

***AGRICULTURAL LAND CLASSIFICATION***

**ARCUS CONSULTANCY SERVICES**

*Sutton Bridge*



**Our Ref: SES/ACS/SB/#2**

**Date: 3<sup>rd</sup> April 2020**

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***AGRICULTURAL LAND CLASSIFICATION***

***Sutton Bridge***

A report prepared on behalf of ***Soil Environment Services*** by:

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GENERAL INFORMATION SOURCES

## 1. INTRODUCTION & METHODOLOGY

An Agricultural Land Classification (ALC) has been carried out on ~144 ha of land at Sutton Bridge (Drawing 1). The site is centred on Grid Ref. 548450,319488.

Agricultural land is classified into the following grades according to the 1988 guidelines<sup>1</sup>.

| Grade | Description                                                                                                                                                                   |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | <b>Excellent quality agricultural land</b> with no or very minor limitations to agricultural use.                                                                             |
| 2     | <b>Very good quality agricultural land</b> with minor limitations which affect crop yield, cultivation or harvesting.                                                         |
| 3a    | <b>Good quality agricultural land</b> capable of producing moderate to high yields of a narrow range of arable crops or moderate yields of a wider range of crops.            |
| 3b    | <b>Moderate quality agricultural land</b> capable of producing moderate yields of a narrow range of crops or lower yields of a wider range of crops.                          |
| 4     | <b>Poor quality agricultural land</b> with severe limitations which significantly restrict the range of crops and/or level of yields.                                         |
| 5     | <b>Very poor quality agricultural land</b> with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops. |

The survey was conducted on the 10<sup>th</sup> and 11<sup>th</sup> March 2020 and classifies the land into one or more of the above grades.

The classification includes an initial desktop investigation to examine previously mapped soil types and to note the drift and solid geology. This included consultation from a number of maps and guidance documents (General Information Sources).

The field survey consisted of point observations on a 100 m grid in this instance and generally in line with the nation grid (~5 m accuracy) and hand auger borings to a depth of 1.2 m. Pit excavations are conducted to determine sub soil structure where necessary. This data was used to map the principal soil types for determining the ALC. The soil removed during augering and pit excavations was examined in accordance with the guidelines.

Climatological data<sup>3</sup> was used to determine the overriding site limitation and for interaction with soil parameters. The ALC grade was then determined for this site and for the current survey and is detailed in Table 3.

Soil can vary considerably over short distances and hence some variation can exist in the soils not assessed between observation points compared with those at the observation points. Also, non-significant variation with horizon depths and other parameters can occur between observation points and may not necessarily be recorded for ALC purposes. Using all information available, every effort is made to assess and group soils into significantly different types for the purposes of ALC grading. Some generalisation therefore needs to take place in order to group, categorise and map the soil types at an appropriate resolution.

## 2. SITE CONDITIONS

### 2.1. Climate and flooding

The climatological data for the site centre is detailed in Table 1.

| <b>Table 1</b>                                |                  |              |
|-----------------------------------------------|------------------|--------------|
| <b>Climatological information<sup>3</sup></b> |                  |              |
| <b>Factor</b>                                 | <b>Units</b>     | <b>Value</b> |
| Altitude AOD                                  | m                | 4            |
| Accumulated temperature                       | day°C (Jan-June) | 1520.8       |
| Average Annual Rainfall                       | mm               | 605.0        |
| Field Capacity Days                           | days             | 109.8        |
| Moisture Deficit Wheat                        | mm               | 126.5        |
| Moisture Deficit Potatoes                     | mm               | 124.4        |

The site is mapped as having some minor localised surface water flood risk and this is noted in small patches cross the site. In general a 1-3% Medium risk of flood is recorded but significant flood defences result in no significant risk with respect to ALC grading.

### 2.2. Geology and drift

***No drift geology recorded for the site.***

#### ***Bedrock geology***

*1:50 000 scale superficial deposits description: Tidal Flat Deposits - Clay And Silt. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by shorelines (U).*

#### ***Bedrock geology***

*1:50 000 scale bedrock geology description: Amptill Clay Formation - Mudstone. Sedimentary Bedrock formed approximately 157 to 164 million years ago in the Jurassic Period. Local environment previously dominated by shallow seas.*

### **2.3. Topography**

The slope measured on site was minimal and gradient will not limit the ALC Grade for the site. No significant variation in microrelief was noted.

### **2.4. Current agriculture or other land use**

On the survey dates the site had recently been ploughed in places and sown with a wheat crop or was being harvested for vegetables.

