

TECHNICAL NOTES

July, 2013

MO-1 Technical Note 34 (Revision 3)

Re: NASIS—Data Population for Organic Horizons, Miscellaneous Areas, Higher Taxa Components, and Restrictive Horizons/Layers

This technical note has four attachments (A, B, C, D) that provide guidance on data population for:

A—Organic Horizons

B—Miscellaneous Areas

C—Higher Taxa Components

D—Restrictive Horizons/Layers

If you have questions on the attachments, please call the MO-1 staff.

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Attachment A—Organic Horizons

The NASIS data population standards for saturated and unsaturated organic horizons are different than the standards applied to mineral horizons. Not as many fields are populated for organic horizons, and the guides and NASIS calculations often are not adequate for populating these horizons. Furthermore, very little laboratory information is available for organic horizons.

To assist in determining which fields need to be populated and how to populate them, MO-1 has developed the following list of required fields and numerous default values that can be used to populate organic horizons.

Below are the NASIS tables and fields that must be populated for organic horizons. Additional data can be populated, but the data listed below must be populated as a minimum.

Horizon Table

2	Top Depth	Only populate RV
3	Bottom Depth	Only populate RV
4	Thickness	Only populate RV
5	Designation	
6	Disc	Populate when applicable
7	Master	
8	Prime	Only populate RV
9	Sub	Only populate RV
11	Rock >10	<u>Unsaturated:</u> 0 – 0 – 0 <u>Saturated:</u> 0 – 0 – 0
12	Rock 3-10	<u>Unsaturated:</u> 0 – 0 – 0 <u>Saturated:</u> 0 – 0 – 0
30	OM	<u>Unsaturated:</u> 60 – 75 – 95 <u>Saturated:</u> Use laboratory data or local guide
31	Rubbed Fiber	<i>Optional; refer to MO-1 technical note 40 for additional guidance.</i>
32	Unrubbed Fiber	<i>Optional; refer to MO-1 technical note 40 for additional guidance.</i>
33	Db 0.33-bar H2O	<u>Unsaturated:</u> 0.10 – 0.20 – 0.30 <u>Saturated:</u> 0.10 – 0.20 – 0.30
35	Ksat	<u>Unsaturated:</u> 100 – 400 – 700 <u>Saturated:</u> 5 – 15 – 25
36	AWC	<u>Unsaturated:</u> <ul style="list-style-type: none"> • Oi horizons: 0.10 - 0.20 - 0.30 • Oe horizons: 0.20 - 0.30 - 0.40 (Can adjust based on the level of decomposition)

- Oa horizons: 0.30 - 0.45 - 0.60
- Saturated: 0.30 – 0.45 – 0.60
- 38 **0.33 bar H2O** Unsaturated:
- **MLRAs 1, 2, 3, 4A:** 40 – 60 – 80
 - **MLRAs 6, 9, 10, 43, 44:** 30 – 50 – 70
- Saturated: 30 – 60 - 90
- 39 **15 bar H2O** Unsaturated:
- **MLRAs 1, 2, 3, 4A:** 20 – 30 – 40
 - **MLRAs 6, 9, 10, 43, 44:** 15 – 25 – 35
- Saturated: 15 – 25 - 35
- 45 **Kw** Unsaturated: **DO NOT POPULATE**
- Saturated: 0.02
- 46 **Kf** Unsaturated: **DO NOT POPULATE**
- Saturated: 0.02
- 47 **CaCO3** Unsaturated: 0 – 0 – 0
- Saturated: If present, use local laboratory data or local guide. If not present, enter 0 – 0 – 0.
- 48 **Gypsum** Unsaturated: 0 – 0 – 0
- Saturated: If present, use local laboratory data or local guide. If not present, enter 0 – 0 – 0.
- 49 **SAR** Unsaturated: 0 – 0 – 0
- Saturated: If present, use local laboratory data or local guide. If not present, enter 0 – 0 – 0.
- 50 **ESP** Unsaturated: 0 – 0 – 0
- Saturated: If present, use local laboratory data or local guide. If not present, enter 0 – 0 – 0.
- 51 **EC** Unsaturated: 0 – 0 – 0
- Saturated: If present, use local laboratory data or local guide. If not present, enter 0 – 0 – 0.
- 52 **CEC-7** Unsaturated: **DO NOT POPULATE**
- Saturated: Populate from local guide or laboratory data if RV pH is more than 5.5. Lab data range from 40 to 170.
- 53 **ECEC** Unsaturated:
- **MLRAs 1, 2, 3, 4A:** 30 – 35 – 40
 - **MLRAs 6, 9, 10, 43, 44:** 20 – 25 – 30
- Saturated: Populate from local guide or laboratory data if RV pH is less than 5.5.
- 55 **pH 1:1 water** Unsaturated:
- **MLRAs 1, 2, 3, 4A:** 3.5 – 4.5 – 5.5
 - **MLRAs 6, 9, 10, 43, 44:** 4.5 – 5.0 – 5.5
- Saturated: Populate from local guide or laboratory data.
- 56 **pH 0.1 M CaCl2** Unsaturated:
- **MLRAs 1, 2, 3, 4A:** 3.0 – 4.0 – 4.5

