.31	2	15	3	20	3	30	5	40	6	50	6	70	0.1	0.2	0.5	0.3	0.9	1.5	0.5	1.1	1.8	2	2	2	3	4	4
Dg2.41	2	15	3	20	3	30	5	40	6	50	6	70	0.3	0.6	0.8	0.4	1	1.5	0.8	1.5	2	2	2	4	3	3	5
Dg2.42	2	15	3	30	3	30	5	40	6	50	6	70	0.3	0.6	0.8	0.4	1	1.5	0.8	1.5	2	2	2	3	3	4	4
Dg2.43	1	8	2	20	3	30	5	40	6	50	6	70	0.2	0.6	0.8	0.4	1	1.5	0.8	1.5	2	2	2	3	3	4	5
Dg2.63	1	8	2	20	3	30	5	30	6	40	6	50	0.1	0.4	0.6	0.5	1	1.5	0.9	1.5	2	2	2	2	2	2	3
Dg2.81	1	8	2	20	3	30	5	40	6	50	6	70	0.1	0.4	0.6	0.5	1	1.5	0.9	1.5	2.1	2	2	2	2	2	2
Dg2.82	1	8	2	20	3	30	5	40	6	50	6	70	0.1	0.4	0.6	0.5	1	1.5	0.9	1.5	2.1	2	2	2	2	2	2
Dg2.83	1	8	2	20	3	30	5	40	6	50	6	70	0.1	0.4	0.6	0.5	1	1.5	0.9	1.5	2.1	2	2	2	2	2	2
Dg3.43	1	8	2	20	3	30	5	40	6	50	6	70	0.2	0.6	0.8	0.4	1	1.5	0.8	1.5	2	2	3	4	2	2	2
Dg3.81	1	5	1	10	4	30	5	40	6	50	6	70	0.1	0.2	0.4	0.2	0.5	1	0.4	0.8	1.4	1	2	3	2	2	2
Dg4.11	1	5	1	10	4	30	5	40	6	50	6	70	0.1	0.2	0.4	0.3	0.6	1	0.6	1.2	1.8	2	2	3	3	4	5
Dg4.13	1	5	1	10	4	30	5	40	6	50	6	70	0.1	0.2	0.4	0.3	0.6	1	0.6	1.2	1.8	2	2	3	3	4	5
Dg4.21	1	8	3	20	4	30	5	40	6	50	6	70	0.2	0.3	0.4	0.3	0.5	1	0.5	0.8	1.2	2	2	3	3	4	5
Dg4.31	1	5	1	8	3	20	5	40	6	50	6	70	0.2	0.3	0.4	0.3	0.5	1	0.5	0.8	1.2	2	2	3	3	4	4
Dg4.41	1	5	1	8	3	20	5	40	6	50	6	70	0.1	0.4	0.6	0.2	0.4	0.7	0.4	0.9	1.2	1	2	3	2	4	4
Dg4.42	1	5	1	8	3	20	5	40	6	50	6	70	0.1	0.4	0.6	0.2	0.7	1	0.5	1	1.5	1	2	2	4	4	5
Dg4.43	1	5	1	8	3	20	5	40	6	50	6	70	0.1	0.4	0.6	0.2	0.7	1	0.5	1	1.5	1	2	2	4	4	5
Dg4.8	1	5	1	8	3	20	5	35	6	40	6	50	0.1	0.4	0.6	0.2	0.7	1	0.5	1	1.5	1	2	2	2	2	3
Dg4.81	1	5	1	8	3	20	5	35	6	40	6	50	0.1	0.4	0.6	0.2	0.7	1	0.5	1	1.5	1	2	2	2	2	3
Dr	1	5	3	30	4	30	4	30	6	50	6	70	0.05	0.2	0.4	0.15	0.5	1.2	0.3	0.8	1.5	2	2	3	3	4	5
Dr1	1	8	2	15	3	30	5	40	5	50	6	70	0.02	0.05	0.1	0.1	0.5	1	0.1	0.5	1	2	2	2	3	4	5
Dr1.12	1	5	3	25	4	35	5	35	5	40	6	50	0.02	0.08	0.15	0.48	0.62	1.4	0.5	0.7	1.5	2	2	2	3	4	5
Dr1.13	1	5	3	25	4	35	5	35	6	50	6	55	0.02	0.08	0.15	0.48	0.62	1.4	0.5	0.7	1.5	2	2	2	3	4	5
Dr1.16	1	5	3	25	4	35	5	35	5	40	6	50	0.02	0.08	0.15	0.48	0.62	1.4	0.5	0.7	1.5	2	2	2	3	4	5
Dr1.3	2	15	3	25	4	35	5	35	5	40	6	50	0.01	0.08	0.2	0.5	0.7	1.5	0.5	0.7	1.5	2	2	2	3	4	5
Dr1.31	2	15	3	25	4	35	5	35	5	40	6	50	0.01	0.08	0.2	0.5	0.7	1.5	0.5	0.7	1.5	2	2	2	3	4	5
Dr1.32	2	15	3	25	4	35	5	35	5	40	6	50	0.01	0.08	0.2	0.5	0.7	1.5	0.5	0.7	1.5	2	2	2	3	4	5
Dr1.33	2	15	3	25	4	35	5	40	6	50	6	60	0.01	0.08	0.2	0.5	0.7	1.5	0.5	0.7	1.5	2	2	2	4	5	5
Dr1.42	1	8	2	15	3	25	5	40	6	50	6	60	0.02	0.08	0.3	0.5	0.7	1.2	0.5	0.7	1.5	2	2	2	4	5	5
Dr1.43	1	8	2	15	3	25	5	40	6	40	6	60	0.2	0.08	0.3	0.5	0.7	1.2	0.5	0.7	1.5	2	2	2	4	5	5
Dr1.73	2	15	3	25	4	35	5	35	5	40	6	50	0.02	0.08	0.3	0.5	0.7	1.5	0.5	0.7	1.5	2	2	2	2	2	3
Dr1.82	1	8	2	15	3	25	5	35	5	40	6	50	0.02	0.08	0.3	0.5	0.7	1.2	0.5	0.7	1.5	2	2	2	2	2	3
Dr1.83	1	8	2	15	3	25	5	35	6	40	6	50	0.02	0.08	0.3	0.5	0.7	1.2	0.5	0.7	1.5	2	2	2	2	2	3
Dr2.1	1	8	3	20	4	30	4	40	6	45	6	50	0.05	0.12	0.3	0.2	0.5	1.1	0.3	0.6	1.3	2	2	4	3	5	5
Dr2.11	2	15	3	20	4	30	5	40	5	45	6	50	0.05	0.15	0.3	0.15	0.4	1.1	0.25	0.6	1.2	2	2	3	3	4	5
Dr2.12	2	15	3	20	4	30	5	40	5	45	6	50	0.05	0.12	0.3	0.2	0.4	0.9	0.3	0.6	1	2	3	4	4	5	5
Dr2.13	2	15	3	20	4	30	5	35	6	50	6	60	0.05	0.12	0.3	0.3	0.7	1.5	0.4	0.8	1.6	2	3	4	4	5	5
Dr2.2	1	8	3	20	4	30	3	30	6	55	6	65	0.1	0.25	0.5	0.15	0.45	1	0.4	0.8	1.5	2	2	3	3	4	5
Dr2.21	1	8	3	20	4	30	5	35	6	55	6	65	0.15	0.25	0.4	0.2	0.7	1.5	0.5	1	1.8	2	3	4	3	4	5
Dr2.22	1	5	2	15	3	20	4	35	5	50	6	60	0.1	0.25	0.5	0.15	0.6	1	0.4	0.8	1.4	2	2	3	3	4	5
Dr2.23	1	8	3	20	4	30	5	35	6	50	6	65	0.1	0.2	0.5	0.2	0.6	1.2	0.6	1	1.4	2	2	3	3	4	5
Dr2.31	2	15	3	20	4	30	5	40	6	50	6	60	0.05	0.15	0.4	0.2	0.6	1	0.3	0.8	1.2	2	3	4	3	4	5
Dr2.32	1	5	2	15	3	30	5	40	6	50	6	60	0.05	0.15	0.4	0.1	0.6	1.5	0.2	0.8	1.5	1	2	2	3	4	5
Dr2.33	1	8	3	20	4	30	5	40	6	50	6	60	0.05	0.15	0.3	0.3	0.9	1.2	0.4	1	1.3	2	2	3	4	4	5
Dr2.4	1	8	2	15	4	30	5	40	6	50	6	60	0.05	0.25	0.5	0.2	0.6	1.4	0.3	0.9	1.5	2	2	3	3	4	5
Dr2.41	2	10	2	15	4	30	5	40	6	50	6	60	0.05	0.3	0.6	0.3	0.6	0.9	0.5	0.9	1.3	2	3	4	3	4	5
Dr2.42	2	10	2	15	3	20	5	40	6	50	6	60	0.1	0.2	0.4	0.3	0.6	1.4	0.4	0.8	1.6	2	2	3	3	4	5
Dr2.43	1	8	3	20	4	30	5	40	6	50	6	60	0.05	0.2	0.4	0.1	0.7	1.2	0.3	0.9	1.6	1	2	3	3	4	5
Dr2.51	1	8	2	15	3	20	4	30	5	40	6	50	0.05	0.2	0.5	0.1	0.9	1.7	0.5	1	2	2	2	2	2	2	3
Dr2.52	1	5	2	15	4	30	4	30	5	40	6	50	0.05	0.25	0.4	0.2	0.5	0.8	0.5	0.7	1.1	2	2	3	2	2	3
Dr2.53	1	5	2	15	4	30	4	30	5	40	6	50	0.05	0.25	0.4	0.2	0.5	0.8	0.5	0.7	1.1	1	2	2	1	2	2
Dr2.61	1	5	2	15	3	20	4	30	5	40	6	50	0.2	0.3	0.4	0.3	0.7	1	0.5	1	1.5	2	2	4	2	2	3
Dr2.62	1	5	2	15	3	20	4	30	5	40	6	50	0.2	0.3	0.4	0.3	1	1.6	0.5	1.2	2	2	2	2	2	2	3
Dr2.63	1	5	2	15	3	30	4	30	5	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.5	0.7	1	2	2	3	2	2	3
Dr2.71	1	5	2	15	3	30	4	30	5	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3
Dr2.72	1	5	2	15	3	30	4	30	5	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3
Dr2.73	1	5	2	15	3	30	4	30	5	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3
Dr2.81	1	5	2	15	3	30	4	30	5	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3
Dr2.82	1	5	2	15	3	30	4	30	5	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3
Dr2.83	1	5	2	15	3	30	4	30	5	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3
Dr3	1	5	2	15	4	30	5	40	6	50	6	70	0.1	0.2	0.4	0.1	0.6	1.3	0.4	0.8	1.5	1	2	3	3	4	5
Dr3.11	1	8	3	20	4	30	5	45	6	55	6	70	0.1	0.2	0.3	0.4	0.7	1.2	0.6	0.9	1.8	2	2	3	3	4	5
Dr3.12	1	8	3	20	4	30	5	45	6	55	6	70	0.1	0.2	0.3	0.4	0.7	1.2	0.6	0.9	1.8	2	2	3	3	4	5
Dr3.13	1	8	3	20	4	30	5	45	6	55	6	70	0.1	0.2	0.3	0.3	0.7	1.2	0.4	0.9	1.8	2	2	3	3	4	5
Dr3.21	1	5	2	15	4	30	4	45	6	55	6	70	0.2	0.3	0.6	0.2	0.7	0.9	0.5	0.9	1.5	2	3	4	4	5	5
Dr3.22	1	5	2	15	3	30	5	45	6	55	6	70	0.2	0.3	0.6	0.2	0.6	0.9	0.5	0.9	1.5	1	2	2	3	4	4
Dr3.23	1	5	2	15	3	20	5	45	6	55	6	70	0.1	0.2	0.6	0.2	0.7	1.6	0.3	0.9	1.8	2	2	3	3	4	5
Dr3.3	1	5	2	15	3	20	5	45	6	55	6	70	0.05	0.15	0.4	0.2	0.6	1.6	0.3	0.9	2	2	2	3	3	4	5
Dr3.31	1	5	2	20	3	25	5	45	6	55	6	70	0.1	0.2	0.3	0.3	0.7	1.5	0.5	0.9	1.8	2	3	4	3	4	5
Dr3.32	1	5	2	20	3	25	5	45	6	55	6	70	0.1	0.2	0.3	0.3	0.7	1.5	0.5	0.9	1.8	2	3	4	3	4	5
Dr3.33	1	5	2	15	3	20	5	45	6	55	6	70	0.1	0.2	0.6	0.2	0.7	1.6	0.3	0.9	1.8	1	2	3	3	4	5
Dr3.4	1	5	2	15	3	20	5	45	6	55	6	70	0.1	0.25	0.4	0.3	0.6	1.6	0.5	0.9	2	2	2	3	3	4	5
Dr3.41	1	5	2	20	3	25	5	45	6	55	6	70	0.15	0.3	0.4	0.4	0.6	1.6	0.5	0.9	1.8	2	2	3	3	4	5

ppf	ABDensity5	ABDensity50	ABDensity95	BBDensity5	BBDensity50	BBDensity95	AKs	AKserror	BKs	BKserror	Calcrete	Reliability	A 0.1bar	A 15bar	A AWHC m	A AWHC m	A Reliabili	B 0.1bar	B 15 bar	B AWHC m	B AWHC m	B Reliabilit	PAWHC	Nutrients
Dd3.33	1	1.2	1.6	1.4	1.6	1.9	8	2	3	2	0	3	0.29	0.12	169	17		0.37	0.30	65.00	52	unreliable	69	1
Dd3.42	1	1.2	1.6	1.4	1.6	1.9	8	2	3	2	0	3	0.29	0.12	169	17		0.37	0.30	65.00	52	unreliable	69	1
Dd3.43	1	1.2	1.6	1.4	1.6	1.9	8	2	2	1	0	3	0.29	0.12	169	17		0.37	0.30	65.00	52	unreliable	69	1
Dd3.51	1	1.2	1.6	1.4	1.6	1.9	8	2	5	3	0	3	0.29	0.12	169	17		0.37	0.30	65.00	39	unreliable	56	2
Dd4.13	1	1.2	1.6	1.4	1.6	1.9	8	2	3	2	0	3	0.34	0.18	164	16		0.37	0.30	65.00	46	unreliable	62	2
Dd4.23	1	1.2	1.6	1.4	1.6	1.9	8	2	3	2	0	3	0.29	0.12	169	17		0.37	0.30	65.00	46	unreliable	63	2
Dd4.43	1	1.2	1.6	1.4	1.6	1.9	8	2	2	1	0	3	0.29	0.12	169	17		0.37	0.30	65.00	52	unreliable	69	1
Dd4.63	1	1.4	1.8	1.4	1.6	1.9	8	2	4	3	0	3	0.27	0.12	147	15		0.33	0.21	121.00	96		111	1
Dg1.41	1.2	1.5	1.7	1.2	1.6	1.9	7	2	3	2	0	3	0.26	0.12	138	28		0.37	0.30	65.00	59	unreliable	86	1
Dg1.43	1.2	1.5	1.7	1.2	1.6	1.9	7	2	2	1	0	3	0.26	0.12	138	28		0.37	0.30	65.00	59	unreliable	86	1
Dg1.81	1.2	1.5	1.7	1.2	1.7	1.9	7	2	3	2	0	3	0.26	0.12	138	28		0.32	0.20	112.00	101		128	1
Dg2.21	1.2	1.5	1.7	1.2	1.6	1.9	7	2	3	2	0	3	0.26	0.12	138	28		0.37	0.30	65.00	59	unreliable	86	1
Dg2.31	1.2	1.5	1.7	1.2	1.6	1.9	7	2	3	2	0	3	0.26	0.12	138	28		0.37	0.30	65.00	59	unreliable	86	1
Dg2.41	1.2	1.5	1.7	1.2	1.6	1.9	7	2	2	1	0	2	0.26	0.12	138	83		0.37	0.30	65.00	65	unreliable	148	1
Dg2.42	1.2	1.5	1.7	1.2	1.6	1.9	7	2	2	1	0	3	0.26	0.12	138	83		0.37	0.30	65.00	65	unreliable	148	1
Dg2.43	1.2	1.5	1.7	1.2	1.7	1.9	7	2	2	1	0	3	0.23	0.09	139	83		0.33	0.30	31.00	31	unreliable	115	1
Dg2.63	1.2	1.5	1.7	1.2	1.7	1.9	7	2	3	2	0	3	0.23	0.09	139	56		0.32	0.20	112.00	112		167	1
Dg2.81	1.2	1.5	1.7	1.2	1.6	1.9	7	2	3	2	0	2	0.23	0.09	139	56		0.33	0.21	121.00	121		176	1
Dg2.82	1.2	1.5	1.7	1.2	1.6	1.9	7	2	3	2	0	2	0.23	0.09	139	56		0.33	0.21	121.00	121		176	1
Dg2.83	1.2	1.5	1.7	1.3	1.7	1.9	7	2	3	2	0	3	0.23	0.09	139	56		0.32	0.20	112.00	112		167	1
Dg3.43	1	1.4	1.6	1.3	1.7	1.9	7	2	2	1	0	3	0.28	0.14	147	88		0.32	0.20	112.00	112		200	1
Dg3.81	1.2	1.5	1.7	1.2	1.6	1.9	7	2	3	2	0	2	0.20	0.06	138	28		0.33	0.21	121.00	60		88	1
Dg4.11	0.8	1.1	1.6	1.2	1.6	1.9	7	2	3	2	0	3	0.23	0.06	173	35		0.37	0.30	65.00	39	unreliable	74	1
Dg4.13	0.8	1.1	1.6	1.2	1.7	1.9	7	2	2	1	0	3	0.23	0.06	173	35		0.33	0.30	31.00	19	unreliable	53	1
Dg4.21	0.8	1.1	1.6	1.2	1.6	1.9	7	2	3	2	0	2	0.31	0.12	183	55		0.37	0.30	65.00	33	unreliable	88	1
Dg4.31	0.8	1.1	1.6	1.2	1.6	1.9	7	2	3	2	0	3	0.23	0.06	173	52		0.37	0.30	65.00	33	unreliable	85	1
Dg4.41	0.8	1.1	1.6	1.2	1.6	1.9	7	2	3	2	0	2	0.23	0.06	173	69		0.37	0.30	65.00	26	unreliable	95	1
Dg4.42	0.8	1.1	1.6	1.2	1.6	1.9	7	2	3	2	0	3	0.23	0.06	173	69		0.37	0.30	65.00	46	unreliable	115	1
Dg4.43	0.8	1.2	1.7	1.2	1.7	1.9	7	2	2	1	0	3	0.22	0.06	162	65		0.33	0.30	31.00	22	unreliable	87	1
Dg4.8	0.8	1.2	1.6	1.2	1.6	1.9	7	2	2	1	0	3	0.22	0.06	162	65		0.33	0.21	121.00	84		149	1
Dg4.81	0.8	1.2	1.6	1.2	1.6	1.9	7	2	2	1	0	3	0.22	0.06	162	65		0.33	0.21	121.00	84		149	1
Dr	0.9	1.5	1.7	1.1	1.5	1.8	7	3	6	4	0	1	0.26	0.12	138	28		0.4	0.30	94.00	47		75	
Dr1	1.2	1.4	1.6	1.3	1.5	1.7	3	2	5	2	0	2	0.24	0.09	147	7		0.37	0.26	106.00	53		60	2
Dr1.12	1.3	1.4	1.5	1.4	1.5	1.6	3	2	5	2	0	3	0.27	0.12	147	12		0.37	0.26	106.00	66		77	2
Dr1.13	1.3	1.4	1.5	1.5	1.6	1.7	3	2	4	2	0	3	0.27	0.12	147	12		0.37	0.30	65.00	41	unreliable	52	2
Dr1.16	1.3	1.4	1.5	1.4	1.5	1.6	3	2	5	2	0	3	0.27	0.12	147	12		0.37	0.26	106.00	66		77	2
Dr1.3	1.3	1.4	1.5	1.5	1.6	1.7	3	2	4	2	0	3	0.27	0.12	147	12		0.36	0.26	95.00	67		78	2
Dr1.31	1.3	1.4	1.5	1.4	1.5	1.6	3	2	5	2	0	3	0.27	0.12	147	12		0.37	0.26	106.00	74		86	2
Dr1.32	1.3	1.4	1.5	1.4	1.5	1.6	3	2	5	2	0	3	0.27	0.12	147	12		0.37	0.26	106.00	74		86	2
Dr1.33	1.3	1.4	1.5	1.5	1.6	1.7	3	2	4	2	0	3	0.27	0.12	147	12		0.37	0.30	65.00	46	unreliable	58	2
Dr1.42	1.3	1.4	1.5	1.5	1.6	1.7	3	2	4	2	0	3	0.24	0.09	147	12		0.37	0.30	65.00	46	unreliable	58	2
Dr1.43	1.3	1.5	1.6	1.5	1.7	1.9	3	2	3	2	0	3	0.23	0.09	139	11		0.33	0.30	31.00	22	unreliable	33	2
Dr1.73	1.3	1.4	1.5	1.5	1.7	1.9	3	2	3	2	0	3	0.27	0.12	147	12		0.29	0.18	116.00	81		93	2
Dr1.82	1.3	1.4	1.5	1.5	1.6	1.9	3	2	3	3	0	3	0.24	0.09	147	12		0.3	0.18	124.00	87		99	2
Dr1.83	1.3	1.5	1.6	1.5	1.7	1.9	3	2	3	3	0	3	0.23	0.09	139	11		0.32	0.20	112.00	78		89	2
Dr2.1	1.3	1.5	1.7	1.3	1.6	1.7	8	2	7	2	0	1	0.26	0.12	138	17		0.37	0.30	65.00	33	unreliable	49	2
Dr2.11	1.4	1.5	1.6	1.5	1.6	1.7	8	2	7	2	0	2	0.26	0.12	138	21		0.36	0.26	95.00	38		59	2
Dr2.12	1.4	1.5	1.6	1.4	1.6	1.7	8	2	7	2	0	1	0.30	0.18	128	15		0.36	0.26	95.00	38		53	2
Dr2.13	1.4	1.5	1.7	1.5	1.6	1.7	8	1	7	1	0	1	0.30	0.18	128	15		0.37	0.30	65.00	46	unreliable	61	2
Dr2.2	1.2	1.5	1.7	1.2	1.6	1.9	8	2	7	2	0	1	0.26	0.12	138	34		0.37	0.30	65.00	29	unreliable	64	2
Dr2.21	1	1.4	1.6	1.2	1.4	1.9	8	2	7	1	0	1	0.32	0.18	138	35		0.41	0.31	107.00	75		110	2
Dr2.22	1.4	1.6	1.7	1.5	1.7	1.8	8	2	7	2	0	1	0.22	0.09	132	33		0.33	0.30	31.00	19	unreliable	52	2
Dr2.23	1.4	1.6	1.7	1.5	1.7	1.8	8	2	7	2	0	1	0.25	0.12	130	26		0.33	0.30	31.00	19	unreliable	45	2
Dr2.31	1.2	1.4	1.6	1.3	1.5	1.7	8	2	7	1	0	2	0.32	0.18	138	21		0.4	0.30	94.00	56		77	2
Dr2.32	1.1	1.5	1.6	1.4	1.6	1.7	8	2	6	2	0	1	0.23	0.09	139	21		0.37	0.30	65.00	39	unreliable	60	2
Dr2.33	1.1	1.5	1.8	1.3	1.6	1.8	7	2	6	2	0	1	0.26	0.12	138	21		0.37	0.30	65.00	59	unreliable	80	2
Dr2.4	1.2	1.5	1.7	1.4	1.6	1.8	8	2	6	2	0	1	0.23	0.09	139	35		0.37	0.30	65.00	39	unreliable	74	
Dr2.41	1.2	1.4	1.6	1.3	1.5	1.7	8	2	7	1	0	2	0.28	0.14	147	44		0.4	0.30	94.00	56		100	2
Dr2.42	1.2	1.5	1.7	1.4	1.6	1.8	8	2	6	2	0	2	0.23	0.09	139	28		0.37	0.30	65.00	39	unreliable	67	2
Dr2.43	1.2	1.5	1.7	1.4	1.6	1.8	7	2	5	2	0	1	0.26	0.12	138	28		0.37	0.30	65.00	46	unreliable	73	1
Dr2.51	1.2	1.5	1.7	1.4	1.6	1.8	8	2	6	3	0	2	0.23	0.09	139	28		0.3	0.18	124.00	112		140	2
Dr2.52	1.2	1.5	1.7	1.4	1.6	1.8	8	2	6	3	0	2	0.23	0.09	139	35		0.3	0.18	124.00	62		97	2
Dr2.53	1.2	1.5	1.7	1.4	1.6	1.8	7	2	6	3	0	3	0.23	0.09	139	35		0.3	0.18	124.00	62		97	2
Dr2.61	1.2	1.4	1.6	1.4	1.6	1.8	9	2	8	2	0	2	0.24	0.09	147	44		0.3	0.18	124.00	87		131	2
Dr2.62	1.3	1.5	1.7	1.4	1.7	1.9	8	2	8	2	0	2	0.23	0.09	139	42		0.29	0.18	116.00	116		158	2
Dr2.63	1.2	1.4	1.7	1.4	1.7	1.9	7	2	6	2	0	3	0.24	0.09	147	44		0.29	0.18	116.00	70		114	2
Dr2.71	1.2	1.4	1.6	1.4	1.6	1.8	8	2	7	2	0	3	0.24	0.09	147	44		0.3	0.18	124.00	75		119	2
Dr2.72	1.2	1.5	1.6	1.4	1.6	1.8	8	2	7	2	0	3	0.23	0.09	139	42		0.3	0.18	124.00	75		116	2
Dr2.73	1.3	1.4	1.7	1.4	1.7	1.9	7	2	6	2	0	3	0.24	0.09	147	44		0.29	0.18	116.00	70		114	2
Dr2.81	1.2	1.4	1.6	1.4	1.6	1.8	8	2	7	2	0	3	0.24	0.09	147	44		0.3	0.18	124.00	75		119	2
Dr2.82	1.2	1.5	1.6	1.4	1.6	1.8	8	2	7	2	0	3	0.23	0.09	139	42		0.3	0.18	124.00	75		116	2
Dr2.83	1.3	1.5	1.7	1.4	1.7	1.9	7	2	6	2	0	3	0.23	0.09	139	42		0.29	0.18	116.00	70		111	1
Dr3	1.2	1.5	1.8	1.4	1.6	1.9	7	2	6	4	0	1	0.23	0.09	139	28		0.37	0.30	65.00	39	unreliable	67	
Dr3.11	1.2	1.4	1.6	1.4	1.6	1.8	8	2	7	2	0	3	0.27	0.12	147	29		0.37	0.30	65.00	46	unreliable	75	2
Dr3.12	1.2	1.4	1.6	1.4	1.6	1.8	8	2	7	2	0	2	0.27	0.12	147	29		0.37	0.30	65.00	46	unreliable	75	2
Dr3.13	1.2	1.4	1.6	1.4	1.6	1.8	8	2	7	2	0	2	0.27	0.12	147	29		0.37	0.30	65.00	46	unreliable	75	2
Dr3.21	1.2	1.5	1.7	1.3	1.6	1.8	8	2	6	2	0	2	0.27	0.13	137	41		0.37	0.30	65.00	46	unreliable	87	2
Dr3.22	1.1	1.4	1.6	1.3	1.6	1.8	8	2	6	2	0	2	0.24	0.09	147	44		0.37	0.30	65.00	39	unreliable	83	2
Dr3.23	1.2	1.5	1.7	1.5	1.7	1.9	7	2	4	3	0	3	0.23	0.09	139	28		0.33	0.30	31.00	22	unreliable	50	2
Dr3.3	1.2	1.5	1.7	1.4	1.6	1.8	7	2	5	3	0	1	0.23	0.09	139	21		0.37	0.30	65.00	39	unreliable	60	
Dr3.31	1.2	1.5	1.7	1.3	1.6	1.8	8	2	6	2	0	2	0.27	0.13	137	27		0.37	0.30	65.00	46	unreliable	73	2
Dr3.32	1.2	1.5	1.7	1.3	1.6	1.8	8	2	6	2	0	3	0.27	0.13	137	27		0.37	0.30	65.00	46	unreliable	73	2
Dr3.33	1.3	1.5	1.7	1.5	1.7	1.9	7	2	4	3	0	2	0.23	0.09	139	28		0.33	0.30	31.00	22	unreliable	50	1
Dr3.4	1.3	1.5	1.7	1.4	1.7	2	7	2	4	3	0	1	0.23	0.09	139	35		0.33	0.30	31.00	19	unreliable	53	
Dr3.41	1.3	1.5	1.7	1.4	1.7	2	7	2	4	2	0	1	0.23	0.09	139	42		0.33	0.30	31.00	19	unreliable	60	2

