Field Indicators of Hydric Soils of the Mid-Atlantic Region

USDA-NRCS. 2006. Field indicators of hydric soils in the United States, version 6.0. G.W. Hurt, P.M. Whited, and R.F. Pringle (ed.). USDA-NRCS, in cooperation with the Natl. Tech. Comm. for Hydric Soils, Fort Worth, TX, USA.

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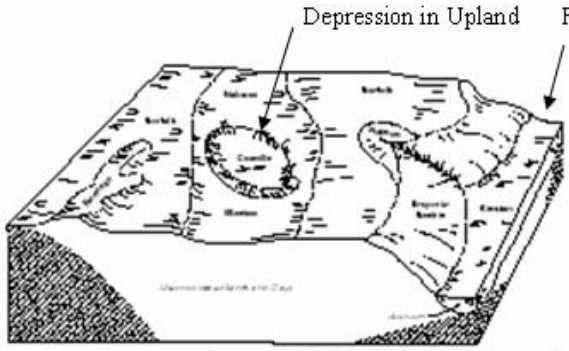
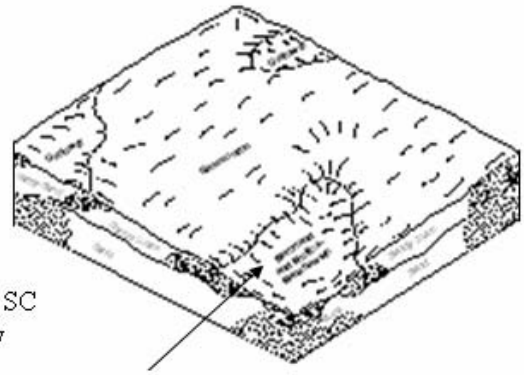
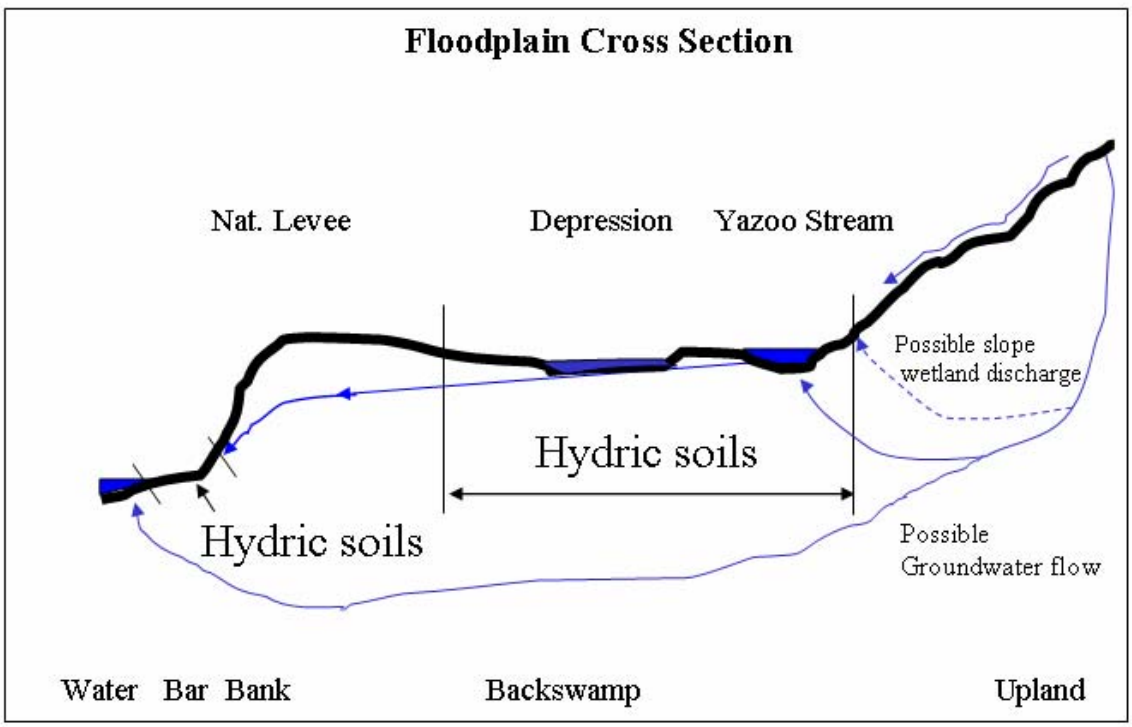




These two diagrams above (left) from the Marlboro Co., SC and (right) from the Cape May, NJ on-line soil survey http://soils.usda.gov/soil_survey/surveys/main.htm



Landscape Diagrams

Using the Indicators

When an indicator describes two different morphologic scenarios that meet the qualifications, they have been separated into Case A and Case B to simplify the charts.

When an indicators requires properties in two or more layers, the layers are numbered separately from the top to help clarify the definition.

The presence of one of these field indicators is a “field positive” proof that the hydric soil definition has been met. There are additional hydric soils, some with atypical situations (human disturbance or recent deposition) and problem parent materials that do not have any of the approved indicators. Those must be tested with the hydric soil technical standard.

Genetic soil horizons have unique properties and names, such as A, E, Btg. The indicators and layers mentioned here may be made up of adjacent but separate genetic soil horizons, or they may be subdivisions of one genetic soil horizon, or combinations of two indicator layers that are each too thin to qualify on their own.

Sometimes hydric soil indicators are covered by recent “fill” or “sediment” that has thickness and color limits.

Depth measurement begins at the mineral soil surface for most soils, but at the top of a layer of organic material if the indicator requires an organic surface layer (such as muck).

A and E horizons must have $\geq$ 2% distinct redox concentrations and value $\geq$ 4 and chroma $\leq$ 2 colors to be considered reduced matrix.

Fe/Mn nodules and concretions are not considered hydric soil indicators, nor are redoximorphic features that are considered “relict” from former climates and processes.

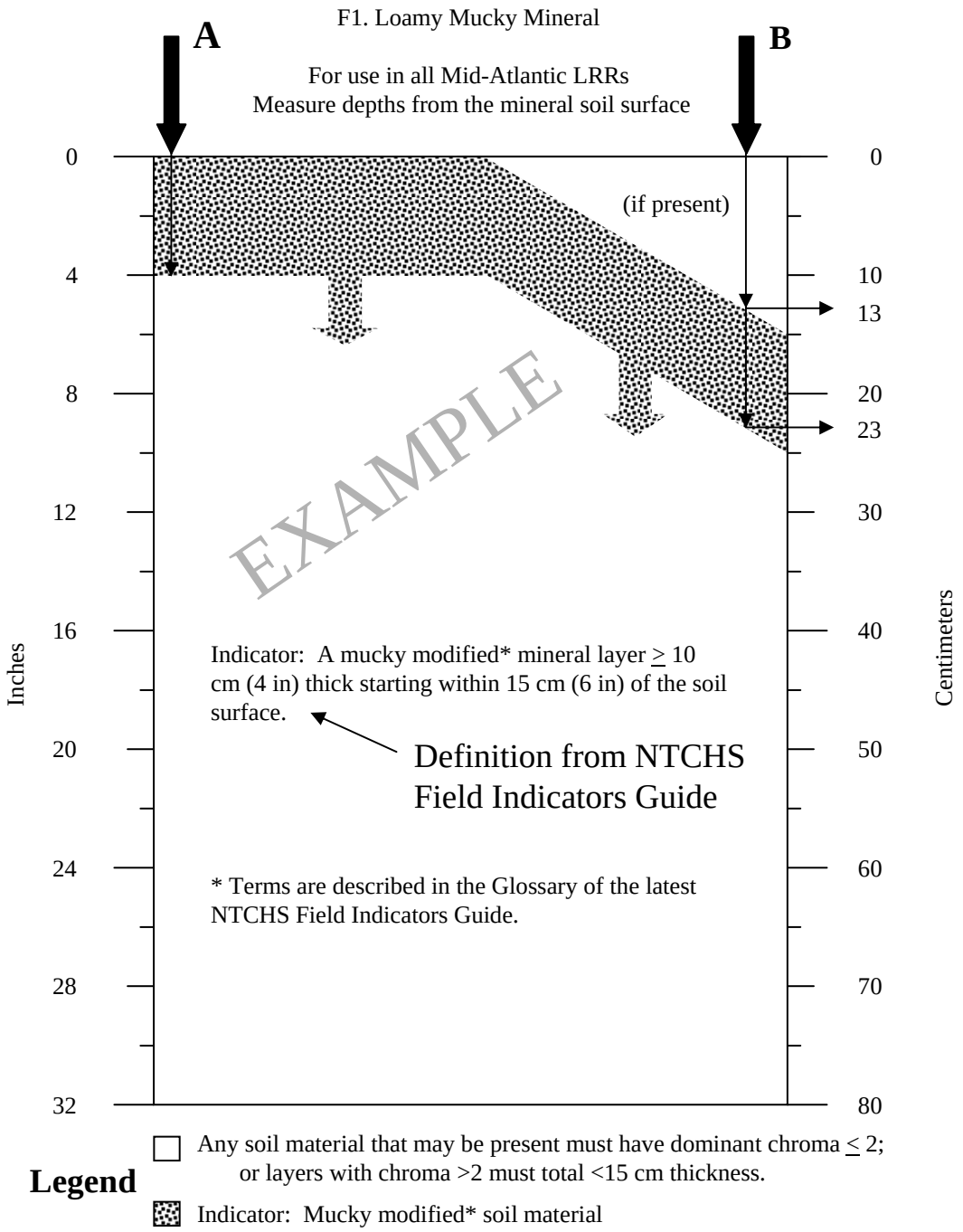
Tree-tip pits (see glossary) are not to be considered as closed depressions for indicators.

Some soils described by test indicators meet the hydric soil definition but do not meet approved conventional indicators of hydric soils, must be tested with the hydric soil technical standard.

Glauconitic parent materials, recently-oxidized acid-sulfide material, and recently-dewatered dredged materials may produce false positive hydric soil indicators.

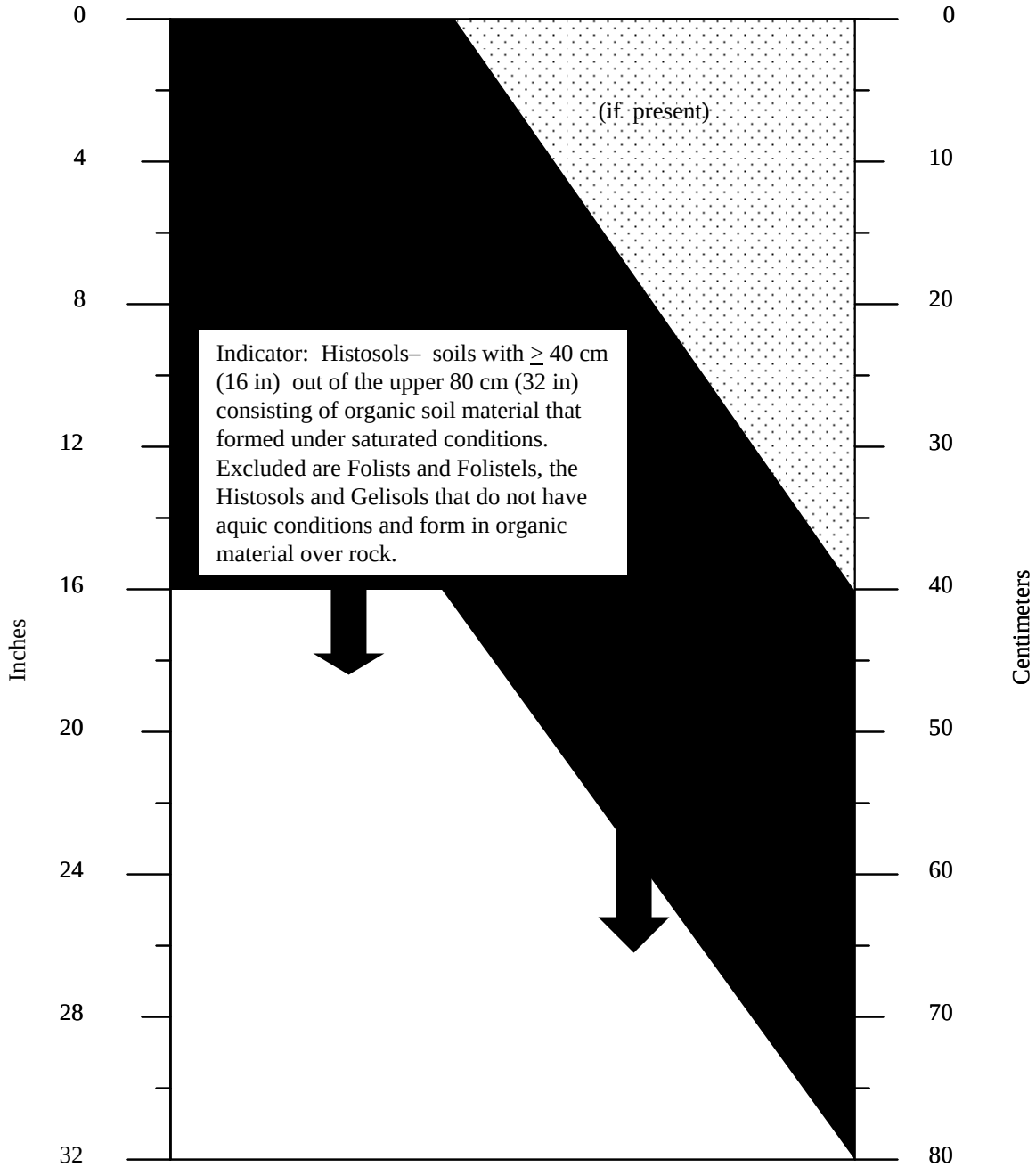
Guide to Using these Charts

1. Read directly down at any point across the top axis to determine the requirements
2. At **Point A** below, the indicator must start at the surface and continue to 10 cm
3. At **Point B** below, the indicator must start at 13 cm and continue to 23 cm
4. Layers with minimum or maximum thickness limits are drawn to scale (no arrows)
5. Layers with no maximum thickness have extension arrows



A1. Histosol

For use in all Mid-Atlantic LRRs
Measure depths from the soil surface



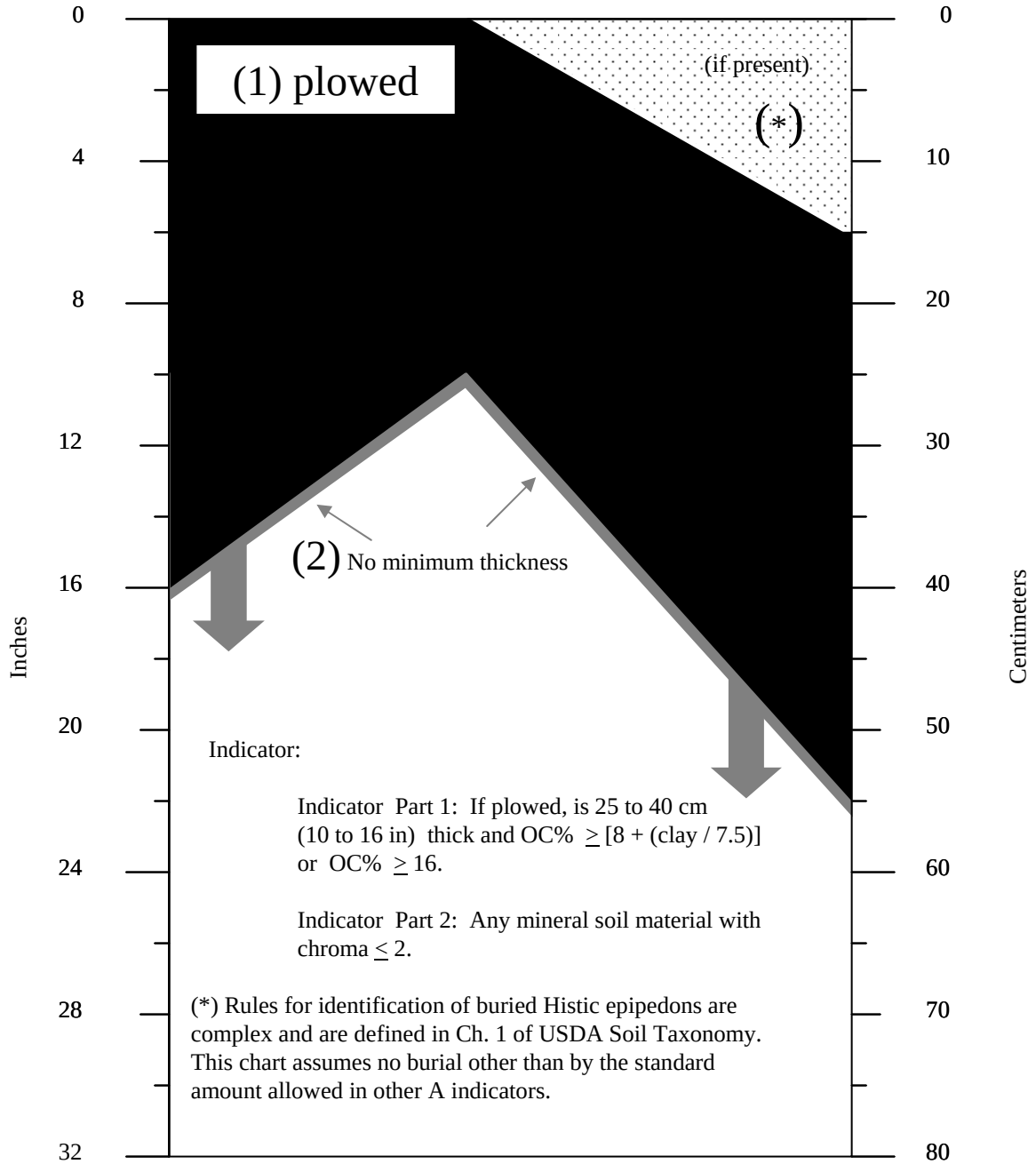
Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <15 cm thickness

Indicator: 50% or more of the volume is layer(s) of organic soil material that formed under saturated conditions. Reference: USDA Soil Taxonomy.

Any material

A2. Histic Epipedon Case A

For use in all Mid-Atlantic LRRs
Measure depths from the soil surface



Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <15 cm thickness. See (*) above.