- **MLRAs 6, 9, 10, 43, 44:** 4.0 – 4.7 – 5.5

Saturated: Populate from local guide or laboratory data.

Horizon Texture Group Table

- 2 Tex Mod & Class
- 4 Representative Check yes

Horizon Texture Table

- 3 **In Lieu**
- Unsaturated:
- Oi – SPM
 - Oe – MPM
 - Oa – HPM
- Saturated:
- Oi – peat
 - Oe – mucky peat
 - Oa – muck

Horizon Texture Modifier Table

- 2 **Modifier** Population standard: Not typically populated

Horizon AASHTO Table

- 2 **AASHTO** Unsaturated: A-8
- Saturated: A- 8
- 3 **Representative** Check yes

Horizon Designation Suffix Table

- 2 **Suffix**

Horizon Unified Table

- 2 **Unified** Unsaturated: Pt
- Saturated: Pt
- 3 **Representative** Check yes

Attachment B—Miscellaneous Areas

Populate Component Name, Component Kind, and Major Component flag. All miscellaneous areas will be assigned capability class 8, do not assign a subclass.

Badland

Component Table

3	Component Name	Badland
5	Taxon Kind	Miscellaneous area
6	Major Component	
8	Slope Gradient	Varies based on map unit slope range.
18	Hydric Rating	No
32	Nirr LCC	8
65	Int Subsid	0 – 0 – 0

Horizon Table

2	Top Depth	Enter 0 for RV; leave low and high blank.
3	Bottom Depth	Enter 150 for RV; leave low and high blank.
4	Thickness	Enter 150 for RV; leave low and high blank.

Horizon Texture Group Table

2	Tex Mod & Class	BR
4	Representative	Check yes

Horizon Texture Table

3	In Lieu	Bedrock
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Component Restrictions

2	Top Depth	0 – 0 – 0
5	Kind	Bedrock, paralithic
6	Hardness	Moderately cemented

Beaches

Component Table

3	Component Name	Beaches
5	Taxon Kind	Miscellaneous area
6	Major Component	
8	Slope Gradient	Varies based on map unit slope range.
18	Hydric Rating	No
32	Nirr LCC	8
65	Int Subsid	0 – 0 – 0

Horizon Table

2	Top Depth	Enter 0 for RV; leave low and high blank.
3	Bottom Depth	Enter 150 for RV; leave low and high blank.
4	Thickness	Enter 150 for RV; leave low and high blank.

Horizon Texture Group Table

2	Tex Mod & Class	SR- S GR
3	Stratified?	Check yes
4	Representative	Check yes

Horizon Texture Table

2	Texture	s
3	In Lieu	gr

Chutes

Component Table

3	Component Name	Chutes
5	Taxon Kind	Miscellaneous area
6	Major Component	
8	Slope Gradient	Varies based on map unit slope range.
18	Hydric Rating	No
32	Nirr LCC	8

65 **Int Subsid** 0 – 0 – 0

Horizon Table

2 **Top Depth** Enter 0 for RV; leave low and high blank.

