WETLAND DELINEATION STATE – CH. 62-340 FAC FEDERAL – '87 WETLANDS MANUAL

KEY WORDS – INUNDATION, SATURATION

373.019(17) F.S. WETLANDS DEFINED – "... those areas that are **inundated** or **saturated** by surface water or ground water at a **frequency** and a **duration** sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in **saturated** soils..." (Emphasis added)

CORPS OF ENGINEERS 1987 WETLAND MANUAL – "Those areas that are inundated or saturated by surface or ground water at a frequency and a duration sufficient to support and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions..." (Emphasis added)



SATURATED/INUNDATED

SOME WETLANDS MAY APPEAR DRY



WETLANDS – HOW WET?



3 Categories of Field Indicators:

1) Plants

Vegetative index, stratum selection, dominance formulas

2) Soils

Hydric soil indicators

3) Hydrologic Indicators

All Indicators are used with: Reasonable Scientific Judgment Plant adaptations, aquatic fauna, evidence of flooding, etc.

The ability to collect and analyze information using technical skills and personal ecological experience as a basis for decision making

Unified Wetland Delineation Methodology (Rule 62-340, F.A.C.)

Goal of 62-340 was to combine all the different methodologies for wetland delineation into one universally excepted methodology.

All state and local regulatory agencies which use the word "wetland" must use 62-340, F.A.C. to define and delineate wetlands in all of Florida *INCLUDING* the Northwest district



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VEGETATIVE INDEX – FOUR CATEGORIES OBLIGATES (OBL) – NEARLY **ALWAYS IN WETLANDS** FACULATIVE-WET (FACW) -MOST FREQUENTLY IN WETLANDS FACULTATIVE (FAC) -IN EITHER WETLANDS OR UPLANDS UPLAND (UPL) - NEARLY ALWAYS IN UPLANDS Vegetative Index: does not include aquatic plants, vines, or any plants introduced after 1994. For all practical purposes these plants are "invisible".





Wetland plants are those species that normally grow within areas of standing water or where the soils are saturated within the root zone long enough for anaerobic soil conditions to develop. Wetland plants have morphological and physiological characteristics that enable them to grow in these areas.





FLORIDA WETLAND PLANTS AN IDENTIFICATION MANUAL

Dr. John D. Tobe Kathy Craddock Burks Richard W. Cantrell Mark A. Garland Maynard E. Sweeley Dr. David W. Hall Pete Wallace Guy Anglin Gil Nelson Dr. James R. Cooper David Bickner Katherine Gilbert Neil Aymond Ken Greenwood Nina Raymond



Florida Wetland Plants, An Identification Manual is available from IFAS by calling 1-800-

MAY HAW

Cratacgus aestivalis (Walt.) T. & G.

or through Amazon.com, keywords; author: Tobe, subject: Wetlands



VEGETATION INDEX – 62-340 (450) FAC

62-340.450 Vegetative Index.

(1) Obligate Species Acer maple, silver saccharinum Acoelorraphe palm, paurotis wrightii Acrostichum leather fern spp. Aeschynomene joint-vetch, pratensis meadow Agalinis linifolia false-foxglove, flax-leaf Againis false-foxglove, maritima saltmarsh lisma water-plantain, subcordatum subcordate Alnus serrulata alder, hazel Alternanthera alligator-weed

philoxeroides Alternanthera alligator weed, sessilis sessile Amaranthus amaranth, australis southern Amaranthus amaranth, cannabinus tidemarsh Amaranthus amaranth, floridanus Florida Ammannia spp. toothcup Annona glabra pond apple Aristida affinis three-awn grass, long-leaf Armoracia lakecress





Florida wetlands generally include swamps, marshes, bayheads, bogs, cypress domes and strands, sloughs, wet prairies, riverine swamps and marshes, hydric seepage slopes, tidal marshes, mangrove swamps and other similar areas



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National Resources Conservation Service (NRCS) guidelines for hydric soil field indicators

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Hydric Soils and Hydric Soil Indicators: A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile that favor the growth and regeneration of hydrophytic vegetation (USDA-NRCS 1991).