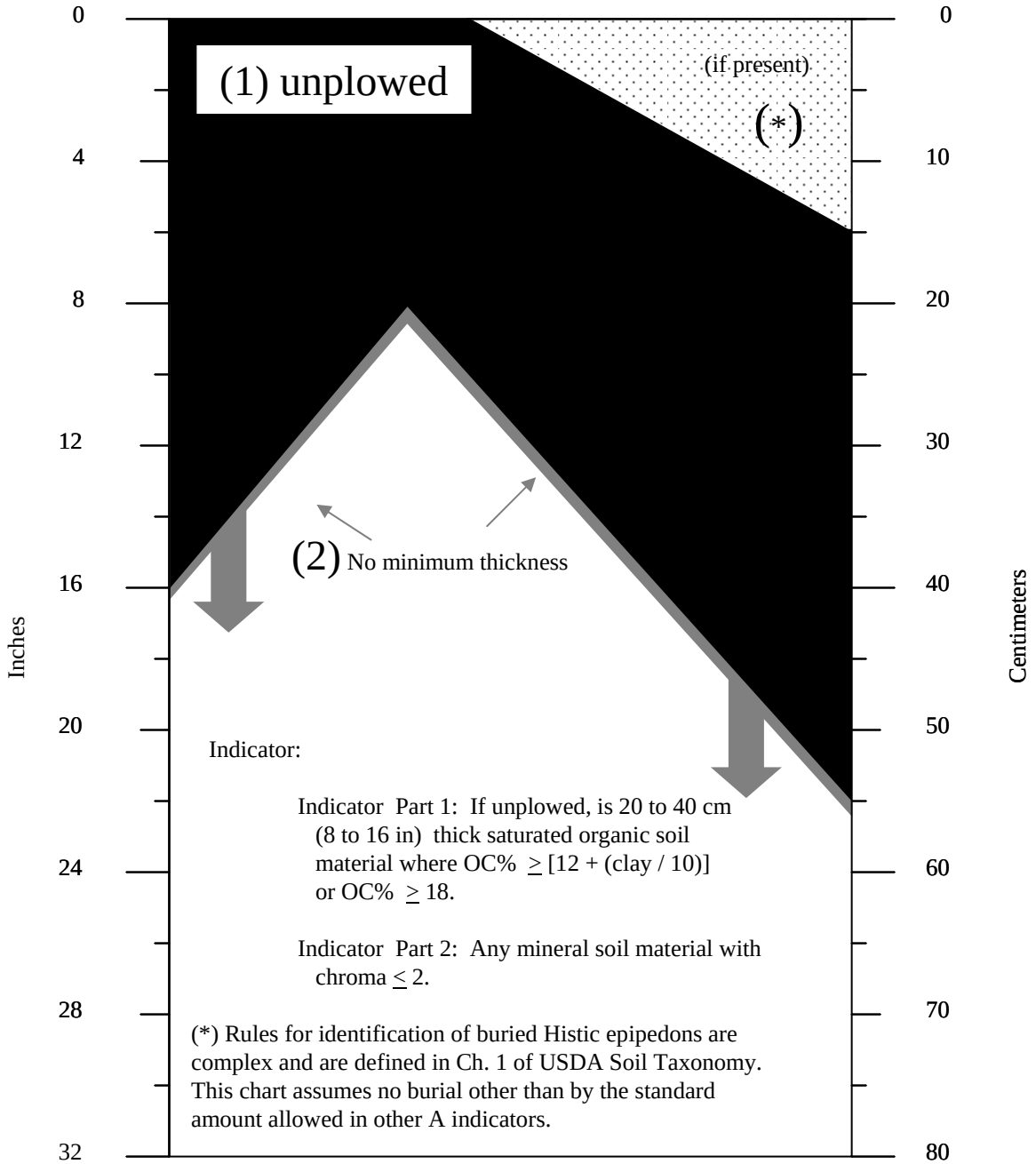
Indicator Part 1: Plowed Histic epipedon with saturated conditions. If this indicator is ≥ 40 cm thick, it qualifies for indicator A1 instead. Reference: USDA Soil Taxonomy

Indicator Part 2: Any mineral soil material with chroma ≤ 2.

Any material except organic material.

A2. Histic Epipedon Case B

For use in all Mid-Atlantic LRRs
Measure depths from the soil surface



Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma > 2 must total <15 cm thickness. See (*) above.

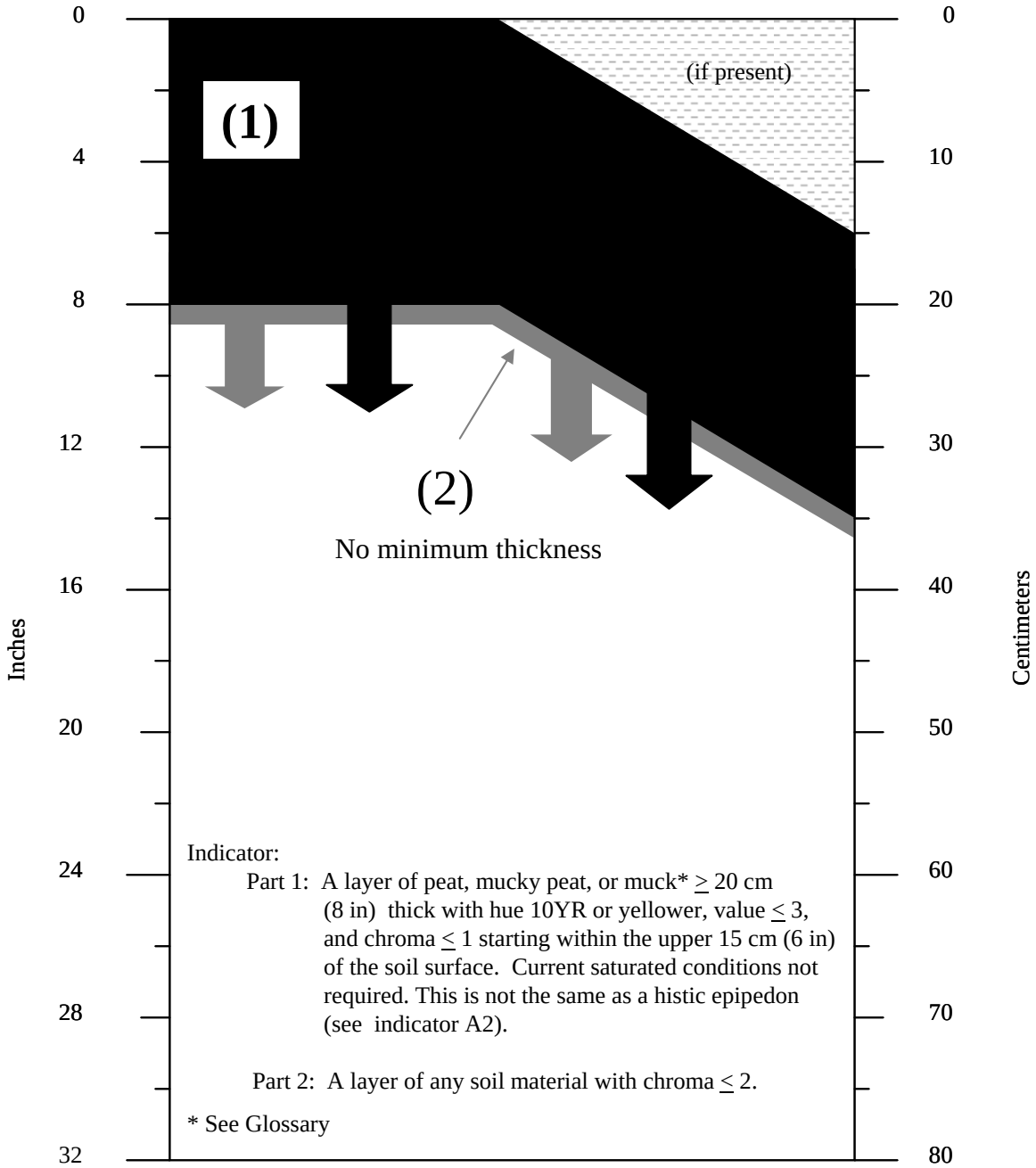
Indicator Part 1: Unplowed Histic epipedon with saturated conditions. If this indicator is ≥ 40 cm thick, it qualifies for indicator A1 instead. Reference: USDA Soil Taxonomy

Indicator Part 2: Any mineral soil material with chroma ≤ 2.

Any material except organic material.

A3. Black Histic

For use in all Mid-Atlantic LRRs
Measure depths from the soil surface



Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <15 cm thickness.

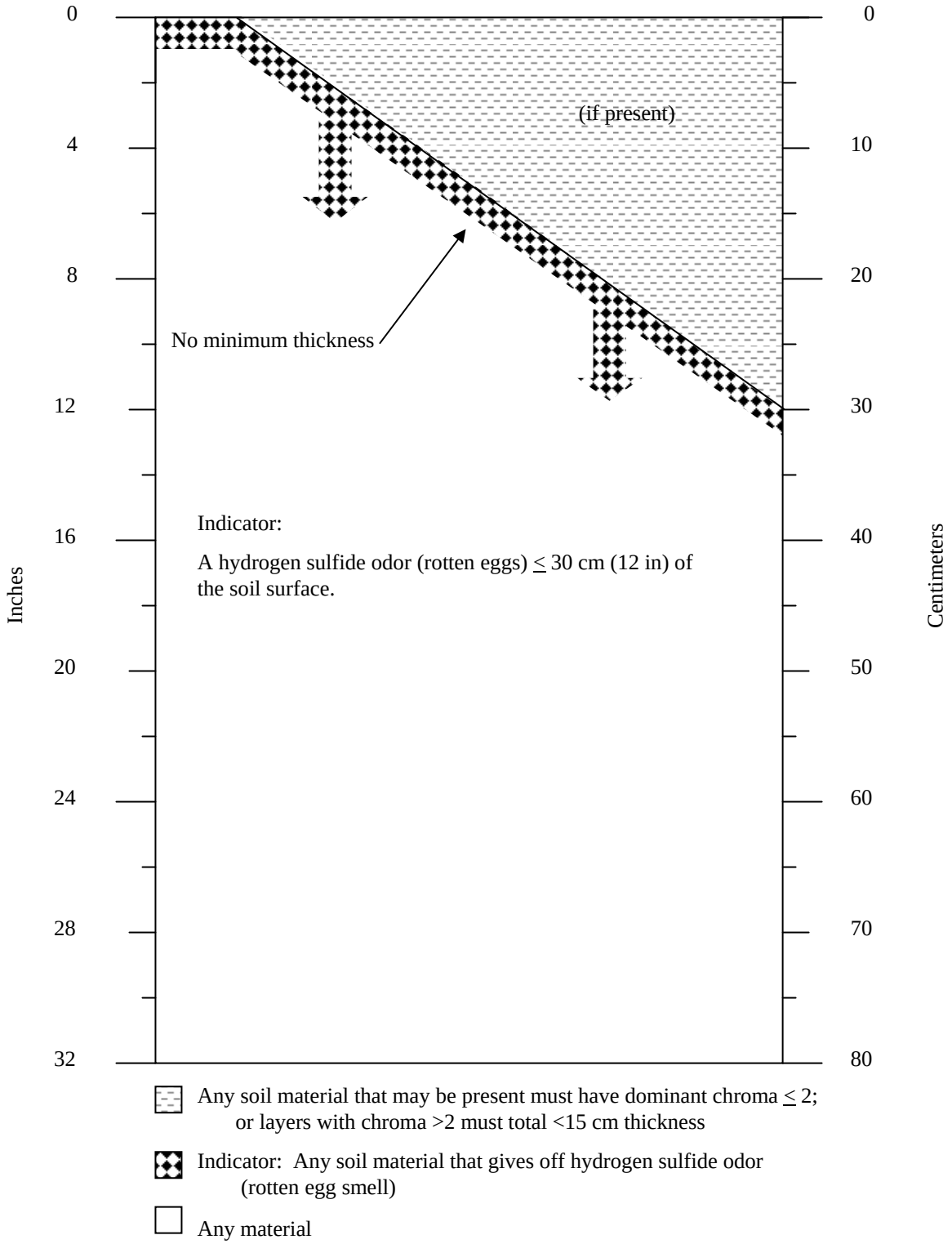
Indicator Part 1: Peat, mucky peat, or muck* (saturated conditions not required). This is not the same as a histic epipedon (see indicator A2).

Indicator Part 2: Any soil material with chroma ≤ 2.

Any material

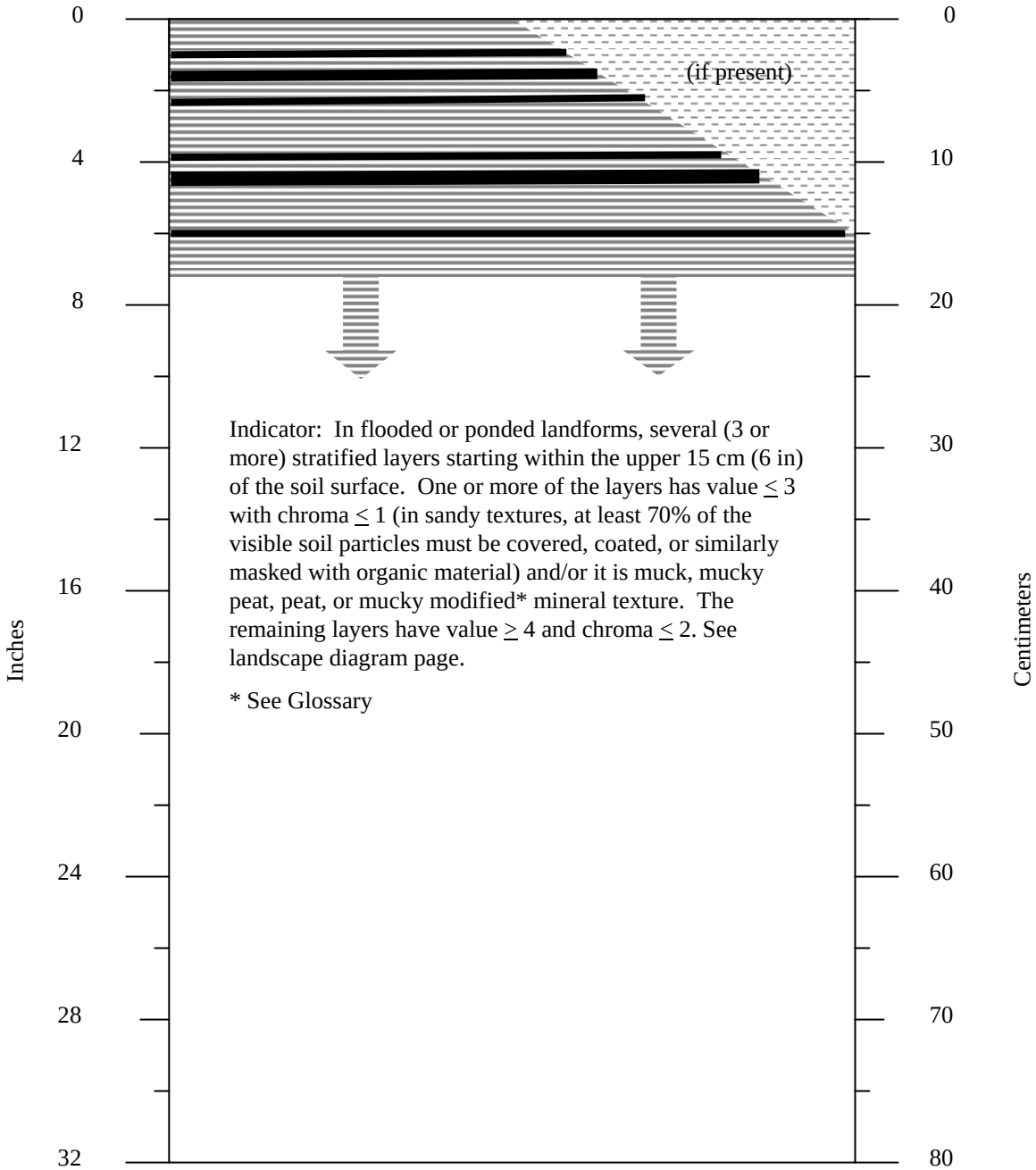
A4. Hydrogen Sulfide

For use in all Mid-Atlantic LRRs
Measure depths from the soil surface



A5. Stratified Layers

For use in all Mid-Atlantic LRRs
Measure depths from the soil surface



Indicator: In flooded or ponded landforms, several (3 or more) stratified layers starting within the upper 15 cm (6 in) of the soil surface. One or more of the layers has value ≤ 3 with chroma ≤ 1 (in sandy textures, at least 70% of the visible soil particles must be covered, coated, or similarly masked with organic material) and/or it is muck, mucky peat, peat, or mucky modified* mineral texture. The remaining layers have value ≥ 4 and chroma ≤ 2. See landscape diagram page.

* See Glossary

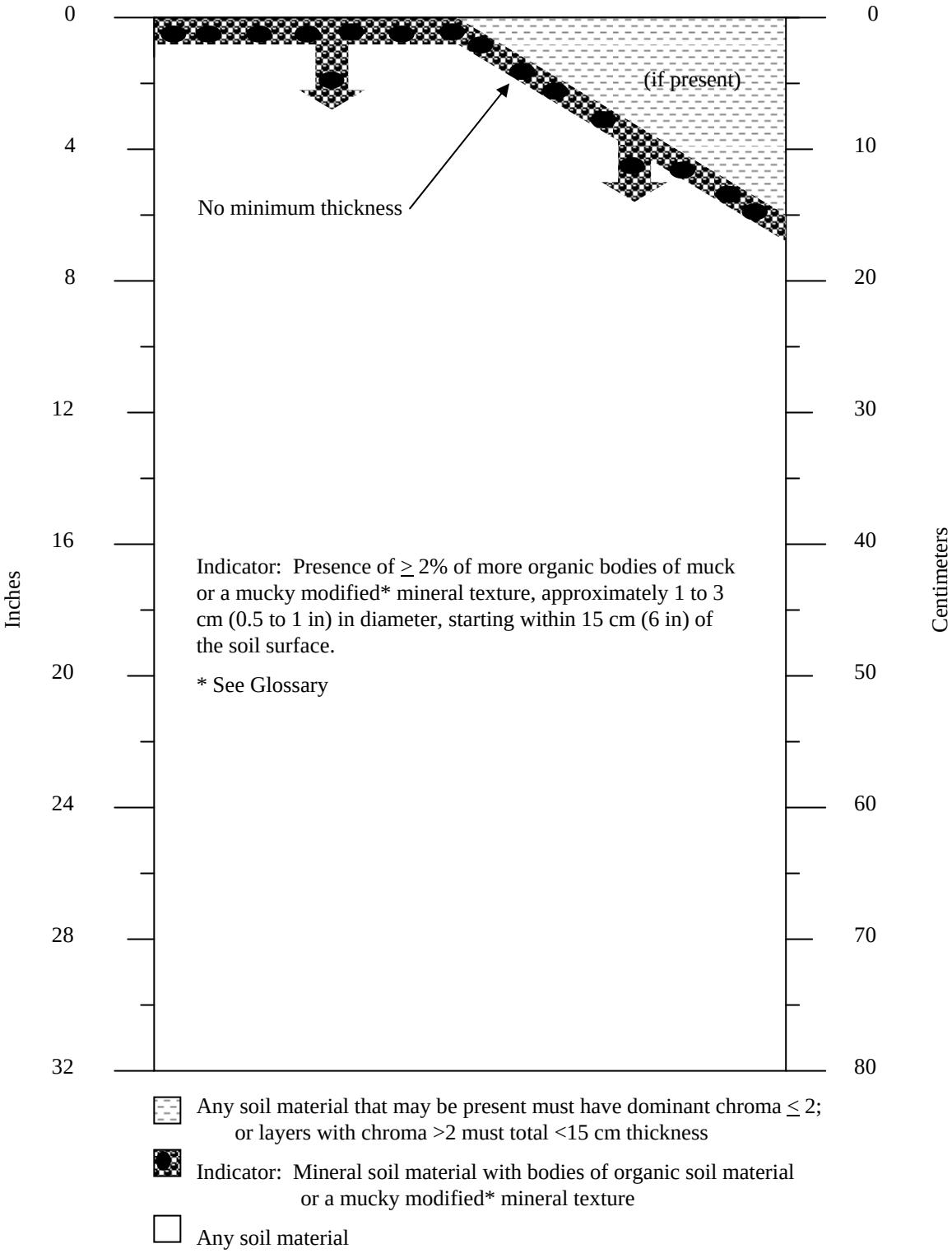
Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <15 cm thickness