3 **Bottom Depth** Enter 150 for RV; leave low and high blank.

4 **Thickness** Enter 150 for RV; leave low and high blank.

Dumps

Component Table

3 **Component Name** Dumps

5 **Taxon Kind** Miscellaneous area

6 **Major Component**

8 **Slope Gradient** Varies based on map unit slope range.

18 **Hydric Rating** No

32 **Nirr LCC** 8

65 **Int Subsid** 0 – 0 – 0

Dune Land

Component Table

3 **Component Name** Dune land

5 **Taxon Kind** Miscellaneous area

6 **Major Component**

8 **Slope Gradient** Varies based on map unit slope range.

18 **Hydric Rating** No

32 **Nirr LCC** 8

65 **Int Subsid** 0 – 0 – 0

Horizon Table

2 **Top Depth** Enter 0 for RV; leave low and high blank.

3 **Bottom Depth** Enter 150 for RV; leave low and high blank.

4 **Thickness** Enter 150 for RV; leave low and high blank.

11	Rock >10	0 – 0 – 0
12	Rock 3-10	0 – 0 – 0
13	#4	100 – 100 – 100
14	#10	100 – 100 – 100
15	#40	60 – 70 – 80
16	#200	0 – 12 – 25
26	Total Clay	0 – 0 – 1
30	OM	0 – 0.05 – 0.1
33	Db 0.33-bar H2O	1.4 – 1.5 – 1.6
35	Ksat	42 – 91 – 141
36	AWC	0.03 – 0.04 – 0.05
41	LEP	0.0 – 1.5 – 2.9
42	LL	0 – 7 – 15
43	PI	0 – 0 – 0

Horizon Texture Group Table

2	Tex Mod & Class	FS
4	Representative	Check yes

Horizon Texture Table

3	Texture	fs
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Horizon AASHTO Table

2	AASHTO	A-2 (RV) A-3
3	Representative	

Horizon Unified Table

2	Unified	SM (RV) SP-SM SP
	Representative	

Lava Flows

Component Table

3	Component Name	Lava flows
5	Taxon Kind	Miscellaneous area

6	Major Component	
8	Slope Gradient	Varies based on map unit slope range.
18	Hydric Rating	No
32	Nirr LCC	8
65	Int Subsid	0 – 0 – 0

Horizon Table

2	Top Depth	Enter 0 for RV; leave low and high blank.
3	Bottom Depth	Enter 150 for RV; leave low and high blank.
4	Thickness	Enter 150 for RV; leave low and high blank.

Horizon Texture Group Table

2	Tex Mod & Class	BR
4	Representative	Check yes

Horizon Texture Table

3	In Lieu	br
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Component Restrictions

2	Top Depth	0 – 0 – 0
5	Kind	Bedrock, lithic
6	Hardness	Indurated

Pits

Component Table

3	Component Name	Pits
5	Taxon Kind	Miscellaneous area
6	Major Component	
8	Slope Gradient	Varies based on map unit slope range.
18	Hydric Rating	No
32	Nirr LCC	8
65	Int Subsid	0 – 0 – 0

Horizon Table

2	Top Depth	Enter 0 for RV; leave low and high blank.
3	Bottom Depth	Enter 150 for RV; leave low and high blank.
4	Thickness	Enter 150 for RV; leave low and high blank.

Horizon Texture Group Table

2	Tex Mod & Class	BR, CB, or S
4	Representative	Check yes

Horizon Texture Table

3	In Lieu	Enter either br, cb, or s
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Note: If the map unit “Pits” is not specific as to the “kind” (i.e., gravel or quarry), do not populate any data fields except Component Name, Component Kind, and Major or Minor. If the “kind” is specific, populate the kind of pit in the local phase data field in NASIS (i.e., gravel).

