

# How Local Interpretations Became Standard Irrigation Interpretations – Wayne J. Gabriel, Temple; Edward L. Griffin, Fort Worth; Jerry D. Walker, Fort Worth; and Dennis L. Williamson, Temple; USDA-NRCS



# Soil Irrigation Interpretations work started with needs and requests in the West, Central and East Regions

Web Soil Survey - Microsoft Internet Explorer

Address: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Intro to Soils | Suitabilities and Limitations for Use | Soil Properties and Qualities | Soil Reports

**Suitabilities and Limitations Ratings**

Open All | Close All

- Building Site Development
- Construction Materials
- Disaster Recovery Planning
- Land Classifications
- Land Management
- Military Operations
- Recreational Development
- Sanitary Facilities
- Vegetative Productivity
- Waste Management
- Water Management**
  - Embankments, Dikes, and Levees
  - Excavated Ponds (Aquifer-Fed)
  - Grassed Waterways and Surface Drains (TX)
  - Irrigation, General**
    - View Description | View Rating
    - View Options**
      - Advanced Options
        - View Description | View Rating
        - Irrigation, Micro (Above Ground)
        - Irrigation, Micro (Subsurface Drip)
        - Irrigation, Sprinkler (Close Spaced Drops)
        - Irrigation, Sprinkler (General)
        - Irrigation, Surface (Graded)
        - Irrigation, Surface (Level)
        - Pond Reservoir Areas
        - Terraces and Diversions (TX)
        - Tile Drains and Underground Outlets (TX)
        - Wildlife Management

**Map — Irrigation, General**

Scale: (not to scale)

**Tables — Irrigation, General — Summary By Map Unit**

Summary by Map Unit — Zapata County, Texas

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (rating values)	Acres in AOI	Percent of AOI
3	Realitos clay, 0 to 1 percent slopes	Somewhat limited	Realitos (90%)	Slow water movement (0.99)	18.3	0.0%
5	Houla loam, 1 to 5 percent slopes	Somewhat limited	Houla (95%)	Excess Sodium (0.96) Excess Salt (0.50) Slope (0.01)	380.1	0.1%
15	Garceno clay loam, 0 to 2 percent slopes	Somewhat limited	Garceno (90%)	Excess Sodium (0.26)	7,107.2	1.1%



National soil survey interpretations are nationwide in scope and application, and are mandated by federal legislation, policy, or regulation.

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**Suitabilities and Limitations Ratings**

Open All Close All

**Building Site Development**

- Corrosion of Concrete
- Corrosion of Steel
- Dwellings With Basements
- Dwellings Without Basements
- Lawns, Landscaping, and Golf Fairways
- Local Roads and Streets
- Shallow Excavations
- Small Commercial Buildings

**Military Operations**

**Bivouac Areas**

View Description View Rating

**View Options**

**Advanced Options**

View Description View Rating

- Excavations for Crew-Served Weapon Fighting Positions
- Excavations for Individual Fighting Positions
- Excavations for Vehicle Fighting Positions
- Helicopter Landing Zones

**Map — Bivouac Areas**

Legend

Scale (not to scale)

0 747ft

**Tables — Bivouac Areas — Summary By Map Unit**

Summary by Map Unit — Zapata County, Texas

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (rating values)	Acres in AOI	Percent of AOI
3	Realitos clay, 0 to 1 percent slopes	Very limited	Realitos (90%)	Too clayey (1.00)	18.3	0.0%
				Percs		

Done Trusted sites 9:39 PM

Standard soil survey interpretations and their related criteria that are nationwide in scope and application but are not mandated by federal legislation, policy, or regulation. These interpretations and their criteria are the national standard.

The screenshot displays the 'Web Soil Survey' application in a Microsoft Internet Explorer browser window. The address bar shows the URL: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. The page title is 'Web Soil Survey - Microsoft Internet Explorer'. The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The address bar contains navigation buttons (Back, Forward, Stop, Refresh, Home, Search, Favorites, Go) and the address text.

The main content area features several tabs: 'Intro to Soils', 'Suitabilities and Limitations for Use' (selected), 'Soil Properties and Quality', and 'Soil Reports'. Below the tabs, there are buttons for 'Printable Version' and 'Add to Shopping Cart'. The 'Suitabilities and Limitations for Use' section is expanded, showing a list of categories with expandable sub-items:

- Suitabilities and Limitations Ratings** (Open All, Close All)
  - Building Site Development**
    - Corrosion of Concrete
    - Corrosion of Steel
    - Dwellings With Basements
    - Dwellings Without Basements
    - Lawns, Landscaping, and Golf Fairways
  - Local Roads and Streets** (View Description, View Rating)
  - View Options** (View Description, View Rating)
  - Advanced Options** (View Description, View Rating)
  - Shallow Excavations
  - Small Commercial Buildings
  - Construction Materials
  - Disaster Recovery Planning
  - Land Classifications
  - Land Management
  - Military Operations
  - Recreational Development
  - Sanitary Facilities

To the right of the list is a map titled 'Map - Local Roads and Streets'. The map shows a geographic area with various colored regions (green, red, yellow) and numerical ratings (157, 34, 149, 15, 23). A scale bar indicates 747ft. Below the map is a table titled 'Tables - Local Roads and Streets - Summary By Map Unit'.