Indicator: Mineral soil material with value ≤ 3 with chroma ≤ 1 (in sandy textures, at least 70% of the visible soil particles must be covered, coated, or similarly masked with organic material) and/or it is muck, mucky peat, or mucky mineral material

Any material

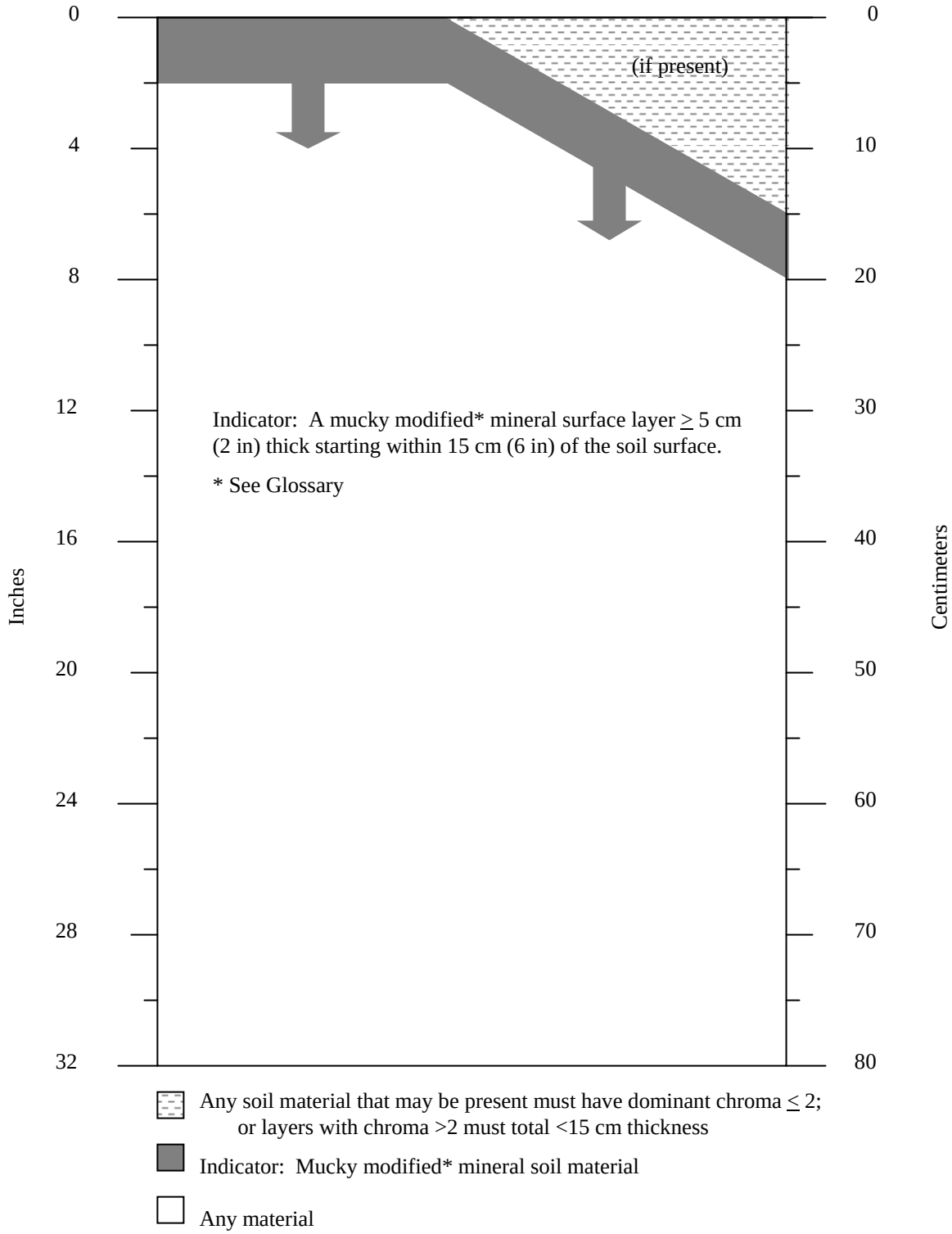
A6. Organic Bodies

For use in LRRs P and T
Measure depths from the mineral soil surface



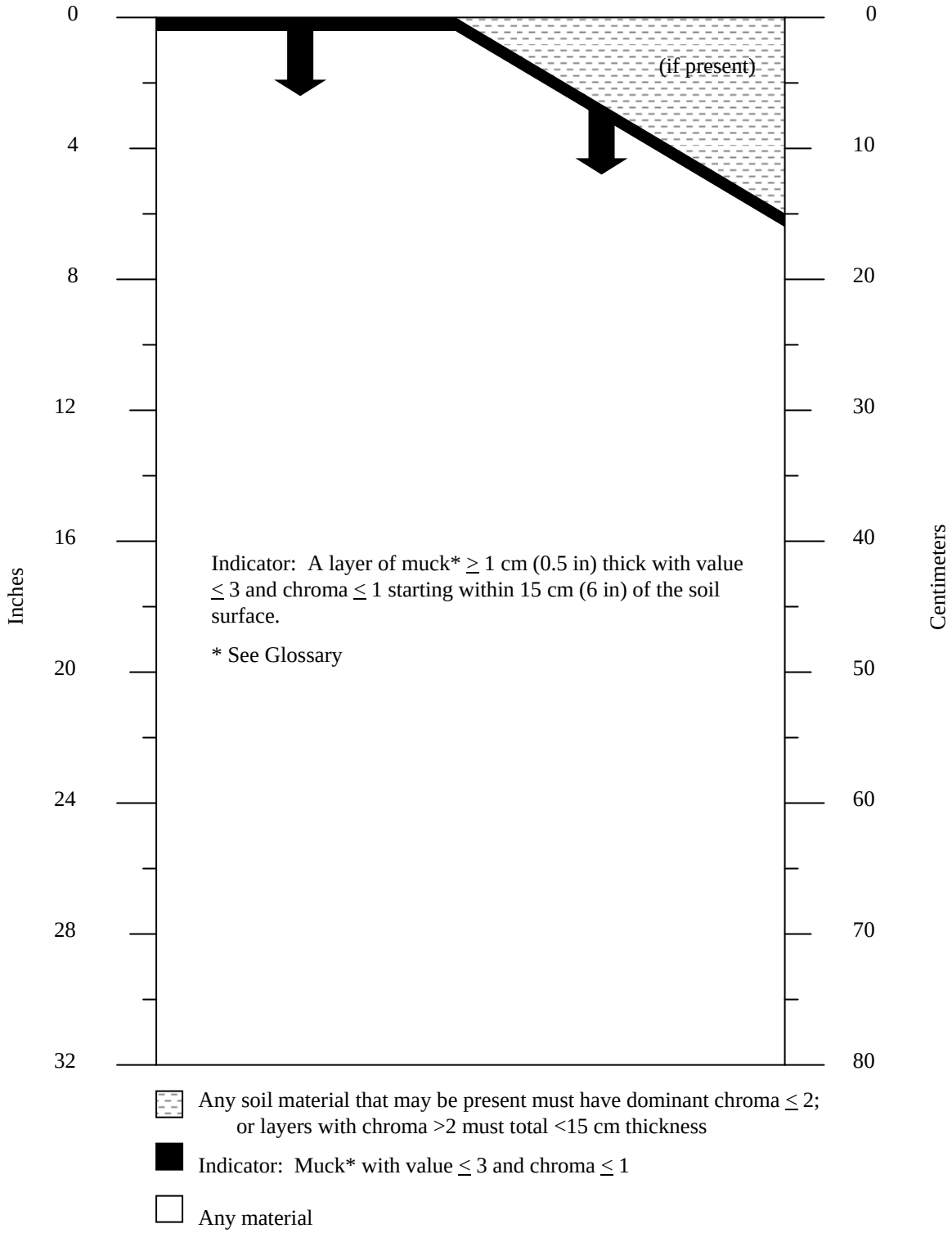
A7. 5cm Mucky Mineral

For use in LRRs P and T
Measure depths from the mineral soil surface



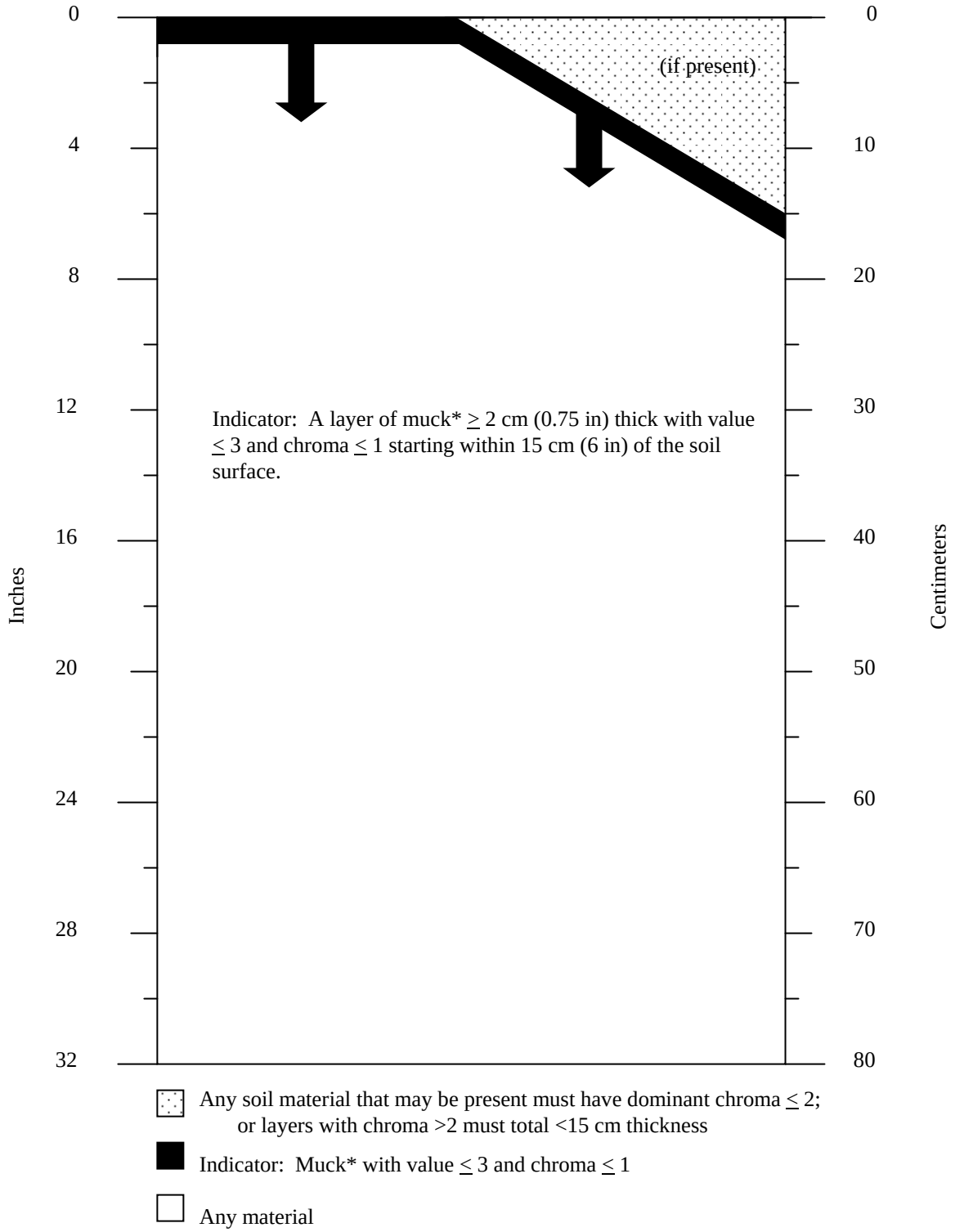
A9. 1 cm Muck

For use in LRRs P and T
Measure depths from the soil surface



A10. 2 cm Muck

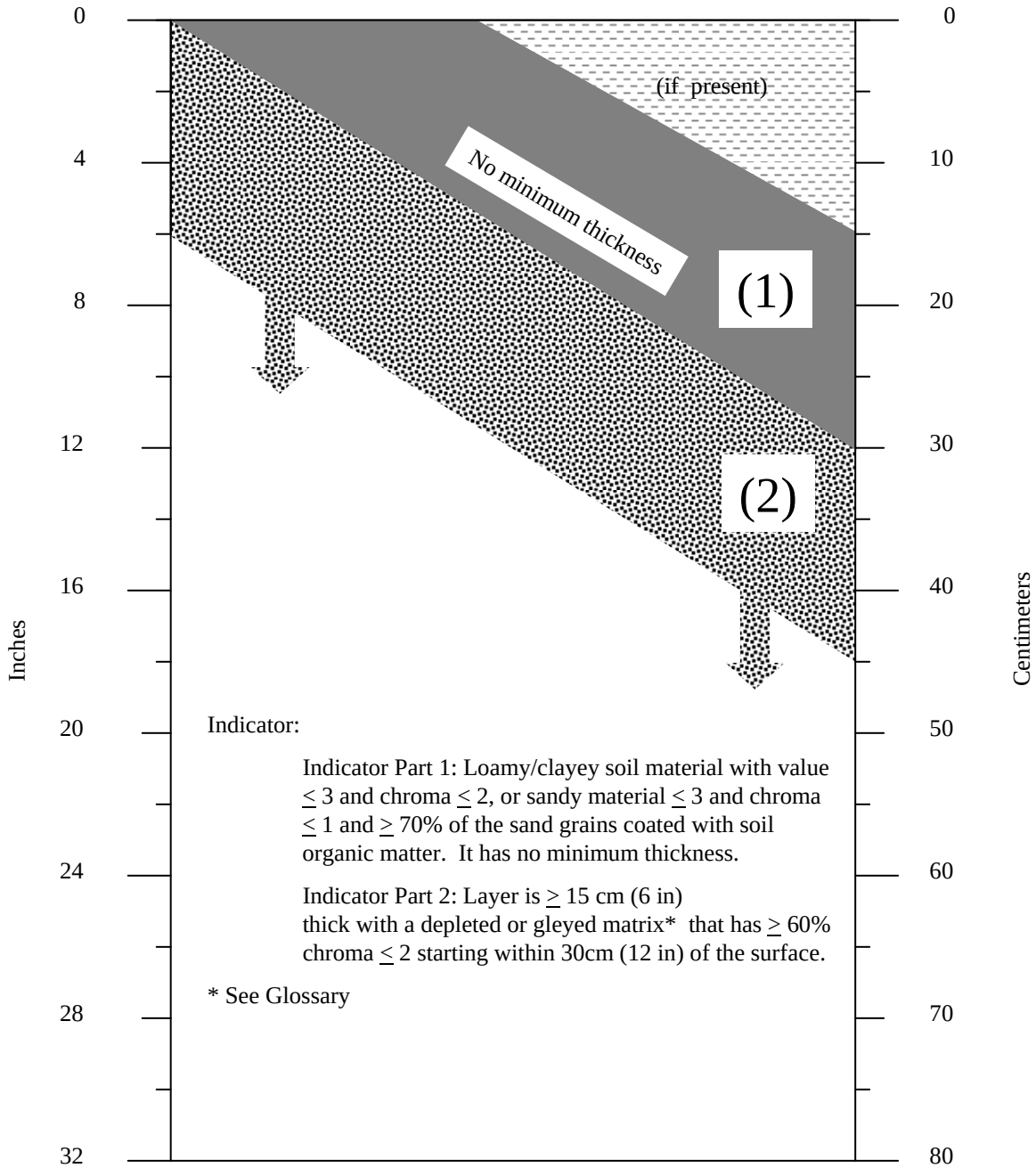
For use in LRR N; for testing in LRR L, R, S
Measure depths from the soil surface



A11. Depleted Below Dark Surface (Formerly F4) Case A

For use in all Mid-Atlantic LRRs

Measure depths from the muck or mineral soil surface



Indicator Part 1 : Loamy/clayey soil material with value ≤ 3 and chroma ≤ 2, or sandy material ≤ 3 and chroma ≤ 1 and ≥ 70% of sand grains coated with soil organic matter.

Indicator Part 2 : Soil material with a depleted or gleyed matrix* that has ≥ 60% volume chroma ≤ 2.

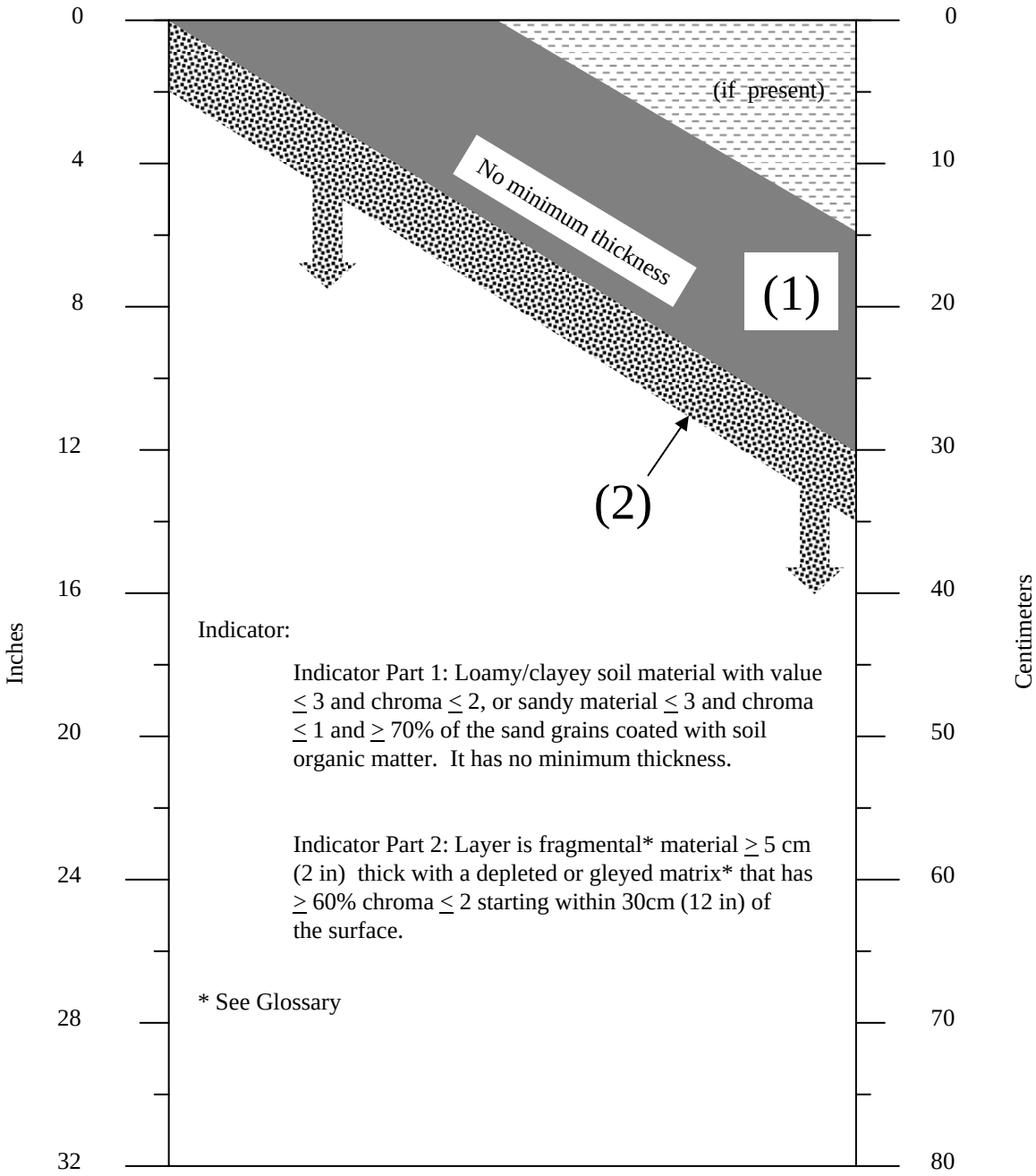
Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <15 cm thickness

Any material

A11. Depleted Below Dark Surface (Formerly F4) Case B

For use in all Mid-Atlantic LRRs

Measure depths from the muck or mineral soil surface



Indicator Part 1 : Loamy/clayey soil material with value ≤ 3 and chroma ≤ 2, or sandy material ≤ 3 and chroma ≤ 1 and ≥ 70% of sand grains coated with soil organic matter.