Playas**Component Table**

3	Component Name	Playas
5	Taxon Kind	Miscellaneous area
6	Major Component	
8	Slope Gradient	Varies based on map unit slope range.
18	Hydric Rating	Yes
32	Nirr LCC	8
65	Int Subsid	0 – 0 – 0

Horizon Table

2	Top Depth	Enter 0 for RV; leave low and high blank.
3	Bottom Depth	Enter 150 for RV; leave low and high blank.
4	Thickness	Enter 150 for RV; leave low and high blank.
11	Rock >10	0 – 0 – 0
12	Rock 3-10	0 – 0 – 0
13	#4	100 – 100 – 100
14	#10	100 – 100 – 100

15	#40	100 – 100 – 100
16	#200	90 – 95 – 100
26	Total Clay	35 – 50 – 70
30	OM	0 – 0.05 – 0.1
33	Db 0.33-bar H2O	1.1 – 1.3 – 1.5
35	Ksat	0.01 – 0.21 – 0.42
36	AWC	Very strongly saline and sodic soils: 0.02 – 0.03 – 0.04 Slightly saline and sodic soils: 0.12 – 0.15 – 0.17
41	LEP	6.0 – 7.5 – 8.9
42	LL	45 – 60 – 75
43	PI	20 – 30 – 40
49	SAR	Very strongly saline and sodic soils: 70 – 200 – 999 Slightly saline and sodic soils: 1 – 5 – 13
51	EC	Very strongly saline and sodic soils: 16 – 24 – 32 Slightly saline and sodic soils: 2 – 6 – 16
55	pH 1:1 water	Very strongly saline and sodic soils: 9 – 10 – 11 Slightly saline and sodic soils: 7.4 – 8.0 – 9.0

Horizon Texture Group Table

2	Tex Mod & Class	SR- SICL C
3	Stratified?	Check yes
4	Representative	Check yes

Horizon Texture Table

Two entries are required (two rows).

3	Texture	Enter sicl and c
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Horizon AASHTO Table

2	AASHTO	A-7
3	Representative	Check yes

Horizon Unified Table

2	Unified	CL (RV) MH CH
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Representative Check yes for CL

Component Hydric Criteria

2 Hydric Criteria 3

Component Month Table

2 **Month** Enter all 12 months.

3 **Flooding Frequency** Enter none for all 12 months.

5 **Ponding Frequency** Frequent (December through September)

6 **Ponding Duration** Long (December through September)

7 **Ponding Depth** 0 – 15 – 30 (December through September)

Component Soil Moisture Table

Enter for all 12 months.

2 **Top Depth** December through May: 0 – 15 – 30
June through November: 30 – 118 – 183

3 **Bottom Depth** 183 – 183 – 183

4 **Moisture Status** Wet

Riverwash

Component Table

3 **Component Name** Riverwash

5 **Taxon Kind** Miscellaneous area

6 **Major Component**

8 **Slope Gradient** Varies based on map unit slope range.

18 **Hydric Rating** Enter yes if frequently flooded for long or very long durations during the growing season.
Enter no in all other instances.

32 **Nirr LCC** 8

65 **Int Subsid** 0 – 0 – 0

Horizon Table

2 **Top Depth** Enter 0 for RV; leave low and high blank.

3 **Bottom Depth** Enter 150 for RV; leave low and high blank.

- 4 **Thickness** Enter 150 for RV; leave low and high blank.

Horizon Texture Group Table

- 2 **Tex Mod & Class**
- 3 **Stratified?** Check yes
- 4 **Representative** Check yes

Horizon Texture Table

- 2 **Texture** Sand
- 3 **In Lieu** Gravel

Component Hydric Criteria

- 2 **Hydric Criteria** Enter 3 if hydric rating is "yes".
DO NOT POPULATE this table if hydric rating is "no".

Component Month Table

- 2 **Month** Enter all 12 months.
- 3 **Flooding Frequency** Enter frequent for appropriate months.
- 4 **Flooding Duration** Enter appropriate duration.
- 5 **Ponding Frequency** Enter none for all 12 months.

Component Soil Moisture Table

Enter for all 12 months.