### 3 SOIL CHARACTERISTICS

#### 3.1. Mapped soil types

The soils on site have previously been mapped<sup>6</sup> as either the Greatstone or Wisbech series which are deep permeable stoneless soils with the Wisbech noted to have a more silty texture than the Greatstone.

#### 3.2. Description of surveyed soil types

The soils noted on site, in general, very much match those previously mapped with the main difference being the topsoil texture. Slight variations existed within the soil types.

##### Photographs of the main profiles

**Boring 10**

**Type 1**



**Boring 96**

**Type 2**



**Boring 117**

**Type 2**



Profile data specifically significant for ALC grading is listed in Appendix A. A summary of the features of the soil type/s are listed in Table 2 and observation point locations are shown within Drawing 1.

| <b>Table 2. Soil Type descriptions</b>                                                                                                                                                                                                                                     |                                                                                                             |                                                                                                                                              |        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Profile<br>Description                                                                                                                                                                                                                                                     | Soil types                                                                                                  |                                                                                                                                              |        |
|                                                                                                                                                                                                                                                                            | Type 1                                                                                                      | Type 2                                                                                                                                       | Type 3 |
| Horizon 1<br>(topsoil)                                                                                                                                                                                                                                                     | 0-35 cm Dark yellowish brown (10YR3/4) stoneless fine loamy sand, very calcareous.                          | 0-40 cm Dark brown (7.5YR3/2) stoneless silt loam, very calcareous.                                                                          |        |
| Horizon 2<br>(subsoil 1)                                                                                                                                                                                                                                                   | 35-100 cm Pale brown (10YR6/3) stoneless fine loamy sand, single grain, few faint mottles, very calcareous. | 40-100 cm Brown (7.5YR5/3) stoneless fine loamy sand, single grain, common faint mottles, very calcareous.                                   |        |
| Horizon 3<br>(subsoil 2)                                                                                                                                                                                                                                                   | 100-120 cm Brown (10YR5/3) stoneless fine loamy sand, single grain, common faint mottles, very calcareous.  | 100-120 cm Dark brown (7.5YR3/3) to grey (Gley15N) in places stoneless fine loamy sand, single grain, common faint mottles, very calcareous. |        |
| Wetness Class                                                                                                                                                                                                                                                              | I                                                                                                           | I                                                                                                                                            |        |
| Moisture Balance -<br>Wheat                                                                                                                                                                                                                                                | 50.0                                                                                                        | 71.5                                                                                                                                         |        |
| Moisture Balance -<br>Potatoes                                                                                                                                                                                                                                             | -8.9                                                                                                        | 12.6                                                                                                                                         |        |
| Survey points (Drawing 1) and soil types:<br>Borings/ Trial Pits<br>Type 1 soil = <br>Type 2 soil =  |                                                                                                             |                                                                                                                                              |        |

## 4. AGRICULTURAL LAND CLASSIFICATION

### 4.1. National 1:250 000 map or previous survey ALC grading

Grading on the MAFF 1:250 000 map indicates the site is mapped as **ALC Grade 1**. Previous detailed surveys just north of the site have noted Grade 2 bordering the centre north of the site.

### 4.2. Current grading

This survey has resulted in an Agricultural Land Classification of the following grades (Drawing 1):

| Table 3. ALC gradings and limitations |      |      |                                  |
|---------------------------------------|------|------|----------------------------------|
| Grade                                 | Area |      | Limitation                       |
|                                       | ha.  | %    |                                  |
| 1                                     | 48.0 | 33.3 | No limitations                   |
| 2                                     | 96.0 | 66.7 | Slight droughtiness for potatoes |
| 3a                                    |      |      |                                  |
| 3b                                    |      |      |                                  |
| 4                                     |      |      |                                  |
| 5                                     |      |      |                                  |
| Non-agricultural land                 |      |      |                                  |
| Total                                 | 144  | 100% |                                  |

#### ***Type 1 soils – No limitations***

The lack of any significant limitations across the area results in **ALC Grade 1**.

#### ***Type 2 soils – Droughtiness Limitation***

The combination of the profile textures combined with climatic factors results in **ALC Grade 2** for Type 2 soils due to the moisture balance of -8.9 and hence slight droughtiness for potatoes..

