

# Interpretation of Gypsum in Soils

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# Objectives

- Recognize the limiting effects of gypsum in soils soils
- Establish a framework of interpretive criteria quantifying the degree of limitation to land use
- Devise a methodology to handle the null data fields associated with highly gypsiferous soils
- Revise National and Standard interpretations

# Limiting effects of gypsum

- Subsidence
- Corrosion of concrete and steel
- Piping
- Dust

# Subsidence

- Interpretive model assumes differential subsidence and the dissolution of all of the gypsum in the profile
- Wall is assumed to be 10m
- If predicted subsidence is:

Less than 3cm	not limited;
3 to 18cm	somewhat limited;
Greater than 18cm	severely limited

# Corrosion of Concrete and Steel

- Presence of gypsum, some sources as low as 2 percent for concrete
- Assume water is present due to altered hydrology
- Perhaps other variables not needed at this point?

# Piping

- Parameters for gypsum content set at:

Less than 5%

Not limited

5 to 25%

Somewhat limited

Greater than 25%

Severely limited

# Dust

- A dust subrule includes a gypsum content component
- Parameters for gypsum are:

Less than 2%

Not limited

2 to 15%

Somewhat limited

Greater than 15%

Severely limited

# Methodology

- Needed to overcome the lack of primary characteristic data, such as sieves, sand, silt, clay, and associated characteristics, like liquid and plastic limit
- Some layers in a component will have data to interpret and others may not
- Some layer data are conditionally null, or in other words, allowed to be null when certain conditions are met, such as very high gypsum content
- All property scripts which might touch the missing data needed to be modified to allow the “conditional null”

# Methodology

- 85 National and Standard interpretations were modified to be able to return a valid result when the conditional null is encountered.
- These are currently on the NSSC Data NASIS site, where they can be run using the NSSC Pangaea “INTERP – Portrait Table” report

# Subsidence Subrule

- Dwellings with Basements
- Dwellings without Basements
- Small Commercial Buildings
- Local Roads and Streets
- Unpaved Local Roads and Streets

# Dust Subrule

- Unpaved Local Roads and Streets
- Camp Areas
- Paths and Trails
- Picnic Areas
- Playgrounds
- Lawn, Landscape, and Golf Fairway
- Basically, any earth disturbing interpretation

# What about On-lot Effluent Disposal?

- What are local regulations?
- Are there systems that work?

# National Bulletin

- Should soon see a National Bulletin asking for a review of this work

# Thanks!