Appendix One: Interpreted Soil Properties

ppf	Atext5	Aclay5	Atext50	Aclay50	Atext95	Aclay95	Btext5	Bclay5	Btext50	Bclay50	Btext95	Bclay95	Athick5	Athick50	Athick95	Bthick5	Bthick50	Bthick95	Solumthick5	Solumthick50	Solumthick95	Astruct5	Astruct50	Astruct95	Bstruct5	Bstruct50	Bstruct95	ABDensity5	ABDensity50	ABDensity95	BBDensity5	BBDensity50	BBDensity95	AKs	AKserror	BKs	BKserror	Calcrete	Reliability	A 0.1bar	A 15bar	A AWHC m	A AWHC m	A Reliabili	B 0.1bar	B 15 bar	B AWHC m	B AWHC m	B Reliabilit	PAWHC	Nutrients
Dr3.42	1	5	2	15	3	20	5	45	6	55	6	70	0.15	0.3	0.5	0.4	0.6	1.6	0.5	0.9	1.8	2	2	3	3	4	5	1.3	1.5	1.7	1.4	1.8	2	7	2	4	2	0	2	0.23	0.09	139	42		0.3	0.30	0.00	0	unreliable	42	2
Dr3.43	1	5	2	15	3	20	5	45	6	55	6	70	0.1	0.2	0.4	0.3	0.8	1.6	0.4	0.9	1.8	2	2	3	3	4	5	1.3	1.5	1.7	1.5	1.8	2	7	2	3	2	0	2	0.23	0.09	139	28		0.3	0.30	0.00	0	unreliable	28	1
Dr3.51	1	8	2	15	3	20	4	30	5	40	6	50	0.05	0.2	0.5	0.1	0.9	1.7	0.5	1	2	2	2	2	2	2	3	1.2	1.5	1.7	1.4	1.7	1.9	8	2	6	3	0	3	0.23	0.09	139	28		0.29	0.18	116.00	104		132	
Dr3.61	1	5	2	15	3	20	3	30	5	40	6	50	0.2	0.3	0.4	0.2	1	1.6	0.5	1	2	2	2	2	2	2	3	1.3	1.5	1.7	1.4	1.7	1.9	8	2	6	3	0	3	0.23	0.09	139	42		0.29	0.18	116.00	116		158	
Dr3.62	1	5	2	15	3	20	3	30	5	40	6	50	0.2	0.3	0.4	0.2	1	1.6	0.5	1	2	2	2	2	2	2	3	1.3	1.5	1.7	1.4	1.7	1.9	8	2	6	3	0	3	0.23	0.09	139	42		0.29	0.18	116.00	116		158	
Dr3.71	1	5	2	15	3	20	4	30	5	40	6	50	0.2	0.3	0.4	0.2	1	1.6	1	2	2	2	2	2	2	2	3	1.3	1.5	1.7	1.4	1.7	1.9	8	2	6	2	0	3	0.23	0.09	139	42		0.29	0.18	116.00	116		158	
Dr3.72	1	5	2	15	3	20	4	30	5	40	6	50	0.2	0.3	0.4	0.2	1	1.6	0.5	1	2	2	2	2	2	2	3	1.3	1.5	1.7	1.4	1.7	1.9	8	2	6	2	0	3	0.23	0.09	139	42		0.29	0.18	116.00	116		158	
Dr3.73	1	5	2	15	3	20	4	30	5	40	6	50	0.2	0.3	0.4	0.2	1	1.6	0.5	1	2	2	2	2	2	2	3	1.4	1.6	1.8	1.4	1.8	2	8	2	4	2	0	3	0.22	0.09	132	40		0.28	0.18	109.00	109		149	
Dr3.81	1	5	2	15	3	20	4	30	5	40	6	50	0.2	0.3	0.4	0.2	1	1.6	0.5	1	2	2	2	2	2	2	3	1.3	1.5	1.7	1.4	1.7	1.9	8	2	6	2	0	3	0.23	0.09	139	42		0.29	0.18	116.00	116		158	
Dr3.83	1	5	2	15	3	20	4	30	5	40	6	50	0.2	0.3	0.4	0.2	1	1.6	0.5	1	2	2	2	2	2	2	3	1.4	1.6	1.8	1.4	1.8	2	8	2	4	2	0	3	0.22	0.09	132	40		0.28	0.18	109.00	109		149	
Dr4.1	2	20	4	30	4	40	5	40	6	50	6	60	0.05	0.15	0.35	0.2	0.6	1.4	0.3	0.8	1.6	3	4	5	3	4	5	0.7	1	1.5	0.8	1.2	1.7	9	2	8	2	0	1	0.42	0.22	196	29		0.45	0.31	140.00	84		114	3
Dr4.11	3	20	4	30	5	40	4	30	5	40	6	50	0.1	0.2	0.3	0.5	0.8	1.5	0.6	1	1.6	3	4	5	3	4	4	0.7	1	1.4	0.8	1.1	1.5	9	2	8	2	0	2	0.42	0.22	196	39		0.43	0.27	168.00	135		174	3
Dr4.12	2	15	3	20	4	30	5	40	6	50	6	60	0.1	0.2	0.4	0.2	0.5	1.2	0.3	0.8	1.6	3	4	5	3	4	5	0.9	1.1	1.5	1	1.2	1.6	9	2	8	2	0	2	0.36	0.18	180	36		0.45	0.31	140.00	70		106	3
Dr4.13	2	15	3	20	4	30	5	40	6	50	6	60	0.05	0.1	0.3	0.2	0.5	1.2	0.3	0.7	1.6	3	4	5	4	5	5	0.9	1.1	1.5	1.2	1.4	1.8	9	3	7	2	0	1	0.36	0.18	180	18		0.41	0.31	107.00	54		72	3
Dr4.2	1	5	2	15	3	20	5	40	6	50	6	70	0.15	0.25	0.4	0.1	0.6	1	0.3	1.2	1.5	2	3	4	3	4	5	1	1.2	1.5	1	1.3	1.7	9	2	7	2	0	2	0.31	0.14	170	43		0.43	0.31	123.00	74		116	2
Dr4.21	1	5	2	15	4	30	5	40	6	50	6	70	0.15	0.25	0.4	0.4	0.6	1	0.5	1.2	1.5	2	3	4	3	4	5	1	1.2	1.5	1	1.3	1.7	9	2	7	2	0	2	0.31	0.14	170	43		0.43	0.31	123.00	74		116	2
Dr4.22	1	5	2	15	4	30	5	40	6	50	6	70	0.15	0.25	0.4	0.4	0.6	1	1.5	1.2	1.5	2	3	4	3	4	5	1	1.2	1.5	1	1.3	1.7	9	2	7	2	0	3	0.31	0.14	170	43		0.43	0.31	123.00	74		116	2
Dr4.23	1	5	2	15	3	20	5	40	6	50	6	70	0.15	0.25	0.4	0.4	0.6	1.2	0.6	1	1.5	1	2	3	3	3	4	1	1.2	1.5	1.2	1.5	1.8	9	2	6	2	0	2	0.26	0.09	167	42		0.4	0.30	94.00	56		98	2
Dr4.33	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.2	0.4	0.4	0.6	1.2	0.6	1	1.5	1	2	3	3	4	5	1	1.3	1.6	1.2	1.6	1.8	8	2	6	2	0	3	0.25	0.09	156	31		0.37	0.30	65.00	39	unreliable	70	2
Dr4.41	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.2	0.4	0.4	0.6	1.2	0.6	1	1.5	1	2	2	3	3	4	1	1.2	1.5	1.2	1.6	1.8	8	2	6	2	0	3	0.26	0.09	167	33		0.37	0.30	65.00	39	unreliable	73	2
Dr4.42	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.2	0.4	0.4	0.6	1.2	0.6	1	1.5	1	2	2	3	3	4	1	1.3	1.6	1.2	1.6	1.8	8	2	6	2	0	3	0.25	0.09	156	31		0.37	0.30	65.00	39	unreliable	70	2
Dr4.43	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.2	0.4	0.4	0.6	1.2	0.6	1	1.5	1	2	2	3	3	4	1	1.3	1.6	1.2	1.6	1.8	8	2	5	3	0	3	0.25	0.09	156	31		0.37	0.30	65.00	39	unreliable	70	2
Dr4.53	1	5	2	15	3	20	5	30	6	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3	1.3	1.5	1.7	1.4	1.7	1.9	8	2	6	2	0	3	0.23	0.09	139	42		0.32	0.20	112.00	67		109	2
Dr4.61	1	5	2	15	3	20	5	30	6	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3	1.2	1.4	1.6	1.4	1.6	1.8	8	2	7	2	0	3	0.24	0.09	147	44		0.33	0.21	121.00	72		116	2
Dr4.63	1	5	2	15	3	20	5	30	6	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3	1.3	1.5	1.7	1.4	1.7	1.9	8	2	6	2	0	3	0.23	0.09	139	42		0.32	0.20	112.00	67		109	2
Dr4.72	1	5	2	15	3	20	5	30	6	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3	1.2	1.4	1.6	1.4	1.6	1.8	8	2	7	2	0	3	0.24	0.09	147	44		0.33	0.21	121.00	72		116	2
Dr4.73	1	5	2	15	3	20	5	30	6	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3	1.3	1.5	1.7	1.4	1.7	1.9	8	2	6	2	0	3	0.23	0.09	139	42		0.32	0.20	112.00	67		109	2
Dr4.81	1	5	2	15	3	20	5	30	6	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3	1.2	1.4	1.6	1.4	1.6	1.8	8	2	7	2	0	3	0.24	0.09	147	44		0.33	0.21	121.00	72		116	2
Dr4.82	1	5	2	15	3	20	5	30	6	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3	1.2	1.4	1.6	1.4	1.6	1.8	8	2	7	2	0	3	0.24	0.09	147	44		0.33	0.21	121.00	72		116	2
Dr5.11	2	15	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.4	0.2	0.5	1.2	0.3	0.8	1.6	3	4	5	3	4	5	1	1.2	1.6	1.2	1.4	1.7	9	2	7	2	0	3	0.34	0.18	164	33		0.41	0.31	107.00	54		86	2
Dr5.12	2	15	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.4	0.2	0.5	1.2	0.3	0.8	1.6	3	4	5	3	4	5	1	1.2	1.6	1.1	1.4	1.7	9	2	7	2	0	3	0.34	0.18	164	33		0.41	0.31	107.00	54		86	2
Dr5.21	1	5	2	20	4	30	5	40	6	50	6	70	0.1	0.3	0.4	0.2	0.7	1.2	0.4	1	1.6	2	4	5	3	4	5	1	1.3	1.6	1.2	1.5	1.8	9	2	6	2	0	2	0.29	0.14	158	47		0.4	0.30	94.00	66		113	2
Dr5.23	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.2	0.4	0.4	0.6	1.2	0.6	1	1.5	1	2	3	3	4	5	1	1.3	1.6	1.2	1.6	1.8	8	2	6	2	0	3	0.25	0.09	156	31		0.37	0.30	65.00	39	unreliable	70	2
Dr5.32	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.2	0.4	0.4	0.6	1.2	0.6	1	1.5	1	2	3	3	4	5	1	1.3	1.6	1.2	1.6	1.8	8	2	6	2	0	3	0.25	0.09	156	31		0.37	0.30	65.00	39	unreliable	70	2
Dr5.33	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.2	0.4	0.4	0.6	1.2	0.6	1	1.5	1	2	3	3	4	5	1	1.3	1.6	1.2	1.6	1.8	8	2	6	2	0	3	0.25	0.09	156	31		0.37	0.30	65.00	39	unreliable	70	2
Dr5.41	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.2	0.4	0.4	0.6	1.2	0.6	1	1.5	1	2	2	3	3	4	1	1.2	1.5	1.2	1.6	1.8	8	2	6	2	0	3	0.26	0.09	167	33		0.37	0.30	65.00	39	unreliable	73	2
Dr5.42	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.3	0.4	0.2	0.7	1.2	0.4	1	1.6	2	2	3	4	5	5	1	1.3	1.6	1.3	1.6	1.9	9	2	5	2	0	3	0.25	0.09	156	47		0.37	0.30	65.00	46	unreliable	93	2
Dr5.43	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.3	0.4	0.2	0.7	1.2	0.4	1	1.6	2	2	3	4	5	5	1	1.3	1.6	1.3	1.7	1.9	8	2	4	2	0	3	0.25	0.09	156	47		0.33	0.30	31.00	22	unreliable	69	2
Dr5.62	1	5	2	15	3	20	5	30	6	40	6	50	0.1	0.3	0.5	0.2	0.6	1	0.7	0.9	1.2	2	2	3	2	2	3	1.2	1.4	1.6	1.4	1.6	1.8	8	2	7	2	0	3	0.24	0.09	147	44		0.33	0.21	121.00	72		116	2
Dr5.8	1	5	2	15	2	20	3	30	5	40	6	50	0.1	0.3	0.5	0.4	0.7	1	0.5	1	1.5	1	2	3	2	2	3	1	1.3	1.6	1.2	1.6	1.9	9	2	5	2	0	3	0.25	0.09	156	47		0.3	0.18	124.00	87		134	2
Dr5.81	1	5	2	15	2	20	3	30	5	40	6	50	0.1	0.3	0.5	0.4	0.7	1	0.5	1	1.5	1	2	3	2	2	3	1	1.3	1.6	1.2	1.6	1.9	9	2	5	2	0	3	0.25	0.09	156	47		0.3	0.18	124.00	87		134	2
Dy1.13	1	5	2	15	3	20	5	35	5	45	6	60	0.05	0.1	0.3	0.3	0.8	1.4	0.5	1	1.5	2	2	2	3	4	5	1.3	1.4	1.5	1.5	1.6	1.7	3	2	4	2	0	3	0.24	0.09	147	15		0.36	0.26	95.00	76		91	2
Dy1.32	1	5	2	15	3	20	5	40	5	45	6	60	0.05	0.1	0.3	0.3	0.8	1.4	0.5	1	1.5	2	2	3	3	4	5	1.3	1.4	1.6	1.5	1.7	1.9	3	2	4	2	0	3	0.24	0.09	147	15		0.33	0.26	74.00	59	unreliable	74	2
Dy1.33	1	5	2	15	3	20	5	40	5	45	6	60	0.05	0.1	0.3	0.3	0.8	1.4	0.5	1	1.5	2	2	3	3	4	5	1.3	1.4	1.6	1.5	1.7	1.9	3	2	3	2	0	3	0.24	0.09	147	15		0.33	0.26	74.00	59	unreliable	74	1
Dy1.43	1	5	2	15	3	20	5	40	5	45	6	60	0.05	0.1	0.3	0.3	0.8	1.4	0.5	1	1.5	2	2	3	3	4	5	1.3	1.4	1.6	1.5	1.7	1.9	3	2	3	3	0	3	0.24	0.09	147	15		0.33	0.26	74.00	59	unreliable	74	1
Dy1.63	1	5	2	15	3	20	5	35	5	40	6	50	0.05	0.1	0.3	0.3	0.8	1.4	0.5	1	1.5	2	2	2	2	2	3	1.3	1.4	1.6	1.5	1.7	2	3	2	3	3	0	3	0.24	0.09	147	15		0.29	0.18	116.00	93		108	1
Dy2.1	1	5	2	15	4	30	4	40	5	50	6	60	0.05	0.25	0.6	0.1	0.6	1.5	0.4	0.8	1.8	2	2	4	2	4	5	1.2	1.5	1.7	1.4	1.6	1.9	7	2	6	3	0	1	0.23	0.09	139	35		0.36	0.26	95.00	57		92	2
Dy2.11	2	15	3	20	4	30	5	35	5	45	6	60	0.05	0.15	0.5	0.4	0.6	1.5	0.5	1	1.5	2	2	3	3	4	5	1.4	1.5	1.6	1.5	1.6	1.7	7	2	7	3	0	3	0.26	0.12	138	21		0.36	0.26	95.00	57		78	2
Dy2.12	1	5	2	15	4	30	4	30	5	40	6	60	0.05	0.2	0.4	0.1	0.5	1	0.5	0.8	1.5	2	2	3	3	4	5	1.2	1.5	1.7	1.4	1.6	1.8	7	2	6	2	0	1	0.23	0.09	139	28		0.36	0.26	95.00	48		75	2
Dy2.13	1	8	3	20	4	30	5	40	6	50	6	60	0.05	0.25	0.6	0.2	0.6	1.5	0.4	0.8	1.8	2	2	3	3	4	5	1.3	1.5	1.7	1.4	1.7	1.9	7	2	6	2	0	1	0.26	0.12	138	34		0.33	0.30	31.00	19	unreliable	53	2
Dy2.2	1	5	2	15	4	30	4	40	6	50	6	60	0.15	0.3	0.6	0.1	0.5	1.3	0.4	0.9	1.4	2	2	3	2	4	5	1.3	1.5	1.8	1.4	1.7	1.9	7	2	5	3	0	1	0.23	0.09	139	42		0.33	0.30	31.00	16	unreliable	57	2
Dy2.21	1	5	2	15	3	20	5	40	6	50	6	60	0.15	0.3	0.6	0.1	0.6	1.5	0.4	1	1.8	1	2	3	3	4	5	1.3	1.5	1.8	1.4	1.7	1.9	7	2	5	2	0	2	0.23	0.09	139	42		0.33	0.30	31.00	19	unreliable	60	2
Dy2.22	1	5	2	15	3	20	5	40	6	50	6	60	0.05	0.3	0.8	0.1	0.5	1.2	0.3	1	1.8	2	2	3	3	4	5	1.3	1.5	1.8	1.4	1.7	1.9	7	2	5	2	0	1	0.23	0.09	139	42		0.33	0.30	31.00	16	unreliable	57	2
Dy2.23	1	5	2	20	4	30	5	40	6	50	6	60	0.1	0.3	0.6	0.1	0.5	1.3	0.5	1	1.8	2	2	3	3	4	5	1.3	1.5	1.8	1.4	1.7	1.9	7	2	4	2	0	1	0.23	0.09	139	42		0.33	0.30	31.00	16	unreliable	57	2
Dy2.3	1	5	2	15	4	30	3	30	6	50	6	60	0.05	0.2	0.5	0.2	0.7	1.5	0.5	1	1.7	2	2	4	2	4	5	1.3	1.5	1.8	1.4	1.7	2	7	2	5	2	0	1	0.23	0.09	139	28		0.33	0.30	31.00	22	unreliable	50	
Dy2.31	1	5	2	15	3	20	5	40	5	50	6	60	0.15	0.3	0.6	0.1	0.6	1	0.4	1	1.8	2	2	3	3	4	5	1.3	1.5	1.8	1.4	1.7	1.9	7	2	5	2	0	2	0.23	0.09	139	42		0.33	0.26	74.00	45	unreliable	86	1
Dy2.32	1	5	3	20	4	30	4	30	5	40	6	60	0.1	0.25	0.5	0.2	0.6	1.5	0.4	1	2	2	2	3	3	4	5	1.3	1.5	1.8	1.4	1.7	1.9	7	2	5	2	0	2	0.26	0.12	138	34		0.33	0.26	74.00	45	unreliable	79	2
Dy2.33	1	5	3	20	4	30	4	40	6	55	6	60	0.05	0.2	0.6	0.2	0.8	1.4	0.3	1	2	2	2	3	3	4	5	1.3	1.6	1.8	1.5	1.8	2	7	2	5	2	0	1	0.25	0.12	130	26		0.3	0.30	0.00	0	unreliable	26	2
Dy2.4	1	5	2	15	4	30	4	30	6	50	6	70	0.1	0.3	0.6	0.1	0.6	1.4	0.4	0.9	1.8	2	2	3	2	4	5	1.3	1.6	1.8	1.5	1.8	2	7	3	5	3	0	1	0.22	0.09	132	40		0.3	0.30	0.00	0	unreliable	40	1
Dy2.41	1	5	2	10	3	20	5	40	6	20	6	70	0.1	0.3	0.5	0.1	0.6	1.5	0.2	1	2	1	2	2	3	4	5	1.3	1.6	1.8	1.5	1.8	2	7	3	5	3	0	1	0.22	0.09	132	40		0.3	0.30	0.00	0	unreliable	40	1
Dy2.42	1	5	2	15	4	30	4	40	5	50	6	70	0.1	0.4	0.6	0.1	0.5	1	0.3	1	2	1	2	3	3	4	5	1.3	1.6	1.8	1.5	1.8	2	7	3	5	3	0	1	0.22	0.09	132	53		0.3	0.26	40.00	20	unreliable	73	1
Dy2.43	1	5	2	15	4	30	5	40	6	50	6	70	0.05	0.25	0.6	0.1	0.6	1.5	0.4	0.9	2	1	2	2	3	4	5	1.3	1.6	1.8	1.5	1.8	2	7	3	4	3	0	1	0.22	0.09	132	33		0.3	0.30	0.00	0	unreliable	33	1
Dy2.5	1	5	2	15	3	20	5	35	5	40	6	50	0.1	0.2	0.6	0.1	0.4	0.8	0.2	0.7	1.1	2	2	2	2	2	3	1.2	1.5	1.7	1.4	1.6	1.8	8	3	6	3	0	1	0.23	0.09	139	28		0.3	0.18	124.00	50		77	1
Dy2.51	1	8	2	15	3	20	3	30	4	40	5	50	0.5	0.2	0.4	0.2	0.4	0.6	0.2	0.6	1	2	2	3	2	2	2	1.2	1.5	1.7	1.4	1.6	1.8	8	3	6	3	0	2	0.23	0.09	139	28		0.27	0.15	127.00	51		79	1
Dy2.52	1	5	2	15	3	25	0	30	5	40	6	50	0.1	0.3	0.6	0.2	0.4	0.6	0.2	0.6	1	2	2	2	2	2	2	1.2	1.5	1.7	1.4	1.6	1.8	8	3	6	3	0	2	0.23	0.09	139	42		0.3	0.18	124.00	50		91	1
Dy2.61	1	5	2	15	3	20	4	30	5	40	6	50	0.2	0.4	0.6	0.3	0.5	1	0.5	1	1.5	2	2	3	2	2	3	1.2	1.5	1.7	1.4	1.6	1.8	8	3	6	3	0	2	0.23	0.09	139	56		0.3	0.18	124.00	62		118	1
Dy2.62	1	5	1	8	3	15	3	20	5	40	6	50	0.2	0.4	1.1	0.3	0.6	1	0.5	0.9	2	1	2	3	2	2	3	1.2	1.5	1.7	1.4	1.6	1.8	8	3	6	3	0	1	0.20	0.06	138	55		0.3	0.18	124.00	75		130	1
Dy2.71	1	5	1	15	4	30	5	40	6	50	6	70	0.2	0.4	0.6	0.3	1	2	0.5	1	2	2	2	3	2	2	3	1.2	1.5	1.7	1.4	1.6	1.8	8	3	6	3	0	3	0.20	0.06	138	55		0.33	0.21	121.00	121		176	1
Dy2.73	1	8	2	15	4	30	5	40	6	50	6	70	0.2	0.4	0.6	0.3	1	2	0.5	1	2	2	2	3	2	2	3	1.3	1.6	1.8	1.4	1.7	1.9	8	3	5	3	0	2	0.22	0.09	132	53		0.32	0.20	112.00	112		165	1
Dy2.8	1	5	2	15	3	20	3	30	5	40	6	50	0.1	0.3	0.7	0.05	0.4	0.8	0.4	0.7	1.3	1	2	3	2	2	3	1.2	1.5	1.7	1.4	1.7	2	8	3	5	3	0	1	0.23	0.09	139	42		0.29	0.18	116.00	46		88	1
Dy2.81	1	5	2	15	3	20	3	30	5	40	6	50	0.1	0.4	0.6	0.3	0.5	1	0.4	0.8	1.5	1	2	3	2	2	3	1.2	1.5	1.7	1.4	1.7	1.9	8	3	5	3	0	2	0.23	0.09	139	56		0.29	0.18	116.00	58		114	1
Dy2.82	1	5	2	15	3	20	3	30	5	40	6	50	0.1	0.4	0.6	0.1	0.4	0.7	0.3	0.8	1.5	1	2	3	2	2	3	1.2	1.5	1.7	1.4	1.7	1.9	8	3	5	3	0	1	0.23	0.09	139	56		0.29	0.18	116.00	46		102	1
Dy2.83	1	5	2	15	3	20	3	30	5	40	6	50	0.1	0.4	0.6	0.2	0.4	1	0.4	0.8	1.5	1	2	2	2	2	3	1.2	1.6	1.8	1.4	1.8	2	8	3	4	3	0	2	0.22	0.09	132	53		0.28	0.18	109.00	44		96	1
Dy2.84	1	5	2	15	3	20	3	30	5	40	6	50	0.1	0.4	0.6	0.3	0.5	1	0.4	0.8	1.5	1	2	3	2	2	3	1.2	1.5	1.7	1.4	1.7	1.9	8	3	5	3	0	3	0.23	0.09	139	56		0.29	0.18	116.00	58		114	1
Dy3.1	1	5	3	20	4	30	5	40	6	50	6	60	0.05	0.2	0.5	0.15	0.5	1	0.3	0.7	1.2	2	2	4	2	4	5	1.2	1.4	1.6	1.3	1.5	1.8	8	3	7	3	0	1	0.27	0.12	147	29		0.4	0.30	94.00	47		76	2
Dy3.11	1	8	3	20	4	30	5	40	6	50	6	60	0.05	0.1	0.4	0.1	0.6	1	0.3	0.7	1.2	2	2	3	3	4	5	1.2	1.4	1.6	1.3	1.5	1.8	8	2	7	3	0	2	0.27	0.12	147	15		0.4	0.30	94.00	56		71	2
Dy3.12	1	8	3	20	4	30	5	40	5	50	6	60	0.05	0.2	0.4	0.1	0.5	1	0.3	0.7	1.2	2	2	3	3	4	5	1.2	1.4	1.6	1.3	1.5	1.8	8	2	7	3	0	1	0.27	0.12	147	29		0.37	0.26	106.00	53		82	2
Dy3.13	1	8	3	20	4	30	5	40	6	50	6	60	0.1	0.2	0.4	0.3	0.5	0.8	0.4	0.7	1.1	2	2	3	3	4	5	1.2	1.5	1.6	1.3	1.5	1.8	8	2	6	3	0	2	0.26	0.12	138	28		0.4	0.30	94.00	47		75	2
Dy3.2	1	5	2	15	3	20	5	40	6	50	6	60	0.15	0.3	0.5	0.1	0.5	0.8	0.5	0.8	1.1	2	2	3	2	4	5	1.3	1.5	1.9	1.3	1.6	2	8	3	6	3	0	1	0.23	0.09	139	42		0.37	0.30	65.00	33	unreliable	74	2
Dy3.21	1	5	2	10	3	30	4	40	6	50	6	60	0.1	0.4	0.6	0.2	0.4	0.8	0.4	0.8	1.2	2	2	3	2	3	4	1.3	1.5	1.8	1.3	1.6	1.9	8	2	6	3	0	1	0.23	0.09	139	56		0.37	0.30	65.00	26	unreliable	82	2
Dy3.22	1	5	2	10	3	30	4	40	5	50	6	60	0.1	0.3	0.5	0.1	0.4	0.8	0.4	0.7	1.2	2	2	3	3	4	5	1.3	1.5	1.8	1.3	1.6	1.9	8	2	6	3	0	1	0.23	0.09	139	42		0.36	0.26	95.00	38		80	2
Dy3.23	1	5	2	10	3	30	4	40	5	50	6	60	0.1	0.3	0.5	0.3	0.6	0.9	0.6	0.9	1.2	2	2	3	3	4	5	1.3	1.6	1.9	1.3	1.7	2	8	2	5	3	0	3	0.22	0.09	132	40		0.33	0.26	74.00	45	unreliable	84	2
Dy3.3	1	5	2	15	4	30	5	40	6	55	6	70	0.1	0.2	0.4	0.2	0.6	1.1	0.4	0.8	1.3	2	2	3	3	4	5	1.3	1.5	1.8	1.3	1.7	2	8	3	6	3	0	1	0.23	0.09	139	28		0.33	0.30	31.00	19	unreliable	47	1
Dy3.31	1	8	2	15	4	30	6	45	6	55	6	70	0.1	0.2	0.5	0.4	0.5	0.7	0.5	0.8	1.1	2	2	3	3	4	5	1.3	1.5	1.8	1.3	1.7	1.9	8	2	6	3	0	2	0.23	0.09	139	28		0.33	0.30	31.00	16	unreliable	43	1
Dy3.32	1	8	5	15	4	30	4	40	5	50	6	60	0.1	0.2	0.5	0.1	0.4	0.8	0.4	0.7	1.2	2	2	3	3	4	5	1.3	1.5	1.8	1.3	1.7	1.9	8	2	6	3	0	1	0.31	0.18	133	27		0.33	0.26	74.00	30	unreliable	56	1