- 2 **Top Depth** 0 – 30 – 61
- 3 **Bottom Depth** 183 – 183 – 183
- 4 **Moisture Status** Wet

Rock Outcrop

Component Table

- 3 **Component Name** Rock outcrop
- 5 **Taxon Kind** Miscellaneous area
- 6 **Major Component**
- 8 **Slope Gradient** Varies based on map unit slope range.
- 18 **Hydric Rating** No

32	Nirr LCC	8
65	Int Subsid	0 – 0 – 0

Horizon Table

2	Top Depth	Enter 0 for RV; leave low and high blank.
3	Bottom Depth	Enter 150 for RV; leave low and high blank.
4	Thickness	Enter 150 for RV; leave low and high blank.

Horizon Texture Group Table

2	Tex Mod & Class	BR
4	Representative	Check yes

Horizon Texture Table

3	In Lieu	br
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Component Restrictions

2	Top Depth	0 – 0 – 0
5	Kind	Bedrock, lithic
6	Hardness	Indurated

Rubble land

Component Table

3	Component Name	Rubble land
5	Taxon Kind	Miscellaneous area
6	Major Component	
8	Slope Gradient	Varies based on map unit slope range.
18	Hydric Rating	No
32	Nirr LCC	8
65	Int Subsid	0 – 0 – 0

Horizon Table

2	Top Depth	Enter 0 for RV; leave low and high blank.
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3	Bottom Depth	Enter 150 for RV; leave low and high blank.
4	Thickness	Enter 150 for RV; leave low and high blank.

Urban Land

Component Table

3	Component Name	Urban land
5	Taxon Kind	Miscellaneous area
6	Major Component	
8	Slope Gradient	Varies based on map unit slope range.
18	Hydric Rating	No
32	Nirr LCC	8
65	Int Subsid	0 – 0 – 0

Component Month Table

Urban land could flood in some instances. Populate flooding, if appropriate.

2	Month	Enter all 12 months.
3	Flooding Frequency	Enter frequent for appropriate months.
4	Flooding Duration	Enter appropriate duration for months that flood.
5	Ponding Frequency	Enter none for all 12 months.

Water

Component Table

3	Component Name	Water
5	Taxon Kind	Miscellaneous area
6	Major Component	
8	Slope Gradient	Varies based on map unit slope range.
18	Hydric Rating	No
32	Nirr LCC	8

NASIS Data Population

Attachment C—Higher Taxa Components

Consult MO1 staff when developing taxonomic unit descriptions for higher taxa components.

Attachment D—Component Restrictions

Below is a list of the kinds of restrictions that can be populated in the Component Restriction Table for MO-1. Only populate the component restriction if definition is satisfied.

Noncemented Restriction Kind

Abrupt textural change

- **Definition:** This term is NOT the same as the identically named soil characteristic defined in Soil Taxonomy. It is characterized by an increase in clay content of 20 percent or more (absolute) within a vertical distance of 7.5 cm. or less. The increase in clay content can occur anywhere in the soil profile. It is root restrictive.
- **Populate all fields in the Horizon Table and child tables according to MO-1 technical note 40.**

Densic material

- **Definition:** Material underlying a densic contact as defined in Soil Taxonomy. The material is virtually continuous within the limits of a pedon. Cracks that can be penetrated by roots are 10 cm. apart or more. The material is relatively unaltered and has a noncemented rupture resistance class. Commonly, it is earthy material such as till, volcanic mudflows, and mechanically compacted material, but noncemented rock can be densic material if it is dense or resistant enough to keep roots from entering, except in cracks.
 - Refer to page 25 in the 11th edition of Keys to Soil Taxonomy for the specific definition.
- This is relatively unaltered material associated with glacial till that has a NONCEMENTED rupture resistance class.
- **Populate all fields in the Horizon Table and child tables according MO-1 technical note 40.**
- Enter the following standardized values:
 - **Horizon designation:** Cd
 - **Bulk density:** 1.70 – 1.85 – 2.00
 - **Ksat:** 0.01 – 0.06 – 0.1 (low) or 0.1 – 0.55 – 1 (moderately low)
 - **AWC:**
 - MLRAs 1, 2, 3, 4A, 5: 0.0 – 0.0 – 0.0
 - All other MLRAs in MO-1: 0.04 – 0.06 – 0.08