Indicator Part 2 : Fragmental* material with a depleted or gleyed matrix* that has ≥ 60% volume chroma ≤ 2.

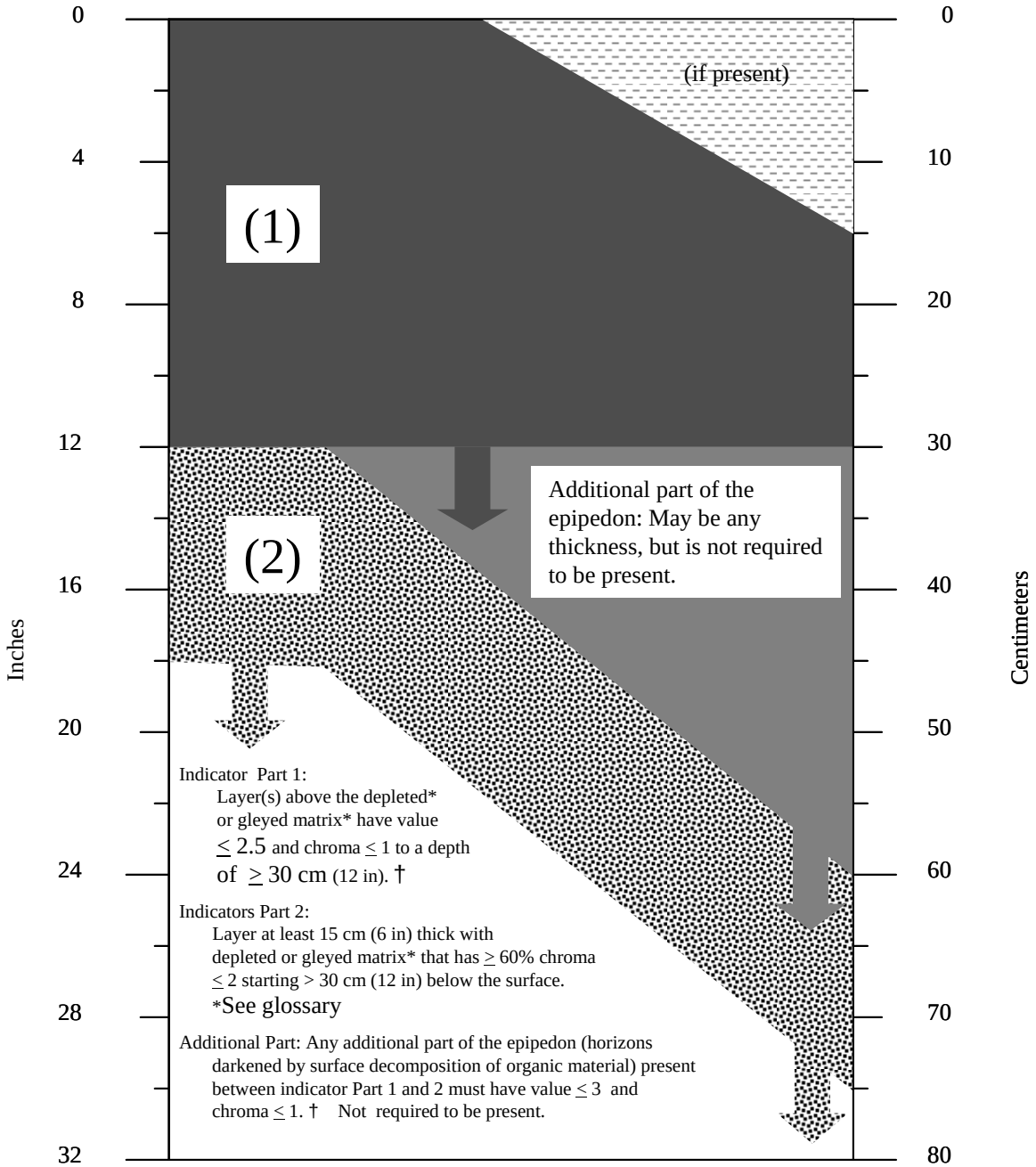
Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <15 cm thickness

Any material

A12. Thick Dark Surface (Formerly F5 and TF7)

For use in all Mid-Atlantic LRRs

Measure depths from the muck or mineral soil surface



Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <15 cm thickness

Indicator Part 1: Mineral soil material with value ≤ 2.5 and value ≤ 1. †

Additional Part: Soil material (if present) darkened by organic material with value ≤ 3 and chroma ≤ 1. †

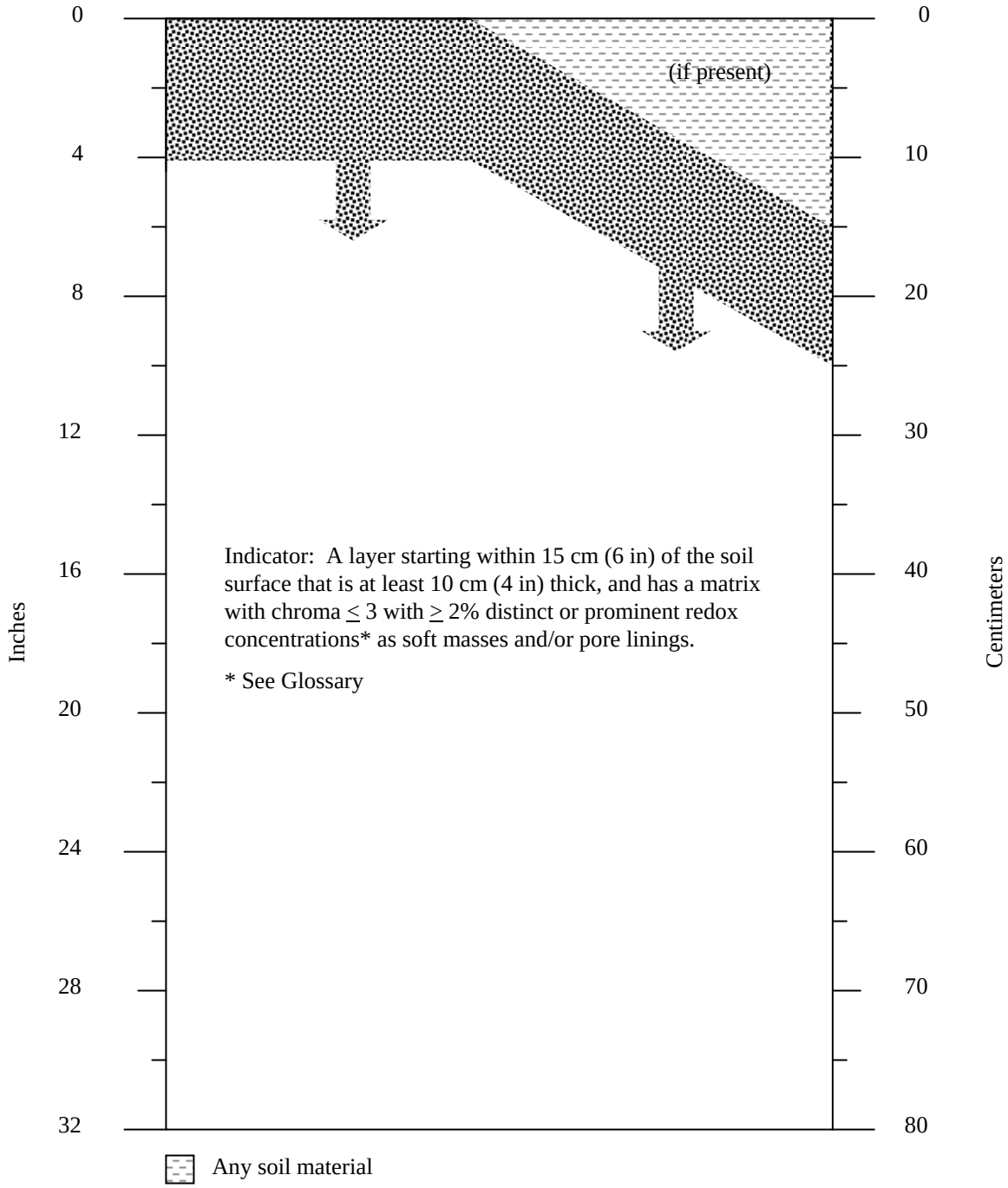
Indicator Part 2: Soil material with a depleted matrix* that occupies ≥ 60% of layer or a gleyed* matrix

Any material

† If sandy textured, must have ≥ 70% of the grains covered, coated, or masked with organic material.

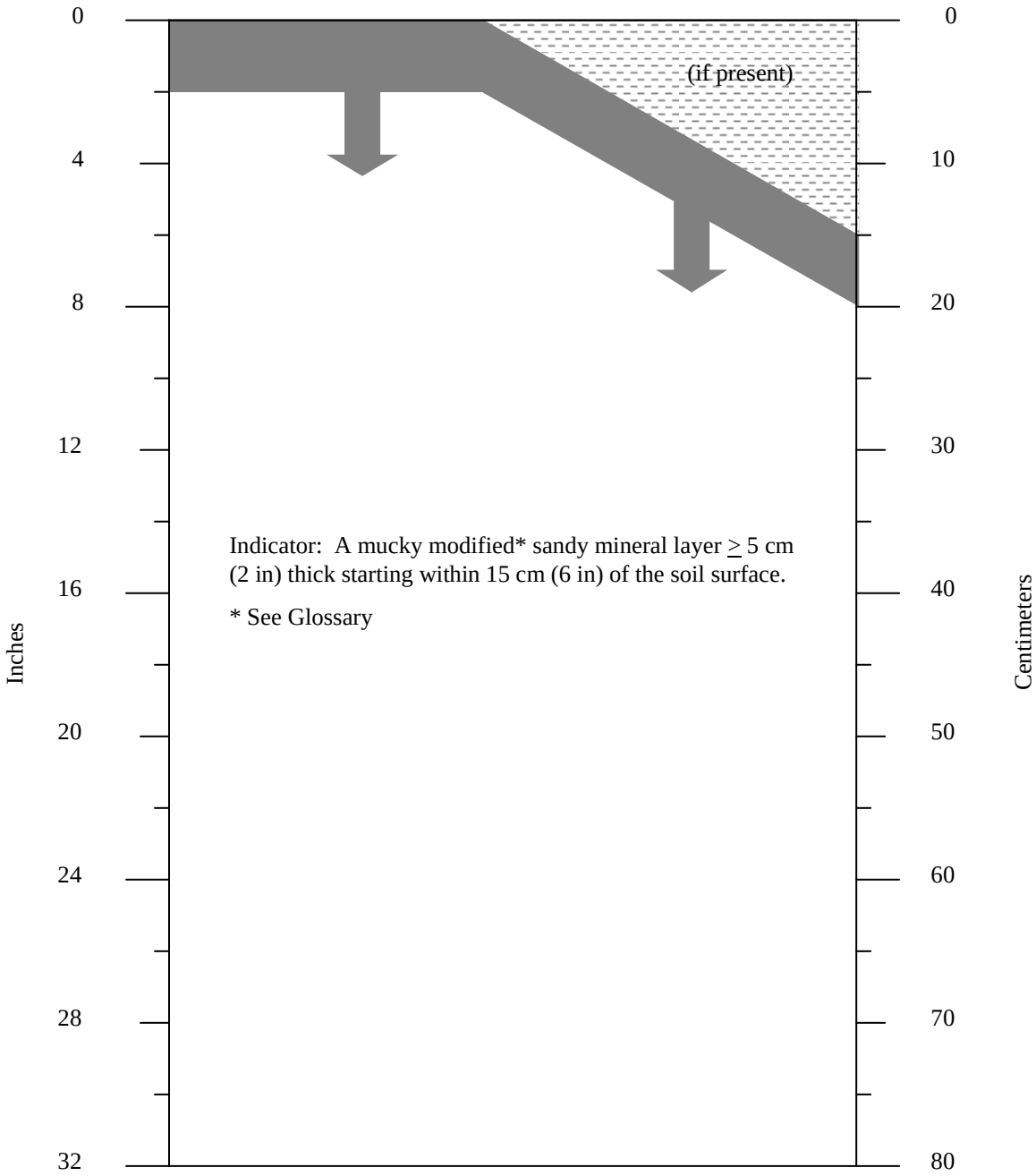
A16. Coast Redox Prairie (Formerly TF5)

For use in MLRA 150A of LRR T.
Measure depths from the mineral soil surface



S1. Sandy Mucky Mineral

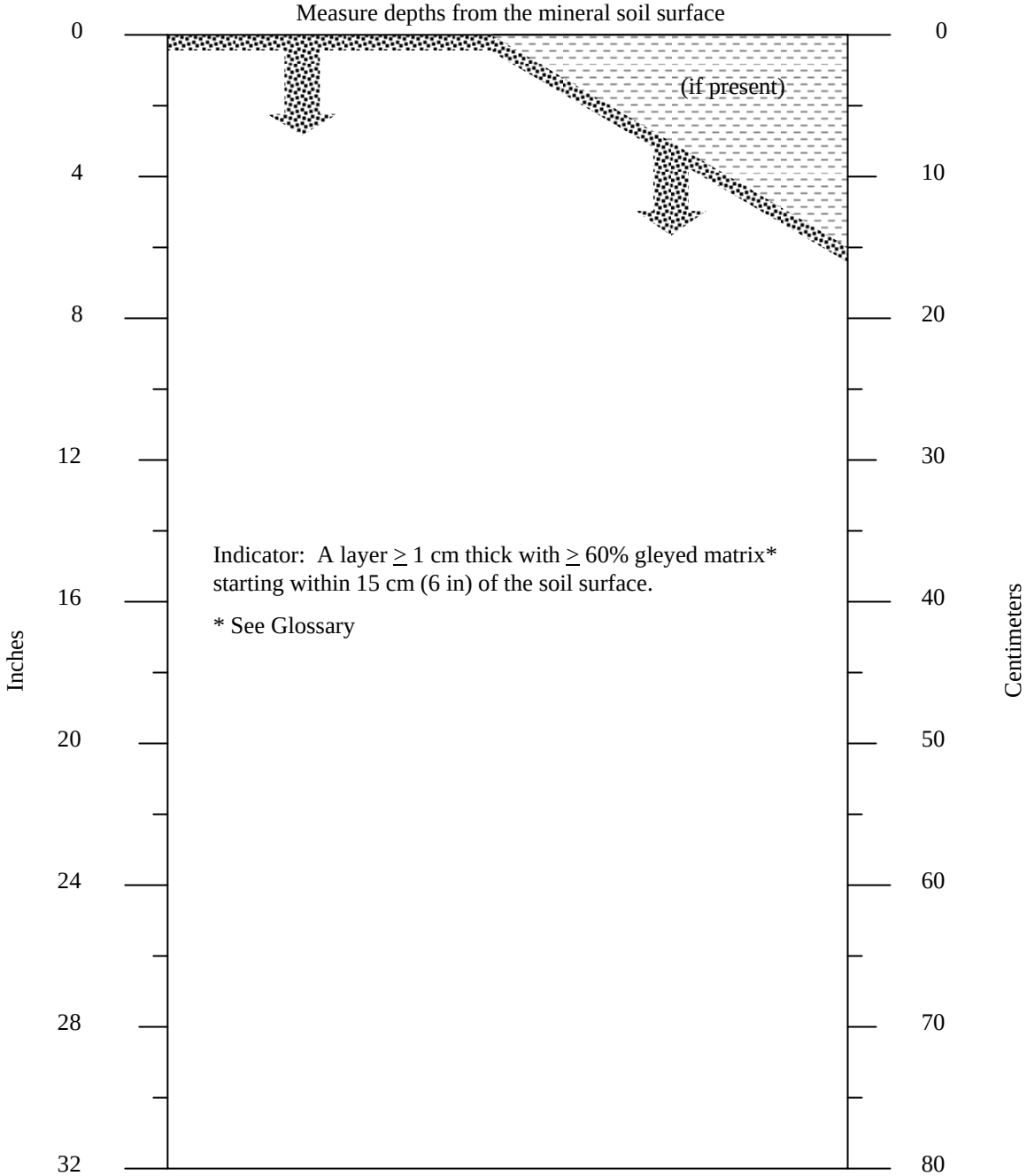
For use in all Mid-Atlantic LRRs
Measure depths from the mineral soil surface