National Resources Conservation Service (NRCS) guidelines for hydric soil field indicators

The State methodology strictly adheres to the National Resources Conservation Service (NRCS) guidelines for hydric soil field indicators Source:



Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010 ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hvdric Soils/FieldIndicators v7.pdf





The soil on the right is hydric. It meets the requirements of indicator S7 (Dark Surface). From the surface and to a depth of 10 cm, value is 3 or less and chroma is 1 or less. Below 10 cm, the matrix has chroma of 2 or less. The soil on the left is not hydric. It does not have a dark surface horizon thick enough to meet the requirements of indicator S7 and does not meet the requirements of any other indicator.





United States

Department of

Agriculture In Cooperation with the National Technical

Committee for Hydric Soils

Natural Resources Conservation Service

Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010 *errata March 2013*

ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/FieldIndicators_v7.pdf



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USDA LAND RESOURCE REGIONS



Source:

Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010 ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/FieldIndicators_v7.pdf



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National Resources Conservation Service (NRCS) guidelines for hydric soil field indicators

Indicator A1 (Histosol or Histel). This soil has more than 30 inches of organic material, starting at the surface.

> Source: Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010 ftp://ftpfc.sc.egov.usda.gov/NSSC/Hydric_Soils/FieldIndicators_v7.pdf



National Resources Conservation Service (NRCS) guidelines for hydric soil field indicators

> Indicator A5 (Stratified Layers) in sandy material. The soil also meets the requirements of indicator A6 (Organic Bodies).

Source:

Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010 ftp://ftpfc.sc.egov.usda.gov/NSSC/Hydric_Soils/FieldIndicators_v7.pdf



National Resources Conservation Service (NRCS) guidelines for hydric soil field indicators

A7. 5 cm Mucky Mineral. For use in

LRRs P (*except for MLRA 136*), *T*, *U*, and *Z*. A layer of mucky modified mineral soil material 5 cm (2 inches) or more thick, starting within 15

cm (6/inches) of the soil surface

Source:

Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010 ftp://ftp-

fc.sc.egov.usda.gov/NSSC/Hydric_Soils/FieldIndicators_v7.pdf



National Resources Conservation Service (NRCS) guidelines for hydric soil field indicators

Indicator S6 (Stripped Matrix). This indicator requires diffuse splotchy patterns with rounded areas stripped of organic matter or iron, as exemplified in this photo.



Source: Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010 ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/FieldIndicators_v7.pdf

HYDROLOGIC EVIDENCE

SUFFICIENT HYDROLOGY, UNDER NORMAL CONDITIONS, AFFECTS ASPECTS OF VEGETATION, SOILS AND GEOMORPHOLOGY

62-340.300 LANDWARD EXTENT (BOUNDARY)

DETERMINED BY APPLYING REASONABLE SCIENTIFIC JUDGEMENT TO EVALUATE:

PLANT SPECIES SOILS

> OTHER HYDROLOGIC EVIDENCE OF REGULAR & PERIODIC INUNDATION AND SATURATION

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HYDROLOGIC INDICATORS CHAPTER 62-340.300 FAC

- HYDROLOGIC INDICATORS REQUIRED FOR WETLAND DETERMINATIONS ("A" "B" & "D")
- STAND ALONE SOILS TEST VERY WET SOILS ASSUMES SUFFICIENT HYDROLOGY





PRACTICAL CONSIDERATIONS "GET THE BIG PICTURE FIRST"



PRACTICAL CONSIDERATIONS "GET THE BIG PICTURE FIRST"

WETLAND DELINEATIONS – A SNAPSHOT, NOT A VIDEO OR MOVIE



- PUT THE SITE INTO ITS LARGER HYDROLOGIC CONTEXT
- GET AS MUCH DATA ABOUT THE SITE AS PRACTICAL – METEROLOGIC, HYDROLOGIC, TOPOGRAPHIC, SOIL SURVEY
- GET A FEEL FOR THE HYDROLOGIC REGIME, HYDROPATTERN, HYDROPERIOD



WETLANDS – HOW WET?