Fragipan

- **Definition:** See page 11 of the 11th edition of Keys to Soil Taxonomy for specific criteria.
- **Populate all fields in the Horizon Table and child tables according MO-1 technical note 40.**
- Enter the following standardized values:

- Bulk density: 1.60 – 1.70 – 1.8
- Ksat: 0.01 – 0.06 – 0.1 (low) or 0.1 – 0.55 – 1 (moderately low)
- AWC: Should not exceed 0.07 cm/cm.

Natric horizon

- **Definition:** See page 12 of the 11th edition of Keys to Soil Taxonomy for specific criteria.
- **Populate all fields in the Horizon Table and child tables according MO-1 technical note 40.**
- SAR low must be greater than or equal to 13.

Strongly contrasting textural stratification

- **Definition:** Two definitions, **but it must be root restrictive for it to be listed in the Component Restriction Table.**
 1. The same as "strongly contrasting particle-size classes" described in the Keys to Soil Taxonomy except that the thickness requirement of 12.5 cm. or more for each of the contrasting particle-size classes is waived. The term is applied to the entire soil profile, not just the particle-size control section. In the context of how it is to be used for identifying a kind of restriction, it is root restrictive.
 2. Stratified soil textures that differ significantly enough to restrict the movement of water and air through the soil or that provide an unfavorable root environment. It is root restrictive in all cases.
- **Populate all fields in the Horizon Table and child tables according MO-1 technical note 40.**

Examples:

Soils classified as fine-loamy over sandy or sandy-skeletal would be populated as having a strongly contrasting textural stratification restriction if the boundary between the loamy and sandy parts is abrupt or clear and there is a class change of two or more in the permeability rate between the loamy and sandy parts.

Soils that have an abrupt textural change will also show a class change of two or three in permeability rate and a T factor of less than 5. These soils should not be populated as having both an abrupt textural change and a strongly contrasting textural stratification restriction kind. These soils would only show an abrupt textural change restriction kind.

Cemented Restriction Kind

Bedrock (lithic)

- **Definition:** Material underlying a lithic contact as defined on page 26 of the 11th edition of Keys to Soil Taxonomy. The material is virtually continuous within the limits of a pedon. Cracks that can be penetrated by roots are 10 cm. apart or more. When moist, hand digging with a spade is impractical, although the material may be chipped or scratched. Rupture resistance class is at least strongly cemented. The material commonly is indurated.
- Enter the following standardized values:
 - **Horizon texture:** Enter "br" in the In Lieu field in the Horizon Texture Table.

Horizon Texture					
		Seq	Texture	In Lieu	
▶ N	⊕ ▼			br	05/0
*	▼				

- Component restriction hardness: Strongly cemented or stronger, although typically it is indurated.
- Horizon designation: R

Bedrock (paralithic)

- Definition: Material underlying a paralithic contact as defined on page 26 of the 11th edition of Keys to Soil Taxonomy. The material is virtually continuous within the limits of a pedon. Cracks that can be penetrated by roots are 10 cm. apart or more. Rupture resistance is extremely weakly cemented to moderately cemented. Commonly, the material is partially weathered bedrock or weakly consolidated bedrock, such as sandstone, siltstone, or shale.
- Enter the following standardized values:
 - Horizon texture: Enter “br” in the In Lieu field in the Horizon Texture Table.

Horizon Texture				
Seq	Texture	In Lieu		
N		br	05/0	

- Component restriction hardness: Moderately cemented or weaker, although typically it is moderately cemented.
- Horizon designation: Cr

Duripan and Cemented horizon

- Definition: See page 14 of the 11th edition of Keys to Soil Taxonomy for specific criteria.
- If the restrictive feature is described as weakly cemented or weaker, populate all horizon data fields according to MO-1 technical note 40.
- Enter the following standardized values:
 - Texture modifier—*cem* (cemented):
 - If the restrictive feature is described as moderately cemented or stronger, populate horizon texture with the in lieu of term *mat* (material) and the texture modifier as *cem* (cemented). The texture will print as *cemented material*.