S4. Sandy Gleyed Matrix

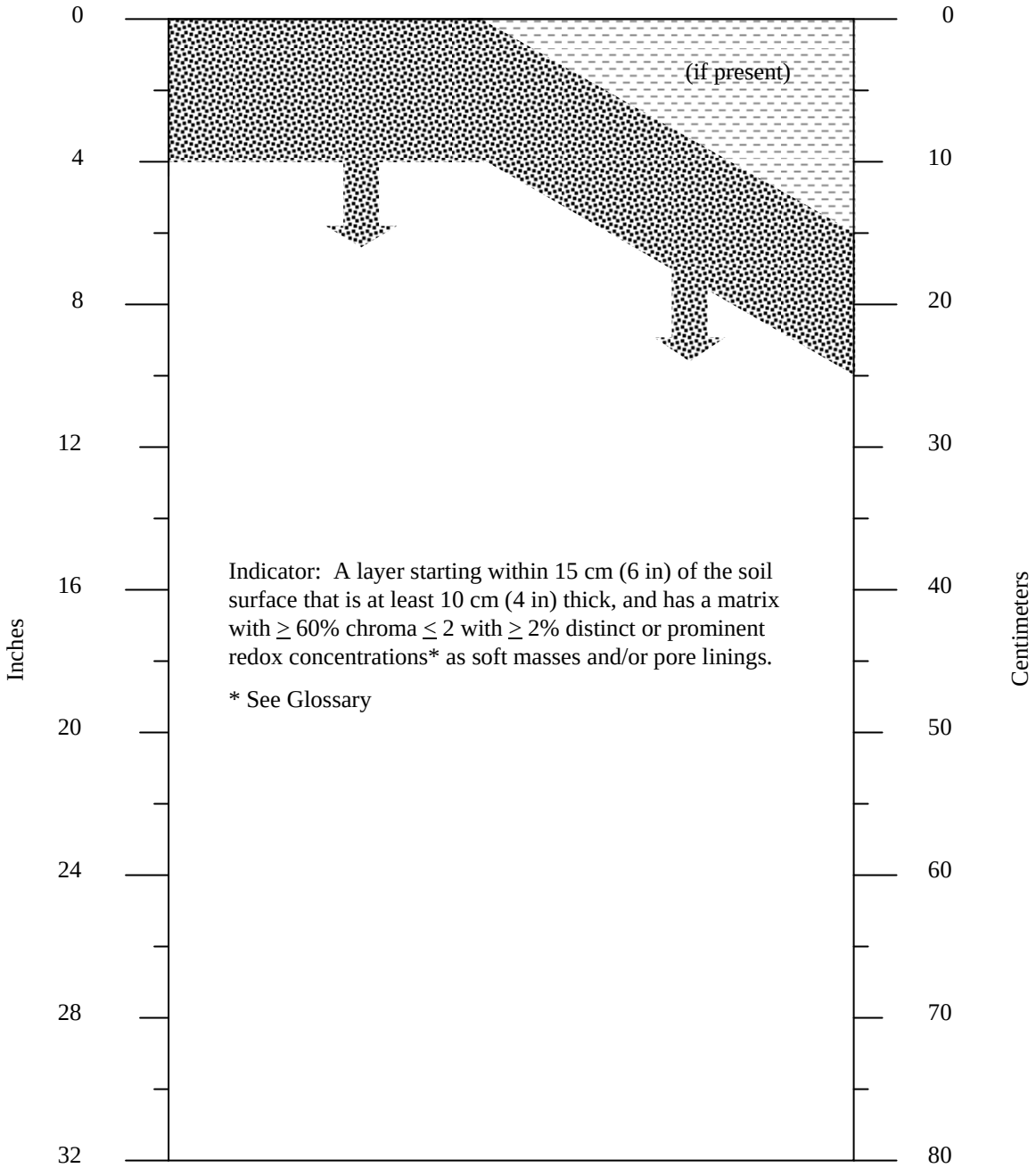
For use in all Mid-Atlantic LRRs

Measure depths from the mineral soil surface



S5. Sandy Redox

For use in all Mid-Atlantic LRRs
Measure depths from the mineral soil surface



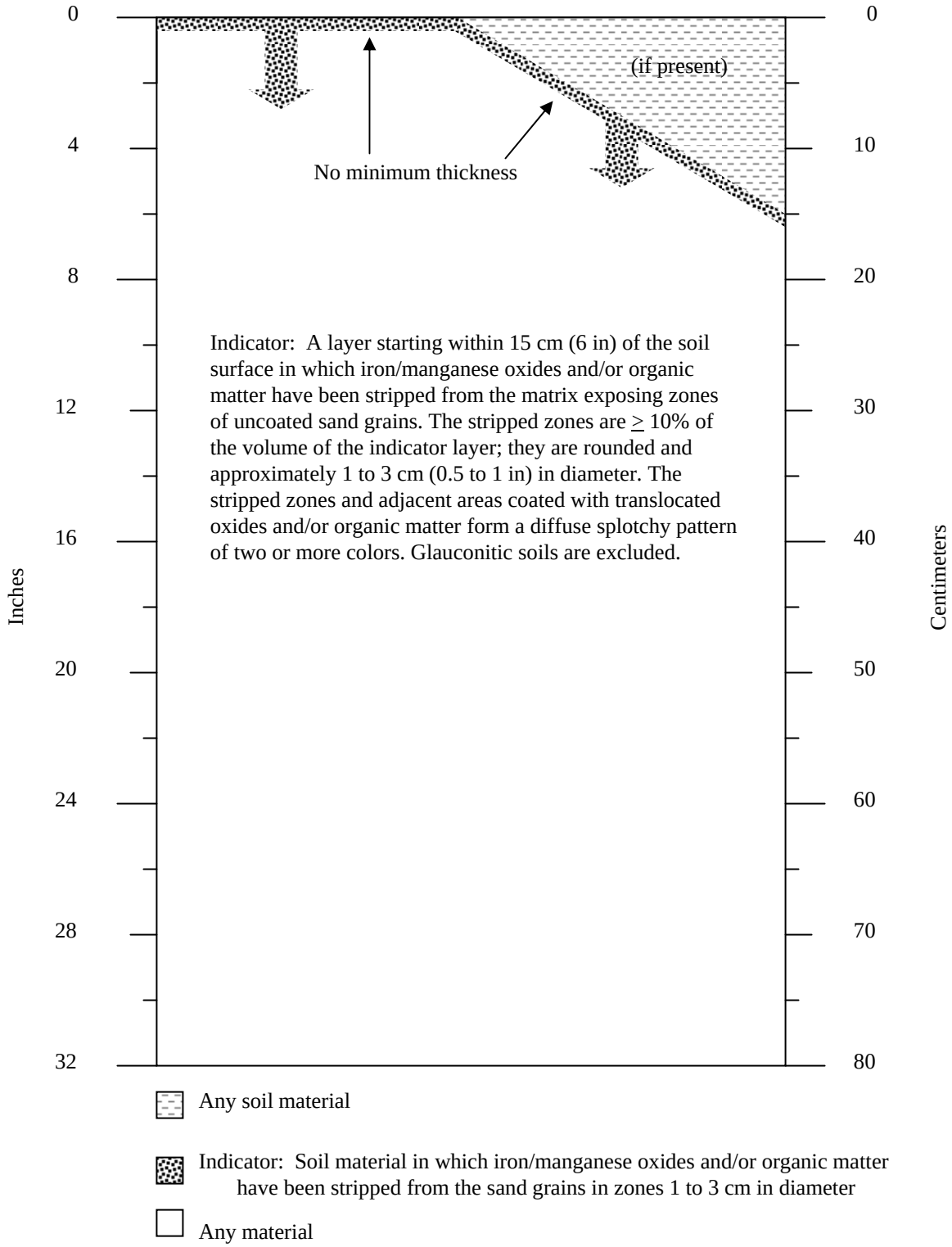
Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <15 cm thickness

Indicator: Soil material with ≥ 60% chroma ≤ 2 with ≥ 2% distinct or prominent redox concentrations* as soft masses and/or pore linings

Any material

S6. Stripped Matrix

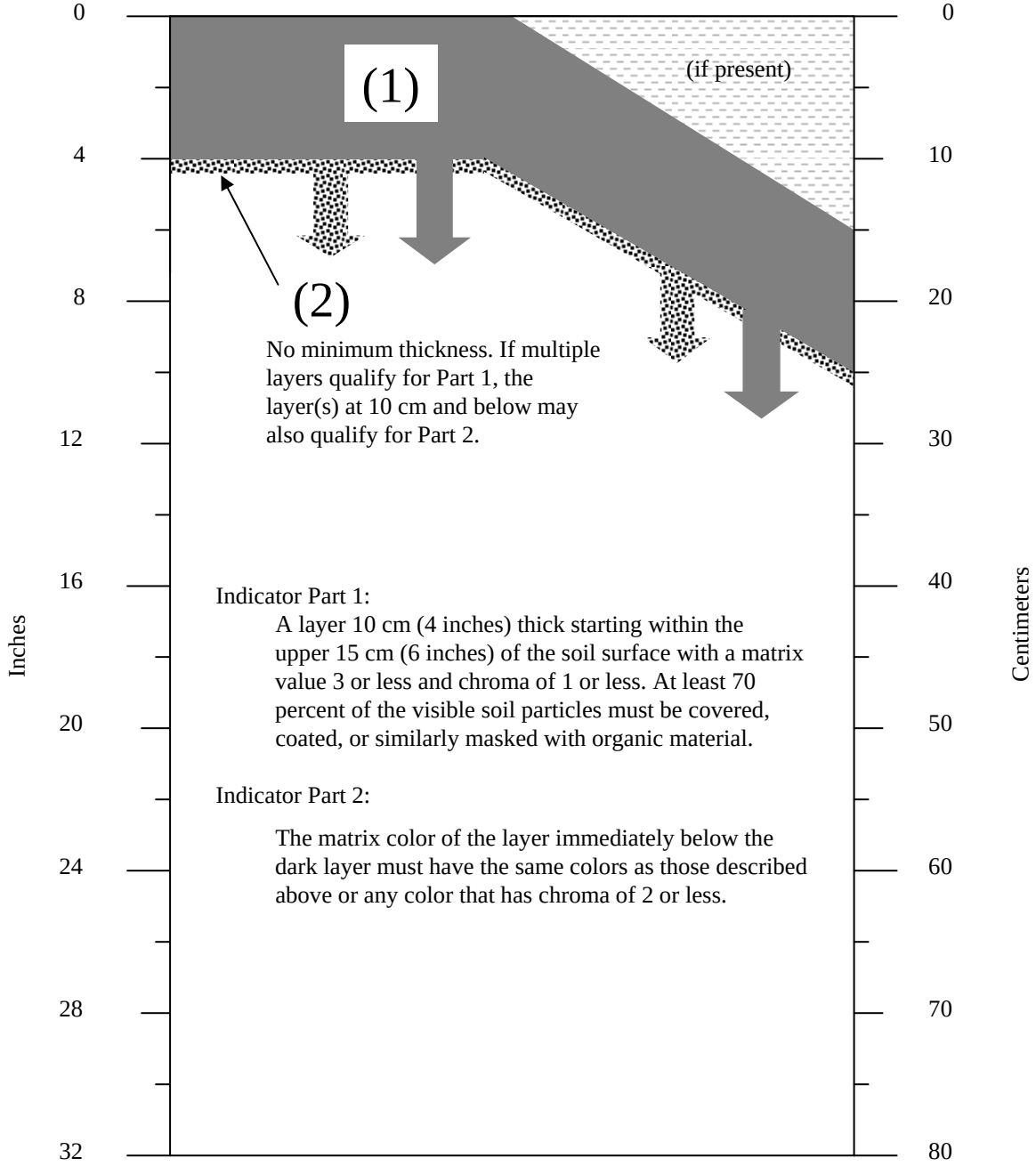
For use in all Mid-Atlantic LRRs
Measure depths from the mineral soil surface



S7. Dark Surface

For use in LRRs N, P, R, S, T

Measure depths from the muck or mineral soil surface



Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <15 cm thickness

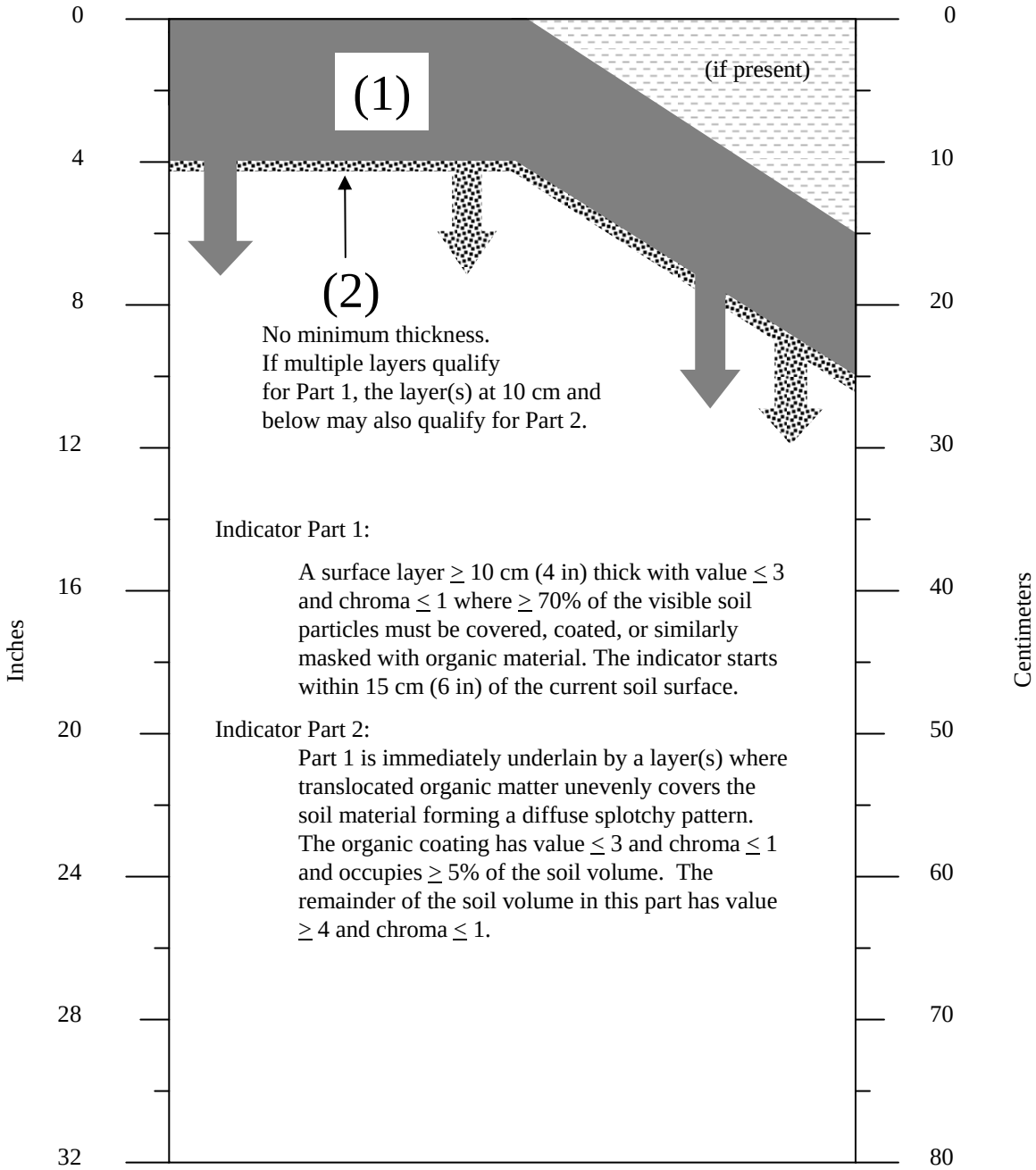
Indicator Part 1: Soil material with a matrix value ≤ 3 and chroma ≤ 1. At least 70% of the visible soil particles must be covered, coated, or similarly masked with organic material

Indicator Part 2: Soil material with chroma ≤ 2

Any material

S8. Polyvalue Below Surface

For use in LRRs R, S, and T; for testing in LRR L
Measure depths from the muck or mineral soil surface



Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma > 2 must total < 15 cm thickness

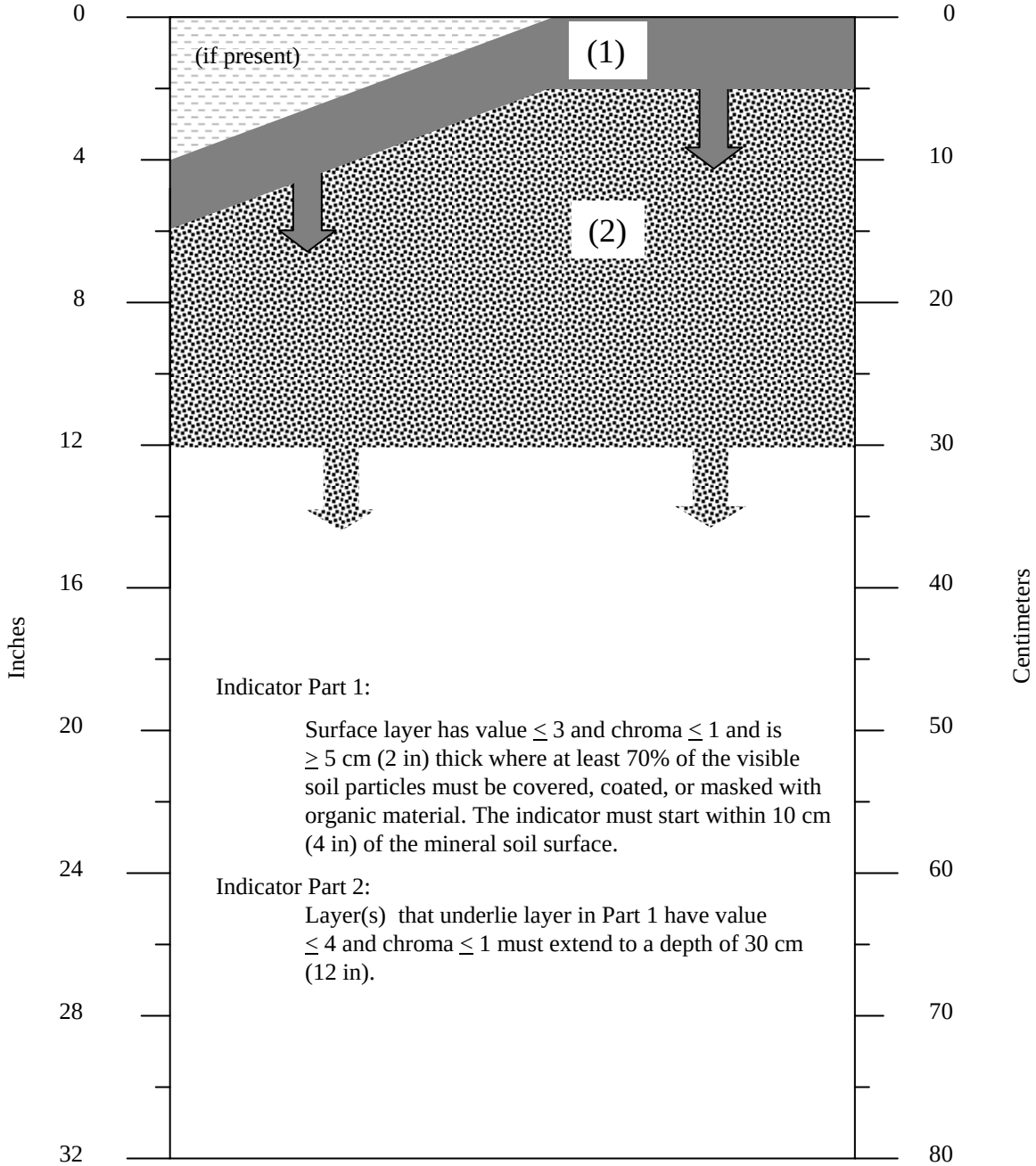
Indicator Part 1: Soil material with value ≤ 3 and chroma ≤ 1 where ≥ 70% of the visible soil particles must be covered, coated, or similarly masked with organic material.