Summary by Map Unit - Zapata County, Texas						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (rating values)	Acres in AOI	Percent of AOI

The browser's taskbar at the bottom shows the Start button, several open applications (Microsoft PowerPoint, GabrielWJ2.do..., Web Soil Survey), and the system tray with the time 9:35 PM.

# Regional, state, or local soil survey interpretations are local or regional in scope and application.

Web Soil Survey - Microsoft Internet Explorer

Address: <http://websurveys.nrcs.usda.gov/app/WebSoilSurvey.aspx>

### Suitabilities and Limitations Ratings

Open All Close All

- Building Site Development**
  - Corrosion of Concrete
  - Corrosion of Steel
  - Dwellings With Basements
  - Dwellings Without Basements
  - Lawns, Landscaping, and Golf Fairways
  - Local Roads and Streets
  - Shallow Excavations
  - Small Commercial Buildings
- Construction Materials
- Disaster Recovery Planning
- Land Classifications
- Land Management
- Military Operations
- Recreational Development
- Sanitary Facilities
- Vegetative Productivity
- Waste Management
- Water Management
- Wildlife Management**
  - Burrowing Mammals and Reptiles (TX)
  - Crawfish Aquaculture (TX)
  - Desertic Herbaceous Plants (TX)
  - Domestic Grasses and Legumes, Food and Cover (TX)**

### Map — Domestic Grasses and Legumes, Food and Cover (TX)

Legend

Scale (not to scale)

### Tables — Domestic Grasses and Legumes, Food and Cover (TX) — Summary

By Map Unit

#### Summary by Map Unit — Zapata County, Texas

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (rating values)	Acres in AOI	Percent of AOI
3	Realitos clay, 0 to 1 percent slopes	Very limited	Realitos (90%)	Too clayey (1.00)	18.3	0.0%
				Drains slowly		

Done Trusted sites 9:46 PM

The California State Office in the late 1990's, produced several irrigation interpretations for statewide use.

Sue Southard, soil scientist with NRCS, met with the NRCS irrigation specialists in California and identified the types of irrigation systems.

The criteria for the new irrigation interpretations came from the California Irrigation Guide, research at the University of California Irrigation Program, University of California (UC), Davis, the National Engineering Handbook of USDA-NRCS, and the National Soil Survey Handbook.

We don't develop useful soil interpretations criteria or a national consensus on them with arm waving and idle talk.



# Requires Cooperation between NCSS Cooperators, NSSC, NTSC's, MSSO's, state & MLRA region staff



There was interest expressed by states in the Central Region to provide some irrigation interpretations for irrigation design and planning that could be accessed using Web Soil Survey and the Soil Data Mart.

MLRA region 9 suggested to Ed Griffin and Jerry Walker at the USDA NRCS Central National Technology Support Center (CNTSC), that we could sponsor and assist in developing some standard irrigation interpretations for the nation based on the California irrigation interpretation models

We agreed to provide funds to build them if the CNTSC would develop a consensus on the criteria.

Ed and Jerry co-chaired the Soil Interpretation Criteria Review Committee at the Southern Region National Cooperative Soil Survey Work Planning Conference on June 6, 2006, in Oklahoma City.

They sent out the criteria and NASIS reports for review throughout the Central Region, and to their counterparts Leander Brown, and Terry Aho who coordinated the comments on the criteria in the East and West Regions.

Ed and Jerry served as the clearinghouse for the nation for suggested criteria bugs and suggested modifications in the criteria.

Edward Griffin and Jerry Walker and came up with the concepts for 7 irrigation interpretations based on the latest irrigation technology.

By June, 2007 we had a consensus on criteria and names for the following irrigation interpretations:

WMS - Irrigation, General

WMS - Irrigation, Surface (Level)

WMS - Irrigation, Surface (Graded)

WMS - Irrigation, Micro (Above Ground)

WMS - Irrigation, Micro (Subsurface Drip)

WMS - Irrigation, Sprinkler (General)

WMS - Irrigation, Sprinkler (Close Spaced Drops)

## How did we build criteria and consensus?

We constructed a set of interpretations based on the former work in California, using the latest irrigation technology, and our best shot at criteria

Built prototype reports in NASIS for these interpretations

Solicited review and comments and made revisions available for testing in NASIS.

## What were the challenges?

Bugs and necessary revisions in the criteria were found and repaired through nationwide testing of the criteria.

There were a few turf battles over ownership and transfer of ownership of the interpretations.

There were also concerns that the California research that the interpretations were based on, was properly cited.

## What were the challenges?

### Communication

We received significant written and verbal feedback during several teleconferences and a net conference in 2007.

### Interpretive Focus

We had to keep the focus on producing lists of limitations for irrigation and not making the interpretations ratings for cropland.

## Success at last

Workable irrigation interpretations criteria that all 50 states could use, were built and transferred to the NSSC to be further modified and documented for use as standard soil interpretations.

By November 2007, the criteria and descriptive documentation had been blessed by the NSSC and were available to all the states as standard NASIS standard soil interpretations reports.

Each state decides which local, state, regional, or standard irrigation interpretations they want to export and download for survey areas in each state.



This project is an example of how ideas and criteria for new soil interpretations can be developed and elevated from the field level and state levels, to regional and or national scope with the help and coordination of National Technology Support Center specialists and the states and other National Cooperative Soil Survey cooperators, to build consensus on soil interpretations criteria.