Appendix One: Interpreted Soil Properties

ppf	Atext5	Aclay5	Atext50	Aclay50	Atext95	Aclay95	Btext5	Bclay5	Btext50	Bclay50	Btext95	Bclay95	Athick5	Athick50	Athick95	Bthick5	Bthick50	Bthick95	Solumthick5	Solumthick50	Solumthick95	Astruct5	Astruct50	Astruct95	Bstruct5	Bstruct50	Bstruct95	ABDensity5	ABDensity50	ABDensity95	BBDensity5	BBDensity50	BBDensity95	AKs	AKserror	BKs	BKserror	Calcrete	Reliability	A 0.1bar	A 15bar	A AWHC m	A AWHC m	A Reliabili	B 0.1bar	B 15 bar	B AWHC m	B AWHC m	B Reliabilit	PAWHC	Nutrients
Dy3.33	1	5	2	20	4	30	5	40	6	55	6	70	0.1	0.2	0.4	0.3	0.7	1.2	0.4	0.9	1.4	2	2	3	3	4	5	1.3	1.5	1.8	1.3	1.8	2	7	2	5	2	0	1	0.23	0.09	139	28		0.3	0.30	0.00	0	unreliable	28	1
Dy3.4	1	5	2	15	4	30	5	40	6	50	6	70	0.1	0.3	0.6	0.1	0.6	1.3	0.4	0.9	1.7	1	2	3	2	4	5	1.3	1.6	1.8	1.4	1.7	2	7	3	5	3	0	1	0.22	0.09	132	40		0.33	0.30	31.00	19	unreliable	58	1
Dy3.41	1	5	2	20	4	30	5	40	6	55	6	70	0.1	0.3	0.6	0.2	0.6	1	0.5	0.9	1.4	1	2	3	3	4	5	1.4	1.6	2	1.4	1.7	1.9	7	2	5	2	0	1	0.22	0.09	132	40		0.33	0.30	31.00	19	unreliable	58	1
Dy3.42	1	5	2	15	4	30	4	40	5	50	6	70	0.1	0.3	0.6	0.1	0.4	1	0.4	0.8	1.5	1	2	3	3	4	5	1.1	1.4	1.6	1.4	1.7	2	7	2	5	2	0	1	0.24	0.09	147	44		0.33	0.26	74.00	30	unreliable	74	1
Dy3.43	1	5	2	15	4	30	5	40	6	50	6	70	0.1	0.3	0.6	0.1	0.6	1.5	0.4	1	1.8	1	2	3	3	4	5	1.3	1.6	1.8	1.5	1.7	2	6	2	3	2	0	1	0.22	0.09	132	40		0.33	0.30	31.00	19	unreliable	58	1
Dy3.53	2	10	3	20	4	30	5	40	5	50	6	60	0.1	0.2	0.5	0.5	1.3	1.5	1	1.5	2	2	2	2	2	3	3	1.2	1.5	1.7	1.4	1.7	1.9	8	2	6	3	0	3	0.26	0.12	138	28		0.33	0.26	74.00	97	unreliable	124	1
Dy3.6	1	5	2	15	3	20	4	30	5	40	6	60	0.2	0.4	0.6	0.1	0.5	0.8	0.6	0.9	1.1	2	2	3	2	2	2	1.2	1.5	1.8	1.4	1.6	2	8	3	7	3	0	1	0.23	0.09	139	56		0.3	0.18	124.00	62		118	1
Dy3.61	1	5	2	15	4	30	4	30	5	40	6	60	0.2	0.3	0.5	0.2	0.6	0.9	0.7	0.9	1.5	2	2	3	2	2	2	1.2	1.5	1.8	1.4	1.6	1.9	8	2	7	2	0	2	0.23	0.09	139	42		0.3	0.18	124.00	75		116	1
Dy3.62	1	5	2	15	3	20	5	35	5	40	6	50	0.2	0.3	0.6	0.2	0.6	0.9	0.5	0.8	1.3	2	2	3	2	2	3	1.2	1.5	1.8	1.4	1.6	1.9	8	2	7	2	0	2	0.23	0.09	139	42		0.3	0.18	124.00	75		116	1
Dy3.63	1	5	2	15	3	20	5	35	5	40	6	50	0.1	0.2	0.6	0.3	0.6	0.9	0.5	1	1.5	2	2	2	2	2	2	1.2	1.5	1.8	1.4	1.7	2	8	2	6	3	0	3	0.23	0.09	139	28		0.29	0.18	116.00	70		97	1
Dy3.71	1	5	2	15	4	30	4	30	5	40	6	60	0.2	0.3	0.5	0.2	0.6	0.9	0.7	0.9	1.5	2	2	3	2	2	2	1.2	1.5	1.8	1.4	1.6	1.9	8	2	6	2	0	3	0.23	0.09	139	42		0.3	0.18	124.00	75		116	1
Dy3.73	1	5	1	10	3	30	3	30	5	40	6	60	0.1	0.3	0.6	0.4	0.7	1.4	0.5	1	2	1	2	3	2	3	3	1.3	1.6	1.9	1.4	1.8	2	7	2	5	2	0	2	0.19	0.06	132	39		0.3	0.26	40.00	28	unreliable	67	1
Dy3.8	1	5	1	8	3	20	3	30	5	40	6	60	0.2	0.5	1.2	0.1	0.5	1.5	0.5	1.1	2.2	2	2	3	2	2	4	1.2	1.6	1.8	1.1	1.8	2.1	8	3	6	3	0	1	0.19	0.06	132	66		0.28	0.18	109.00	54		120	1
Dy3.81	1	5	1	8	3	20	3	20	5	40	6	60	0.2	0.4	1	0.1	0.6	1.2	0.6	1.1	2.2	2	2	3	2	2	3	1.2	1.6	1.8	1.1	1.7	1.9	8	2	6	3	0	1	0.19	0.06	132	53		0.29	0.18	116.00	70		122	1
Dy3.82	1	5	1	8	3	20	3	30	5	40	6	60	0.2	0.5	1.4	0.1	0.4	0.8	0.4	0.9	1.8	2	2	2	2	2	3	1.2	1.5	1.7	1.3	1.8	2	7	2	5	2	0	1	0.20	0.06	138	69		0.28	0.18	109.00	44		112	1
Dy3.83	1	5	2	15	3	20	5	35	5	40	6	60	0.2	0.3	0.6	0.2	0.4	0.8	0.4	0.8	1.5	2	2	3	2	2	3	1.3	1.6	1.8	1.4	1.9	2.1	7	2	4	2	0	2	0.22	0.09	132	40		0.26	0.17	89.00	35	unreliable	75	1
Dy3.84	1	5	2	15	3	20	5	35	5	40	6	70	0.2	0.3	0.6	0.2	0.4	0.8	0.4	0.8	2	2	2	2	2	2	3	1.3	1.6	1.8	1.4	1.9	2	7	2	4	2	0	3	0.22	0.09	132	40		0.26	0.17	89.00	35	unreliable	75	1
Dy3.85	1	5	2	15	3	20	5	35	5	40	6	70	0.2	0.3	0.6	0.2	0.4	0.8	0.4	0.8	2	2	2	2	2	2	3	1.3	1.5	1.7	1.3	1.8	2.1	7	2	4	2	0	3	0.23	0.09	139	42		0.28	0.18	109.00	44		85	1
Dy4.1	1	5	2	15	4	30	5	40	6	50	6	70	0.1	0.3	1.4	0.2	0.4	0.9	0.4	1	2	2	2	5	3	4	5	0.8	1.3	1.6	1.3	1.5	1.8	9	3	7	3	0	1	0.25	0.09	156	47		0.4	0.30	94.00	38		84	2
Dy4.11	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.8	0.2	0.3	0.5	0.4	0.6	1.3	2	2	4	3	4	5	0.8	1.3	1.6	1.3	1.5	1.7	9	2	8	2	0	2	0.28	0.12	157	31		0.4	0.30	94.00	28		60	2
Dy4.12	1	8	3	20	4	30	5	40	6	50	6	70	0.1	0.2	0.5	0.4	0.6	0.8	0.5	0.8	1.3	3	4	5	4	5	5	0.8	1.3	1.6	1.3	1.5	1.7	9	2	7	2	0	3	0.33	0.18	150	30		0.4	0.30	94.00	56		86	2
Dy4.13	1	5	2	15	3	20	5	40	6	50	6	70	0.2	0.5	0.8	0.3	0.6	1	0.5	1.2	1.8	2	2	2	3	4	5	0.8	1.3	1.6	1.4	1.6	1.8	9	2	6	3	0	2	0.25	0.09	156	78		0.37	0.30	65.00	39	unreliable	117	2
Dy4.21	2	10	3	20	4	30	4	40	5	50	6	70	0.2	0.3	0.5	0.2	0.5	0.7	0.5	0.7	1	2	3	5	2	3	5	0.8	1.3	1.6	1.3	1.5	1.7	9	2	7	2	0	2	0.33	0.18	150	45		0.37	0.26	106.00	53		98	2
Dy4.22	2	10	3	20	4	30	4	40	5	50	6	70	0.2	0.3	0.5	0.2	0.5	0.7	0.5	0.7	1	2	3	5	2	3	5	0.8	1.3	1.6	1.3	1.5	1.7	9	2	7	2	0	3	0.33	0.18	150	45		0.37	0.26	106.00	53		98	2
Dy4.23	1	8	2	15	3	20	5	40	6	50	6	70	0.2	0.3	0.6	0.2	0.5	0.8	0.5	0.7	1	1	1	2	4	5	5	1	1.3	1.7	1.3	1.6	1.8	9	2	6	2	0	3	0.25	0.09	156	47		0.37	0.30	65.00	33	unreliable	80	2
Dy4.32	1	8	2	15	3	20	5	40	6	50	6	70	0.2	0.4	0.7	0.2	0.5	0.8	0.5	0.7	1	1	2	2	3	4	5	1	1.4	1.8	1.3	1.6	1.9	8	2	6	2	0	3	0.24	0.09	147	59		0.37	0.30	65.00	33	unreliable	91	2
Dy4.33	1	8	2	15	3	20	5	40	6	50	6	70	0.2	0.4	0.7	0.2	0.5	0.8	0.5	0.7	1	1	2	2	3	4	5	1	1.4	1.8	1.3	1.6	1.9	8	2	5	2	0	3	0.24	0.09	147	59		0.37	0.30	65.00	33	unreliable	91	2
Dy4.41	1	8	2	20	3	30	5	40	6	50	6	70	0.1	0.3	0.5	0.3	0.5	0.7	0.5	0.7	1.2	1	2	3	3	3	5	1	1.4	1.7	1.3	1.6	1.8	8	2	6	2	0	2	0.24	0.09	147	44		0.37	0.30	65.00	33	unreliable	77	2
Dy4.42	1	8	2	20	3	30	5	40	6	50	6	70	0.1	0.3	0.5	0.3	0.5	0.7	0.5	0.7	1.2	1	2	3	3	3	5	1	1.4	1.7	1.3	1.6	1.8	8	2	6	2	0	3	0.24	0.09	147	44		0.37	0.30	65.00	33	unreliable	77	2
Dy4.43	1	5	1	10	3	20	5	40	6	50	6	70	0.2	0.3	0.7	0.1	0.4	0.7	0.5	0.8	1	1	2	3	3	4	5	1	1.5	1.9	1.4	1.7	2	8	2	4	2	0	2	0.20	0.06	138	41		0.33	0.30	31.00	13	unreliable	54	2
Dy4.51	1	8	2	15	3	20	3	30	5	40	6	50	0.1	0.2	0.5	0.1	0.3	1	0.5	0.7	1.2	2	2	3	2	2	3	0.8	1.3	1.6	1.2	1.4	1.7	9	2	8	2	0	2	0.25	0.09	156	31		0.32	0.18	144.00	43		74	2
Dy4.61	1	5	1	8	3	20	5	40	6	50	6	60	0.2	0.3	0.6	0.1	0.4	0.6	0.4	0.9	1.2	1	2	3	2	2	3	0.8	1.3	1.6	1.3	1.5	1.7	9	2	7	2	0	1	0.21	0.06	153	46		0.34	0.21	130.00	52		98	2
Dy4.81	1	5	2	15	3	30	3	30	5	40	6	50	0.2	0.4	1	0.2	0.3	1.2	0.5	1	1.8	1	2	3	2	2	3	1	1.4	1.7	1.4	1.6	1.8	8	2	6	2	0	2	0.24	0.09	147	59		0.3	0.18	124.00	37		96	1
Dy4.83	1	5	2	15	3	30	3	30	5	40	6	50	0.2	0.4	1	0.2	0.3	1.2	0.5	1	1.8	1	1	2	2	2	3	1.3	1.6	1.8	1.4	1.8	2	7	2	3	2	0	3	0.22	0.09	132	53		0.28	0.18	109.00	33		85	1
Dy5.1	1	8	3	20	4	30	4	40	6	50	6	70	0.2	0.4	0.6	0.4	0.7	1.1	0.8	1.2	1.7	2	4	5	2	4	5	0.8	1.3	1.6	1.3	1.6	1.8	9	2	7	2	0	2	0.33	0.18	150	60		0.37	0.30	65.00	46	unreliable	106	2
Dy5.11	1	8	3	20	4	30	4	40	6	50	6	70	0.2	0.4	0.6	0.4	0.7	1.1	0.8	1.2	1.7	2	4	5	2	4	5	0.8	1.3	1.6	1.3	1.6	1.8	9	2	7	2	0	2	0.33	0.18	150	60		0.37	0.30	65.00	46	unreliable	106	2
Dy5.12	1	8	3	20	4	30	4	40	6	50	6	70	0.2	0.4	0.6	0.4	0.7	1.1	0.8	1.2	1.7	2	4	5	2	4	5	0.8	1.3	1.6	1.3	1.6	1.8	9	2	7	2	0	3	0.33	0.18	150	60		0.37	0.30	65.00	46	unreliable	106	2
Dy5.2	1	5	3	20	4	30	5	40	6	50	6	70	0.1	0.3	0.6	0.2	0.6	1.1	0.5	0.9	1.3	1	3	5	1	4	5	0.8	1.3	1.6	1.3	1.6	1.9	8	3	6	3	0	1	0.33	0.18	150	45		0.36	0.26	95.00	57		102	2
Dy5.21	1	5	3	20	4	30	5	40	6	50	6	70	0.1	0.4	0.6	0.2	0.3	1.3	0.6	1	1.5	1	3	5	1	4	5	0.8	1.3	1.5	1.3	1.6	1.8	9	2	6	2	0	1	0.33	0.18	150	60		0.37	0.30	65.00	20	unreliable	80	2
Dy5.22	1	5	2	15	3	20	5	40	6	50	6	70	0.2	0.4	0.6	0.2	0.4	1	0.6	1	1.5	1	2	3	3	4	5	1	1.3	1.5	1.3	1.6	1.8	9	2	6	2	0	3	0.25	0.09	156	62		0.37	0.30	65.00	26	unreliable	89	2
Dy5.23	1	5	2	15	3	20	5	40	6	50	6	70	0.1	0.4	0.6	0.2	0.4	1	0.4	1	1.6	1	2	3	4	5	5	1	1.3	1.6	1.4	1.7	1.9	8	3	4	2	0	3	0.25	0.09	156	62		0.33	0.30	31.00	13	unreliable	75	2
Dy5.3	1	5	3	20	4	30	5	40	6	50	6	70	0.1	0.4	0.6	0.2	0.6	1.8	0.4	1	2	2	3	4	3	4	5	0.8	1.3	1.6	1.3	1.6	1.8	8	2	6	2	0	3	0.33	0.18	150	60		0.37	0.30	65.00	39	unreliable	99	1
Dy5.31	1	5	3	20	4	30	5	40	6	50	6	70	0.1	0.4	0.6	0.2	0.6	1.8	0.4	1	2	2	3	4	3	4	5	0.8	1.3	1.6	1.3	1.6	1.8	8	2	6	2	0	3	0.33	0.18	150	60		0.37	0.30	65.00	39	unreliable	99	1
Dy5.32	1	5	2	15	3	20	4	40	6	50	6	70	0.1	0.4	0.6	0.3	0.7	1.4	0.5	1.1	1.8	2	3	3	3	4	5	1	1.3	1.7	1.3	1.7	1.9	8	2	4	2	0	3	0.29	0.14	158	63		0.33	0.30	31.00	22	unreliable	85	1
Dy5.33	1	5	1	8	2	20	4	40	6	50	6	70	0.1	0.4	0.6	0.4	0.8	1.2	0.6	1.1	1.6	1	2	2	2	4	5	1.2	1.4	1.8	1.4	1.8	2	7	2	3	3	0	3	0.20	0.06	145	58		0.3	0.30	0.00	0	unreliable	58	1
Dy5.4	1	5	1	8	3	20	5	40	6	50	6	70	0.1	0.4	0.6	0.1	0.6	1.4	0.3	1	2	1	2	3	2	4	5	1	1.4	1.8	1.3	1.8	2	8	3	3	3	0	1	0.20	0.06	145	58		0.3	0.30	0.00	0	unreliable	58	1
Dy5.41	1	5	1	8	3	20	4	40	6	50	6	70	0.1	0.4	0.6	0.1	0.5	1.6	0.3	0.8	2.1	1	2	3	2	4	5	1	1.4	1.7	1.3	1.8	2	8	2	4	2	0	1	0.20	0.06	145	58		0.3	0.30	0.00	0	unreliable	58	1
Dy5.42	1	5	1	8	3	20	3	30	6	50	6	70	0.1	0.4	0.8	0.2	0.5	1.4	0.5	0.8	1.8	1	2	3	3	4	5	1.1	1.4	1.7	1.3	1.8	2	8	2	4	2	0	1	0.20	0.06	145	58		0.3	0.30	0.00	0	unreliable	58	1
Dy5.43	1	5	1	8	2	15	4	40	6	50	6	70	0.1	0.4	0.6	0.4	0.8	1.2	0.6	1.1	1.6	1	2	2	2	4	5	1.2	1.4	1.8	1.4	1.8	2	7	2	2	3	0	1	0.20	0.06	145	58		0.3	0.30	0.00	0	unreliable	58	1
Dy5.51	1	0	1	5	2	8	5	40	6	50	6	60	0.1	0.3	0.9	0.2	0.5	0.9	0.2	0.8	2	1	1	2	2	2	3	1.1	1.3	1.5	1.4	1.6	1.8	9	2	6	3	0	3	0.21	0.06	153	46		0.33	0.21	121.00	60		106	1
Dy5.6	1	5	1	8	2	15	5	40	6	50	6	60	0.1	0.5	0.9	0.1	0.5	1.1	0.1	0.8	1.8	1	2	2	2	2	4	1.1	1.3	1.5	1.4	1.6	1.9	9	2	6	3	0	1	0.21	0.06	153	76		0.33	0.21	121.00	60		137	1
Dy5.61	1	0	1	5	2	8	5	40	6	50	6	60	0.1	0.3	0.9	0.2	0.5	0.9	0.2	0.8	2	1	1	2	2	2	3	1.1	1.3	1.5	1.4	1.6	1.8	9	2	6	3	0	1	0.21	0.06	153	46		0.33	0.21	121.00	60		106	1
Dy5.62	1	0	1	5	2	15	5	40	6	50	6	60	0.1	0.5	0.8	0.1	0.5	1.2	0.2	1	1.8	1	2	2	2	2	4	1.1	1.3	1.5	1.4	1.7	1.9	9	2	5	3	0	1	0.21	0.06	153	76		0.32	0.20	112.00	56		132	1
Dy5.63	1	0	1	5	2	8	5	40	6	50	6	60	0.1	0.3	0.9	0.2	0.5	0.9	0.2	0.8	2	1	1	2	2	2	3	1.1	1.3	1.6	1.4	1.8	2	8	2	4	3	0	3	0.21	0.06	153	46		0.3	0.20	94.00	47	unreliable	93	1
Dy5.71	1	0	1	5	2	8	5	40	6	50	6	60	0.1	0.3	0.9	0.2	0.5	0.9	0.2	0.8	2	1	1	2	2	2	3	1.1	1.3	1.5	1.4	1.6	1.8	9	2	6	3	0	3	0.21	0.06	153	46		0.33	0.21	121.00	60		106	1
Dy5.8	1	0	1	5	3	20	4	30	5	40	6	60	0.05	0.5	1.2	0.2	0.6	1	0.1	1	1.8	1	2	3	1	2	4	1.1	1.5	1.8	1.4	1.8	2	8	2	5	3	0	1	0.20	0.06	138	69		0.28	0.18	109.00	65		134	1
Dy5.81	1	0	1	5	3	20	3	30	5	40	6	60	0.05	0.5	1	0.2	0.6	1.2	0.1	1	2	1	2	3	1	2	3	1.1	1.5	1.8	1.4	1.8	2	8	2	5	3	0	1	0.20	0.06	138	69		0.28	0.18	109.00	65		134	1
Dy5.82	1	0	1	5	2	20	4	30	5	40	6	60	0.1	0.5	1	0.1	0.6	1.2	0.2	1	2	1	1	2	2	2	3	1.1	1.5	1.8	1.4	1.8	2	8	2	5	3	0	3	0.20	0.06	138	69		0.28	0.18	109.00	65		134	1
Dy5.83	1	0	1	5	3	15	5	30	6	40	6	60	0.1	0.4	1.1	0.3	0.8	1	0.8	1.1	1.4	1	1	2	2	2	4	1.1	1.5	1.8	1.4	1.8	2	8	2	4	3	0	2	0.20	0.06	138	55		0.3	0.20	94.00	75	unreliable	130	1
Dy5.84	1	0	1	5	3	20	3	30	5	40	6	60	0.05	0.5	1	0.2	0.6	1.2	0.1	1	2	1	2	3	1	2	3	1.1	1.5	1.8	1.4	1.8	2	8	2	5	3	0	3	0.20	0.06	138	69		0.28	0.18	109.00	65		134	1
Dy5.91																																						0	3												
Gc	1	5	4	30	5	40	4	30	5	40	6	60	0.05	0.25	0.5	0.1	0.2	0.8	0.2	0.7	0.9	1	3	4	2	2	3	1	1.4	1.6	1.1	1.5	1.8	8	2	6	2	1	1	0.35	0.22	129	32		0.31	0.18	133.00	27		59	
Gc1	1	8	3	20	5	40	3	30	5	40	6	60	0.05	0.25	0.6	0.1	0.2	0.8	0.2	0.7	0.9	1	3	4	2	2	3	1	1.4	1.6	1.1	1.5	1.8	8	2	6	2	1	1	0.32	0.18	138	35		0.31	0.18	133.00	27		61	1
Gc1.1	1	8	4	30	5	40	2	15	5	40	6	60	0.05	0.25	0.5	0.1	0.2	0.8	0.15	0.6	0.9	1	3	4	2	2	3	1	1.4	1.6	1.1	1.5	1.8	8	2	6	2	1	1	0.35	0.22	129	32		0.31	0.18	133.00	27		59	1
Gc1.11	1	8	2	15	3	20	3	20	4	30	5	50	0.1	0.3	0.5	0.2	0.7	1	0.3	1	1.5	1	1	2	1	1	2	0.8	1.4	1.6	1.1	1.5	1.8	8	2	6	2	1	3	0.24	0.09	147	44		0.28	0.15	136.00	95		139	1
Gc1.12	1	5	4	30	5	40	3	20	5	40	6	60	0.1	0.3	0.5	0.1	0.2	0.8	0.2	0.7	0.9	1	3	4	2	2	3	1	1.4	1.6	1.1	1.5	1.8	8	2	6	2	1	1	0.35	0.22	129	39		0.31	0.18	133.00	27		65	1
Gc1.2	1	5	2	15	3	20	2	15	4	30	5	50	0.1	0.3	0.5	0.1	0.2	0.5	0.2	0.7	0.9	1	1	3	2	2	3	1	1.4	1.6	1.1	1.5	1.8	8	2	6	3	1	3	0.24	0.09	147	44		0.28	0.15	136.00	27		71	2
Gc1.21	1	5	3	20	4	30	3	20	5	40	6	60	0.1	0.2	0.6	0.2	0.5	0.8	0.5	0.7	1	2	3	4	2	2	3	1	1.4	1.7	1.1	1.5	1.8	8	2	7	3	1	3	0.32	0.18	138	28		0.31	0.18	133.00	67		94	2
Gc1.22	1	5	3	20	4	30	3	20	5	40	6	60	0.1	0.2	0.6	0.2	0.5	0.8	0.5	0.7	1	2	3	4	2	2	3	1	1.5	1.7	1.1	1.5	1.8	8	2	7	3	1	2	0.30	0.18	128	26		0.31	0.18	133.00	67		92	2
Gc2.11	2	15	4	30	5	40	3	20	5	40	6	60	0.3	0.5	1	0.2	0.5	1	0.5	1	2	2	3	4	3	4	5	1	1.4	1.6	1.3	1.6	1.9	7	2	5	3	1	3	0.35	0.22	129	64		0.36	0.26	95.00	48		112	1
Gc2.12	2	15	4	30	5	40	3	20	5	40	6	60	0.3	0.5	1	0.2	0.5	1	0.5	1	2	2	3	4	3	4	5	1	1.4	1.6	1.3	1.6	1.9	7	2	5	3	1	3	0.35	0.22	129	64		0.36	0.26	95.00	48		112	1
Gc2.21	2	15	4	30	5	40	3	20	5	40	6	50	0.3	0.5	1	0.2	0.5	1	0.5	1	2	2	3	4	3	4	5	1	1.4	1.6	1.3	1.6	1.9	7	2	5	3	1	3	0.35	0.22	129	64		0.36	0.26	95.00	48		112	2
Gc2.22	2	15	4	30	5	40	3	20	5	40	6	60	0.3	0.5	1	0.2	0.5	1	0.5	1	2	2	3	4	3	4	5	1	1.4	1.6	1.3	1.6	1.9	7	2	5	3	1	3	0.35	0.22	129	64		0.36	0.26	95.00	48		112	2
Gn1.12	1	5	3	20	4	30	2	15	4	30	5	40	0.05	0.15	0.5	0.5	0.9	1.5	0.7	1	1.5	2	2	3	2	2	3	0.9	1.2	1.4	1.1	1.4	1.6	8	3	8	3	0	3	0.29	0.12	169	25		0.29	0.15	146.00	131		156	1
Gn1.13	1	5	1	8	2	15	2	10	2	20	3	30	0.2	0.5	0.7	0.1	0.2	0.5	0.4	0.6	1	2	2	3	2	2	3	0.9	1.3	1.5	1.2	1.5	1.7	8	3	7	2	0	3	0.21	0.06	153	76		0.23	0.09	139.00	28		104	1
Gn1.19	1	5	1	8	2	15	2	10	3	20	4	30	0.05	0.5	0.7	0.1	0.5	1	0.5	1	1.5	2	2	3	2	2	3	0.9	1.3	1.5	1.2	1.5	1.7	8	3	8	3	0	2	0.21	0.06	153	76		0.26	0.12	138.00	69		145	
Gn1.83	2	15	3	20	4	30	3	20	4	30	5	40	0.05	0.1	0.5	0.1	0.4	0.8	0.3	0.5	1.2	2	2	3	2	2	3	1	1.4	1.5	1.1	1.6	1.8	8	2	7	3	0	3	0.27	0.12	147	15		0.27	0.15	127.00	51		66	
Gn1.84	1	5	3	20	4	30	2	15	3	20	4	30	0.1	0.5	0.9	0.2	0.3	0.6	0.3	0.8	1.5	2	3	4	2	2	3	1.1	1.4	1.5	1.2	1.6	1.8	8	2	7	2	0	2	0.32	0.18	138	69		0.25	0.12	130.00	39		108	
Gn2.1	1	5	3	20	4	30	2	15	4	30	6	50	0.05	0.2	0.5	0.2	1.3	2.6	0.4	1.5	2.8	2	2	5	2	2	4	0.6	1.1	1.6	0.9	1.3	1.6	8	2	8	3	0	1	0.31	0.12	183	37		0.31	0.15	157.00	204		240	1
Gn2.11	1	5	3	20	5	40	3	20	4	30	6	50	0.05	0.2	0.4	0.3	1	2.8	0.4	1.4	3	2	2	5	2	2	4	0.6	0.9	1.4	0.7	1.2	1.5	9	1	8	2	0	1	0.34	0.12	220	44		0.32	0.15	170.00	170		214	1
Gn2.12	1	5	3	20	4	30	2	15	4	35	6	55	0.05	0.2	0.4	0.2	0.7	1.9	0.3	1.4	2.1	2	2	3	2	2	4	0.6	1.4	1.7	1.1	1.4	1.8	9	2	7	2	0	1	0.27	0.12	147	29		0.29	0.15	146.00	102		131	1
Gn2.13	1	5	3	20	4	30	3	20	5	40	6	60	0.05	0.2	0.4	0.5	1.2	1.7	0.2	1.4	1.8	2	2	3	2	2	5	0.9	1.4	1.7	1.2	1.4	1.8	9	2	7	2	0	1	0.27	0.12	147	29		0.32	0.18	144.00	173		202	1
Gn2.14	1	5	2	15	4	30	2	15	4	40	6	50	0.1	0.3	0.5	0.3	1.2	2.5	0.6	1.5	2.8	1	2	5	2	2	3	0.7	1.3	1.5	1.1	1.4	1.6	9	1	8	2	0	1	0.25	0.09	156	47		0.29	0.15	146.00	175		221	1
Gn2.15	1	8	2	15	5	40	2	15	4	30	6	50	0.1	0.3	0.6	0.1	0.7	1.6	0.3	1	2.1	1	2	3	2	2	3	0.8	1.4	1.6	1.2	1.5	1.7	8	2	8	2	0	1	0.24	0.09	147	44		0.28	0.15	136.00	95		139	1
Gn2.16	1	8	2	15	5	40	3	20	5	40	6	50	0.1	0.3	0.6	0.1	0.7	1.6	0.3	1	2	2	2	3	2	3	3	0.8	1.4	1.7	1.2	1.5	1.8	8	2	7	2	0	3	0.24	0.09	147	44		0.37	0.26	106.00	74		118	1