Indicator Part 2: Organic coatings have value ≤ 3 and chroma ≤ 1 occupy ≥ 5% of the soil volume. The remainder of the soil volume has value ≥ 4 and chroma ≤ 1.

Any material

S9. Thin Dark Surface Case A

For use in LRRs R, S, and T; for testing in LRR L
Measure depths from the muck or mineral soil surface



Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <10 cm thickness

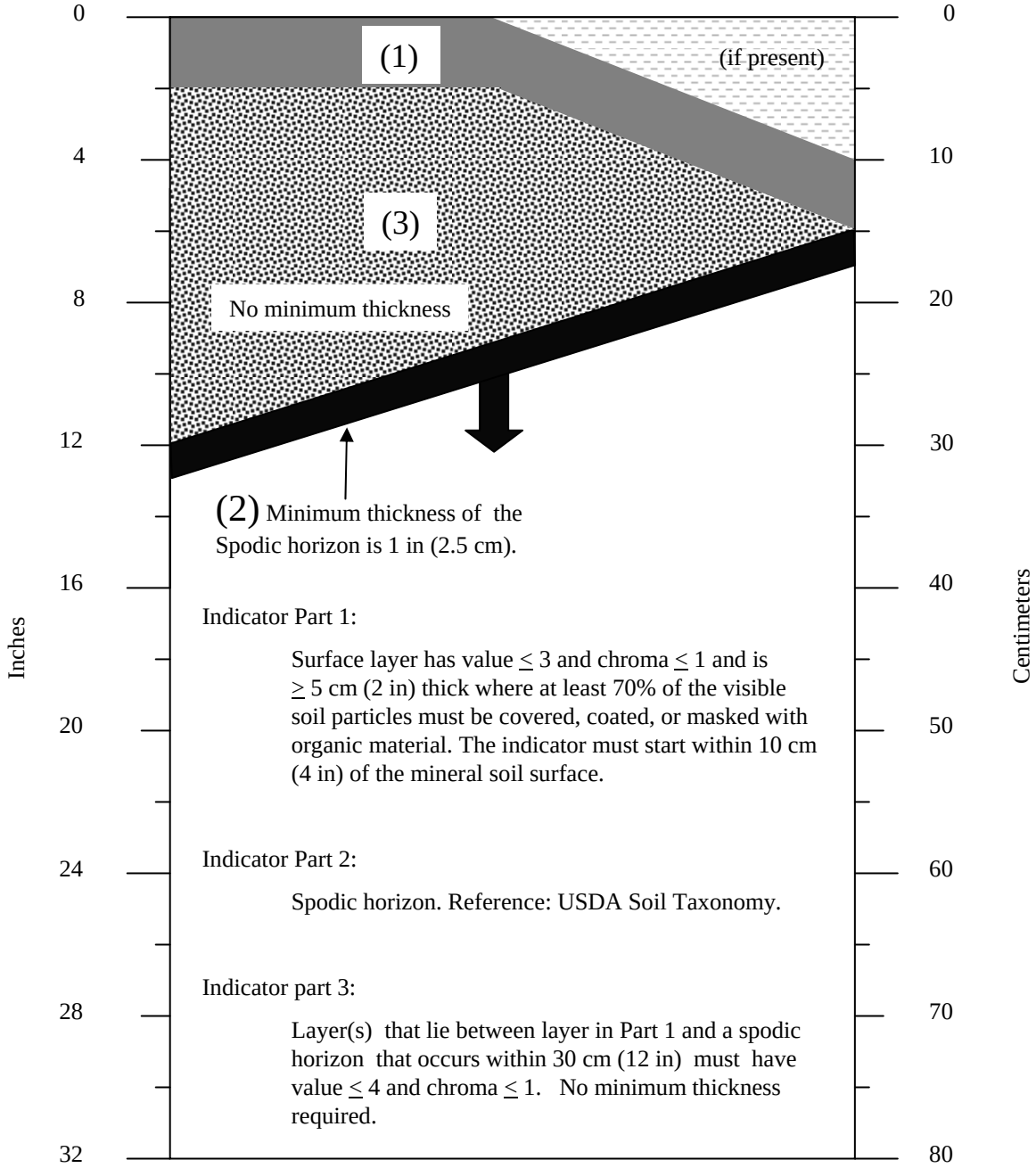
Indicator Part 1: Soil material with value ≤ 3 and chroma ≤ 1. At least 70% of the particles must be covered, coated, or masked with organic material.

Indicator Part 2: Soil material with value ≤ 4 and chroma ≤ 1

Any material

S9. Thin Dark Surface Case B

For use in LRRs R, S, and T; for testing in LRR L
Measure depths from the muck or mineral soil surface



Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total < 10 cm thickness

Indicator Part 1: Soil material with value ≤ 3 and chroma ≤ 1. At least 70% of the particles must be covered, coated, or masked with organic material.

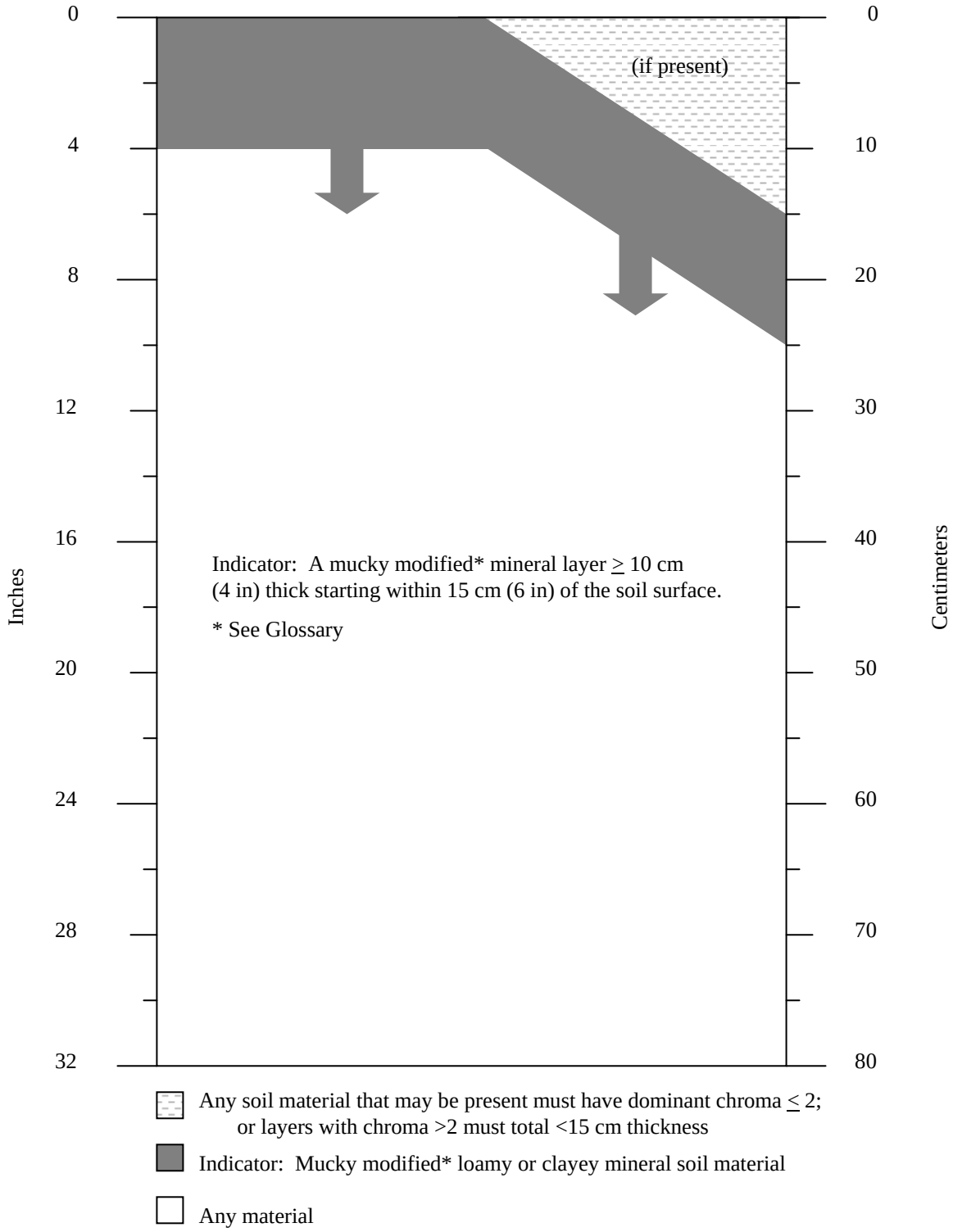
Indicator Part 2: Spodic horizon. Reference: USDA Soil Taxonomy.