Horizon Texture Group	Horizon AASHTO	Horizon Consistence	Horizon Designation Suffix	Horizon Fragments	Horizon
		Seq	Tex Mod & Class	Stratified?	Representative?
N			CEM-MAT	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Horizon Texture				
Seq	Texture	In Lieu	Record Last Updated	
N		mat	05/07/2013 13:30:31	

Horizon Texture Modifier				
Seq	Modifier	Record Last Updated		NASIS Use
N	cem	05/07/2013 13:30:40		Stephens, Kyle

- Ksat: 0.01 – 0.06 – 0.1 (low) or 0.1 – 0.55 – 1 (moderately low)
- AWC: 0.00 – 0.00 – 0.00
- If noncemented layers or horizons are below a duripan or cemented horizon, these layers should be populated according to MO-1 technical note 40.

Placic horizon

- Definition: See page 14 of the 11th edition of Keys to Soil Taxonomy for specific criteria.
- Enter the following standardized values:
 - Component restriction hardness: Strongly cemented or stronger. To our knowledge, there are no ortstein or placic horizons that have cementation weaker than strongly cemented.
 - Ksat: 0.01 – 0.06 – 0.1 (low) or 0.1 – 0.55 – 1 (moderately low)
 - AWC: 0.00 – 0.00 – 0.00
 - Horizon texture: Populate horizon texture using the in lieu of term mat (material) and the texture modifier cem (cemented). The texture will print as *cemented material*.

Horizon Texture Group		Horizon AASHTO		Horizon Consistence		Horizon Designation Suffix		Horizon Fragments		Horizon	
Seq	Tex Mod & Class	Stratified?		Representative?							
N	CEM-MAT	<input type="checkbox"/>		<input checked="" type="checkbox"/>							

Horizon Texture		Horizon Texture Modifier		Horizon Designation Suffix			
Seq	Texture	In Lieu	Record Last Updated	Seq	Modifier	Record Last Updated	NASIS Use
N	mat		05/07/2013 13:30:31	N	cem	05/07/2013 13:30:40	Stephens, Kyle

- The only other data field to populate is horizon designation.
- If noncemented layers or horizons are below a placic layer, populate these horizons according to MO-1 technical note 40.

Ortstein

- Definition: See page 13 of the 11th edition of Keys to Soil Taxonomy for specific criteria.
- Enter the following standardized values:
 - Component restriction hardness: Strongly cemented or stronger. To our knowledge, there are no ortstein or placic horizons that have cementation weaker than strongly cemented.
 - Ksat: 0.01 – 0.06 – 0.1 (low) or 0.1 – 0.55 – 1 (moderately low)
 - AWC: 0.00 – 0.00 – 0.00
 - Horizon texture: Populate horizon texture using the in lieu of term mat (material) and the texture modifier cem (cemented). The texture will print as *cemented material*.

Horizon Texture Group		Horizon AASHTO		Horizon Consistence		Horizon Designation Suffix		Horizon Fragments		Horizon	
Seq	▲	Tex Mod & Class				<i>Stratified?</i>		<i>Representative?</i> ▲			
▶ N	▢ ▼	CEM-MAT				C		<input type="checkbox"/>		<input checked="" type="checkbox"/>	
Horizon Texture											
Seq	▲	Texture	In Lieu ▼		Record Last Updated						
▶ N	▢ ▼	mat			05/07/2013 13:30:31						
Horizon Texture Modifier											
Seq	▲	Modifier ▲	Record Last Updated				NASIS Use				
▶ N		cem	▼		05/07/2013 13:30:40				Stephens, Kyle		

- The only other data field to populate is horizon designation.
- If noncemented layers or horizons are below an ortstein layer, populate these horizons according to MO-1 technical note 40.