Appendix One: Interpreted Soil Properties

ppf	Atext5	Aclay5	Atext50	Aclay50	Atext95	Aclay95	Btext5	Bclay5	Btext50	Bclay50	Btext95	Bclay95	Athick5	Athick50	Athick95	Bthick5	Bthick50	Bthick95	Solumthick5	Solumthick50	Solumthick95	Astruct5	Astruct50	Astruct95	Bstruct5	Bstruct50	Bstruct95	ABDensity5	ABDensity50	ABDensity95	BBDensity5	BBDensity50	BBDensity95	AKs	AKserror	BKs	BKserror	Calcrete	Reliability	A 0.1bar	A 15bar	A AWHC m	A AWHC m	A Reliabili	B 0.1bar	B 15 bar	B AWHC m	B AWHC m	B Reliabilit	PAWHC	Nutrients
Gn2.17	1	5	2	15	5	40	3	20	5	40	6	50	0.2	0.4	0.6	0.3	0.5	0.8	0.7	1	1.5	1	2	2	2	2	2	0.9	1.1	1.3	1.1	1.3	1.6	9	2	7	2	0	3	0.27	0.09	179	72		0.33	0.18	156.00	78		150	1
Gn2.18	1	8	2	15	5	40	3	20	5	40	6	50	0.1	0.3	0.6	0.1	0.7	1.6	0.3	1	2	2	2	3	2	3	3	0.8	1.4	1.7	1.2	1.5	1.8	8	2	7	2	0	3	0.24	0.09	147	44		0.37	0.26	106.00	74		118	1
Gn2.19	1	8	3	15	5	40	3	20	5	40	6	50	0.1	0.3	0.6	0.1	0.7	1.6	0.3	1	2	2	2	3	2	2	3	0.8	1.4	1.7	1.2	1.5	1.8	8	2	7	2	0	3	0.27	0.12	147	44		0.31	0.18	133.00	93		137	1
Gn2.2	1	5	3	20	4	30	2	15	4	30	6	50	0.05	0.25	0.5	0.2	0.7	1.6	0.4	1	1.8	2	2	4	2	2	3	0.6	1.1	1.3	1.1	1.3	1.6	8	2	7	2	0	1	0.31	0.12	183	46		0.31	0.15	157.00	110		155	1
Gn2.21	1	5	3	20	4	30	3	20	4	30	6	50	0.1	0.2	0.5	0.3	0.7	1.4	0.6	1	1.5	2	2	4	2	2	3	0.7	1	1.3	1	1.3	1.7	8	2	7	2	0	1	0.32	0.12	200	40		0.31	0.15	157.00	110		150	1
Gn2.22	1	8	2	15	4	30	2	15	3	25	5	40	0.05	0.2	0.4	0.2	0.6	1.3	0.4	0.8	1.5	2	2	3	2	2	3	0.9	1.2	1.5	1	1.4	1.8	8	2	7	2	0	1	0.26	0.09	167	33		0.27	0.12	147.00	88		121	1
Gn2.23	1	8	3	20	4	30	2	15	4	30	6	55	0.05	0.2	0.4	0.7	1	1.6	0.9	1.2	1.7	2	2	3	2	2	3	1	1.3	1.6	1.1	1.5	1.9	8	2	7	2	0	2	0.28	0.12	157	31		0.28	0.15	136.00	136		167	1
Gn2.24	1	5	3	20	4	30	2	15	4	30	6	50	0.15	0.3	0.5	0.1	0.8	2	0.4	1.1	2.4	2	2	4	2	2	3	0.7	1.1	1.2	1.1	1.3	1.5	8	2	8	2	0	1	0.31	0.12	183	55		0.31	0.15	157.00	125		180	1
Gn2.25	1	5	2	15	3	25	2	15	4	30	6	50	0.2	0.4	1	0.3	0.8	1.5	0.7	1.4	1.9	2	2	3	2	2	3	0.9	1.2	1.3	1.2	1.4	1.6	8	2	8	2	0	1	0.26	0.09	167	67		0.29	0.15	146.00	116		183	1
Gn2.3	1	5	2	15	4	30	2	15	4	30	6	50	0.1	0.3	0.7	0.3	0.8	1.5	0.6	1.1	1.9	1	2	3	2	2	3	0.9	1.2	1.4	1.2	1.4	1.6	8	2	7	2	0	1	0.26	0.09	167	50		0.29	0.15	146.00	116		166	1
Gn2.31	1	8	3	20	5	40	2	15	4	30	6	50	0.1	0.3	0.5	0.4	0.7	1.1	0.7	1	1.4	2	2	4	2	2	3	0.9	1.2	1.4	1.2	1.4	1.6	8	2	7	2	0	2	0.29	0.12	169	51		0.29	0.15	146.00	102		153	1
Gn2.32	1	8	2	15	3	30	3	20	4	30	5	40	0.1	0.2	0.3	0.3	0.8	1.2	0.5	1	1.4	2	2	3	2	2	3	0.9	1.2	1.4	1.2	1.4	1.8	8	2	7	2	0	2	0.26	0.09	167	33		0.29	0.15	146.00	116		150	1
Gn2.34	1	5	1	5	3	20	1	8	3	20	5	40	0.2	0.4	0.8	0.3	0.5	1.9	0.6	1.3	2.1	1	2	3	2	2	3	0.9	1.2	1.4	1.2	1.4	1.6	8	2	7	2	0	2	0.22	0.06	162	65		0.27	0.12	147.00	73		138	1
Gn2.35	1	8	2	15	4	30	3	20	5	35	5	45	0.2	0.4	0.6	0.3	0.5	1.9	0.6	1.3	2.1	2	2	3	2	3	4	1	1.3	1.5	1.3	1.5	1.7	8	2	7	2	0	3	0.25	0.09	156	62		0.37	0.26	106.00	53		115	1
Gn2.4	1	8	2	15	4	30	2	15	4	30	6	50	0.1	0.3	0.6	0.1	0.8	1.8	0.4	1	1.9	1	2	4	2	2	3	0.7	0.9	1.3	1	1.2	1.6	9	2	8	2	0	1	0.31	0.09	213	64		0.32	0.15	170.00	136		200	
Gn2.41	3	15	3	20	4	30	2	15	4	30	5	40	0.05	0.15	0.3	0.2	0.8	1.5	0.4	1	1.7	2	3	4	2	2	4	0.7	0.9	1.3	1	1.3	1.6	9	2	8	2	0	2	0.41	0.18	224	34		0.31	0.15	157.00	125		159	1
Gn2.42	1	8	3	20	4	30	2	15	4	30	6	50	0.1	0.3	0.5	0.1	0.7	1.3	0.4	1	1.5	2	2	4	2	2	3	0.7	0.9	1.3	1	1.2	1.6	9	2	8	2	0	1	0.34	0.12	220	66		0.32	0.15	170.00	119		185	2
Gn2.43	1	8	2	15	3	20	2	15	3	20	5	40	0.1	0.3	0.6	0.1	0.8	1.8	0.4	1	1.9	2	2	2	2	2	3	0.9	1.1	1.3	1.1	1.3	1.6	9	2	7	2	0	2	0.27	0.09	179	54		0.28	0.12	157.00	125		179	2
Gn2.44	1	8	2	15	2	20	2	15	3	20	5	40	0.2	0.3	0.6	0.2	0.9	1.9	0.4	1.2	2.5	1	2	3	2	2	3	0.8	1.1	1.3	1.1	1.3	1.6	9	2	8	2	0	2	0.27	0.09	179	54		0.28	0.12	157.00	141		195	1
Gn2.45	1	8	2	15	4	30	3	20	5	40	6	50	0.2	0.4	0.6	0.3	0.5	0.8	0.7	1	1.5	1	2	2	2	2	2	0.8	1.1	1.3	1.1	1.3	1.6	9	2	7	2	0	2	0.27	0.09	179	72		0.33	0.18	156.00	78		150	1
Gn2.46	1	8	2	15	4	30	3	20	5	40	6	50	0.2	0.4	0.6	0.3	0.5	0.8	0.7	1	1.5	1	2	2	2	2	2	0.9	1.1	1.3	1.1	1.3	1.6	9	2	7	2	0	3	0.27	0.09	179	72		0.33	0.18	156.00	78		150	1
Gn2.51	1	8	3	20	4	30	3	20	5	40	6	50	0.2	0.4	0.6	0.3	0.5	0.8	0.7	1	1.5	1	2	2	2	2	2	0.8	1.1	1.3	1.1	1.3	1.6	9	2	7	2	0	3	0.31	0.12	183	73		0.33	0.18	156.00	78		151	1
Gn2.52	1	8	3	20	4	30	2	15	4	30	6	50	0.1	0.3	0.6	0.1	0.8	1.4	0.5	1	1.5	2	2	3	2	2	3	0.8	1.1	1.3	1.1	1.3	1.6	9	2	7	2	0	3	0.31	0.12	183	55		0.31	0.15	157.00	125		180	1
Gn2.53	1	8	2	15	4	30	3	20	5	40	6	50	0.2	0.4	0.6	0.3	0.5	0.8	0.7	1	1.5	1	2	2	2	2	2	0.9	1.1	1.3	1.1	1.3	1.6	9	2	7	2	0	3	0.27	0.09	179	72		0.33	0.18	156.00	78		150	1
Gn2.54	1	8	3	20	4	30	3	20	4	30	6	50	0.1	0.3	0.6	0.1	0.8	1.4	0.5	1.2	2	2	2	3	2	2	3	1	1.3	1.5	1.2	1.5	1.7	8	2	7	2	0	3	0.28	0.12	157	47		0.28	0.15	136.00	109		156	1
Gn2.55	1	8	3	20	4	30	3	20	4	30	6	50	0.1	0.3	0.6	0.1	0.8	1.4	0.5	1.2	2	2	2	3	2	2	3	1	1.3	1.5	1.2	1.5	1.7	8	2	7	2	0	3	0.28	0.12	157	47		0.28	0.15	136.00	109		156	1
Gn2.6	1	5	2	15	4	30	2	15	4	30	6	50	0.1	0.3	0.6	0.3	1	2.5	0.5	1.4	2.7	1	2	3	2	2	3	1	1.2	1.5	1.2	1.6	1.9	8	2	7	2	0	1	0.26	0.09	167	50		0.27	0.15	127.00	127		177	1
Gn2.61	2	15	3	20	4	30	3	20	5	40	6	60	0.05	0.2	0.4	0.4	0.8	1.5	0.5	1	1.9	2	2	4	2	2	3	0.9	1.1	1.4	1.1	1.5	1.8	8	2	7	2	0	1	0.31	0.12	183	37		0.31	0.18	133.00	107		143	1
Gn2.62	2	8	2	15	3	20	3	20	4	30	6	60	0.1	0.2	0.3	0.6	1	1.8	0.8	1.2	2.5	2	2	3	2	2	3	1	1.2	1.5	1.2	1.6	1.9	8	2	7	2	0	2	0.26	0.09	167	33		0.27	0.15	127.00	127		161	1
Gn2.63	1	8	3	20	4	30	2	15	3	20	5	40	0.1	0.4	0.7	0.3	1	2.5	0.5	1.4	2.7	2	3	3	2	3	3	1.1	1.3	1.6	1.3	1.6	1.9	8	2	6	3	0	3	0.33	0.18	150	60		0.3	0.18	119.00	119		179	1
Gn2.64	1	5	2	15	3	20	2	10	3	20	6	60	0.1	0.4	0.8	0.3	1.2	2.7	0.5	1.6	3.6	1	2	3	2	2	2	1	1.2	1.5	1.2	1.6	1.9	8	2	7	2	0	1	0.26	0.09	167	67		0.25	0.12	130.00	156		223	1
Gn2.65	1	5	3	20	4	30	2	15	4	30	6	60	0.1	0.3	0.6	0.3	1	2.5	0.5	1.5	2.7	2	2	3	2	2	3	1	1.2	1.5	1.2	1.6	1.9	8	2	6	2	0	3	0.29	0.12	169	51		0.27	0.15	127.00	127		178	1
Gn2.7	1	0	1	5	3	20	2	15	4	30	6	60	0.15	0.4	0.7	0.2	0.8	1.8	0.5	1.2	2.4	1	2	3	2	2	4	1.1	1.5	1.7	1.3	1.6	1.9	8	2	6	2	0	1	0.20	0.06	138	55		0.27	0.15	127.00	102		157	1
Gn2.71	1	0	1	5	3	20	2	15	4	30	6	60	0.15	0.4	0.7	0.2	0.8	1.8	0.5	1.2	2.4	1	2	3	2	2	4	1.1	1.5	1.7	1.3	1.6	1.9	8	2	6	2	0	3	0.20	0.06	138	55		0.27	0.15	127.00	102		157	1
Gn2.72	1	0	1	5	3	20	2	15	4	30	6	60	0.15	0.4	0.7	0.2	0.8	1.8	0.5	1.2	2.4	1	2	3	2	2	4	1.1	1.5	1.7	1.3	1.6	1.9	8	2	6	2	0	3	0.20	0.06	138	55		0.27	0.15	127.00	102		157	1
Gn2.74	1	0	1	5	3	20	2	15	4	30	6	60	0.2	0.4	0.7	0.2	0.9	2	0.4	1.3	2.5	1	2	3	2	2	5	1.1	1.5	1.7	1.4	1.6	1.8	8	2	6	2	0	1	0.20	0.06	138	55		0.27	0.15	127.00	115		170	1
Gn2.75	1	5	1	8	2	15	3	20	4	30	6	60	0.15	0.3	0.7	0.2	0.8	1.8	0.5	1.2	2.4	2	2	3	2	2	3	1.1	1.5	1.8	1.4	1.7	1.9	8	2	6	2	0	2	0.20	0.06	138	41		0.27	0.15	120.00	96		137	1
Gn2.8	1	8	3	20	4	30	3	20	5	40	6	60	0.1	0.3	0.7	0.2	0.5	1.3	0.3	0.8	1.7	2	2	4	2	2	3	0.8	1.4	1.7	1.3	1.7	2	7	2	5	3	0	1	0.27	0.12	147	44		0.29	0.18	116.00	58		102	1
Gn2.81	2	15	3	20	5	40	3	30	5	40	6	60	0.1	0.2	0.4	0.2	0.6	1.4	0.3	0.8	1.6	2	2	4	2	2	3	0.7	1	1.5	1.2	1.6	1.8	7	2	6	3	0	1	0.32	0.12	200	40		0.3	0.18	124.00	75		114	1
Gn2.82	1	8	3	20	5	40	2	15	5	40	6	60	0.1	0.3	0.8	0.2	0.5	0.8	0.4	0.8	1.6	2	2	3	2	2	3	0.9	1.1	1.6	1.3	1.6	1.8	7	2	6	3	0	1	0.31	0.12	183	55		0.3	0.18	124.00	62		117	1
Gn2.83	1	8	3	20	5	40	2	15	5	40	6	60	0.05	0.3	0.8	0.2	0.5	1	0.4	0.8	1.6	2	2	3	2	2	3	1.1	1.4	1.7	1.3	1.7	1.9	7	2	5	3	0	3	0.27	0.12	147	44		0.29	0.18	116.00	58		102	1
Gn2.84	1	8	2	15	4	30	2	15	4	30	6	60	0.2	0.3	0.6	0.2	0.6	1	0.3	0.9	1.3	2	2	3	2	2	3	0.7	1	1.5	1.2	1.6	1.8	7	2	6	3	0	1	0.29	0.09	195	58		0.27	0.15	127.00	76		135	1
Gn2.85	1	5	2	15	4	30	2	15	4	30	6	60	0.1	0.3	0.8	0.5	0.7	1.2	0.5	1	2	2	2	3	2	2	3	0.9	1.1	1.6	1.3	1.6	1.8	7	2	6	3	0	3	0.27	0.09	179	54		0.27	0.15	127.00	89		143	1
Gn2.9	1	5	2	15	4	30	2	15	4	30	6	60	0.1	0.3	0.6	0.2	0.6	1.2	0.4	0.9	1.5	1	2	3	2	2	3	1	1.4	1.7	1.3	1.7	2	7	2	5	3	0	1	0.24	0.09	147	44		0.27	0.15	120.00	72		116	1
Gn2.91	2	15	3	20	4	30	3	20	4	40	6	60	0.1	0.2	0.4	0.2	0.6	1.5	0.4	0.9	1.6	1	2	3	2	2	3	1	1.4	1.7	1.3	1.7	2	7	2	5	3	0	2	0.27	0.12	147	29		0.27	0.15	120.00	72		101	1
Gn2.92	2	15	3	20	4	30	3	20	4	30	6	60	0.1	0.3	0.4	0.2	0.4	0.6	0.4	0.6	1	2	2	3	2	2	3	1	1.4	1.7	1.3	1.7	2	7	2	5	3	0	2	0.27	0.12	147	44		0.27	0.15	120.00	48		92	1
Gn2.93	2	15	3	30	4	30	3	20	5	40	6	60	0.1	0.3	0.6	0.2	0.6	1.2	0.4	0.9	1.5	2	2	3	2	2	3	1.1	1.4	1.8	1.3	1.7	2	7	2	5	3	0	3	0.27	0.12	147	44		0.29	0.18	116.00	70		114	1
Gn2.94	1	5	2	15	4	30	2	15	4	30	6	60	0.1	0.3	0.6	0.3	0.7	0.9	0.7	0.9	1.4	1	2	3	2	2	3	1	1.4	1.7	1.3	1.7	2	7	2	5	3	0	1	0.24	0.09	147	44		0.27	0.15	120.00	84		128	1
Gn2.95	1	5	1	8	4	30	2	15	4	30	6	60	0.2	0.5	0.6	0.4	0.6	0.9	0.6	1.1	1.5	1	2	3	2	2	3	1	1.4	1.7	1.3	1.7	2	7	2	5	3	0	1	0.20	0.06	145	72		0.27	0.15	120.00	72		144	1
Gn2.96	2	15	3	20	4	30	3	20	5	40	6	60	0.1	0.3	0.6	0.2	0.6	1.2	0.3	0.9	1.5	2	2	2	2	2	3	1.2	1.5	1.8	1.4	1.8	2	7	2	4	3	0	3	0.26	0.12	138	41		0.28	0.18	109.00	65		107	1
Gn3.0	2	20	3	30	4	40	3	30	6	50	6	70	0.1	0.3	0.6	0.1	0.7	1.2	0.4	1	1.6	2	3	4	3	4	5	0.8	1.2	1.4	1	1.5	1.7	7	2	5	3	0	1	0.34	0.18	164	49		0.4	0.30	94.00	66		115	1
Gn3.01	1	8	3	20	4	30	4	30	5	30	6	60	0.1	0.3	0.6	0.1	0.7	1.2	0.4	1	1.6	1	2	4	3	4	4	0.8	1.2	1.4	1	1.5	1.7	7	2	5	3	0	3	0.29	0.12	169	51		0.37	0.26	106.00	74		125	1
Gn3.02	2	20	3	30	5	50	3	30	6	50	6	70	0.1	0.3	0.6	0.1	0.7	1.2	0.4	1	1.6	2	3	4	2	4	5	0.8	1.2	1.4	1	1.5	1.7	7	2	5	3	0	3	0.34	0.18	164	49		0.4	0.30	94.00	66		115	1
Gn3.03	2	20	3	30	4	40	4	30	6	50	6	70	0.1	0.3	0.6	0.1	0.7	1.2	0.4	1	1.6	2	3	4	2	4	5	0.8	1.3	1.5	1.1	1.5	1.8	7	2	4	3	0	3	0.33	0.18	150	45		0.4	0.30	94.00	66		111	1
Gn3.04	2	15	3	20	5	40	4	30	6	50	6	70	0.15	0.3	0.6	0.2	0.9	1.3	0.4	1.2	1.7	2	3	4	3	4	5	1	1.3	1.5	1.2	1.6	1.8	7	2	5	3	0	1	0.33	0.18	150	45		0.37	0.30	65.00	59	unreliable	104	1
Gn3.05	2	15	3	20	5	40	5	40	6	50	6	70	0.15	0.3	0.6	0.2	0.9	1.3	0.4	1.2	1.7	2	3	4	3	4	5	1	1.3	1.5	1.2	1.6	1.8	7	2	5	3	0	3	0.33	0.18	150	45		0.37	0.30	65.00	59	unreliable	104	1
Gn3.06	2	15	3	20	5	40	4	30	6	50	6	70	0.1	0.3	0.6	0.1	0.7	1.2	0.4	1	1.6	2	3	4	3	4	5	1.1	1.4	1.6	1.3	1.6	1.9	6	3	4	3	0	2	0.32	0.18	138	41		0.37	0.30	65.00	46	unreliable	87	1
Gn3.1	3	40	4	60	5	80	4	50	5	70	6	80	0.05	0.2	0.4	0.2	1.2	2.8	0.3	1.3	3	3	4	5	3	4	5	0.6	1	1.5	1	1.3	1.7	9	2	8	2	0	1	0.42	0.22	196	39		0.4	0.26	132.00	159	unreliable	198	
Gn3.10	3	40	4	60	5	80	4	50	5	70	6	80	0.05	0.2	0.3	0.4	1.5	3.2	0.3	1.7	3.3	3	4	5	3	4	5	0.6	0.9	1.2	1	1.2	1.6	9	2	8	2	0	3	0.45	0.23	222	44		0.41	0.26	149.00	224	unreliable	268	3
Gn3.11	3	40	4	60	5	80	4	50	5	70	6	80	0.05	0.2	0.3	0.4	1.5	3.2	0.3	1.7	3.3	3	4	5	3	4	5	0.6	0.9	1.2	1	1.2	1.6	9	2	8	2	0	1	0.45	0.23	222	44		0.41	0.26	149.00	224	unreliable	268	3
Gn3.12	3	40	4	60	5	80	4	50	5	70	6	80	0.05	0.15	0.4	0.15	0.7	1.6	0.3	0.9	1.8	3	4	5	3	4	5	1.1	1.3	1.5	1.1	1.4	1.6	9	2	8	2	0	1	0.36	0.22	142	21		0.38	0.26	118.00	83	unreliable	104	2
Gn3.13	3	40	4	60	6	80	4	50	5	70	6	80	0.05	0.15	0.3	0.2	0.6	1	0.4	0.7	1.1	2	2	4	3	4	5	1	1.3	1.6	1	1.4	1.7	9	2	8	3	0	1	0.31	0.15	157	24		0.38	0.26	118.00	71	unreliable	95	2
Gn3.14	2	20	4	30	5	40	4	30	5	40	6	60	0.1	0.3	0.5	0.4	1.6	3.7	0.7	2	4.1	2	4	5	3	4	5	0.6	0.8	1.3	1	1.4	1.6	9	1	8	2	0	1	0.48	0.23	255	76		0.38	0.26	118.00	189		266	2
Gn3.15	2	15	3	20	5	40	3	20	5	40	6	60	0.1	0.3	0.5	0.4	0.9	1.5	0.6	1.2	1.8	2	3	4	3	4	5	0.9	1.2	1.5	1.1	1.4	1.8	9	2	7	2	0	2	0.34	0.18	164	49		0.38	0.26	118.00	106		156	2
Gn3.16	3	20	4	30	5	40	3	20	4	30	6	60	0.1	0.2	0.4	0.2	0.6	1.2	0.3	0.8	1.6	2	3	4	3	4	5	1	1.3	1.6	1.2	1.5	1.8	8	2	5	2	0	3	0.36	0.22	142	28		0.34	0.22	117.00	70		99	2
Gn3.2	2	15	4	30	5	40	3	20	5	50	6	70	0.1	0.2	0.4	0.1	0.7	1.4	0.4	1	1.8	2	3	5	3	4	5	0.7	1.2	1.5	1	1.4	1.6	8	2	7	2	0	1	0.38	0.22	157	31		0.38	0.26	118.00	83		114	2
Gn3.21	3	20	4	30	5	40	4	30	5	40	6	60	0.1	0.3	0.5	0.2	0.6	1.3	0.4	0.8	1.5	2	4	5	3	4	5	0.7	1.2	1.4	1	1.3	1.5	8	2	7	2	0	1	0.38	0.22	157	47		0.4	0.26	132.00	79		127	2
Gn3.22	2	15	4	30	5	40	3	25	5	40	6	60	0.1	0.2	0.4	0.4	0.8	1.4	0.5	1	1.6	2	4	5	3	4	5	1	1.2	1.5	1.2	1.4	1.7	8	2	7	2	0	1	0.38	0.22	157	31		0.38	0.26	118.00	95		126	2
Gn3.23	1	5	4	30	6	50	2	15	5	50	6	60	0.1	0.2	0.3	0.1	0.8	1.4	0.2	0.9	2	2	2	3	3	4	5	1	1.3	1.6	1.3	1.6	1.8	8	2	6	2	0	2	0.31	0.15	157	31		0.36	0.26	95.00	76		108	2
Gn3.24	3	20	4	30	5	40	4	30	5	40	6	60	0.1	0.2	0.4	0.2	0.4	0.6	0.3	0.6	1	3	4	5	3	4	5	0.8	1.3	1.5	1.1	1.4	1.6	8	2	7	2	0	3	0.36	0.22	142	28		0.38	0.26	118.00	47		76	2
Gn3.25	1	5	3	20	5	40	2	15	4	30	5	50	0.1	0.2	0.4	0.1	0.5	1.4	0.3	1	1.8	2	2	5	3	4	5	1	1.3	1.6	1.1	1.5	1.7	8	2	6	2	0	2	0.28	0.12	157	31		0.34	0.22	117.00	59		90	2
Gn3.32	3	20	4	30	5	40	4	30	5	40	6	60	0.1	0.3	0.5	0.4	0.8	1.2	0.8	1	1.5	2	2	3	3	4	5	1	1.3	1.7	1.1	1.6	1.8	8	2	6	2	0	3	0.31	0.15	157	47		0.36	0.26	95.00	76		123	2
Gn3.34	2	15	3	20	4	30	3	20	5	50	6	60	0.1	0.3	0.5	0.2	0.7	1.3	0.3	1	1.8	2	3	3	2	3	4	1	1.3	1.7	1.1	1.6	1.8	8	2	6	2	0	3	0.33	0.18	150	45		0.36	0.26	95.00	67		112	2
Gn3.4	3	20	4	30	5	40	5	40	6	50	6	70	0.05	0.15	0.3	0.2	0.9	1.9	0.25	1	2	2	4	5	3	4	5	0.8	1.2	1.4	1.2	1.4	1.7	8	2	6	3	0	1	0.38	0.22	157	24		0.41	0.31	107.00	97		120	
Gn3.41	2	20	4	30	5	40	5	40	6	50	6	70	0.05	0.1	0.3	0.2	0.9	2	0.2	1	2	3	4	5	3	4	5	0.7	1	1.4	1	1.4	1.6	9	2	7	2	0	2	0.42	0.22	196	20		0.41	0.31	107.00	97		116	3
Gn3.42	3	20	4	30	5	40	4	30	6	40	6	60	0.05	0.1	0.3	0.2	0.9	2	0.2	1	2	2	4	5	3	4	5	0.8	1.2	1.4	1.2	1.4	1.7	8	2	6	3	0	2	0.38	0.22	157	16		0.41	0.31	107.00	97		112	3
Gn3.43	3	20	4	30	5	40	5	40	6	50	6	70	0.05	0.1	0.2	0.3	1	2.5	0.5	1.3	2.5	3	4	5	3	4	5	0.8	1.2	1.4	1.1	1.4	1.7	8	2	6	2	0	2	0.38	0.22	157	16		0.41	0.31	107.00	107		123	3
Gn3.45	3	20	4	30	5	40	4	30	6	40	6	60	0.05	0.1	0.3	0.2	0.9	2	0.2	1	2	2	4	5	3	4	5	0.8	1.2	1.4	1.2	1.4	1.7	8	2	6	3	0	3	0.38	0.22	157	16		0.41	0.31	107.00	97		112	2
Gn3.46	3	20	5	40	5	50	5	40	6	50	6	70	0.05	0.15	0	0.2	0.9	1.9	0.25	1	2	4	5	5	4	5	5	1	1.3	1.4	1.2	1.5	1.8	7	2	5	3	0	3	0.40	0.26	132	20		0.4	0.30	94.00	85		104	2
Gn3.49	3	20	5	40	5	50	5	50	6	50	6	70	0.05	0.2	0.4	0.2	1	2	0.3	1.2	2	2	2	3	3	4	5	1	1.4	1.6	1.3	1.6	1.9	7	2	5	2	0	2	0.32	0.18	144	29		0.37	0.30	65.00	65	unreliable	94	2
Gn3.5	3	20	4	30	5	40	4	30	6	50	6	70	0.05	0.15	0.3	0.3	1.2	2	0.4	1.6	3	3	4	5	3	4	5	0.6	1	1.3	1	1.2	1.6	9	2	8	3	0	2	0.42	0.22	196	29		0.45	0.31	140.00	168		198	2
Gn3.51	3	20	4	30	5	40	4	30	6	50	6	70	0.05	0.15	0.3	0.3	1.2	2	0.4	1.6	3	3	4	5	3	4	5	0.6	1	1.3	1	1.1	1.4	9	2	8	2	0	3	0.42	0.22	196	29		0.47	0.31	161.00	194		223	2
Gn3.52	3	20	4	30	5	40	4	30	6	50	6	70	0.05	0.15	0.3	0.3	1.2	2	0.4	1.6	3	2	4	5	3	4	5	0.6	1	1.3	1	1.2	1.6	9	2	8	3	0	3	0.42	0.22	196	29		0.45	0.31	140.00	168		198	2
Gn3.53	3	20	4	30	5	40	4	30	6	50	6	70	0.05	0.15	0.3	0.3	1.2	2	0.4	1.6	3	3	4	5	3	4	5	0.6	1	1.3	1	1.2	1.6	9	2	8	3	0	2	0.42	0.22	196	29		0.45	0.31	140.00	168		198	2
Gn3.54	3	20	4	30	5	40	4	30	6	50	6	70	0.05	0.2	0.3	0.3	1.2	2	0.4	1.6	3	3	4	5	3	4	5	0.6	1.1	1.3	1	1.4	1.6	8	2	7	2	0	2	0.40	0.22	175	35		0.41	0.31	107.00	129		164	2