# **DRAWING 1**

**ALC Grade**

# Key

- ALC Grades
- Grade 1
  - Grade 2
  - Grade 3a
  - Grade 3b
  - Grade 4
  - Grade 5
  - Non agricultural land

● Observation point

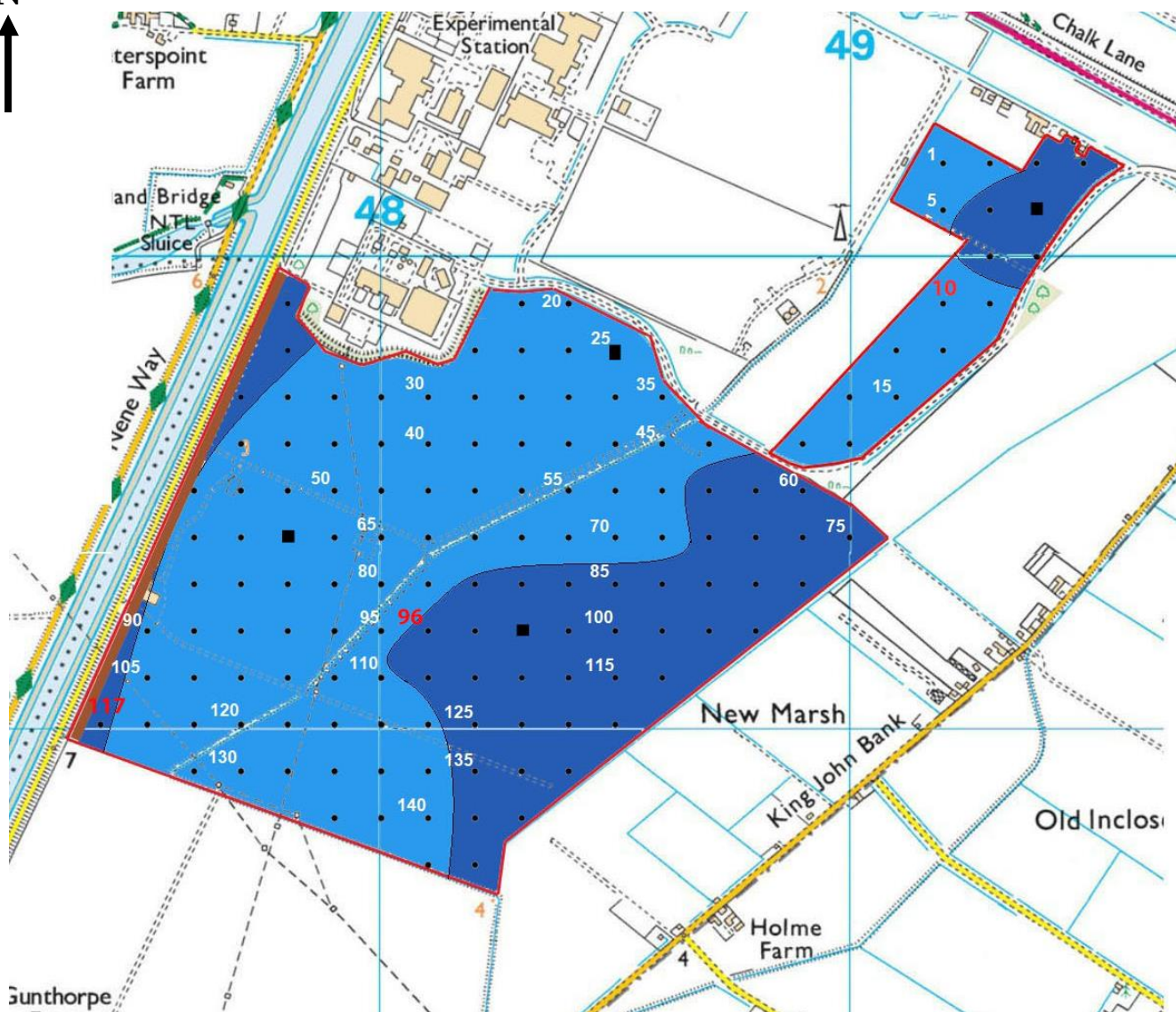
## Soil Environment Services

Drawing Title: ALC Grade

Drawing No.: 1

Scale: NA

Date: 03/03/2020



# **APPENDIX A**

## **Soil profile data**

| Obs point | Base depth (cm) | Text. | Col.    | Motts. %/ depth | Stns % | Grad. > 7° | Struct/ Other | Obs point | Base depth (cm) | Text. | Col.    | Motts. %/ depth | Stns % | Slope > 7° | Struct/ Other |
|-----------|-----------------|-------|---------|-----------------|--------|------------|---------------|-----------|-----------------|-------|---------|-----------------|--------|------------|---------------|
|           |                 |       |         |                 |        |            |               |           |                 |       |         |                 |        |            |               |
| 1         | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 16        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 2         | 45              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 17        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 3         | 45              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 18        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 4         | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 19        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 5         | 30              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 20        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 6         | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 21        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 7         | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 22        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 8         | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 23        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 9         | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 24        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 10        | 50              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 25        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 11        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 26        | 42              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 12        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 27        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 13        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 28        | 40              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 14        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 29        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 15        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 30        | 32              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |

| Obs point | Base depth (cm) | Text. | Col.   | Motts. %/ depth | Stns % | Grad. > 7° | Struct/ Other | Obs point | Base depth (cm) | Text. | Col.    | Motts. %/ depth | Stns % | Slope > 7° | Struct/ Other |
|-----------|-----------------|-------|--------|-----------------|--------|------------|---------------|-----------|-----------------|-------|---------|-----------------|--------|------------|---------------|
|           |                 |       |        |                 |        |            |               |           |                 |       |         |                 |        |            |               |
| 31        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 46        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 32        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 47        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 33        | 32              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 48        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 34        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 49        | 30              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 35        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 50        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 36        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 51        | 36              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 37        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 52        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 38        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 53        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 39        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 54        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 40        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 55        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 41        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 56        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 42        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 57        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 43        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 58        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 44        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 59        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 0               | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 45        | 35              | LFS   | 10YR44 | 0               | 0      | na         | V Calc        | 60        | 45              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63 | 5/50            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53 | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |

| Obs point | Base depth (cm) | Text. | Col.    | Motts. %/ depth | Stns % | Grad. > 7° | Struct/ Other | Obs point | Base depth (cm) | Text. | Col.    | Motts. %/ depth | Stns % | Slope > 7° | Struct/ Other |
|-----------|-----------------|-------|---------|-----------------|--------|------------|---------------|-----------|-----------------|-------|---------|-----------------|--------|------------|---------------|
|           |                 |       |         |                 |        |            |               |           |                 |       |         |                 |        |            |               |
| 61        | 40              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 76        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 62        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 77        | 30              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 63        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 78        | 30              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 64        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 79        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 65        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 80        | 40              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 66        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 81        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 67        | 40              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 82        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 5/55            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/40            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | GLE1 5N | 10/100          | 0      |            | V Calc        |
| 68        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 83        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 69        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 84        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 70        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 85        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 71        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 86        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 72        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 87        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 73        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 88        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 74        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 89        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 75        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 90        | 40              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |

| Obs point | Base depth (cm) | Text. | Col.    | Motts. %/ depth | Stns % | Grad. > 7° | Struct/ Other | Obs point | Base depth (cm) | Text. | Col.    | Motts. %/ depth | Stns % | Slope > 7° | Struct/ Other |
|-----------|-----------------|-------|---------|-----------------|--------|------------|---------------|-----------|-----------------|-------|---------|-----------------|--------|------------|---------------|
|           |                 |       |         |                 |        |            |               |           |                 |       |         |                 |        |            |               |
| 91        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 106       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 92        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 107       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 93        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 108       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 94        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 109       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 95        | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 110       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 96        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 111       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/40            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | GLE1 5N | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 97        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 112       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 98        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 113       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 99        | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 114       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 100       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 115       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 101       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 116       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 102       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 117       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 103       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 118       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 104       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 119       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 105       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 120       | 40              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 5/50            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |

| Obs point | Base depth (cm) | Text. | Col.    | Motts. %/ depth | Stns % | Grad. > 7° | Struct/ Other | Obs point | Base depth (cm) | Text. | Col.    | Motts. %/ depth | Stns % | Slope > 7° | Struct/ Other |
|-----------|-----------------|-------|---------|-----------------|--------|------------|---------------|-----------|-----------------|-------|---------|-----------------|--------|------------|---------------|
|           |                 |       |         |                 |        |            |               |           |                 |       |         |                 |        |            |               |
| 121       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 136       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 122       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 137       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 123       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 138       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 124       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 139       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 125       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 140       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 126       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 141       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 127       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 142       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 128       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 143       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |
| 129       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 144       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |
| 130       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 145       |                 |       |         |                 |        |            |               |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
| 131       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 146       |                 |       |         |                 |        |            |               |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
| 132       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 147       |                 |       |         |                 |        |            |               |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
| 133       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 148       |                 |       |         |                 |        |            |               |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
| 134       | 35              | LFS   | 10YR44  | 0               | 0      | na         | V Calc        | 149       |                 |       |         |                 |        |            |               |
|           | 90              | LFS   | 10YR63  | 0               | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
|           | 120             | LFS   | 10YR53  | 10/90           | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
| 135       | 40              | ZL    | 7.5YR32 | 0               | 0      | na         | V Calc        | 150       |                 |       |         |                 |        |            |               |
|           | 100             | LFS   | 7.5YR53 | 5/60            | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |
|           | 120             | LFS   | 7.5YR33 | 10/100          | 0      |            | V Calc        |           |                 |       |         |                 |        |            |               |

## GENERAL INFORMATION SOURCES

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