Indicator Part 3: Soil material with value ≤ 4 and chroma ≤ 1

Any material

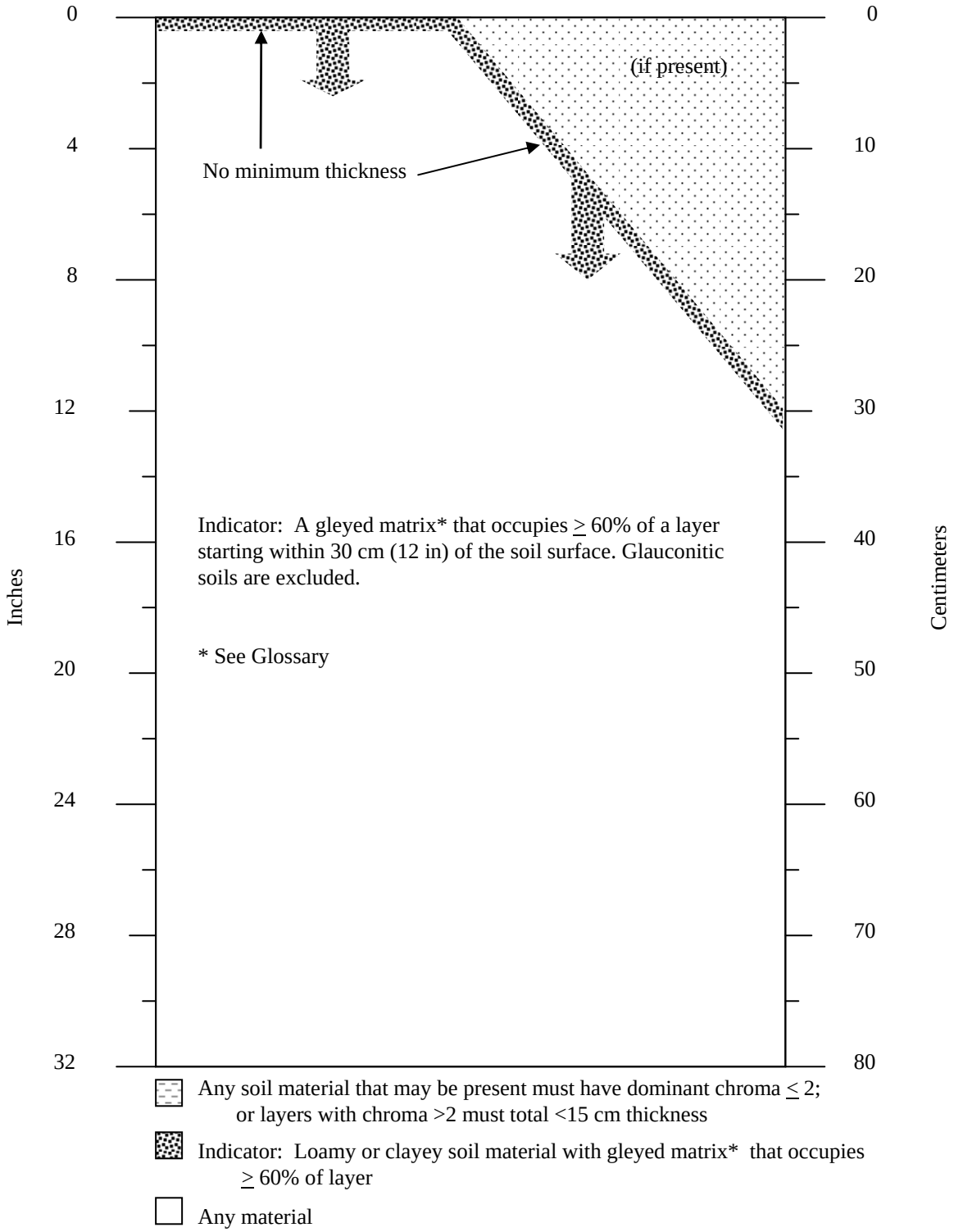
F1. Loamy Mucky Mineral

For use in LRR L
Measure depths from the mineral soil surface



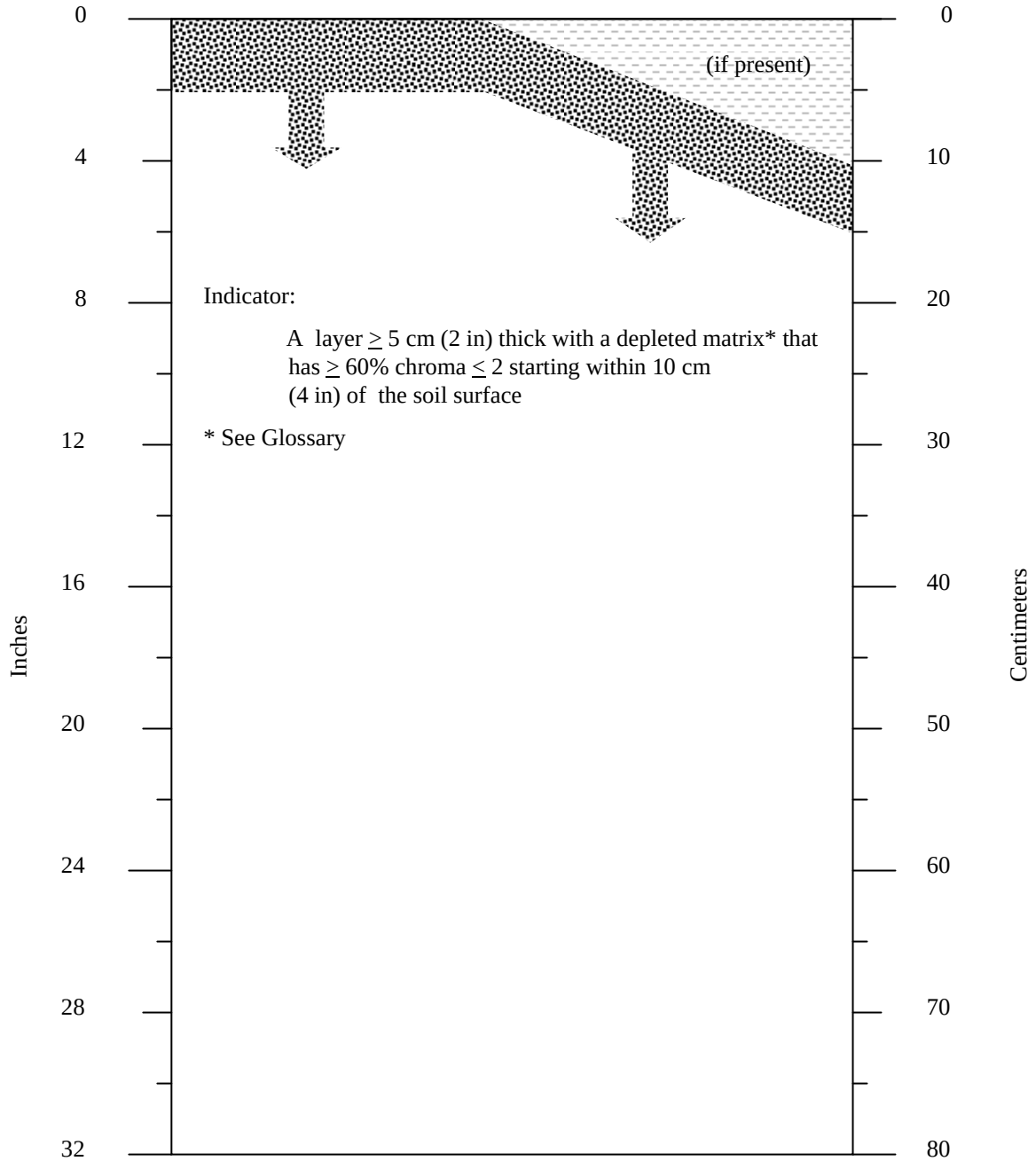
F2. Loamy Gleyed Matrix

For use in all Mid-Atlantic LRRs
Measure depths from the mineral soil surface



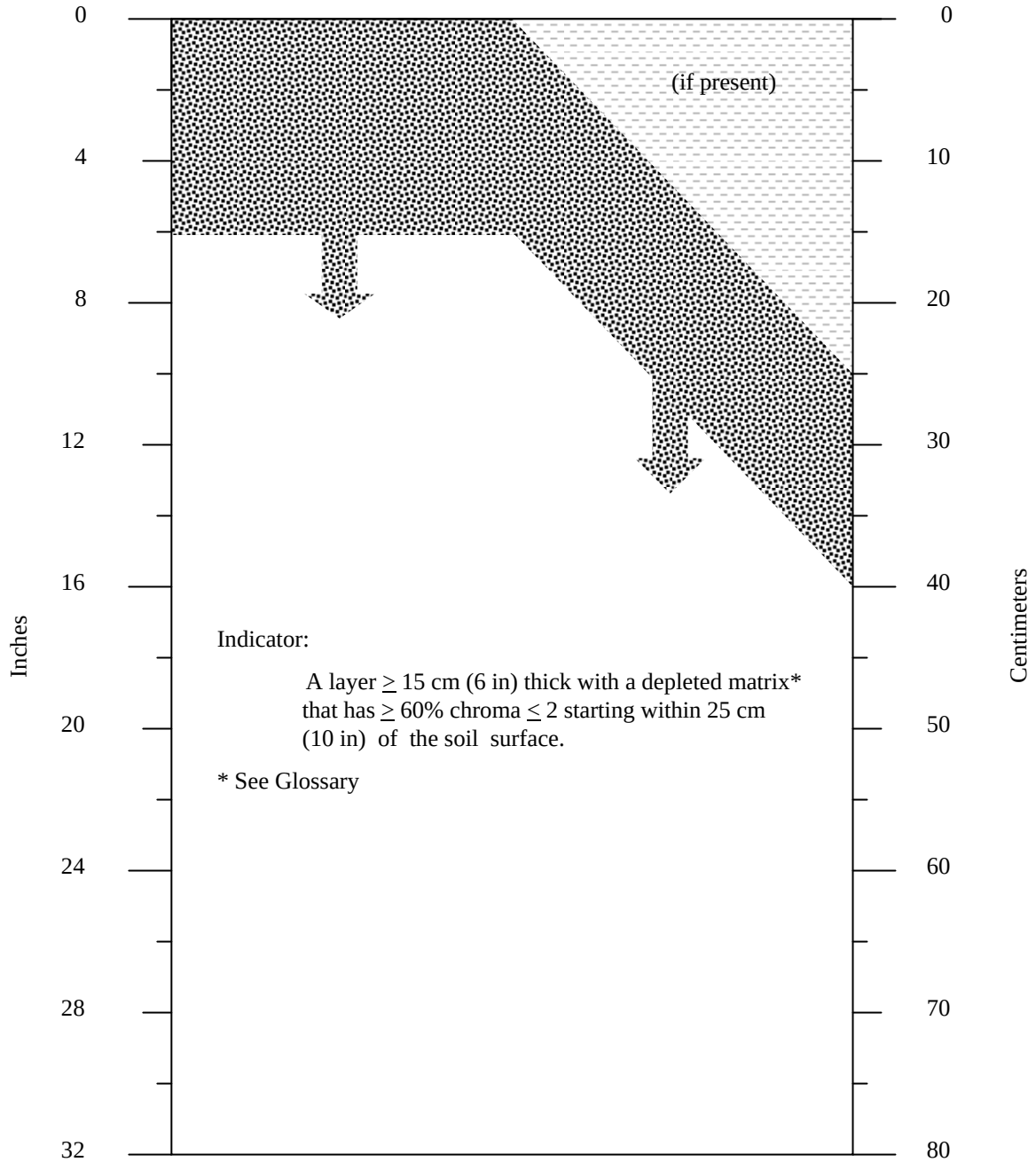
F3. Depleted Matrix Case A

For use in all Mid-Atlantic LRRs
Measure depths from the mineral soil surface



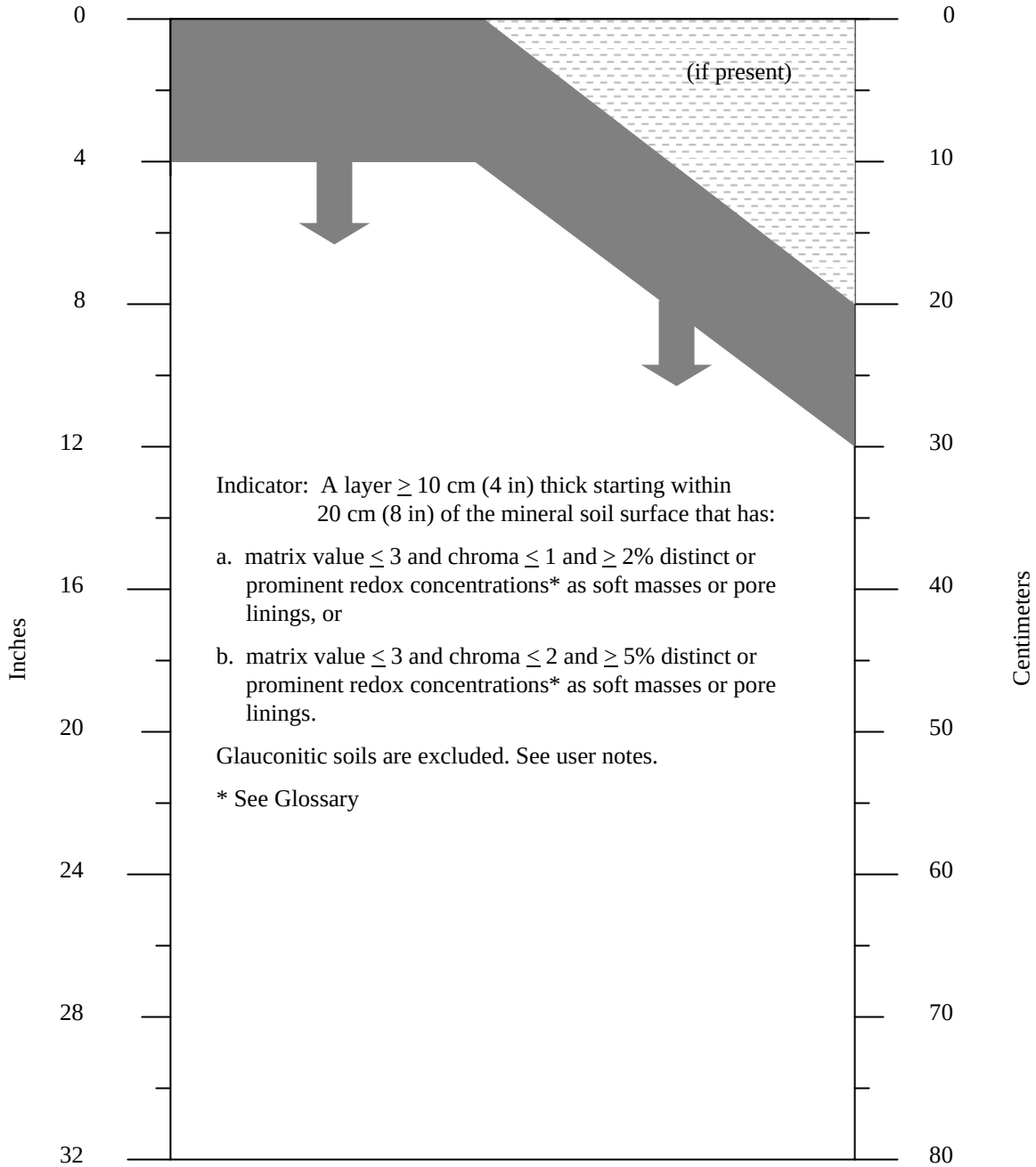
F3. Depleted Matrix Case B

For use in all Mid-Atlantic LRRs
Measure depths from the mineral soil surface



F6. Redox Dark Surface

For use in all Mid-Atlantic LRRs
Measure depths from the mineral soil surface



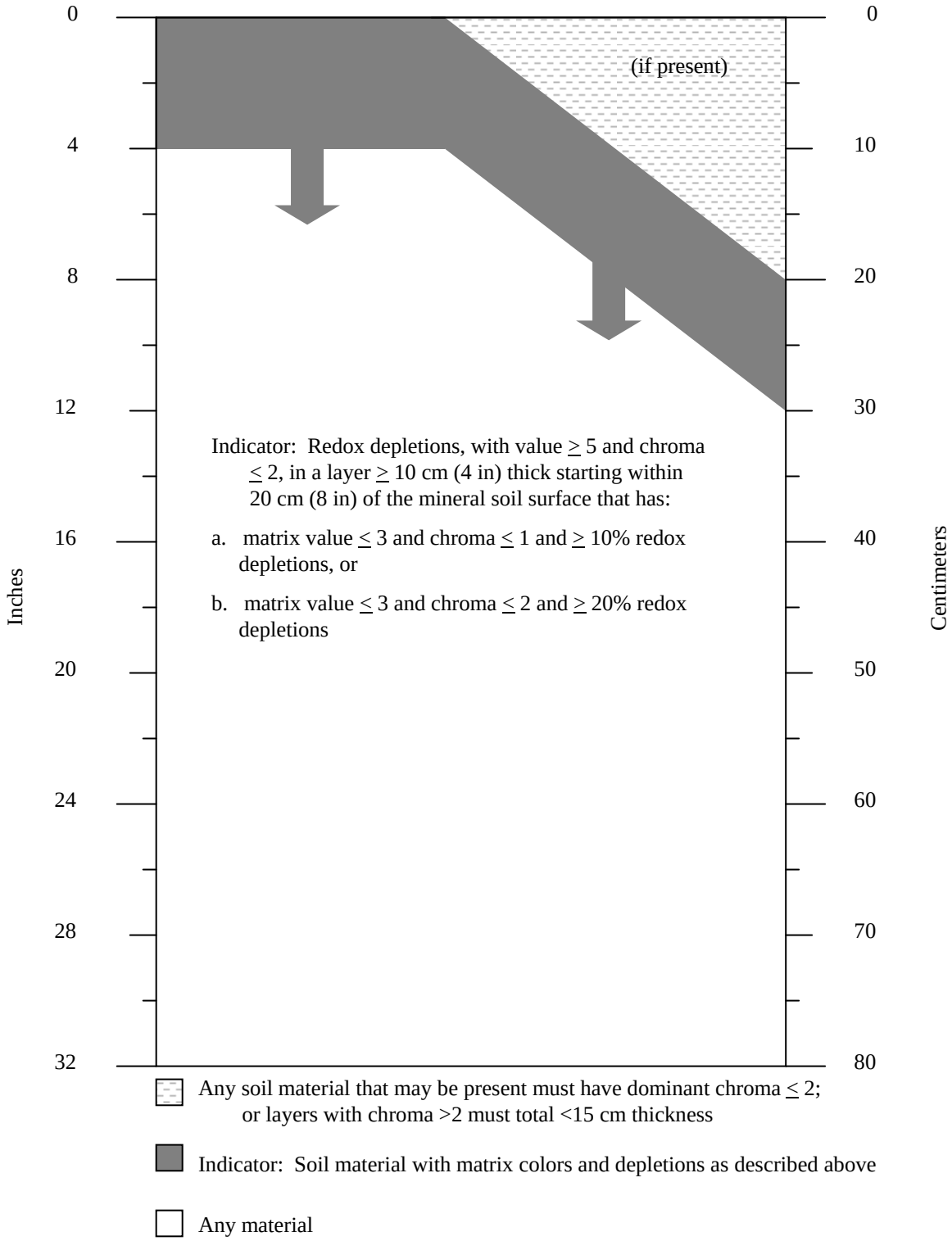
Any soil material that may be present must have dominant chroma ≤ 2; or layers with chroma >2 must total <15 cm thickness

Indicator: Soil material with matrix colors and concentrations as described above

Any material

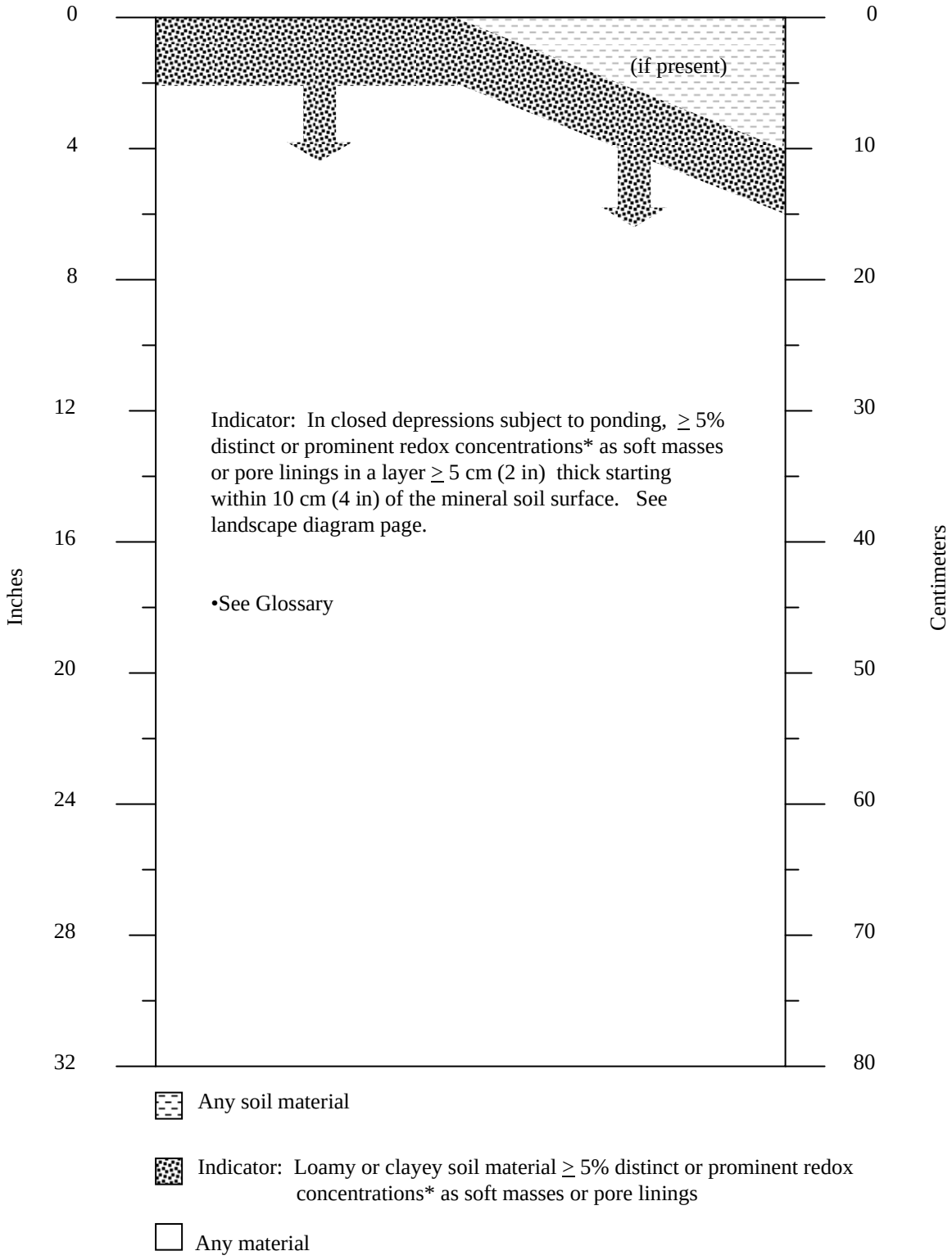
F7. Depleted Dark Surface

For use in all Mid-Atlantic LRRs
Measure depths from the mineral soil surface



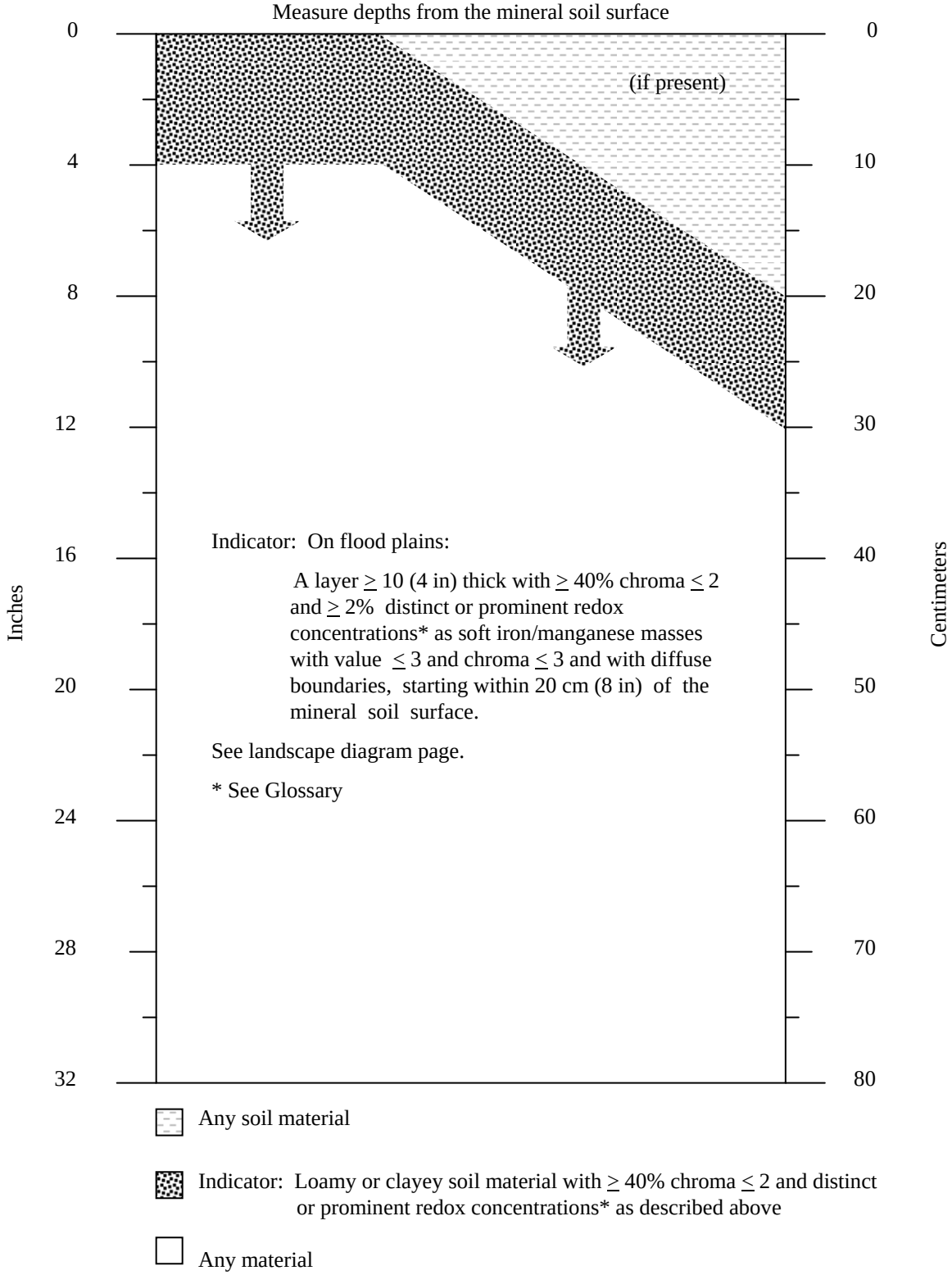
F8. Redox Depressions

For use in all Mid-Atlantic LRRs
Measure depths from the mineral soil surface



F12. Iron/Manganese Masses Case A

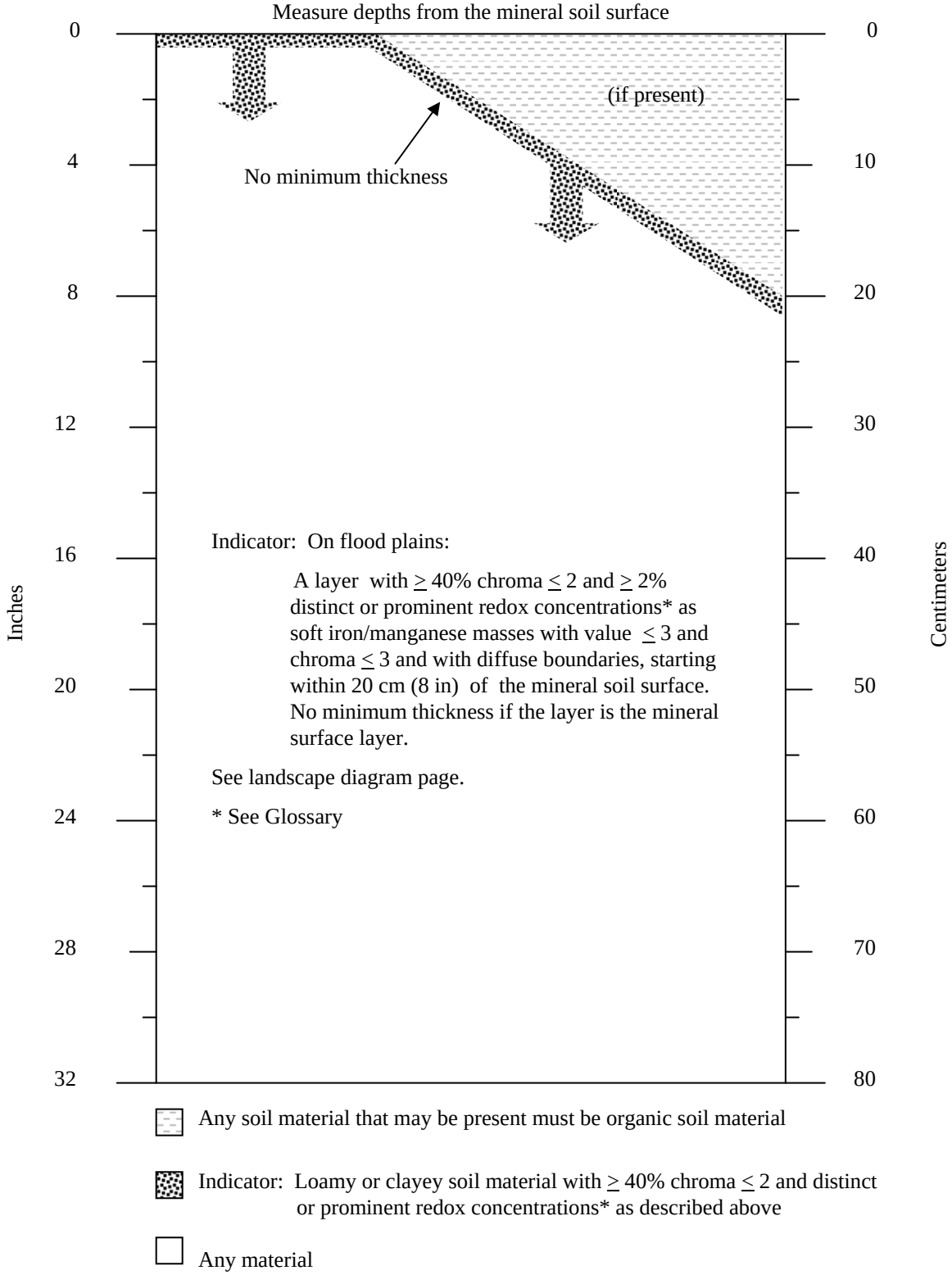
For use in LRRs N, P, and T, and for testing in LRR S
Measure depths from the mineral soil surface