Appendix One: Interpreted Soil Properties

ppf	Atext5	Aclay5	Atext50	Aclay50	Atext95	Aclay95	Btext5	Bclay5	Btext50	Bclay50	Btext95	Bclay95	Athick5	Athick50	Athick95	Bthick5	Bthick50	Bthick95	Solumthick5	Solumthick50	Solumthick95	Astruct5	Astruct50	Astruct95	Bstruct5	Bstruct50	Bstruct95	ABDensity5	ABDensity50	ABDensity95	BBDensity5	BBDensity50	BBDensity95	AKs	AKserror	BKs	BKserror	Calcrete	Reliability	A 0.1bar	A 15bar	A AWHC m	A AWHC m	A Reliabili	B 0.1bar	B 15 bar	B AWHC m	B AWHC m	B Reliabilit	PAWHC	Nutrients
Gn3.56	3	20	4	30	5	40	4	30	6	50	6	70	0.05	0.15	0.3	0.3	1.2	2	0.4	1.6	3	3	4	5	3	4	5	0.6	1	1.3	1	1.2	1.6	9	2	8	3	0	3	0.42	0.22	196	29		0.45	0.31	140.00	168		198	2
Gn3.6	2	15	3	20	5	40	4	30	6	50	6	70	0.1	0.2	0.4	0.2	0.5	1.5	0.4	1	2	2	3	5	3	4	5	0.8	1.1	1.4	1.1	1.4	1.6	8	2	7	3	0	2	0.36	0.18	180	36		0.41	0.31	107.00	54		90	2
Gn3.61	2	15	3	20	5	40	4	30	6	50	6	70	0.1	0.2	0.4	0.2	0.5	1.5	0.4	1	2	2	3	4	3	4	5	0.8	1.1	1.4	1.1	1.4	1.6	8	2	7	3	0	2	0.36	0.18	180	36		0.41	0.31	107.00	54		90	2
Gn3.64	2	15	3	20	5	40	4	30	6	50	6	70	0.1	0.2	0.4	0.2	0.5	1.5	0.4	1	2	2	3	5	3	4	5	0.9	1.2	1.5	1.2	1.5	1.7	8	2	6	3	0	3	0.34	0.18	164	33		0.4	0.30	94.00	47		80	2
Gn3.7	2	20	4	30	5	40	3	20	6	50	6	70	0.05	0.2	0.45	0.2	0.9	1.9	0.4	1.1	2.1	3	4	5	3	4	5	0.8	1.3	1.5	1	1.5	1.7	8	2	7	3	0	1	0.36	0.22	142	28		0.4	0.30	94.00	85		113	2
Gn3.71	3	20	4	30	5	40	4	30	6	50	6	70	0.05	0.2	0.4	0.3	1	1.7	0.4	1.2	2	3	4	5	3	4	5	0.8	1.3	1.5	1	1.5	1.7	8	2	7	3	0	2	0.36	0.22	142	28		0.4	0.30	94.00	94		122	2
Gn3.72	1	8	3	20	5	40	3	20	5	40	6	60	0.05	0.2	0.4	0.15	0.7	1.5	0.3	0.9	1.8	2	3	5	3	4	5	1	1.3	1.5	1	1.5	1.7	8	2	7	2	0	1	0.33	0.18	150	30		0.37	0.26	106.00	74		104	2
Gn3.73	1	8	3	20	5	40	4	30	5	40	6	60	0.1	0.3	0.6	0.2	0.5	0.8	0.4	0.8	1.2	2	2	3	3	4	5	1	1.3	1.6	1.1	1.5	1.8	8	2	7	2	0	2	0.28	0.12	157	47		0.37	0.26	106.00	53		100	2
Gn3.74	2	15	4	30	5	40	4	30	6	50	6	70	0.1	0.2	0.4	0.4	1.1	2.4	0.7	1.4	2.7	2	4	5	3	4	5	0.8	1.3	1.5	1	1.5	1.7	8	2	7	3	0	1	0.36	0.22	142	28		0.4	0.30	94.00	103		132	2
Gn3.75	2	15	3	20	4	30	4	30	5	40	6	70	0.1	0.2	0.4	0.4	1.1	2.4	0.7	1.4	2.7	1	3	5	3	4	5	0.8	1.3	1.5	1	1.5	1.7	8	2	7	3	0	3	0.33	0.18	150	30		0.37	0.26	106.00	117		147	2
Gn3.8	2	15	3	20	5	40	4	30	5	40	6	60	0.2	0.4	0.6	0.2	0.8	2	0.6	1.2	2.4	2	2	4	3	3	5	1	1.3	1.6	1.4	1.5	1.7	8	2	7	3	0	1	0.28	0.12	157	63		0.37	0.26	106.00	85		148	1
Gn3.81	2	15	3	20	5	40	3	20	5	40	6	60	0.2	0.4	0.6	0.2	0.8	2	0.6	1.2	2.4	2	2	4	3	4	4	1	1.3	1.6	1.4	1.5	1.7	8	2	7	3	0	2	0.28	0.12	157	63		0.37	0.26	106.00	85		148	1
Gn3.82	2	15	3	20	4	30	4	30	5	40	6	60	0.2	0.4	0.6	0.2	0.8	2	0.6	1.2	2.4	2	3	5	3	4	5	1	1.3	1.6	1.4	1.5	1.7	8	2	7	3	0	3	0.33	0.18	150	60		0.37	0.26	106.00	85		145	1
Gn3.83	2	15	3	20	4	30	4	30	5	40	6	60	0.2	0.4	0.6	0.2	0.8	2	0.6	1.2	2.4	2	3	5	3	4	5	1	1.3	1.6	1.4	1.5	1.8	8	2	6	3	0	3	0.33	0.18	150	60		0.37	0.26	106.00	85		145	1
Gn3.84	2	15	3	20	4	30	4	30	5	40	6	60	0.2	0.4	0.6	0.4	1.1	2.7	0.6	1.6	3.1	2	3	4	2	3	4	1	1.3	1.6	1.4	1.5	1.7	8	2	6	2	0	2	0.33	0.18	150	60		0.37	0.26	106.00	117		177	1
Gn3.85	1	15	2	20	4	30	3	20	5	40	6	70	0.2	0.4	0.6	0.2	0.8	2	0.6	1.2	2.4	1	2	3	2	3	5	1	1.3	1.6	1.4	1.6	1.8	8	2	6	2	0	2	0.25	0.09	156	62		0.36	0.26	95.00	76		139	1
Gn3.9	3	20	4	30	5	40	4	30	6	50	6	60	0.05	0.2	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	4	5	3	4	5	0.6	1.2	1.4	1	1.5	1.6	7	2	5	2	0	1	0.38	0.22	157	31		0.4	0.30	94.00	66		97	2
Gn3.90	3	20	4	30	5	40	4	30	6	50	6	60	0.05	0.2	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	4	5	3	4	5	0.6	1.2	1.4	1	1.5	1.6	7	2	5	2	0	3	0.38	0.22	157	31		0.4	0.30	94.00	66		97	2
Gn3.91	3	20	4	30	5	40	4	30	5	40	6	60	0.05	0.2	0.4	0.4	0.8	1.4	0.5	1	1.7	2	4	5	3	4	5	0.6	1.2	1.4	1	1.5	1.6	7	2	5	2	0	1	0.38	0.22	157	31		0.37	0.26	106.00	85		116	2
Gn3.92	3	20	4	30	5	40	4	30	6	50	6	60	0.05	0.2	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	5	5	3	4	5	1	1.3	1.5	1.1	1.5	1.7	7	2	5	2	0	2	0.36	0.22	142	28		0.4	0.30	94.00	66		94	2
Gn3.93	3	20	4	30	5	40	5	40	6	50	6	70	0.05	0.2	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	4	5	3	4	5	0.6	1.2	1.4	1	1.5	1.7	7	2	5	3	0	2	0.38	0.22	157	31		0.4	0.30	94.00	66		97	2
Gn3.94	3	20	4	30	5	40	4	30	6	50	6	70	0.1	0.2	0.3	0.6	0.9	1.2	0.8	1.1	1.4	2	4	5	3	4	5	0.8	1.2	1.4	1	1.5	1.6	7	2	5	3	0	2	0.38	0.22	157	31		0.4	0.30	94.00	85		116	2
Gn3.95	3	20	4	30	5	50	4	30	5	40	6	70	0.05	0.2	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	3	4	3	4	5	1	1.3	1.5	1.2	1.5	1.7	7	2	5	3	0	3	0.36	0.22	142	28		0.4	0.30	94.00	66		94	2
Gn3.96	3	20	4	30	5	50	4	30	6	50	6	70	0.05	0.2	0.4	0.2	0.7	1.3	0.4	0.9	1.6	2	3	4	3	4	5	1	1.3	1.6	1.2	1.5	1.8	7	2	5	3	0	3	0.36	0.22	142	28		0.4	0.30	94.00	66		94	2
Gn4.1	3	40	4	50	5	60	4	40	5	50	6	70	0.05	0.2	0.4	0.2	0.9	2.2	0.2	1.1	2.6	2	4	5	3	4	5	0.5	0.9	1.5	0.7	1.2	1.7	9	2	8	2	0	1	0.45	0.23	222	44		0.41	0.26	149.00	134		179	2
Gn4.11	3	40	4	50	5	70	4	50	5	60	6	70	0.1	0.15	0.3	0.3	1	2.2	0.2	1.1	2.5	3	4	5	3	4	5	0.5	0.9	1.3	0.7	1.2	1.4	9	2	8	2	0	1	0.45	0.23	222	33		0.41	0.26	149.00	149		182	2
Gn4.12	3	40	4	50	5	60	4	40	5	50	6	70	0.05	0.15	0.3	0.15	0.6	1.2	0.2	0.7	1.4	2	3	4	3	4	5	0.8	1.1	1.5	1	1.3	1.7	8	2	8	2	0	2	0.40	0.22	175	26		0.4	0.26	132.00	79		106	2
Gn4.13	3	20	4	30	4	40	4	30	5	40	6	60	0.05	0.2	0.5	0.2	0.3	1	0.2	0.4	1.2	2	3	5	2	4	5	1	1.4	1.6	1.1	1.5	1.7	8	2	7	2	0	2	0.35	0.22	129	26		0.37	0.26	106.00	32		58	2
Gn4.14	3	30	4	40	5	50	3	30	5	50	6	70	0.1	0.2	0.4	0.3	1	2.5	0.3	1.5	2.8	3	3	4	3	4	4	0.8	1.1	1.4	1	1.3	1.6	9	2	8	2	0	2	0.40	0.22	175	35		0.4	0.26	132.00	132		167	2
Gn4.3	2	15	3	20	4	30	3	20	5	40	6	70	0.05	0.2	0.4	0.3	0.8	2.1	0.5	1	2.4	2	4	5	2	4	5	0.6	0.9	1.4	1	1.2	1.5	9	2	8	2	0	1	0.41	0.18	224	45		0.41	0.26	149.00	119		164	2
Gn4.31	2	15	4	30	4	40	3	20	5	40	6	70	0.1	0.2	0.3	0.2	1.3	2.7	0.5	1.5	2.8	2	4	5	2	3	4	0.6	0.8	1.1	1	1.1	1.3	9	2	8	2	0	2	0.48	0.23	255	51		0.43	0.27	168.00	219		270	2
Gn4.32	2	15	3	20	4	30	4	30	5	40	6	70	0.05	0.2	0.4	0.3	0.8	2.1	0.5	1	2.4	2	3	4	3	4	5	0.9	1.1	1.6	1.1	1.3	1.7	8	2	8	3	0	2	0.36	0.18	180	36		0.4	0.26	132.00	106		142	2
Gn4.33	2	20	3	30	4	40	4	30	5	40	6	60	0.05	0.2	0.3	0.2	0.4	0.5	0.3	0.5	0.7	2	3	5	3	4	5	1	1.4	1.6	1.1	1.5	1.7	8	2	7	2	0	3	0.32	0.18	138	28		0.37	0.26	106.00	42		70	2
Gn4.34	2	15	4	30	4	40	3	20	5	40	6	70	0.05	0.2	0.4	0.3	0.8	2.1	0.5	1	2.4	3	4	5	2	3	4	0.6	1	1.3	1	1.2	1.5	9	2	8	2	0	3	0.42	0.22	196	39		0.41	0.26	149.00	119		158	2
Gn4.4	3	20	4	30	6	50	5	35	5	45	6	70	0.05	0.15	0.2	0.4	0.8	1	0.5	0.9	1.2	2	3	5	3	4	5	1	1.2	1.5	1.1	1.4	1.6	8	2	7	2	0	2	0.38	0.22	157	24		0.38	0.26	118.00	95		118	3
Gn4.41	3	20	4	30	6	50	5	40	5	50	6	70	0.05	0.15	0.2	0.4	0.8	1	0.5	0.9	1.2	2	3	5	3	4	5	1	1.2	1.5	1.1	1.4	1.6	8	2	7	2	0	2	0.38	0.22	157	24		0.38	0.26	118.00	95		118	3
Gn4.42	3	20	4	30	6	50	5	40	5	50	6	70	0.05	0.15	0.2	0.4	0.8	1	0.5	0.9	1.2	2	3	5	3	4	5	1	1.2	1.5	1.1	1.4	1.6	8	2	7	2	0	3	0.38	0.22	157	24		0.38	0.26	118.00	95		118	3
Gn4.5	2	15	4	30	5	40	4	30	5	40	6	60	0.05	0.2	0.3	0.4	1.2	2.8	0.4	1.4	3	2	4	5	3	4	5	0.5	0.8	1.3	1.1	1.2	1.5	8	2	7	3	0	2	0.48	0.23	255	51		0.41	0.26	149.00	179		230	2
Gn4.51	3	20	4	30	5	40	3	20	5	40	5	50	0.05	0.2	0.3	0.4	1.2	2.8	0.4	1.4	3	3	4	5	3	4	5	0.5	0.8	1.3	1.1	1.2	1.5	8	2	7	3	0	3	0.48	0.23	255	51		0.41	0.26	149.00	179		230	2
Gn4.52	2	15	4	30	5	40	4	30	5	40	6	60	0.05	0.2	0.3	0.4	1.2	2.8	0.4	1.4	3.2	2	3	5	3	4	5	0.8	1.1	1.4	1	1.2	1.5	8	2	7	3	0	2	0.40	0.22	175	35		0.41	0.26	149.00	179		214	2
Gn4.54	3	20	4	30	5	40	4	30	5	40	6	60	0.05	0.2	0.3	0.4	1.2	2.8	0.4	1.4	3	3	3	4	3	4	5	0.8	1.1	1.4	1.1	1.4	1.6	8	2	7	3	0	3	0.40	0.22	175	35		0.38	0.26	118.00	142		177	2
Gn4.64	3	20	4	30	5	40	4	30	5	40	6	60	0.05	0.2	0.3	0.4	1.2	2.8	0.4	1.4	3	3	3	4	3	4	5	0.8	1.2	1.5	1.1	1.5	1.7	8	2	7	3	0	3	0.38	0.22	157	31		0.37	0.26	106.00	127		159	2
K-Dy2.21	1	5	2	15	3	20	5	40	6	50	6	60	0.15	0.3	0.6	0.1	0.6	1.5	0.4	1	1.8	1	2	3	3	4	5	1.3	1.5	1.8	1.4	1.7	1.9	7	2	5	2	0	3	0.23	0.09	139	42		0.33	0.30	31.00	19	unreliable	60	1
K-Gn2.1	1	8	2	15	3	20	2	15	3	20	4	30	0.05	0.2	0.5	0.2	1.3	2.6	0.4	1.5	2.8	2	2	5	2	2	4	1	1.3	1.6	1.3	1.5	1.8	8	2	8	3	0	3	0.25	0.09	156	31		0.26	0.12	138.00	179		210	1
K-Gn2.11	1	5	3	20	5	40	3	20	4	30	6	50	0.05	0.2	0.4	0.3	1	2.8	0.4	1.4	3	2	2	5	2	2	4	0.6	0.9	1.4	0.7	1.2	1.5	9	1	8	2	0	3	0.34	0.12	220	44		0.32	0.15	170.00	170		214	1
K-Gn2.12	1	5	3	20	4	30	2	15	4	35	6	55	0.05	0.2	0.4	0.2	0.7	1.9	0.3	1.4	2.1	2	2	3	2	2	4	0.6	1.4	1.7	1.1	1.4	1.8	9	2	7	2	0	3	0.27	0.12	147	29		0.29	0.15	146.00	102		131	1
KS-Dr2.62	1	5	2	15	3	20	4	30	5	40	6	50	0.2	0.3	0.4	0.3	1	1.6	0.5	1.2	2	2	2	3	2	2	3	1.3	1.5	1.7	1.4	1.7	1.9	8	2	8	2	0	3	0.23	0.09	139	42		0.29	0.18	116.00	116		158	1
KS-Dr5.81	1	5	2	15	2	20	3	30	5	40	6	50	0.1	0.3	0.5	0.4	0.7	1	0.5	1	1.5	1	2	3	2	2	3	1	1.3	1.6	1.2	1.6	1.9	9	2	5	2	0	3	0.25	0.09	156	47		0.3	0.18	124.00	87		134	1
KS-Dy2.62	1	5	1	8	3	15	3	20	5	40	6	50	0.2	0.4	1.1	0.3	0.6	1	0.5	0.9	2	1	2	3	2	2	3	1.2	1.5	1.7	1.4	1.6	1.8	8	3	6	3	0	3	0.20	0.06	138	55		0.3	0.18	124.00	75		130	1
KS-Dy3.62	1	5	2	15	3	20	5	35	5	40	6	50	0.2	0.3	0.6	0.2	0.6	0.9	0.5	0.8	1.3	2	2	3	2	2	3	1.2	1.5	1.8	1.4	1.6	1.9	8	2	7	2	0	3	0.23	0.09	139	42		0.3	0.18	124.00	75		116	1
KS-Dy5.81	1	0	1	5	3	20	3	30	5	40	6	60	0.05	0.5	1	0.2	0.6	1.2	0.1	1	2	1	2	3	1	2	3	1.1	1.5	1.8	1.4	1.8	2	8	2	5	3	0	3	0.20	0.06	138	69		0.28	0.18	109.00	65		134	1
KS-Gn2.1	1	5	3	20	4	30	2	15	4	30	6	50	0.05	0.2	0.5	0.2	1.3	2.6	0.4	1.5	2.8	2	2	5	2	2	4	0.6	1.1	1.6	0.9	1.3	1.6	8	2	8	3	0	3	0.31	0.12	183	37		0.31	0.15	157.00	204		240	1
KS-Gn2.11	1	5	3	20	5	40	3	20	4	30	6	50	0.05	0.2	0.4	0.3	1	2.8	0.4	1.4	3	2	2	5	2	2	4	0.6	0.9	1.4	0.7	1.2	1.5	9	1	8	2	0	3	0.34	0.12	220	44		0.32	0.15	170.00	170		214	1
KS-Gn2.12	1	5	3	20	4	30	2	15	4	35	6	55	0.05	0.2	0.4	0.2	0.7	1.9	0.3	1.4	2.1	2	2	3	2	2	4	0.6	1.4	1.7	1.1	1.4	1.8	9	2	7	2	0	3	0.27	0.12	147	29		0.29	0.15	146.00	102		131	1
KS-Gn2.21	1	5	3	20	4	30	3	20	4	30	6	50	0.1	0.2	0.5	0.3	0.7	1.4	0.6	1	1.5	2	2	4	2	2	3	0.7	1	1.3	1	1.3	1.7	8	2	7	2	0	3	0.32	0.12	200	40		0.31	0.15	157.00	110		150	1
KS-Gn2.22	1	8	2	15	4	30	2	15	3	25	5	40	0.05	0.2	0.4	0.2	0.6	1.3	0.4	0.8	1.5	2	2	3	2	2	3	0.9	1.2	1.5	1	1.4	1.8	8	2	7	2	0	3	0.26	0.09	167	33		0.27	0.12	147.00	88		121	1
KS-Gn2.24	1	5	3	20	4	30	2	15	4	30	6	50	0.15	0.3	0.5	0.1	0.8	2	0.4	1.1	2.4	2	2	4	2	2	3	0.7	1.1	1.2	1.1	1.3	1.5	8	2	8	2	0	3	0.31	0.12	183	55		0.31	0.15	157.00	125		180	1
KS-Gn2.42	1	8	3	20	4	30	2	15	4	30	6	50	0.1	0.3	0.5	0.1	0.7	1.3	0.4	1	1.5	2	2	4	2	2	3	0.7	0.9	1.3	1	1.2	1.6	9	2	8	2	0	3	0.34	0.12	220	66		0.32	0.15	170.00	119		185	
KS-Gn3.12	3	40	4	60	5	80	4	50	5	70	6	80	0.05	0.15	0.4	0.15	0.7	1.6	0.3	0.9	1.8	3	4	5	3	4	5	1.1	1.3	1.5	1.1	1.4	1.6	9	2	8	2	0	3	0.36	0.22	142	21		0.38	0.26	118.00	83	unreliable	104	1
KS-Uc	1	0	1	5	3	20	1	0	1	5	3	20	0.1	0.4	0.9	0.1	0.5	1.4	0.1	0.7	1.7	1	2	3	1	2	3	1	1.3	2	1.1	1.4	2	9	2	8	3	0	3	0.21	0.06	153	61		0.2	0.06	145.00	72		133	1
KS-Uc1.2	1	0	1	5	2	10	1	0	1	5	2	10	0.05	0.3	0.8	0.6	0.9	1.1	0.1	0.4	1.2	1	2	3	1	1	2	1.2	1.4	1.6	1.3	1.5	1.6	9	2	9	2	0	3	0.20	0.06	145	43		0.2	0.06	138.00	124		167	1
KS-Uc1.23	1	0	1	5	2	10							0.05	0.2	0.4				0.05	0.2	0.4	1	2	3				1.2	1.4	1.6				9	2			0	3	0.20	0.06	145	29								1
KS-Uc1.4	1	5	2	15	3	20							0.05	0.4	0.8				0.05	0.4	0.8	2	2	3				1.3	1.5	1.7				9	2			0	3	0.23	0.09	139	56								1
KS-Uc1.41	1	0	1	5	2	10							0.3	0.5	0.8				0.3	0.5	0.8	1	2	2				1.3	1.5	1.7				9	2			0	3	0.20	0.06	138	69								1
KS-Uc1.43	1	0	1	5	2	10							0.05	0.15	0.5				0.05	0.15	0.5	1	2	3				1.3	1.5	1.7				9	2			0	3	0.20	0.06	138	21								1
KS-Uc2.12	1	0	1	5	1	8	1	0	1	5	2	10	0.1	0.5	0.8	0.1	0.4	0.7	0.2	0.6	0.9	1	2	2	1	2	2	1.2	1.4	1.6	1.3	1.5	1.6	9	2	9	2	0	3	0.20	0.06	145	72		0.2	0.06	138.00	55		127	1
KS-Uc2.2	1	0	1	5	3	15	1	0	1	5	3	20	0.2	0.7	1.3	0.1	0.5	1.4	0.4	1.1	1.8	1	2	3	1	2	3	1.1	1.3	1.6	1.3	1.5	1.8	9	2	9	2	0	3	0.21	0.06	153	107		0.2	0.06	138.00	69		176	1
KS-Uc4	1	0	1	5	2	15	1	0	1	5	3	20	0.1	0.4	0.7	0.1	0.6	1.4	0.2	0.8	1.8	1	2	3	1	2	3	1.2	1.5	1.7	1.3	1.6	1.9	8	3	8	3	0	3	0.20	0.06	138	55		0.19	0.06	132.00	79		134	1
KS-Uc4.1	1	0	1	5	2	15	1	0	1	5	2	15	0.05	0.4	0.7	0.3	0.5	0.6	0.05	0.4	1	1	2	3	1	2	3	1.2	1.4	1.7	1.3	1.7	1.9	8	3	8	3	0	3	0.20	0.06	145	58		0.19	0.06	126.00	63		121	1
KS-Uc4.11	1	0	1	5	3	10	1	0	1	5	3	10	0.05	0.4	0.7	0.3	0.5	0.6	0.05	0.4	1.1	1	2	3	1	2	3	1	1.3	1.5	1.2	1.4	1.6	9	2	9	2	0	3	0.21	0.06	153	61		0.2	0.06	145.00	72		133	1
KS-Uc4.12	1	0	1	5	2	15	1	0	1	5	2	15	0.05	0.4	0.7	0.3	0.5	0.6	0.05	0.4	1	1	2	2	1	2	2	1.2	1.4	1.7	1.3	1.7	1.9	8	2	8	2	0	3	0.20	0.06	145	58		0.19	0.06	126.00	63		121	1
KS-Uc4.2	1	0	1	5	3	20	1	0	1	5	3	20	0.15	0.4	0.7	0.15	0.5	1.4	0.3	0.9	2	1	2	3	1	2	3	1	1.4	1.7	1.1	1.5	1.8	8	2	8	2	0	3	0.20	0.06	145	58		0.2	0.06	138.00	69		127	1
KS-Uc5.21	1	0	1	5	3	20	1	0	1	5	3	20	0.1	0.3	0.6	0.2	0.8	2.1	0.3	1	2.4	2	2	2	1	2	3	1.1	1.3	1.5	1.2	1.5	1.7	9	2	9	2	0	3	0.21	0.06	153	46		0.2	0.06	138.00	110		156	1
KS-Uc5.22	1	0	1	5	2	10	1	5	2	10	2	15	0.1	0.4	0.6	0.1	0.7	1.7	0.4	1	2.2	2	2	3	2	2	3	1.1	1.3	1.5	1.2	1.5	1.7	9	2	9	2	0	3	0.21	0.06	153	61		0.23	0.09	139.00	97		158	1
KS-Um5.5	2	20	3	30	4	40	3	20	4	30	5	40	0.1	0.2	0.5	0.2	0.3	0.5	0.1	0.4	0.6	2	2	3	2	2	3	0.8	1	1.4	1	1.2	1.6	7	3	8	2	0	3	0.32	0.12	200	40		0.32	0.15	170.00	51		91	1
K-Uc1	1	0	1	5	3	20	1	0	1	5	2	15	0.1	0.3	0.9	0.1	0.5	1.1	0.1	0.4	1.1	1	2	2	1	2	2	1.1	1.4	1.6	1.3	1.6	1.8	9	2	8	3	0	3	0.20	0.06	145	43		0.19	0.06	132.00	66		109	1
K-Uc1.21	1	0	1	5	2	10							0.2	0.4	0.7				0.2	0.4	0.7	1	2	2				1.2	1.4	1.6				9	2			0	3	0.20	0.06	145	58								1
K-Uc1.22	1	0	1	5	2	10							0.05	0.2	0.4				0.05	0.2	0.4	1	1	2				1.2	1.4	1.6				9	2			0	3	0.20	0.06	145	29								1
K-Uc1.23	1	0	1	5	2	10							0.05	0.2	0.4				0.05	0.2	0.4	1	2	3				1.2	1.4	1.6				9	2			0	3	0.20	0.06	145	29								1
K-Uc1.4	1	0	1	5	2	10							0.1	0.4	0.7				0.2	0.8	1.8	1	2	3				1.2	1.5	1.7				9	2			0	3	0.20	0.06	138	55								1
K-Uc1.43	1	0	1	5	2	10							0.05	0.15	0.5				0.05	0.15	0.5	1	2	3				1.3	1.5	1.7				9	2			0	3	0.20	0.06	138	21								1
K-Uc4.1	1	0	1	5	2	15	1	0	1	5	2	15	0.05	0.4	0.7	0.3	0.5	0.6	0.05	0.4	1	1	2	3	1	2	3	1.2	1.4	1.7	1.3	1.7	1.9	8	3	8	3	0	3	0.20	0.06	145	58		0.19	0.06	126.00	63		121	1
K-Uc4.2	1	0	1	5	3	20	1	0	1	5	3	20	0.15	0.4	0.7	0.15	0.5	1.4	0.3	0.9	2	1	2	3	1	2	3	1	1.4	1.7	1.1	1.5	1.8	8	2	8	2	0	3	0.20	0.06	145	58		0.2	0.06	138.00	69		127	1
K-Uc4.22	1	0	1	5	3	20	1	0	1	5	3	20	0.15	0.4	1.1	0.3	0.7	1.3	0.5	1	2.1	1	2	3	1	2	3	1	1.4	1.7	1.1	1.5	1.8	8	2	8	2	0	3	0.20	0.06	145	58		0.2	0.06	138.00	96		154	1
K-Uc5.11	1	0	1	5	2	10	1	0	1	5	2	10	0.1	0.3	0.6	0.2	0.5	0.9	0.1	0.6	1.2	1	2	2	1	2	2	1.1	1.4	1.8	1.3	1.6	1.9	9	2	9	2	0	3	0.20	0.06	145	43		0.19	0.06	132.00	66		109	1