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DYNAMIC – NOT STATIC

CLIMATE CHANGE

- NORMAL CYCLICAL CLIMATE/WEATHER PATTERNS
- ANTHROPOGENIC INFLUENCES GROUND & SURFACE WATER MANIPULATION (i.e. DRAINAGE CANALS, STRUCTURES, IRRIGATION & WATER SUPPLY WELLS)





HYDROLOGIC INDICATORS CH. 62-340.500 FAC

- ALGAL MATS
- AQUATIC MOSSES OR LIVERWORTS ON TREES OR SUBSTITUTES
- AQUATIC PLANTS
- AUFWUCHS
- DRIFT LINES AND RAFTED DEBRIS
- ELEVATED LICHEN LINES
- EVIDENCE OF AQUATIC FAUNA
- HYDROLOGIC DATA
- MORPHOLOGICAL PLANT ADAPTATIONS
- SECONDARY FLOW CHANNELS
- SEDIMENT DEPOSITION
 - VEGETATED TUSSUCKS OR HUMMOCKS WATER MARKS





HYDROLOGIC INDICATORS CORPS '87 MANUAL REGIONAL SUPPLEMENT PRIMARY INDICATORS

- VISUAL OBSERVATION OF INUNDATION
- VISUAL OBSERVATION OF SOIL SATURATION
- WATER MARKS
- DRIFT DEPOSITS
- SEDIMENT DEPOSITS
- ALGAL MAT OR CRUST
- DRAINAGE PATTERNS (STREAMBEDS)
- RON DEPOSITS
- INUNDATION VISIBLE ON AERIAL IMAGERY
 - WATER STAINED LEAVES
 - AQUATIC FAUNA
 - MARL DEPOSITS





ALGAL MATS





ALGAL MATS

> Consider other factors before applying this one.





ELEVATED LICHEN LINES BUTTRESSED TRUNKS





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HIGH WATER MARKS





WETLAND HYDROLOGY CORPS '87 MANUAL

"The Term 'Wetland Hydrology' encompasses all hydrologic characteristics that are periodically inundated or have soils saturated to the surface at some time during the growing season..."

> PAGE 28 OF CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL TECHNICAL REPORT Y-87-1 ('87 MANUAL)

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WETLAND HYDROLOGY CORPS '87 MANUAL

"...Hydrology is often the least exact of the parameters, and indicators of wetland hydrology are sometimes difficult to find in the field. However, it is essential to establish that a wetland area is periodically inundated or has saturated soils during the growing season." (Emphasis added).

PAGE 29 OF CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL Y-87-1 ('87 MANUAL)

TECHNICAL REPORT



WETLAND HYDROLOGY CHAPTER 62-340.550 FAC REFUTING HYDROLOGY

CAN BE REFUTED BY RELIABLE HYDROLOGIC RECORDS OR SITE SPECIFIC HYDROLOGIC DATA

NO INUNDATION FOR SEVEN CONSECUTIVE DAYS OF SATURATION FOR TWENTY CONSECUTIVE DAYS

DATA REPRESENTATIVE OF LONG-TERM HYDROLOGIC CONDITIONS



N.



Department of Natural Resource Protection

Biological Rejources Division 218 : .W. 1st Avenue Fort Louderdale, FL 33301 254) 519 1230 • FA) (954) 519 1412

October 23, 1998

Mr. Michael J. Nichols Craven Thompson & Associates 3563 NW 53rd Street Ft. Lauderdale, FL 33309

Re: Brewer Lot 93-C, Pine Tree Estates BCDNRP File No. 02049

Dear Mr. Nichols:

This letter is in response to your letter of September 18, 1998. We are in agreement that at this time, the referenced site does not meet the hydrologic criteria within 62-340.550 F.A.C. based upon information you submitted for the period of 8/10/98 through 9/15/98, and therefore is not, at this time, subject to regulatory authority under Section 27-331-341 of the Broward County Code of Ordinances for placement of fill. The application will be considered withdrawn and the file closed.

If you have any questions, you may contact Mark Wallace or me at the above address.

Sincerely,

markinen

Kathryn Cartier Wetlands Resources Manager

Paul Brewer

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N. S. S.

NAILING DOWN HYDROLOGY SOME PRACTICAL EXAMPLES

"...Hydrology is often the least exact of the parameters, and indicators of wetland hydrology are sometimes difficult to find in the field..." PAGE 29 OF CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL MANUAL) TECHNICAL REPORT Y-87-1 ('87

....BUT IT MAY DEPEND UPON WHO'S LOOKING!

- Regional USGS and SFWMD Well Data
 Water Control Structure Data Long
 - In/Situ Well Data



Coordinate Data to Long Term Monthly Rainfall Data Controlled Primary, Secondary, Tertiary Canal Network Backstop – refuting hydrology through modeling