F12. Iron/Manganese Masses Case B

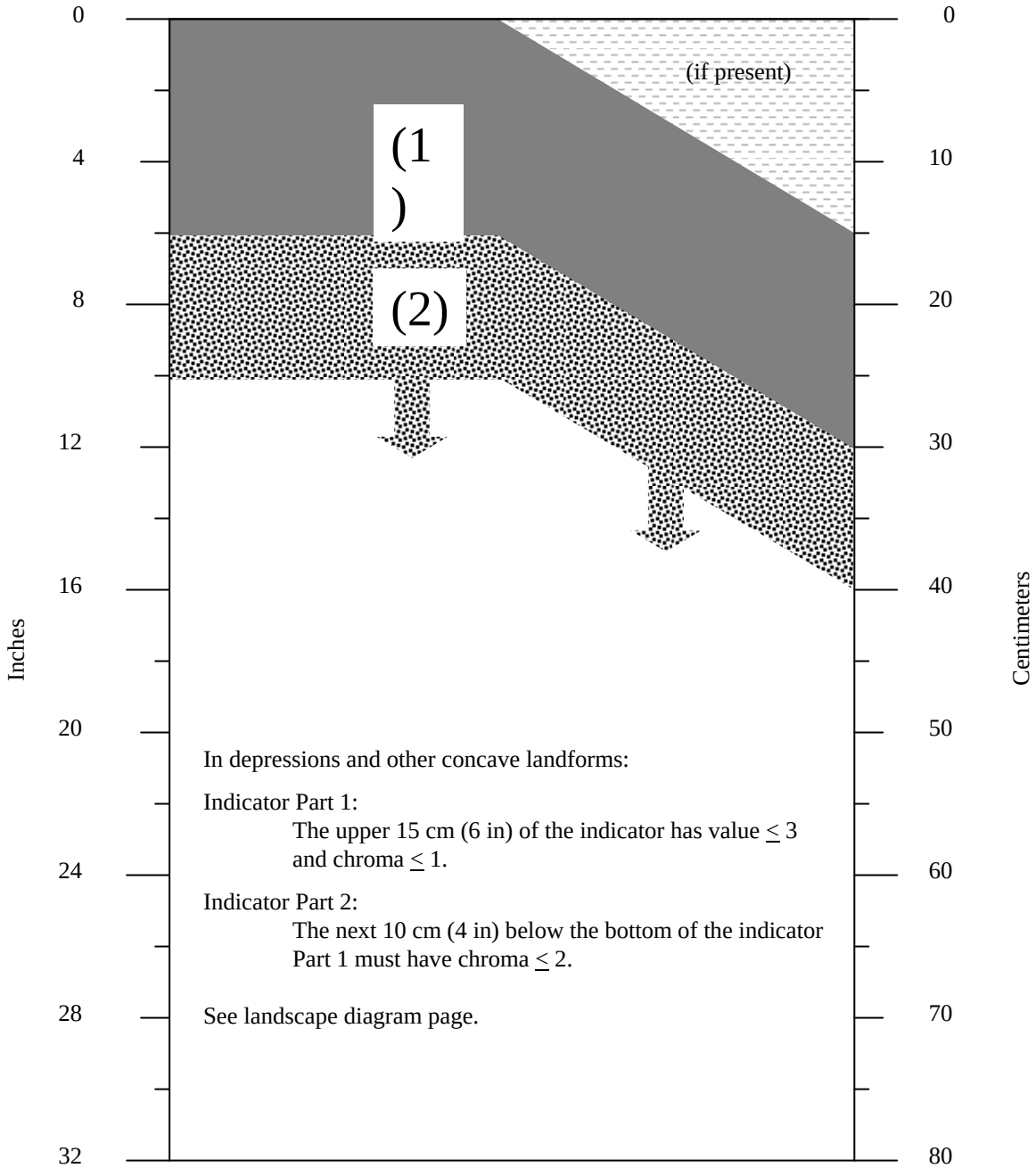
For use in LRRs N, P, and T, and for testing in LRR S

Measure depths from the mineral soil surface



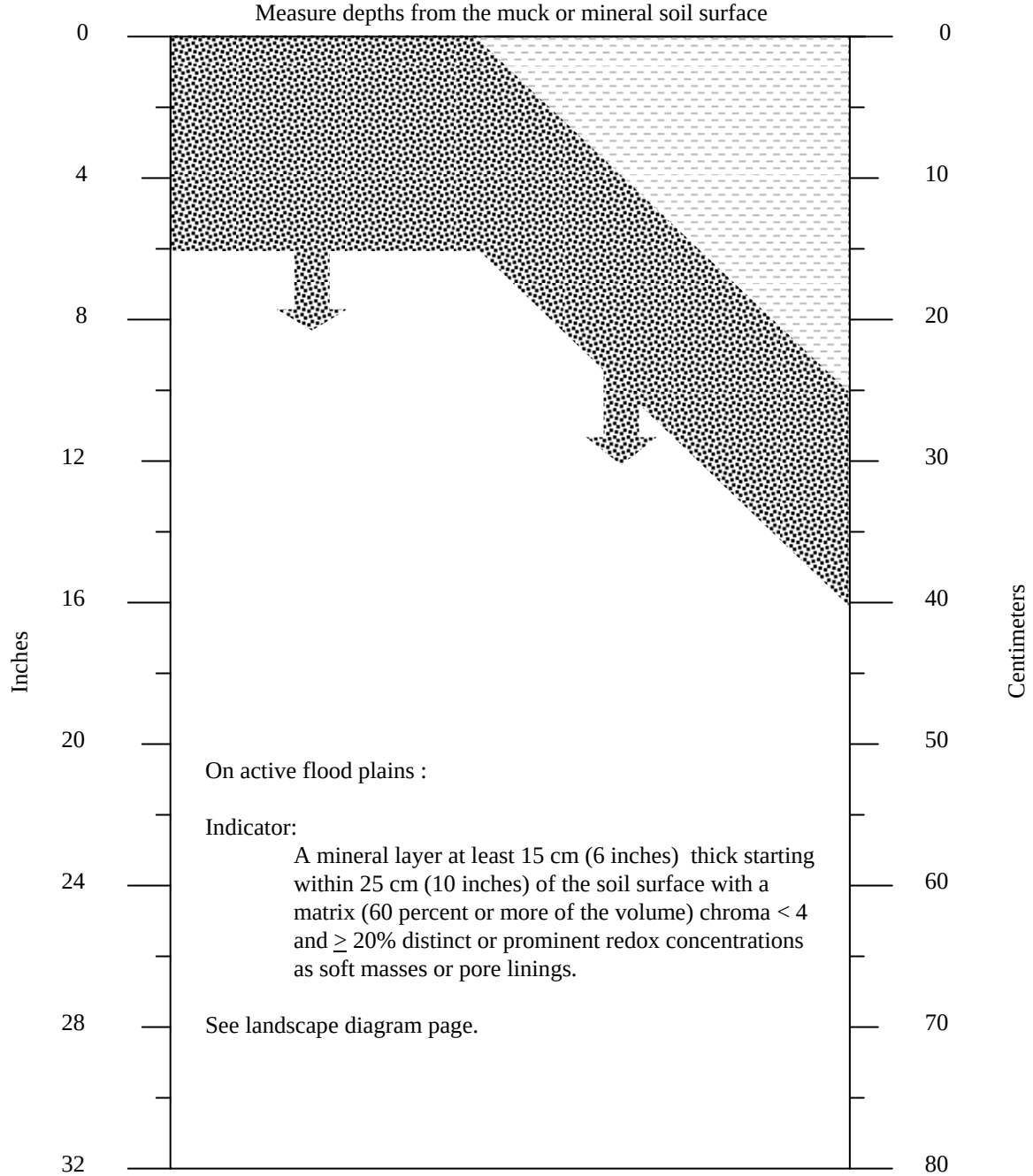
F13. Umbric Surface

For use in LRRs P and T
Measure depths from the muck or mineral soil surface



F19. Piedmont Flood Plain Soils

For use in MLRAs 149A and 148 of LRR S; for testing on flood plains subject to Piedmont deposition throughout LRRs P, S, and T.
Measure depths from the muck or mineral soil surface



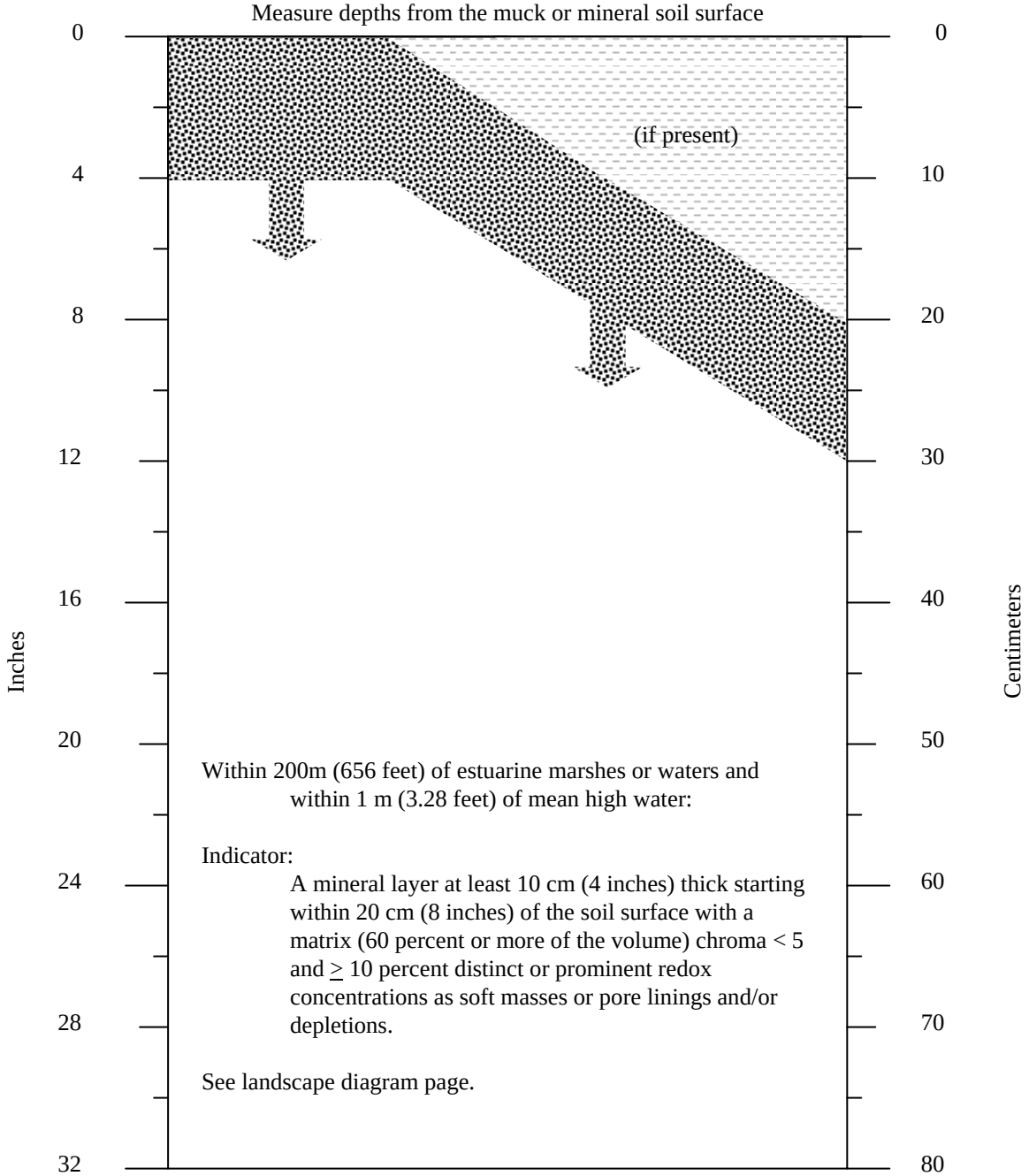
Any soil material

Indicator: Soil material with a matrix (60 percent or more of the volume) chroma less than 4 and 20% or more distinct or prominent redox concentrations as soft masses or pore linings.

Any material

F20. Anomalous Bright Loamy Soils

For use in MLRA 149A of LRR S and MLRA 153C
and 153D of LRR T; for testing in MLRA 153B of LRR T.
Measure depths from the muck or mineral soil surface



Within 200m (656 feet) of estuarine marshes or waters and within 1 m (3.28 feet) of mean high water:

Indicator:

A mineral layer at least 10 cm (4 inches) thick starting within 20 cm (8 inches) of the soil surface with a matrix (60 percent or more of the volume) chroma < 5 and ≥ 10 percent distinct or prominent redox concentrations as soft masses or pore linings and/or depletions.

See landscape diagram page.

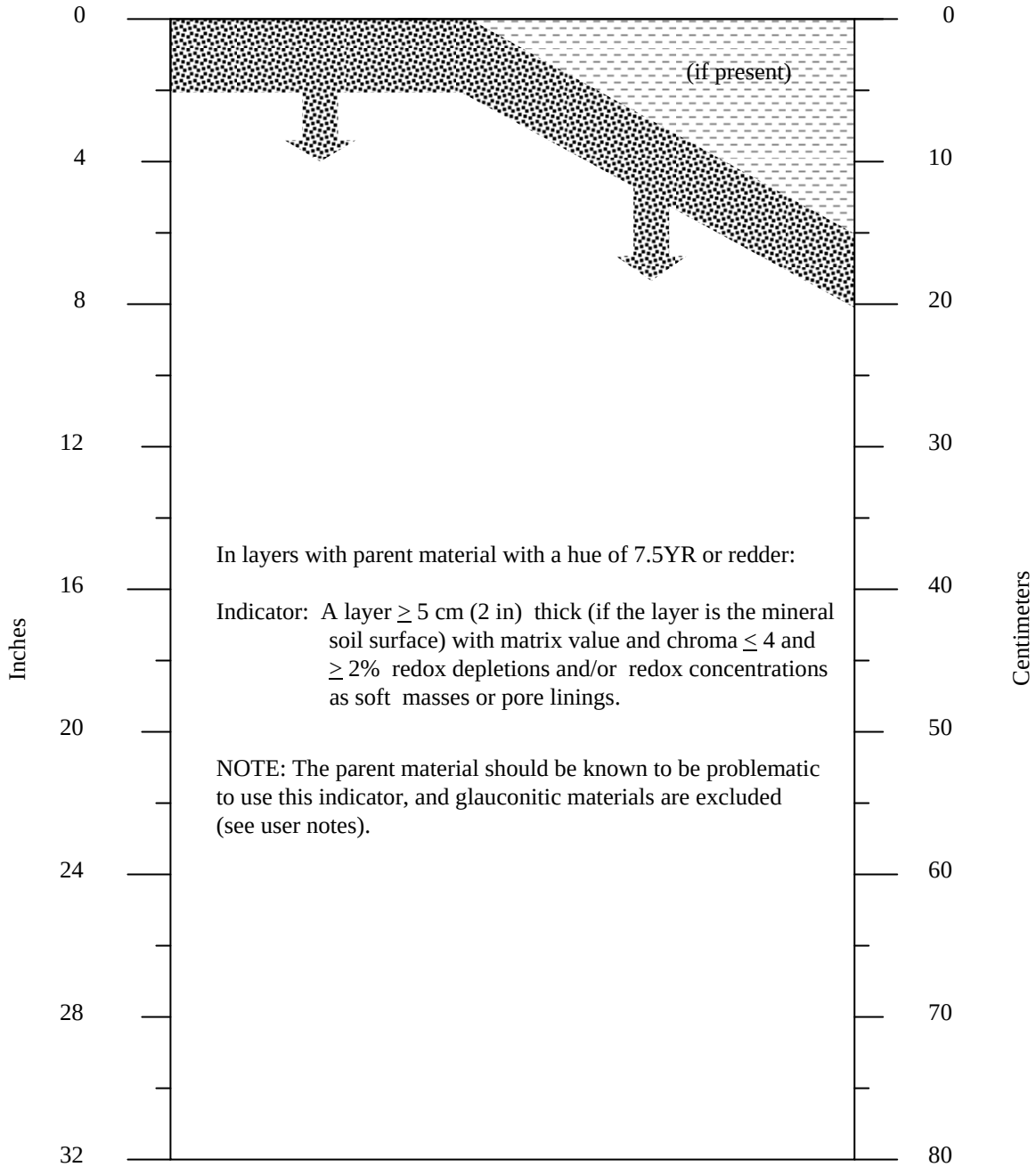
Any soil material

Indicator: Soil material with a matrix (60 percent or more of the volume) chroma less than 5 and 10% or more distinct or prominent redox concentrations as soft masses or pore linings.

Any material

TF2. Red Parent Material Case A

For testing in all LRRs with red parent material
Measure depths from the muck or mineral soil surface



TF2. Red Parent Material Case B

For testing in all LRRs with red parent material
Measure depths from the muck or mineral soil surface