Appendix One: Interpreted Soil Properties

ppf	Atext5	Aclay5	Atext50	Aclay50	Atext95	Aclay95	Btext5	Bclay5	Btext50	Bclay50	Btext95	Bclay95	Athick5	Athick50	Athick95	Bthick5	Bthick50	Bthick95	Solumthick5	Solumthick50	Solumthick95	Astruct5	Astruct50	Astruct95	Bstruct5	Bstruct50	Bstruct95	ABDensity5	ABDensity50	ABDensity95	BBDensity5	BBDensity50	BBDensity95	AKs	AKserror	BKs	BKserror	Calcrete	Reliability	A 0.1bar	A 15bar	A AWHC m	A AWHC m	A Reliabili	B 0.1bar	B 15 bar	B AWHC m	B AWHC m	B Reliabilit	PAWHC	Nutrients
K-Uc5.21	1	0	1	5	3	20	1	0	1	5	3	20	0.1	0.3	0.6	0.2	0.8	2.1	0.3	1	2.4	2	2	2	1	2	3	1.1	1.3	1.5	1.2	1.5	1.7	9	2	9	2	0	3	0.21	0.06	153	46		0.2	0.06	138.00	110		156	1
K-Um	3	20	3	30	4	40	3	20	3	30	4	40	0.05	0.2	0.5	0.1	0.7	1.9	0.1	0.7	1.9	2	3	5	2	2	3	0.6	1	1.4	0.9	1.2	1.5	7	3	7	3	0	3	0.38	0.18	200	40		0.29	0.12	169.00	118		158	1
K-Um1.4	3	20	4	30	4	40							0.1	0.3	0.5				0.1	0.3	0.5	2	2	4				1.2	1.3	1.6				7	3			0	3	0.31	0.15	157	47								1
K-Um1.42	3	20	4	30	4	40							0.1	0.3	0.5				0.1	0.3	0.5	2	2	4				1.2	1.3	1.6				7	3			0	3	0.31	0.15	157	47								1
K-Um1.43	3	20	4	30	4	40							0.1	0.3	0.5				0.1	0.3	0.5	2	2	4				1.2	1.3	1.6				7	3			0	3	0.31	0.15	157	47								1
K-Um4.2	3	20	3	30	4	40	3	20	3	30	4	40	0.1	0.4	1.1	0.15	0.5	1	0.5	1	1.7	2	2	4	2	2	3	0.9	1.1	1.4	1	1.2	1.5	8	2	7	2	0	3	0.31	0.12	183	73		0.29	0.12	169.00	84		158	1
K-Um5.51	2	20	3	30	4	40	3	20	4	30	5	40	0.1	0.2	0.5	0.2	0.3	0.5	0.1	0.4	0.6	2	2	3	2	2	3	0.8	1	1.4	1	1.2	1.6	7	3	8	2	0	3	0.32	0.12	200	40		0.32	0.15	170.00	51		91	1
K-Um6.24	3	20	4	30	5	40	3	20	4	30	5	40	0.1	0.3	0.5	0.2	0.3	0.4	0.1	0.4	0.8	3	5	5	3	4	5	0.7	1.1	1.3	0.9	1.2	1.4	8	2	8	2	0	3	0.40	0.22	175	52		0.38	0.22	157.00	47		100	1
NS																																							3												
O	1	0	3	30	7	50	1	0	3	30	7	50	0.1	0.5	1	0	0	0	0.1	0.5	1	2	3	4				0.4	0.8	1.1				9	2			0	2	0.44	0.19	253	127								
Uc1.1	1	0	1	5	2	10							0.1	0.4	0.8				0.1	0.4	0.8	1	1	2				1.2	1.4	1.6				9	2			0	2	0.20	0.06	145	58								1
Uc1.11	1	0	1	5	1	8							0.1	0.5	0.8				0.1	0.4	0.8	1	1	2				1.2	1.4	1.6				9	2			0	2	0.20	0.06	145	72								1
Uc1.12	1	0	1	5	2	10							0.1	0.5	0.8				0.1	0.5	0.8	1	1	3				1.2	1.4	1.6				9	2			0	3	0.20	0.06	145	72								1
Uc1.13	1	0	1	5	2	10							0.1	0.5	0.8				0.1	0.5	0.8	1	1	3				1.2	1.4	1.6				9	2			0	3	0.20	0.06	145	72								1
Uc1.14	1	0	1	5	2	10							0.1	0.5	0.8				0.1	0.5	0.8	1	1	3				1.2	1.4	1.6				9	2			0	3	0.20	0.06	145	72								1
Uc1.2	1	0	1	5	2	10							0.05	0.3	0.8				0.05	0.3	0.8	1	2	3				1.2	1.4	1.6				9	2			0	3	0.20	0.06	145	43								1
Uc1.21	1	0	1	5	2	10							0.2	0.4	0.7				0.2	0.4	0.7	1	2	2				1.2	1.4	1.6				9	2			0	2	0.20	0.06	145	58								1
Uc1.22	1	0	1	5	2	10							0.05	0.2	0.4				0.05	0.2	0.4	1	1	2				1.2	1.4	1.6				9	2			0	2	0.20	0.06	145	29								1
Uc1.23	1	0	1	5	2	10							0.05	0.2	0.4				0.05	0.2	0.4	1	2	3				1.2	1.4	1.6				9	2			0	2	0.20	0.06	145	29								1
Uc1.3	1	5	2	15	3	20							0.05	0.4	0.8				0.05	0.4	0.8	2	2	3				1.3	1.5	1.7				9	2			1	3	0.23	0.09	139	56								1
Uc1.31	1	0	1	5	2	10							0.3	0.5	0.8				0.3	0.5	0.8	1	2	2				1.3	1.5	1.7				9	2			1	3	0.20	0.06	138	69								1
Uc1.4	1	5	2	15	3	20							0.05	0.4	0.8				0.05	0.4	0.8	2	2	3				1.3	1.5	1.7				9	2			0	3	0.23	0.09	139	56								1
Uc1.41	1	0	1	5	2	10							0.3	0.5	0.8				0.3	0.5	0.8	1	2	2				1.3	1.5	1.7				9	2			0	3	0.20	0.06	138	69								1
Uc1.42	1	0	1	5	2	10							0.05	0.15	0.5				0.05	0.15	0.5	1	2	2				1.3	1.5	1.7				9	2			0	3	0.20	0.06	138	21								1
Uc1.43	1	0	1	5	2	10							0.05	0.15	0.5				0.05	0.15	0.5	1	2	3				1.3	1.5	1.7				9	2			0	3	0.20	0.06	138	21								1
Uc2.1	1	0	1	5	2	10	1	0	1	5	2	10	0.2	0.5	0.8	0.1	0.4	0.8	0.2	0.6	1	1	2	2	1	2	2	1.2	1.4	1.6	1.3	1.5	1.6	9	2	9	2	1	3	0.20	0.06	145	72		0.2	0.06	138.00	55		127	1
Uc2.11	1	0	1	5	2	10	1	0	1	5	2	10	0.2	0.5	0.8	0.1	0.4	0.8	0.2	0.6	1	1	2	2	1	2	2	1.2	1.4	1.6	1.3	1.5	1.6	9	2	9	2	1	3	0.20	0.06	145	72		0.2	0.06	138.00	55		127	1
Uc2.12	1	0	1	5	1	8	1	0	1	5	2	10	0.1	0.5	0.8	0.1	0.4	0.7	0.2	0.6	0.9	1	2	2	1	2	2	1.2	1.4	1.6	1.3	1.5	1.6	9	2	9	2	0	1	0.20	0.06	145	72		0.2	0.06	138.00	55		127	1
Uc2.2	1	0	1	5	3	15	1	0	1	5	3	20	0.2	0.7	1.3	0.1	0.5	1.4	0.4	1.1	1.8	1	2	3	1	2	3	1.1	1.3	1.6	1.3	1.5	1.8	9	2	9	2	0	1	0.21	0.06	153	107		0.2	0.06	138.00	69		176	1
Uc2.20	1	0	1	5	2	10	1	0	1	5	2	10	0.2	0.7	1.3	0.1	0.5	1.4	0.4	1.1	1.8	1	1	2	1	1	2	1.1	1.3	1.6	1.3	1.5	1.8	9	2	9	2	0	2	0.21	0.06	153	107		0.2	0.06	138.00	69		176	1
Uc2.21	1	0	1	5	3	15	1	0	1	5	3	20	0.2	0.6	1.1	0.1	0.5	1.1	0.4	0.9	1.8	1	2	3	1	2	3	1.1	1.3	1.6	1.3	1.5	1.8	9	2	9	2	0	1	0.21	0.06	153	92		0.2	0.06	138.00	69		160	1
Uc2.22	1	0	1	5	3	10	1	5	3	15	4	20	0.3	0.6	1.1	0.2	0.5	1	0.4	1.1	1.7	1	2	3	1	2	3	1.1	1.3	1.6	1.3	1.5	1.8	9	2	9	2	0	1	0.21	0.06	153	92		0.26	0.12	138.00	69		160	1
Uc2.23	1	0	1	5	3	10	1	0	1	5	3	10	0.6	0.9	1.3	0.3	0.5	0.7	0.7	1.2	1.7	1	1	2	1	1	2	1.1	1.3	1.6	1.3	1.5	1.8	9	2	9	2	0	1	0.21	0.06	153	137		0.2	0.06	138.00	69		206	1
Uc2.3	1	0	1	5	2	10	1	0	1	5	3	20	0.4	0.7	1.3	0.1	0.5	0.8	0.5	1	1.7	1	1	2	1	2	3	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	1	0.21	0.06	153	107		0.19	0.06	126.00	63		170	1
Uc2.31	1	0	1	5	3	15	1	5	2	15	3	20	0.4	0.7	1.3	0.1	0.5	0.8	0.5	1	1.7	1	1	3	2	2	2	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	2	0.21	0.06	153	107		0.22	0.09	126.00	63		170	1
Uc2.32	1	0	1	5	2	10	1	0	1	5	3	20	0.4	0.7	1.3	0.1	0.5	0.8	0.5	1	1.7	1	1	2	1	2	3	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	3	0.21	0.06	153	107		0.19	0.06	126.00	63		170	1
Uc2.33	1	0	1	5	1	8	1	0	1	5	1	8	0.4	0.7	1.4	0.1	0.5	0.7	0.8	1.1	1.8	1	1	2	1	2	2	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	1	0.21	0.06	153	107		0.19	0.06	126.00	63		170	1
Uc2.34	1	0	1	5	3	15	1	0	1	5	3	20	0.4	0.7	1.3	0.1	0.5	0.8	0.5	1	1.7	1	2	2	1	2	3	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	1	0.21	0.06	153	107		0.19	0.06	126.00	63		170	1
Uc2.35	1	0	1	5	2	10	1	5	2	10	2	15	0.4	0.7	1.3	0.1	0.5	0.8	0.5	1	1.7	1	1	3	1	2	2	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	2	0.21	0.06	153	107		0.22	0.09	126.00	63		170	1
Uc2.36	1	0	1	5	2	10	1	5	2	10	2	15	0.4	0.7	1.3	0.1	0.5	0.8	0.5	1	1.7	1	1	3	1	2	2	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	3	0.21	0.06	153	107		0.22	0.09	126.00	63		170	1
Uc3.12	1	0	2	10	2	15	1	5	2	10	2	15	0.2	0.5	0.8	0.1	0.4	0.8	0.2	0.6	1	1	2	2	1	2	2	1.2	1.4	1.6	1.3	1.5	1.6	9	2	9	2	0	3	0.24	0.09	147	73		0.23	0.09	139.00	56		129	1
Uc3.2	1	0	1	5	3	20	1	0	1	5	3	20	0.2	0.3	0.5	0.1	0.3	0.5	0.2	0.5	0.7	1	2	3	1	1	3	1.1	1.3	1.6	1.3	1.5	1.8	9	2	9	2	0	3	0.21	0.06	153	46		0.2	0.06	138.00	41		87	1
Uc3.21	1	0	1	5	3	20	1	0	1	5	3	20	0.2	0.3	0.5	0.1	0.3	0.5	0.2	0.5	0.7	1	2	3	1	1	3	1.1	1.3	1.6	1.3	1.5	1.8	9	2	9	2	0	3	0.21	0.06	153	46		0.2	0.06	138.00	41		87	1
Uc3.3	1	0	1	5	1	8	1	0	1	5	2	10	0.4	0.7	1.3	0.1	0.5	0.8	0.5	1	1.7	1	1	1	1	1	1	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	3	0.21	0.06	153	107		0.19	0.06	126.00	63		170	1
Uc3.31	1	0	1	5	1	8	1	0	1	5	2	10	0.4	0.7	1.3	0.1	0.5	0.8	0.5	1	1.7	1	1	1	1	1	2	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	3	0.21	0.06	153	107		0.19	0.06	126.00	63		170	1
Uc3.32	1	0	1	5	1	8	1	0	1	5	2	10	0.4	0.7	1.3	0.1	0.5	0.8	0.5	1	1.7	1	1	1	1	1	2	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	3	0.21	0.06	153	107		0.19	0.06	126.00	63		170	1
Uc3.33	1	0	1	5	1	8	1	0	1	5	2	10	0.4	0.7	1.3	0.1	0.5	0.8	0.5	1	1.7	1	1	1	1	1	2	1.1	1.3	1.6	1.3	1.7	1.9	9	2	6	2	0	3	0.21	0.06	153	107		0.19	0.06	126.00	63		170	1
Uc4.1	1	0	1	5	2	15	1	0	1	5	2	15	0.05	0.4	0.7	0.3	0.5	0.6	0.05	0.4	1	1	2	3	1	2	3	1.2	1.4	1.7	1.3	1.7	1.9	8	3	8	3	0	2	0.20	0.06	145	58		0.19	0.06	126.00	63		121	1
Uc4.11	1	0	1	5	3	10	1	0	1	5	3	10	0.05	0.4	0.7	0.3	0.5	0.6	0.05	0.4	1.1	1	2	3	1	2	3	1	1.3	1.5	1.2	1.4	1.6	9	2	9	2	0	2	0.21	0.06	153	61		0.2	0.06	145.00	72		133	1
Uc4.12	1	0	1	5	2	15	1	0	1	5	2	15	0.05	0.4	0.7	0.3	0.5	0.6	0.05	0.4	1	1	2	2	1	2	2	1.2	1.4	1.7	1.3	1.7	1.9	8	2	8	2	0	2	0.20	0.06	145	58		0.19	0.06	126.00	63		121	1
Uc4.2	1	0	1	5	3	20	1	0	1	5	3	20	0.15	0.4	0.7	0.15	0.5	1.4	0.3	0.9	2	1	2	3	1	2	3	1	1.4	1.7	1.1	1.5	1.8	8	2	8	2	0	1	0.20	0.06	145	58		0.2	0.06	138.00	69		127	1
Uc4.21	1	0	1	5	1	8	1	0	1	5	3	15	0.15	0.4	0.7	0.2	0.7	1.4	0.4	1	2	1	2	3	1	2	3	1	1.4	1.7	1.1	1.5	1.8	8	2	8	2	0	1	0.20	0.06	145	58		0.2	0.06	138.00	96		154	1
Uc4.22	1	0	1	5	3	20	1	0	1	5	3	20	0.15	0.4	1.1	0.3	0.7	1.3	0.5	1	2.1	1	2	3	1	2	3	1	1.4	1.7	1.1	1.5	1.8	8	2	8	2	0	1	0.20	0.06	145	58		0.2	0.06	138.00	96		154	1
Uc4.23	1	0	1	5	3	20	1	0	1	5	3	20	0.2	0.4	0.6	0.1	0.4	1.1	0.2	0.7	1.4	1	2	3	1	2	3	1	1.4	1.7	1.1	1.5	1.8	8	2	8	2	0	3	0.20	0.06	145	58		0.2	0.06	138.00	55		113	1
Uc4.24	1	0	1	5	3	20	1	0	1	5	3	20	0.2	0.4	0.6	0.1	0.4	1.1	0.2	0.7	1.4	1	2	3	1	2	3	1	1.4	1.7	1.1	1.5	1.8	8	2	8	2	0	1	0.20	0.06	145	58		0.2	0.06	138.00	55		113	1
Uc4.3	1	0	1	5	2	10	1	0	1	5	3	20	0.3	0.5	0.8	0.1	0.3	0.7	0.3	0.8	1.4	1	1	2	1	2	4	1.1	1.4	1.8	1.3	1.7	1.9	8	2	6	2	0	3	0.20	0.06	145	72		0.19	0.06	126.00	38		110	1
Uc4.31	1	0	1	5	1	8	1	0	1	5	1	8	0.3	0.5	0.8	0.1	0.3	0.7	0.3	0.8	1.4	1	2	2	1	2	2	1.1	1.4	1.8	1.3	1.7	1.9	8	2	6	2	0	3	0.20	0.06	145	72		0.19	0.06	126.00	38		110	1
Uc4.32	1	0	1	5	2	10	1	0	1	5	3	20	0.3	0.5	0.8	0.1	0.3	0.7	0.3	0.8	1.4	1	1	2	1	2	4	1.1	1.4	1.8	1.3	1.7	1.9	8	2	6	2	0	3	0.20	0.06	145	72		0.19	0.06	126.00	38		110	1
Uc4.33	1	0	1	5	2	10	1	0	1	5	2	10	0.3	0.5	1	0.1	0.3	0.6	0.4	0.8	1.5	1	1	2	1	1	2	1.1	1.4	1.8	1.3	1.7	1.9	8	2	6	2	0	3	0.20	0.06	145	72		0.19	0.06	126.00	38		110	1
Uc5.1	1	0	1	5	2	15	1	0	1	5	3	20	0.1	0.3	0.8	0.2	0.5	0.9	0.1	0.6	1.2	1	2	2	1	2	2	1.1	1.4	1.8	1.3	1.6	1.9	9	2	8	3	0	1	0.20	0.06	145	43		0.19	0.06	132.00	66		109	1
Uc5.11	1	0	1	5	2	10	1	0	1	5	2	10	0.1	0.3	0.6	0.2	0.5	0.9	0.1	0.6	1.2	1	2	2	1	2	2	1.1	1.4	1.8	1.3	1.6	1.9	9	2	9	2	0	1	0.20	0.06	145	43		0.19	0.06	132.00	66		109	1
Uc5.12	1	0	1	5	2	10	1	5	2	15	3	20	0.1	0.4	0.8	0.9	0.5	1.2	0.1	0.6	1.1	1	2	2	2	2	2	1.1	1.4	1.8	1.3	1.7	1.9	8	2	6	2	1	1	0.20	0.06	145	58		0.22	0.09	126.00	63		121	1
Uc5.13	1	0	1	5	2	15	1	5	2	10	3	20	0.1	0.3	0.8	0.2	0.5	0.9	0.1	0.6	1.2	1	2	2	1	2	2	1.1	1.4	1.8	1.3	1.7	1.9	8	2	6	2	0	2	0.20	0.06	145	43		0.22	0.09	126.00	63		106	1
Uc5.2	1	0	1	5	2	10	1	5	2	10	2	15	0.1	0.3	0.6	0.15	0.7	2.1	0.3	0.9	2.3	2	2	3	1	2	3	1.1	1.3	1.5	1.2	1.5	1.7	9	2	9	2	0	1	0.21	0.06	153	46		0.23	0.09	139.00	97		143	1
Uc5.21	1	0	1	5	3	20	1	0	1	5	3	20	0.1	0.3	0.6	0.2	0.8	2.1	0.3	1	2.4	2	2	2	1	2	3	1.1	1.3	1.5	1.2	1.5	1.7	9	2	9	2	0	1	0.21	0.06	153	46		0.2	0.06	138.00	110		156	1
Uc5.22	1	0	1	5	2	10	1	5	2	10	2	15	0.1	0.4	0.6	0.1	0.7	1.7	0.4	1	2.2	2	2	3	2	2	3	1.1	1.3	1.5	1.2	1.5	1.7	9	2	9	2	0	1	0.21	0.06	153	61		0.23	0.09	139.00	97		158	1
Uc5.23	1	0	1	5	2	10	1	0	1	5	3	15	0.05	0.2	0.4	0.2	0.5	1	0.3	0.6	1.4	2	2	2	2	2	2	1.1	1.3	1.5	1.2	1.5	1.7	9	2	9	2	0	2	0.21	0.06	153	31		0.2	0.06	138.00	69		99	1
Uc5.3	1	5	2	10	2	15	1	5	2	10	2	15	0.1	0.3	0.6	0.4	0.8	1	0.3	0.7	1	2	3	3	2	2	3	1.1	1.4	1.6	1.3	1.7	1.9	9	2	7	2	0	3	0.28	0.14	147	44		0.22	0.09	126.00	101		145	1
Uc5.31	1	5	2	10	2	15	1	5	2	10	2	15	0.1	0.3	0.6	0.4	0.8	1	0.3	0.7	1	2	3	3	2	2	3	1.1	1.4	1.6	1.3	1.7	1.9	9	2	7	2	0	3	0.28	0.14	147	44		0.22	0.09	126.00	101		145	1
Uc5.32	1	5	2	10	2	15	1	5	2	10	2	15	0.1	0.3	0.6	0.4	0.8	1	0.3	0.7	1	2	3	3	2	2	3	1.1	1.4	1.6	1.3	1.7	1.9	9	2	7	2	0	3	0.28	0.14	147	44		0.22	0.09	126.00	101		145	1
Uc5.4																																																			
Uc6.11	1	5	2	10	3	15	1	5	2	10	3	15	0.1	0.2	0.5	0.1	0.3	0.5	0.2	0.5	0.7	1	2	2	1	2	2	1.1	1.4	1.6	1.2	1.5	1.7	9	2	8	2	0	3	0.24	0.09	147	29		0.23	0.09	139.00	42		71	1
Uc6.12	1	5	2	10	3	15	1	5	2	10	3	15	0.1	0.2	0.5	0.1	0.3	0.5	0.2	0.5	0.7	1	2	2	1	2	2	1.1	1.4	1.6	1.2	1.5	1.7	9	2	8	2	0	3	0.24	0.09	147	29		0.23	0.09	139.00	42		71	1
Uc6.13	1	5	2	15	2	20	1	5	2	15	2	20	0.05	0.15	0.3	0.1	0.3	0.6	0.2	0.6	0.9	1	2	2	1	2	2	1.1	1.4	1.6	1.2	1.5	1.7	9	2	8	2	0	3	0.24	0.09	147	22		0.23	0.09	139.00	42		64	2
Uc6.14	1	0	1	5	1	8	1	0	1	5	1	8	0.1	0.2	0.5	0.1	0.2	0.5	0.2	0.4	1	1	2	2	1	2	3	1.1	1.2	1.5	1.2	1.4	1.6	9	2	9	2	0	3	0.22	0.06	162	32		0.2	0.06	145.00	29		61	1
Uf1.13	5	40	5	50	5	70	5	40	5	50	6	70	0.05	0.1	0.3	0.3	1	2	0.5	1	2	2	2	3	2	2	3	0.8	1.3	1.6	1	1.4	1.6	3	2	3	2	0	3	0.33	0.18	156	16		0.32	0.18	144.00	144		160	2
Uf1.23	5	40	5	50	5	70	5	40	5	50	6	70	0.05	0.1	0.3	0.3	1	2	0.5	1	2	2	2	3	2	2	3	0.8	1.3	1.6	1	1.4	1.6	4	2	3	2	0	3	0.33	0.18	156	16		0.32	0.18	144.00	144		160	2
Uf1.3	5	40	5	50	5	70	5	40	5	50	6	70	0.05	0.1	0.3	0.3	1	2	0.5	1	2	2	2	3	2	2	2	0.8	1.3	1.6	1	1.4	1.6	4	2	3	2	0	3	0.33	0.18	156	16		0.32	0.18	144.00	144		160	
Uf1.41	5	40	5	50	6	70	5	40	5	50	6	70	0.1	0.15	0.3	0.8	1.5	2	1	1.5	2.5	2	2	5	2	5	5	1.1	1.3	1.6	1.2	1.4	1.7	3	2	3	2	0	3	0.33	0.18	156	23		0.38	0.26	118.00	177		201	1
Uf1.42	5	40	5	50	6	80	5	40	5	50	6	80	0.1	0.2	0.4	0.2	0.4	0.6	0.3	0.6	1	2	4	4	2	4	4	1.2	1.3	1.6	1.2	1.4	1.7	5	2	3	2	0	3	0.40	0.26	132	26		0.38	0.26	118.00	47		74	1
Uf1.43	5	40	5	50	6	80	5	40	5	50	6	80	0.1	0.2	0.4	0.2	0.4	0.6	0.3	0.6	1	2	4	4	2	4	4	1.2	1.3	1.6	1.2	1.4	1.7	5	2	3	2	0	3	0.40	0.26	132	26		0.38	0.26	118.00	47		74	1
Uf4.41	5	40	5	50	6	60	5	40	5	50	6	60	0.05	0.2	0.3	0.4	0.6	1	0.5	0.9	1.3	3	4	5	2	4	5	1	1.2	1.5	1.2	1.4	1.7	7	2	6	2	0	3	0.41	0.26	149	30		0.38	0.26	118.00	71		101	1
Uf4.43	5	40	5	50	6	60	5	40	5	50	6	60	0.05	0.2	0.3	0.4	0.6	1	0.5	0.9	1.3	3	4	5	3	4	5	1	1.3	1.6	1.2	1.5	1.7	7	2	5	2	0	3	0.40	0.26	132	26		0.37	0.26	106.00	64		90	1
Uf5	4	50	5	60	6	80	5	50	5	60	6	80	0.05	0.1	0.3	0.15	0.8	1.8	0.2	1	2	2	4	5	3	4	5	0.5	0.9	1.4	0.9	1.1	1.5	9	2	9	3	0	2	0.49	0.27	220	22		0.43	0.27	168.00	135		157	
Uf5.11	4	50	5	60	6	70	5	50	5	60	6	70	0.1	0.2	0.4	0.5	1.5	2.5	0.8	2	3	4	5	5	4	5	5	0.5	1	1.4	0.9	1.2	1.6	8	2	8	2	0	3	0.46	0.27	192	38		0.41	0.26	149.00	224		262	

Appendix One: Interpreted Soil Properties

ppf	Atext5	Aclay5	Atext50	Aclay50	Atext95	Aclay95	Btext5	Bclay5	Btext50	Bclay50	Btext95	Bclay95	Athick5	Athick50	Athick95	Bthick5	Bthick50	Bthick95	Solumthick5	Solumthick50	Solumthick95	Astruct5	Astruct50	Astruct95	Bstruct5	Bstruct50	Bstruct95	ABDensity5	ABDensity50	ABDensity95	BBDensity5	BBDensity50	BBDensity95	AKs	AKserror	BKs	BKserror	Calcrete	Reliability	A 0.1bar	A 15bar	A AWHC m	A AWHC m	A Reliabili	B 0.1bar	B 15 bar	B AWHC m	B AWHC m	B Reliabilit	PAWHC	Nutrients
Uf5.12	4	50	5	60	6	70	5	50	5	60	6	70	0.1	0.2	0.4	0.5	1.5	2.5	0.8	2	3	4	5	5	4	5	5	0.5	1	1.5	0.9	1.2	1.6	8	2	8	2	0	3	0.46	0.27	192	38		0.41	0.26	149.00	224		262	
Uf5.21	4	50	5	60	6	80	5	50	5	60	6	80	0.1	0.2	0.4	0.5	1.5	2.5	0.8	2	3	4	5	5	4	4	5	0.5	1	1.4	0.9	1.2	1.5	9	2	9	2	0	3	0.46	0.27	192	38		0.41	0.26	149.00	224		262	2
Uf5.22	4	50	5	60	6	80	5	50	5	60	6	80	0.1	0.2	0.3	0.3	0.6	1	0.3	0.7	1	3	4	5	3	4	5	0.5	1	1.4	0.9	1.2	1.5	9	2	9	2	0	3	0.46	0.27	192	38		0.41	0.26	149.00	89		128	3
Uf5.23	4	50	5	60	6	80	5	50	5	60	6	80	0.1	0.2	0.3	0.3	0.6	1	0.3	0.7	1	3	4	5	3	4	5	0.5	1	1.4	0.9	1.2	1.5	9	2	9	2	0	3	0.46	0.27	192	38		0.41	0.26	149.00	89		128	2
Uf5.31	5	40	5	50	5	60	4	40	5	50	6	60	0.05	0.15	0.3	0.5	0.8	1	0.6	0.8	1.3	2	5	5	3	4	5	0.6	1	1.3	0.9	1.2	1.4	9	2	8	2	0	3	0.46	0.27	192	29		0.41	0.26	149.00	119		148	3
Uf6	4	40	5	50	6	70	4	40	6	60	6	70	0.05	0.15	0.3	0.2	0.8	1.9	0.2	0.9	2	2	4	5	2	4	5	0.6	0.9	1.5	0.8	1.2	1.5	6	4	6	4	0	1	0.49	0.27	220	33		0.45	0.31	140.00	112		145	
Uf6.11	4	40	5	45	6	60	4	40	5	50	6	60	0.1	0.2	0.3	0.15	0.7	2.5	0.3	0.9	2.5	4	5	5	2	3	5	0.7	1	1.2	1	1.1	1.3	7	2	7	2	0	2	0.46	0.27	192	38		0.43	0.27	168.00	118		156	2
Uf6.12	4	30	5	40	6	60	4	35	5	45	6	60	0.05	0.15	0.25	0.25	1	2.4	0.2	1	2.5	3	4	5	2	4	5	0.7	0.8	1.1	0.8	1.1	1.5	7	2	7	2	0	2	0.53	0.27	255	38		0.43	0.27	168.00	168		207	2
Uf6.13	4	30	5	40	6	60	4	35	5	45	6	60	0.05	0.15	0.25	0.25	1	2.4	0.2	1	2.5	3	4	5	2	4	5	0.7	0.8	1.1	0.8	1.1	1.5	7	2	7	2	0	2	0.53	0.27	255	38		0.43	0.27	168.00	168		207	2
Uf6.2	4	40	5	50	6	70	4	45	5	55	6	70	0.05	0.15	0.4	0.3	1	1.4	0.4	1	1.5	2	4	5	2	4	5	0.6	0.9	1.2	0.7	1.1	1.3	6	2	6	2	0	1	0.49	0.27	220	33		0.43	0.27	168.00	168		201	2
Uf6.21	4	40	5	45	5	55	4	40	5	50	6	60	0.05	0.15	0.25	0.3	0.7	1.4	0.5	0.9	1.5	2	4	5	2	4	5	0.6	0.9	1.2	0.7	1.1	1.3	6	2	6	2	0	2	0.49	0.27	220	33		0.43	0.27	168.00	118		151	2
Uf6.22	5	40	6	50	6	70	5	40	6	50	6	70	0.1	0.2	0.4	0.6	1.1	1.3	0.5	1	1.5	3	4	5	3	4	5	0.8	1.1	1.3	0.9	1.2	1.4	5	2	5	2	0	2	0.47	0.31	161	32		0.45	0.31	140.00	154		187	2
Uf6.23	5	40	6	50	6	70	5	40	6	50	6	70	0.1	0.2	0.4	0.6	1.1	1.3	0.5	1	1.5	3	4	5	2	3	4	0.9	1.2	1.3	1	1.3	1.5	5	2	5	2	0	3	0.45	0.31	140	28		0.43	0.31	123.00	135		163	2
Uf6.3	4	40	5	50	6	60	4	40	6	60	6	70	0.05	0.1	0.3	0.2	0.8	1.8	0.2	0.9	2	2	4	5	3	4	5	0.7	0.9	1.3	0.9	1.1	1.4	7	2	5	2	0	1	0.49	0.27	220	22		0.47	0.31	161.00	129		151	2
Uf6.31	4	40	5	50	6	60	4	45	5	55	6	70	0.05	0.15	0.3	0.2	0.8	2.6	0.3	0.9	2.6	2	4	5	3	4	5	0.7	0.9	1.3	0.9	1.1	1.4	7	2	5	2	0	1	0.49	0.27	220	33		0.43	0.27	168.00	135		168	2
Uf6.32	4	35	5	40	6	60	4	40	5	50	6	60	0.05	0.1	0.15	0.15	1	1.4	0.2	1	1.5	3	4	5	3	4	5	0.7	0.9	1.3	0.9	1.1	1.4	7	2	5	2	0	2	0.49	0.27	220	22		0.43	0.27	168.00	168		190	2
Uf6.33	4	40	5	50	6	60	4	45	5	55	6	70	0.05	0.15	0.3	0.3	0.7	1.2	0.2	0.7	1.2	2	4	5	3	4	5	0.9	1.2	1.4	1	1.3	1.5	6	2	4	2	0	2	0.41	0.26	149	22		0.4	0.26	132.00	93		115	2
Uf6.34	5	40	5	50	6	60	5	45	6	55	6	70	0.05	0.15	0.3	0.2	0.6	1.7	0.3	0.8	1.7	4	5	5	3	4	5	0.9	1.2	1.4	1	1.3	1.5	6	2	4	2	0	2	0.41	0.26	149	22		0.43	0.31	123.00	74		96	2
Uf6.4	5	40	5	50	6	60	5	45	6	55	6	70	0.1	0.2	0.3	0.4	1	1.7	0.5	1.2	1.9	3	4	5	3	4	5	1.1	1.3	1.5	1.2	1.5	1.6	4	2	3	2	0	2	0.40	0.26	132	26		0.4	0.30	94.00	94		120	2
Uf6.41	5	40	5	50	6	60	5	45	6	55	6	70	0.1	0.2	0.3	0.5	1.1	1.7	0.6	1.2	2	3	4	5	3	4	5	1.1	1.3	1.5	1.2	1.5	1.6	4	2	3	2	0	1	0.40	0.26	132	26		0.4	0.30	94.00	103		130	2
Uf6.42	5	40	5	50	6	60	5	45	6	55	6	70	0.1	0.2	0.3	0.4	1	1.7	0.5	1.2	1.9	3	4	5	3	4	5	1.1	1.3	1.5	1.2	1.5	1.6	4	2	3	2	0	3	0.40	0.26	132	26		0.4	0.30	94.00	94		120	2
Uf6.5	4	40	5	50	6	60	4	50	6	60	6	70	0.05	0.1	0.3	0.5	1	1.5	0.6	1	1.8	2	3	3	2	2	4	1.2	1.4	1.6	1.3	1.5	1.7	4	2	3	2	0	3	0.38	0.26	118	12		0.34	0.21	130.00	130		142	1
Uf6.51	4	40	5	50	6	60	4	50	6	60	6	70	0.05	0.1	0.3	0.5	1	1.5	0.6	1	1.8	2	3	3	2	2	4	1.2	1.4	1.6	1.3	1.5	1.7	4	2	3	2	0	3	0.38	0.26	118	12		0.34	0.21	130.00	130		142	1
Uf6.6	5	40	5	50	6	60	5	50	6	60	6	70	0.05	0.1	0.3	0.5	1	1.5	0.6	1	1.8	2	2	2	2	4	5	1.2	1.4	1.6	1.3	1.5	1.7	3	2	2	2	0	2	0.32	0.18	144	14		0.4	0.30	94.00	94		108	1
Uf6.61	5	40	5	50	6	60	5	50	6	60	6	70	0.05	0.1	0.3	0.5	1	1.5	0.6	1	1.8	2	2	2	2	4	5	1.2	1.4	1.6	1.3	1.5	1.7	3	2	2	2	0	3	0.32	0.18	144	14		0.4	0.30	94.00	94		108	1
Uf6.62	5	40	5	50	6	60	5	50	6	60	6	70	0.05	0.1	0.3	0.5	1	1.5	0.6	1	1.8	2	2	2	2	4	5	1.2	1.4	1.6	1.3	1.5	1.7	3	2	2	2	0	3	0.32	0.18	144	14		0.4	0.30	94.00	94		108	1
Uf6.71	4	40	5	50	6	60	4	40	5	50	6	60	0.05	0.3	0.4	0.3	0.4	0.5	0.1	0.6	0.9	2	2	4	2	2	4	0.9	1	1.2	1	1.2	1.4	7	2	5	3	0	3	0.39	0.18	207	62		0.35	0.18	170.00	68		130	1
Ug3.2	6	45	6	55	6	60	6	45	6	55	6	60	0.05	0.1	0.2	1	1.2	1.5	1.2	1.4	1.8	3	4	4	2	4	5	1.1	1.4	1.6	1.2	1.5	1.7	4	2	2	1	0	3	0.41	0.31	107	11		0.4	0.30	94.00	113		124	
Ug5.1	5	45	6	50	6	70	5	50	6	55	6	70	0.05	0.15	0.4	0.2	1.1	2	0.3	1.2	2.2	3	5	5	3	4	5	0.9	1.2	1.3	1.1	1.2	1.4	4	4	2	2	0	1	0.45	0.31	140	21		0.45	0.31	140.00	154		175	2
Ug5.11	5	45	5	50	6	70	5	45	6	50	6	70	0.05	0.1	0.3	0.15	1	1.3	0.2	1	1.5	4	5	5	3	4	5	0.9	1.2	1.3	1.1	1.2	1.4	4	4	3	2	1	2	0.41	0.26	149	15		0.45	0.31	140.00	140		155	2
Ug5.12	5	40	6	50	6	70	5	45	6	55	6	70	0.03	0.1	0.2	0.1	0.7	1.1	0.2	0.7	1.2	3	5	5	3	5	5	0.9	1.2	1.3	1.1	1.2	1.3	4	4	3	2	0	1	0.45	0.31	140	14		0.45	0.31	140.00	98		112	2
Ug5.13	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.15	0.4	0.2	0.6	1	0.3	0.7	1.2	3	5	5	3	5	5	0.9	1.2	1.3	1.1	1.2	1.4	4	4	3	2	0	1	0.45	0.31	140	21		0.45	0.31	140.00	84		105	2
Ug5.14	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.15	0.3	0.2	0.8	1.3	0.5	0.9	1.4	4	5	5	3	4	5	0.9	1.2	1.3	1.1	1.3	1.4	4	4	3	2	0	1	0.45	0.31	140	21		0.43	0.31	123.00	98		119	2
Ug5.15	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.1	0.3	0.7	1.6	2.4	0.8	1.7	2.4	4	5	5	3	4	5	0.9	1.2	1.3	1	1.3	1.4	4	4	3	2	0	1	0.45	0.31	140	14		0.43	0.31	123.00	196		210	2
Ug5.16	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.1	0.4	0.4	1.4	2.1	0.5	1.5	2.2	3	5	5	3	4	5	0.9	1.1	1.3	1	1.3	1.4	4	4	3	2	0	1	0.47	0.31	161	16		0.43	0.31	123.00	172		188	2
Ug5.17	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.1	0.4	0.6	1	1.6	0.5	1	0.7	3	5	5	3	5	5	0.9	1.1	1.3	1	1.3	1.4	4	4	3	2	0	2	0.47	0.31	161	16		0.43	0.31	123.00	123		139	2
Ug5.2	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.2	0.4	0.4	1.2	2	0.5	1.4	2.3	3	4	5	3	4	5	1	1.2	1.5	1.1	1.4	1.6	3	2	2	1	0	1	0.45	0.31	140	28		0.41	0.31	107.00	129		157	2
Ug5.22	4	40	6	50	6	70	5	45	6	55	6	70	0.05	0.1	0.15	0.3	0.9	1.2	0.4	1	1.4	3	5	5	3	4	5	1	1.2	1.5	1.1	1.4	1.6	3	2	2	1	0	2	0.45	0.31	140	14		0.41	0.31	107.00	97		111	2
Ug5.23	5	40	6	50	6	70	5	45	6	55	6	70	0.1	0.2	0.4	0.5	1	1.4	0.6	1.3	1.8	3	4	5	3	4	5	1	1.2	1.5	1.1	1.4	1.6	3	2	2	1	0	2	0.45	0.31	140	28		0.41	0.31	107.00	107		135	2
Ug5.24	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.2	0.5	0.6	1.3	2.3	0.7	1.5	2.5	3	4	5	3	4	5	1	1.2	1.5	1.1	1.4	1.6	3	2	2	1	0	1	0.45	0.31	140	28		0.41	0.31	107.00	139		167	2
Ug5.25	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.15	0.3	0.6	1.1	1.6	0.9	1.2	1.8	3	4	5	3	4	5	1	1.2	1.5	1.1	1.4	1.6	3	2	2	1	0	2	0.45	0.31	140	21		0.41	0.31	107.00	118		139	2
Ug5.26	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.1	0.15	0.5	0.9	1.2	0.7	1	1.2	3	4	5	4	4	5	1	1.2	1.5	1.1	1.4	1.6	3	2	2	1	0	3	0.45	0.31	140	14		0.41	0.31	107.00	97		111	2
Ug5.27	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.1	0.3	0.3	0.9	1.2	0.4	1	1.5	3	4	5	3	4	5	1	1.2	1.5	1.1	1.4	1.6	3	2	2	1	0	3	0.45	0.31	140	14		0.41	0.31	107.00	97		111	2
Ug5.28	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.15	0.4	0.6	1.3	1.7	0.5	1.3	2	3	4	5	3	4	5	1	1.2	1.5	1.1	1.4	1.6	3	2	2	1	0	1	0.45	0.31	140	21		0.41	0.31	107.00	139		160	2
Ug5.29	5	40	6	50	6	70	5	45	6	55	6	70	0.05	0.15	0.4	0.6	1.5	1.9	0.5	1.6	2	3	4	5	4	4	5	1	1.2	1.5	1.1	1.4	1.6	3	2	2	1	0	3	0.45	0.31	140	21		0.41	0.31	107.00	161		182	2
Ug5.3	4	40	6	50	6	60	5	45	6	55	6	60	0.02	0.1	0.4	0.2	0.9	2	0.3	1	2.1	3	5	5	3	4	5	1.1	1.3	1.5	1.2	1.5	1.6	3	2	3	2	0	1	0.43	0.31	123	12		0.4	0.30	94.00	85		97	2
Ug5.32	4	40	6	50	6	60	5	45	6	55	6	60	0.02	0.1	0.3	0.1	0.5	0.8	0.1	0.6	0.9	3	5	5	3	5	5	1.1	1.3	1.5	1.2	1.5	1.6	3	2	3	2	0	2	0.43	0.31	123	12		0.4	0.30	94.00	47		59	2
Ug5.33	5	40	6	50	6	60	5	45	6	55	6	60	0.02	0.1	0.3	0.1	0.5	0.8	0.1	0.6	0.9	4	5	5	3	5	5	1.1	1.3	1.5	1.2	1.5	1.6	3	2	3	2	0	3	0.43	0.31	123	12		0.4	0.30	94.00	47		59	2
Ug5.34	5	40	5	50	6	60	5	45	6	55	6	60	0.05	0.15	0.5	0.5	1.3	2.7	0.7	1.5	2.7	3	4	5	4	4	5	1.1	1.3	1.5	1.2	1.5	1.6	3	2	3	2	0	1	0.40	0.26	132	20		0.4	0.30	94.00	122		142	2
Ug5.35	5	40	5	50	6	60	5	45	6	55	6	60	0.1	0.15	0.3	0.4	1.2	2	0.6	1.3	2.1	4	5	5	2	4	5	1.1	1.3	1.5	1.2	1.5	1.6	3	2	3	2	0	3	0.40	0.26	132	20		0.4	0.30	94.00	113		133	2
Ug5.37	5	40	5	50	6	60	5	45	6	55	6	60	0.05	0.1	0.2	0.2	0.5	0.9	0.2	0.6	0.9	3	5	5	3	4	5	1.1	1.3	1.5	1.2	1.5	1.6	3	2	3	2	0	2	0.40	0.26	132	13		0.4	0.30	94.00	47		60	2
Ug5.38	5	40	6	50	6	60	5	45	6	55	6	60	0.05	0.15	0.5	0.5	1.3	2.7	0.7	1.5	2.7	4	5	5	4	5	5	1.1	1.3	1.5	1.2	1.5	1.6	3	2	3	2	0	3	0.43	0.31	123	18		0.4	0.30	94.00	122		141	2
Ug5.39	5	40	6	50	6	60	5	45	6	55	6	60	0.05	0.15	0.5	0.5	1.3	2.7	0.7	1.5	2.7	4	5	5	4	5	5	1.1	1.3	1.5	1.2	1.5	1.6	3	2	3	2	0	3	0.43	0.31	123	18		0.4	0.30	94.00	122		141	2
Ug5.4	5	40	6	50	6	60	5	45	6	55	6	65	0.05	0.1	0.4	0.4	1.1	2.2	0.5	1.2	2.5	2	2	5	3	4	5	1.2	1.4	1.6	1.2	1.5	1.6	2	1	2	1	0	1	0.35	0.21	142	14		0.4	0.30	94.00	103		118	2
Ug5.5	5	40	6	50	6	60	5	45	6	55	6	65	0.05	0.15	0.3	0.3	1	1.8	0.5	1.2	2	2	3	4	2	4	5	1.2	1.4	1.6	1.2	1.5	1.6	2	1	2	1	0	2	0.41	0.31	107	16		0.4	0.30	94.00	94		110	2
Ug5.6	4	40	5	50	6	60	5	45	6	55	6	65	0.05	0.15	0.3	0.3	1	1.8	0.5	1.2	2	2	4	4	4	5	5	1.2	1.4	1.6	1.2	1.5	1.6	2	1	2	1	0	3	0.38	0.26	118	18		0.4	0.30	94.00	94		112	2
Ug6.1	4	40	5	50	6	60	4	40	5	50	6	60	0.05	0.1	0.4	0.4	0.9	1.8	0.5	1	2	3	4	5	3	4	5	1.2	1.5	1.6	1.2	1.6	1.7	2	1	2	1	0	3	0.37	0.26	106	11		0.36	0.26	95.00	86		96	2
Ug6.2	4	40	5	50	6	60	4	40	5	50	6	60	0.05	0.1	0.4	0.4	0.9	1.8	0.5	1	2	3	4	5	3	4	5	1.2	1.5	1.6	1.2	1.6	1.7	2	1	2	1	0	3	0.37	0.26	106	11		0.36	0.26	95.00	86		96	2
Ug6.4	4	40	5	50	6	60	4	40	5	50	6	60	0.05	0.1	0.4	0.4	0.9	1.8	0.5	1	2	2	3	4	2	3	4	1.3	1.5	1.6	1.3	1.6	1.7	2	1	2	1	0	3	0.37	0.26	106	11		0.36	0.26	95.00	86		96	2
Ug6.5	4	40	5	50	6	60	4	40	5	50	6	60	0.05	0.1	0.4	0.4	0.9	1.8	0.5	1	2	2	3	4	2	3	4	1.3	1.5	1.6	1.3	1.6	1.7	2	1	2	1	0	3	0.37	0.26	106	11		0.36	0.26	95.00	86		96	2
Um1	3	20	3	30	4	40							0.05	0.2	0.4				0.05	0.2	0.4	2	2	4				1.1	1.3	1.6				7	3			0	2	0.28	0.12	157	31								1
Um1.1	3	20	3	30	4	40							0.05	0.2	0.4				0.05	0.2	0.4	2	2	4				1.1	1.3	1.6				7	3			0	3	0.28	0.12	157	31								1
Um1.13	3	20	3	30	4	40							0.05	0.2	0.4				0.05	0.2	0.4	2	2	4				1.1	1.3	1.6				7	3			0	3	0.28	0.12	157	31								1
Um1.2	3	20	3	30	4	40							0.05	0.2	0.4				0.05	0.2	0.4	2	2	3				1.1	1.3	1.6				7	3			0	3	0.28	0.12	157	31								1
Um1.21	3	20	3	30	4	40							0.05	0.2	0.4				0.05	0.2	0.4	2	2	3				1.1	1.3	1.6				7	3			0	3	0.28	0.12	157	31								1
Um1.23	3	20	3	30	4	40							0.05	0.2	0.4				0.05	0.2	0.4	2	2	3				1.1	1.3	1.6				7	3			0	3	0.28	0.12	157	31								1
Um1.3	3	20	3	30	4	40							0.05	0.2	0.3				0.05	0.2	0.3	2	2	2				1.2	1.3	1.6				7	3			1	3	0.28	0.12	157	31								1
Um1.32	3	20	3	30	4	40							0.05	0.2	0.3				0.05	0.2	0.3	2	2	2				1.2	1.3	1.6				7	3			1	3	0.28	0.12	157	31								1
Um1.4	3	20	4	30	4	40							0.1	0.3	0.5				0.1	0.3	0.5	2	2	4				1.2	1.3	1.6				7	3			0	3	0.31	0.15	157	47								1
Um1.41	3	20	4	30	4	40							0.1	0.3	0.5				0.1	0.3	0.5	2	2	4				1.2	1.3	1.6				7	3			0	3	0.31	0.15	157	47								1
Um1.42	3	20	4	30	4	40							0.1	0.3	0.5				0.1	0.3	0.5	2	2	4				1.2	1.3	1.6				7	3			0	3	0.31	0.15	157	47								1
Um1.43	3	20	4	30	4	40							0.1	0.3	0.5				0.1	0.3	0.5	2	2	4				1.2	1.3	1.6				7	3			0	3	0.31	0.15	157	47								1
Um2.12	2	20	3	30	4	40							0.2	0.4	0.5				0.2	0.4	0.5	2	2	4				1.1	1.5	1.7				7	3			0	2	0.26	0.12	138	55								1
Um2.2	3	20	3	30	4	40	3	20	3	30	4	40	0.2	0.4	0.5	0.3	0.5	0.8	0.5	0.8	1.3	2	2	3	2	3	3	1.1	1.5	1.7	1.1	1.5	1.7	7	3	7	3	0	3	0.26	0.12	138	55		0.3	0.18	128.00	64		119	1
Um2.21	3	20	3	30	4	40	3	20	3	30	4	40	0.2	0.4	0.5	0.3	0.5	0.8	0.5	0.8	1.3	2	2	3	2	3	3	1.1	1.5	1.7	1.1	1.5	1.7	7	3	7	3	0	3	0.26	0.12	138	55		0.3	0.18	128.00	64		119	1
Um2.22	3	20	3	30	4	40	3	20	3	30	4	40	0.2	0.4	0.5	0.3	0.5	0.8	0.5	0.8	1.3	2	2	3	2	3	3	1.1	1.5	1.7	1.1	1.5	1.7	7	3	7	3	0	3	0.26	0.12	138	55		0.3	0.18	128.00	64		119	1
Um2.23	3	20	3	30	4	40	3	20	3	30	4	40	0.2	0.4	0.5	0.3	0.5	0.8	0.5	0.8	1.3	2	2	3	2	3	3	1.1	1.5	1.7	1.1	1.5	1.7	7	3	7	3	0	3	0.26	0.12	138	55		0.3	0.18	128.00	64		119	1
Um2.3	3	20	3	30	4	40							0.1	0.4	0.7				0.1	0.4	0.7	2	2	2				1.1	1.5	1.7				7	3			0	3	0.26	0.12	138	55								1
Um2.32	3	20	3	30	4	40							0.1	0.4	0.7				0.1	0.4	0.7	2	2	2				1.1	1.5	1.7				7	3			0	3	0.26	0.12	138	55								1
Um3.12	3	20	3	30	4	40							0.1	0.4	0.7				0.1	0.4	0.7	2	2	2				1.1	1.5	1.7				7	3			0	3	0.26	0.12	138	55								1
Um3.2	3	20	3	30	4	40							0.1	0.4	0.7				0.1	0.4	0.7	2	2	2				1.1	1.5	1.7				7	3			0	3	0.26	0.12	138	55								1
Um3.21	3	20	3	30	4	40							0.1	0.4	0.7				0.1	0.4	0.7	2	2	2				1.1	1.5	1.7				7	3			0	3	0.26	0.12	138	55								1
Um4.1	2	20	3	30	4	40							0.3	0.4	0.5				0.3	0.4	0.5	2	3	4				1.1	1.4	1.6				8	3			0	1	0.32	0.18	138	55								1
Um4.11	2	20	3	30	4	40							0.3	0.4	0.5				0.3	0.4	0.5	2	3	4				1.1	1.4	1.6				8	3			0	3	0.32	0.18	138	55								1
Um4.12	2	20	3	30	4	40							0.3	0.4	0.5				0.3	0.4	0.5	2	3	4				1.1	1.4	1.6				8	3			0	3	0.32	0.18	138	55								1

Appendix One: Interpreted Soil Properties

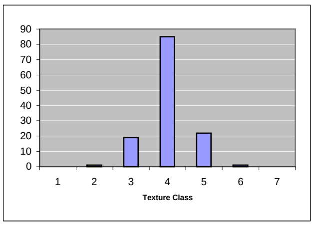
ppf	Atext5	Aclay5	Atext50	Aclay50	Atext95	Aclay95	Btext5	Bclay5	Btext50	Bclay50	Btext95	Bclay95	Athick5	Athick50	Athick95	Bthick5	Bthick50	Bthick95	Solumthick5	Solumthick50	Solumthick95	Astruct5	Astruct50	Astruct95	Bstruct5	Bstruct50	Bstruct95	ABDensity5	ABDensity50	ABDensity95	BBDensity5	BBDensity50	BBDensity95	AKs	AKserror	BKs	BKserror	Calcrete	Reliability	A 0.1bar	A 15bar	A AWHC m	A AWHC m	A Reliabili	B 0.1bar	B 15 bar	B AWHC m	B AWHC m	B Reliabilit	PAWHC	Nutrients
Um4.2	3	20	3	30	4	40	3	20	3	30	4	40	0.1	0.4	1.1	0.15	0.5	1	0.5	1	1.7	2	2	4	2	2	3	0.9	1.1	1.4	1	1.2	1.5	8	2	7	2	0	2	0.31	0.12	183	73		0.29	0.12	169.00	84		158	2
Um4.21	3	20	3	30	4	40	3	20	3	30	4	40	0.1	0.4	1.1	0.15	0.5	1	0.5	1	1.7	2	2	4	2	2	3	0.9	1.1	1.4	1	1.2	1.5	8	2	7	2	0	2	0.31	0.12	183	73		0.29	0.12	169.00	84		158	2
Um4.22	3	20	3	30	4	40	3	20	3	30	4	40	0.1	0.4	1.1	0.15	0.5	1	0.5	1	1.7	2	2	4	2	2	3	0.9	1.1	1.4	1	1.2	1.5	8	2	7	2	0	2	0.31	0.12	183	73		0.29	0.12	169.00	84		158	2
Um4.23	3	20	3	30	4	40	3	20	3	30	4	40	0.1	0.2	0.4	0.2	0.6	1	0.6	0.6	1.1	2	2	4	2	3	3	0.9	1.1	1.4	1	1.2	1.5	8	2	7	2	0	2	0.31	0.12	183	37		0.34	0.18	164.00	98		135	2
Um4.3	3	20	3	30	4	40	3	20	3	30	4	40	0.05	0.1	0.3	0.4	0.6	0.7	0.5	0.8	1	2	3	4	3	3	4	1	1.3	1.5	1.1	1.4	1.6	7	3	8	2	0	3	0.33	0.18	150	15		0.32	0.18	138.00	83		98	3
Um4.31	3	20	3	30	4	40	3	20	3	30	4	40	0.05	0.1	0.3	0.4	0.6	0.7	0.5	0.8	1	2	3	4	3	3	4	1	1.3	1.5	1.1	1.4	1.6	7	3	8	2	0	3	0.33	0.18	150	15		0.32	0.18	138.00	83		98	3
Um4.4	4	20	4	30	4	40	4	30	4	40	5	45	0.1	0.2	0.3	0.5	0.9	1.3	0.8	1.1	1.5	4	5	5	3	4	4	0.7	1	1.3	0.9	1.2	1.4	9	2	8	2	0	3	0.42	0.22	196	39		0.38	0.22	157.00	141		180	2
Um4.41	4	20	4	30	4	40	4	30	4	40	5	45	0.1	0.2	0.3	0.5	0.9	1.3	0.8	1.1	1.5	4	5	5	3	4	4	0.7	1	1.3	0.9	1.2	1.4	9	2	8	2	0	3	0.42	0.22	196	39		0.38	0.22	157.00	141		180	2
Um4.43	4	20	4	30	4	40	4	30	4	40	5	45	0.1	0.2	0.3	0.5	0.9	1.3	0.8	1.1	1.5	4	5	5	4	4	5	0.7	1	1.3	0.9	1.2	1.4	9	2	8	2	0	3	0.42	0.22	196	39		0.38	0.22	157.00	141		180	2
Um5.1	3	20	3	30	4	40	3	20	4	30	4	40	0.05	0.1	0.2	0.1	0.6	1	0.1	0.7	1.2	2	3	3	2	2	2	1.1	1.5	1.7	1.2	1.6	1.8	7	3	5	3	1	3	0.30	0.18	128	13		0.27	0.15	127.00	76		89	1
Um5.11	3	20	3	30	4	40	3	20	4	30	4	40	0.05	0.1	0.2	0.1	0.3	0.5	0.1	0.4	0.6	2	3	3	2	2	2	1.1	1.5	1.7	1.2	1.6	1.8	7	3	5	3	1	3	0.30	0.18	128	13		0.27	0.15	127.00	38		51	1
Um5.12	3	20	3	30	4	40	3	20	4	30	4	40	0.05	0.1	0.3	0.5	0.8	1.4	0.6	1	1.5	2	3	3	2	2	2	1.1	1.5	1.7	1.2	1.6	1.8	7	3	5	3	1	3	0.30	0.18	128	13		0.27	0.15	127.00	102		115	1
Um5.2	3	20	3	30	4	40	2	20	3	30	4	40	0.05	0.2	0.3	0.2	0.3	0.4	0.3	0.5	0.7	2	3	4	5	3	3	0.9	1.2	1.4	1.1	1.3	1.6	7	3	8	2	0	2	0.34	0.18	164	33		0.33	0.18	150.00	45		78	2
Um5.22	3	20	3	30	4	40	2	20	3	30	4	40	0.05	0.2	0.3	0.4	0.8	1.4	0.6	1	1.5	2	3	4	5	3	3	0.9	1.2	1.4	1.1	1.3	1.6	7	3	8	2	0	2	0.34	0.18	164	33		0.33	0.18	150.00	120		153	2
Um5.3	4	20	4	30	4	40	3	20	4	30	4	40	0.05	0.1	0.3	0.05	0.2	0.5	0.1	0.3	0.8	2	2	3	3	3	3	1.1	1.3	1.6	1.2	1.5	2	8	2	7	3	0	3	0.31	0.15	157	16		0.34	0.22	117.00	23		39	1
Um5.31	4	20	4	30	4	40	3	20	4	30	4	40	0.05	0.1	0.3	0.05	0.2	0.5	0.1	0.3	0.8	2	2	3	3	3	3	1.1	1.3	1.6	1.2	1.5	2	8	2	7	3	0	3	0.31	0.15	157	16		0.34	0.22	117.00	23		39	1
Um5.4	2	20	3	25	3	35	3	20	3	30	4	40	0.05	0.1	0.3	0.2	0.6	1	0.1	0.7	1.3	2	2	2	2	2	2	1.3	1.5	1.7	1.2	1.6	1.8	7	3	7	2	0	3	0.26	0.12	138	14		0.25	0.12	130.00	78		92	1
Um5.41	2	20	3	25	3	35	3	20	3	30	4	40	0.05	0.1	0.3	0.3	0.4	0.5	0.1	0.4	0.6	2	2	2	2	2	2	1.3	1.5	1.7	1.2	1.6	1.8	7	3	7	2	0	3	0.26	0.12	138	14		0.25	0.12	130.00	52		66	1
Um5.42	2	20	3	25	3	35	3	20	3	30	4	40	0.05	0.1	0.3	0.2	0.8	1.2	0.6	1	1.5	2	2	2	2	2	2	1.3	1.5	1.7	1.2	1.6	1.8	7	3	7	2	0	3	0.26	0.12	138	14		0.25	0.12	130.00	104		118	1
Um5.5	2	20	3	30	4	40	3	25	3	30	4	40	0.1	0.2	0.5	0.2	0.7	1.5	0.1	0.8	1.7	2	2	3	2	2	3	0.8	1	1.4	1	1.2	1.6	7	3	8	2	0	1	0.32	0.12	200	40		0.29	0.12	169.00	118		158	
Um5.51	2	20	3	30	4	40	3	20	4	30	5	40	0.1	0.2	0.5	0.2	0.3	0.5	0.1	0.4	0.6	2	2	3	2	2	3	0.8	1	1.4	1	1.2	1.6	7	3	8	2	0	1	0.32	0.12	200	40		0.32	0.15	170.00	51		91	1
Um5.52	2	20	3	30	4	40	3	20	3	30	4	40	0.1	0.2	0.5	0.2	0.8	1.5	0.6	1	1.8	1	2	3	2	2	3	0.8	1	1.4	1	1.2	1.6	7	3	8	2	0	1	0.32	0.12	200	40		0.29	0.12	169.00	135		175	2
Um5.61	3	20	4	30	4	40	3	20	4	30	4	40	0.05	0.1	0.2	0.1	0.2	0.5	0.2	0.4	0.6	2	3	4	2	3	4	1	1.2	1.5	1.1	1.3	1.7	7	3	7	3	1	3	0.38	0.22	157	16		0.36	0.22	142.00	28		44	1
Um6	3	20	4	30	4	40	3	20	4	30	5	45	0.05	0.2	0.4	0.2	0.7	2.5	0.2	0.9	2.7	3	4	5	2	4	4	0.6	0.9	1.3	0.8	1.2	1.6	8	3	7	3	0	1	0.45	0.23	222	44		0.38	0.22	157.00	110		154	
Um6.1	3	20	4	30	4	40	3	20	4	30	5	40	0.1	0.2	0.4	0.3	0.6	2.2	0.2	0.9	2.4	3	4	5	2	4	4	0.6	1	1.3	0.7	1.2	1.6	8	2	8	2	0	1	0.42	0.22	196	39		0.38	0.22	157.00	94		133	
Um6.11	3	20	3	30	4	40	3	25	4	35	4	45	0.1	0.2	0.4	0.2	0.3	0.4	0.3	0.5	0.7	4	4	5	3	3	4	0.6	1	1.3	0.7	1.2	1.6	8	2	8	2	0	2	0.38	0.18	200	40		0.38	0.22	157.00	47		87	3
Um6.12	3	20	3	30	4	40	3	20	4	30	4	40	0.1	0.2	0.4	0.3	0.6	1	0.2	0.9	1.5	3	4	5	2	4	4	0.7	1	1.3	0.9	1.2	1.6	8	2	8	2	0	3	0.38	0.18	200	40		0.38	0.22	157.00	94		134	2
Um6.13	3	20	4	30	4	40	4	20	4	35	5	40	0.1	0.2	0.4	0.6	1.4	2.5	0.4	1.4	2.7	3	5	5	2	4	4	0.6	1	1.3	0.7	1.2	1.6	8	2	8	2	0	2	0.42	0.22	196	39		0.38	0.22	157.00	220		259	2
Um6.14	3	20	4	30	4	40	3	20	4	30	5	40	0.1	0.2	0.4	0.5	0.7	1	0.2	0.7	1.2	2	3	4	2	3	4	0.8	1	1.3	0.8	1.3	1.6	8	2	8	2	0	3	0.42	0.22	196	39		0.36	0.22	142.00	99		138	2
Um6.2	3	20	4	30	5	40	3	25	4	35	5	45	0.1	0.3	0.5	0.2	0.3	0.4	0.1	0.4	0.6	3	5	5	3	4	5	0.7	1.1	1.3	0.9	1.2	1.4	8	2	8	2	0	2	0.40	0.22	175	52		0.38	0.22	157.00	47		100	2
Um6.21	3	20	4	30	4	40							0.1	0.15	0.5				0.1	0.15	0.5	4	4	5				0.7	1.1	1.3				8	2			0	2	0.40	0.22	175	26								2
Um6.22	3	20	3	30	5	40							0.1	0.3	0.5				0.1	0.3	0.5	4	4	5				0.7	1.1	1.3				8	2			0	3	0.36	0.18	180	54								2
Um6.23	3	20	4	30	5	40	3	20	4	30	5	40	0.1	0.3	0.5	0.2	0.3	0.4	0.1	0.4	0.6	3	5	5	3	4	5	0.7	1.1	1.3	0.9	1.2	1.4	8	2	8	2	0	3	0.40	0.22	175	52		0.38	0.22	157.00	47		100	2
Um6.24	3	20	4	30	5	40	3	20	4	30	5	40	0.1	0.3	0.5	0.2	0.3	0.4	0.1	0.4	0.8	3	5	5	3	4	5	0.7	1.1	1.3	0.9	1.2	1.4	8	2	8	2	0	3	0.40	0.22	175	52		0.38	0.22	157.00	47		100	2
Um6.3	3	20	4	30	5	40	3	20	4	35	5	40	0.05	0.1	0.2	0.2	0.9	2	0.2	1	2.1	3	4	5	3	4	5	0.6	0.8	1.1	0.9	1.1	1.5	8	2	8	2	0	2	0.48	0.23	255	25		0.4	0.22	175.00	157		183	2
Um6.31	3	20	4	30	5	40	3	20	4	35	5	40	0.05	0.1	0.2	0.2	0.7	1.6	0.3	0.8	1.7	3	4	5	3	4	5	0.8	1	1.1	0.9	1.1	1.5	8	2	8	2	0	3	0.42	0.22	196	20		0.4	0.22	175.00	122		142	2
Um6.32	3	20	4	30	5	40	3	20	4	35	5	40	0.05	0.1	0.2	0.2	0.7	1.6	0.3	0.8	1.7	3	4	5	3	4	5	0.8	1	1.1	0.9	1.1	1.5	8	2	8	2	0	3	0.42	0.22	196	20		0.4	0.22	175.00	122		142	2
Um6.33	3	20	4	30	5	40	3	20	4	35	5	40	0.05	0.1	0.2	0.2	1.1	2.3	0.6	1.3	2.5	3	4	5	3	4	5	0.6	0.8	1.1	0.9	1	1.4	8	2	8	2	0	2	0.48	0.23	255	25		0.42	0.22	196.00	216		241	2
Um6.34	3	20	4	30	5	40	3	20	5	35	5	40	0.05	0.1	0.2	0.7	0.9	1	0.2	1	1.2	3	4	5	3	4	5	0.6	0.8	1.1	0.9	1.1	1.5	8	2	8	2	0	2	0.48	0.23	255	25		0.43	0.27	168.00	152		177	2
Um6.4	3	20	4	30	4	40	3	20	4	30	4	40	0.05	0.1	0.15	0.1	0.2	0.4	0.2	0.3	0.5	4	4	5	2	4	5	0.8	1	1.3	0.9	1.2	1.4	8	2	8	2	0	3	0.42	0.22	196	20		0.38	0.22	157.00	31		51	2
Um6.41	3	20	4	30	4	40	3	20	4	30	4	40	0.05	0.1	0.15	0.1	0.2	0.4	0.2	0.3	0.5	4	4	5	2	4	5	0.8	1	1.3	0.9	1.2	1.4	8	2	8	2	0	3	0.42	0.22	196	20		0.38	0.22	157.00	31		51	2
Um6.42	3	20	4	30	4	40	3	20	4	30	4	40	0.05	0.1	0.15	0.1	0.2	0.4	0.2	0.3	0.5	4	4	5	2	4	5	0.8	1	1.3	0.9	1.2	1.4	8	2	8	2	0	3	0.42	0.22	196	20		0.38	0.22	157.00	31		51	2
Um6.43	3	20	4	30	4	40	3	20	4	30	4	40	0.05	0.1	0.15	0.1	0.2	0.4	0.2	0.3	0.5	4	4	5	2	4	5	0.8	1	1.3	0.9	1.2	1.4	8	2	8	2	0	3	0.42	0.22	196	20		0.38	0.22	157.00	31		51	2
Um7.11	3	20	4	30	5	40	3	20	4	30	5	40	0.1	0.2	0.3	0.5	1	2	0.6	1.3	2.2	4	4	5	2	2	4	0.7	1	1.4	1	1.3	1.6	8	2	8	2	0	2	0.42	0.22	196	39		0.31	0.15	157.00	157		196	1
Um7.12	3	20	4	30	5	40	3	20	4	30	5	40	0.1	0.2	0.3	0.5	1	2	0.6	1.3	2.2	4	4	5	2	2	4	0.7	1	1.4	1	1.3	1.6	8	2	8	2	0	3	0.42	0.22	196	39		0.31	0.15	157.00	157		196	1

APPENDIX TWO: Example of Summary Data from the CSIRO National Soil Database

PPF: Gn3.11 Natsoil Database: 26/02/01

Texture: A Horizon

Text class	Frequency
1	0
2	1
3	19
4	85
5	22
6	1
7	0



Mean	St.Dev	Min	5%	Median	95%	Max	n
4.023438	0.620704	2	3	4	5	6	128

Texture: A Horizon

Lower: 3/40%

Estimate: 4/60%

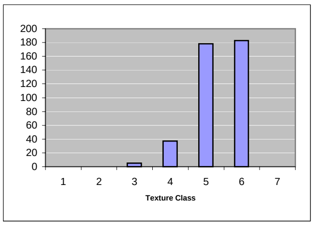
Upper: 5/80%

Notes:

Commonly subplastic; hence the high clay estimate

Texture: B Horizon

Text class	Frequency
1	0
2	0
3	5
4	37
5	178
6	183
7	0



Mean	St.Dev	Min	5%	Median	95%	Max	n
5.337469	0.694871	3	4	5	6	6	403

Texture: B Horizon

Lower: 4/50%

Estimate: 5/70%

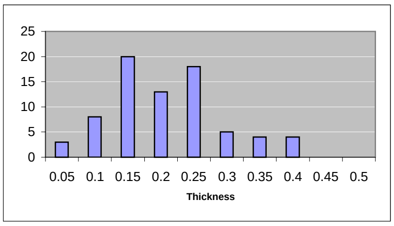
Upper: 6/80%

Notes:

Commonly subplastic; hence the high clay estimate

Thickness: A Horizon

Thickness	Frequency
0.05	3
0.1	8
0.15	20
0.2	13
0.25	18
0.3	5
0.35	4
0.4	4
0.45	0
0.5	0



Mean	St.Dev	Min	5%	Median	95%	Max	n
0.170133	0.085858	0	0.05	0.16	0.315	0.39	75

Thickness: A Horizon

Lower: 0.05

Estimate: 0.2

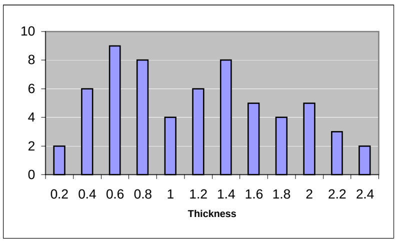
Upper: 0.3

Notes:

—

Thickness: B Horizon

Thickness	Frequency
0.2	2
0.4	6
0.6	9
0.8	8
1	4
1.2	6
1.4	8
1.6	5
1.8	4
2	5
2.2	3
2.4	2



Mean	St.Dev	Min	5%	Median	95%	Max	n
1.55	1.223637	0.13	0.368	1.3	3.188	8	77

Thickness: B Horizon

Lower: 0.4

Estimate: 1.5

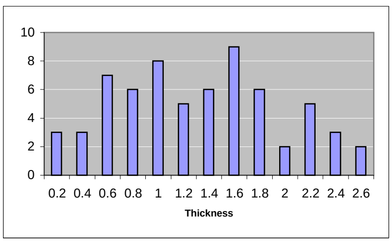
Upper: 3.2

Notes:

Evidence for tri-modal distribution. Minima at 1.0m and 1.8m correspond with auger extension lengths.

Thickness: Solum

Thickness	Frequency
0.2	3
0.4	3
0.6	7
0.8	6
1	8
1.2	5
1.4	6
1.6	9
1.8	6
2	2
2.2	5
2.4	3
2.6	2



Mean	St.Dev	Min	5%	Median	95%	Max	n
1.651375	1.242395	0.03	0.326	1.5	3.3335	8.1	80

Thickness: Solum

Lower: 0.3

Estimate: 1.7

Upper: 3.3

Notes:

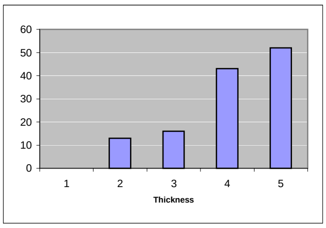
Again, a tri-modal distribution. Data appear censored. These soils are often in excess of 5-10m.

APPENDIX TWO: Example of Summary Data from the CSIRO National Soil Database

PPF: Gn3.11 Natsoil Database: 26/02/01

Structure: A Horizon

Structure	Frequency
1	0
2	13
3	16
4	43
5	52



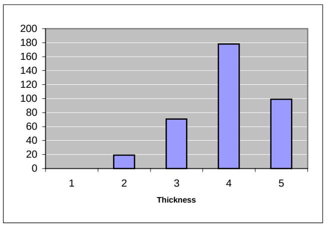
Mean	St.Dev	Min	5%	Median	95%	Max	n
4.080645	0.984405	2	2	4	5	5	124

Structure: A Horizon
Lower: 3
Estimate: 4
Upper: 5

Notes: Class 2 ratings (massive) are unusual

Structure: B Horizon

Structure	Frequency
1	0
2	19
3	71
4	178
5	99



Mean	St.Dev	Min	5%	Median	95%	Max	n
3.972752	0.819382	2	2.3	4	5	5	367

Structure: B Horizon
Lower: 3
Estimate: 4
Upper: 5

Notes: See above

Bulk Density: A Horizon

Mean	St.Dev	Min	5%	Median	95%	Max	n
0.869632	0.208081	0.524094	0.582696	0.879732	1.152486	1.334204	21

BD: A Horizon
Lower: 0.6
Estimate: 0.9
Upper: 1.2

Notes:

Bulk Density: B Horizon

Mean	St.Dev	Min	5%	Median	95%	Max	n
1.236068	0.236812	0.918169	0.977831	1.172864	1.595913	2	33

BD: B Horizon
Lower: 1.0
Estimate: 1.2
Upper: 1.6

Notes:

0.1 Bar Water Retention: A Horizon

Mean	St.Dev	Min	5%	Median	95%	Max	n
38	#DIV/0!	38	38	38	38	38	1

0.1 Bar: A Horizon
Lower:
Estimate:
Upper:

Notes: Not estimated directly (n = 1)

0.1 Bar Water Retention: B Horizon

Mean	St.Dev	Min	5%	Median	95%	Max	n
41	4.582576	37	37.3	40	45.4	46	3

0.1 Bar: B Horizon
Lower:
Estimate:
Upper:

Notes: Not estimated directly (n = 3)

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15 Bar Water Retention: A Horizon

Mean	St.Dev	Min	5%	Median	95%	Max	n
28	#DIV/0!	28	28	28	28	28	1

15 Bar: A Horizon
Lower:
Estimate:
Upper:

Notes: Not estimated directly (n = 1)

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15 Bar Water Retention: B Horizon

Mean	St.Dev	Min	5%	Median	95%	Max	n
33	#DIV/0!	33	33	33	33	33	1

15 Bar: B Horizon
Lower:
Estimate:
Upper:

Notes: Not estimated directly (n = 1)

Ks: A Horizon
Class: 9 ± 2
Range:

Highly permeable, strongly pedal and stable

Ks: B Horizon
Class: 8 ± 2
Range:

As above