

Nitrate Well Water Taskforce

Town of Holland
Town of Onalaska

La Crosse County

Nitrate in Well Water

June 2016 - Legislative Audit Bureau released report on the WPDES program

July 2016 - La Crosse County Health Department reviewed report

High nitrate found in monitoring wells at a swine CAFO since 2006 in La Crosse County

Audit was critical of the DNR response to the problem

Location of Nitrate Problem

Towns of Holland and Onalaska are home to 9,436 residents

Contain 16,000 acres of agricultural land

Groundwater from private wells is the sole source of drinking water

Nitrate in Well Water

March 2017, Public Health Advisory Issued by La Crosse County Health Department

April - May 2017, 540 private wells tested

30% of private wells in the Towns of Holland and Onalaska exceeded the federal nitrate standard of 10 mg/L

A statewide survey in 2016 estimated **8%** of private wells were above the nitrate standard

Grant to Study Nitrate Problem

Wisconsin Department of Health Services offered grants to study public health issues.

La Crosse County Health Department applied to the Wisconsin Environmental Public Health Tracking Program.

Purpose of grant: To develop public policies to reduce human exposure to nitrate in drinking water.

Task Force Membership

- CAROL DRURY, HEALTH DEPARTMENT
- GREGG STANGL, LAND CONSERVATION
- KARL GREEN, UW-EXTENSION
- CHARLIE HANDY, COUNTY PLANNER
- MIKE GEISE, COUNTY BOARD
- ANDRA STUPI, RESIDENT TN OF HOLLAND
- KRISTINE BRINK, RESIDENT TN OF HOLLAND
- DAVE FORD, RESIDENT TN OF ONALASKA,
- DAVE SAWVELL, HEALTH DEPARTMENT

Topics to Investigate

Nitrate Data & Well Characteristics

Agricultural Impact

Wellhead Protection Ordinance

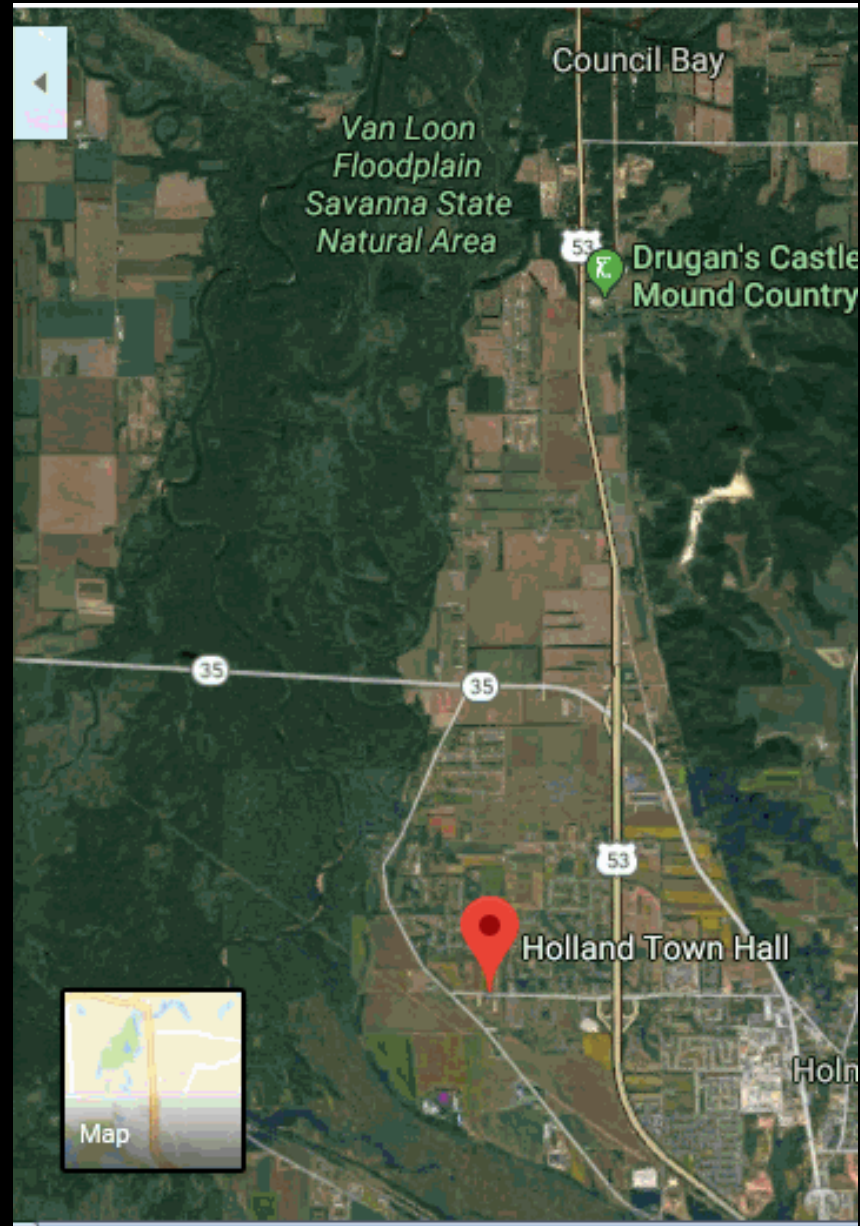
Municipal Services

Land Spreading Sludge

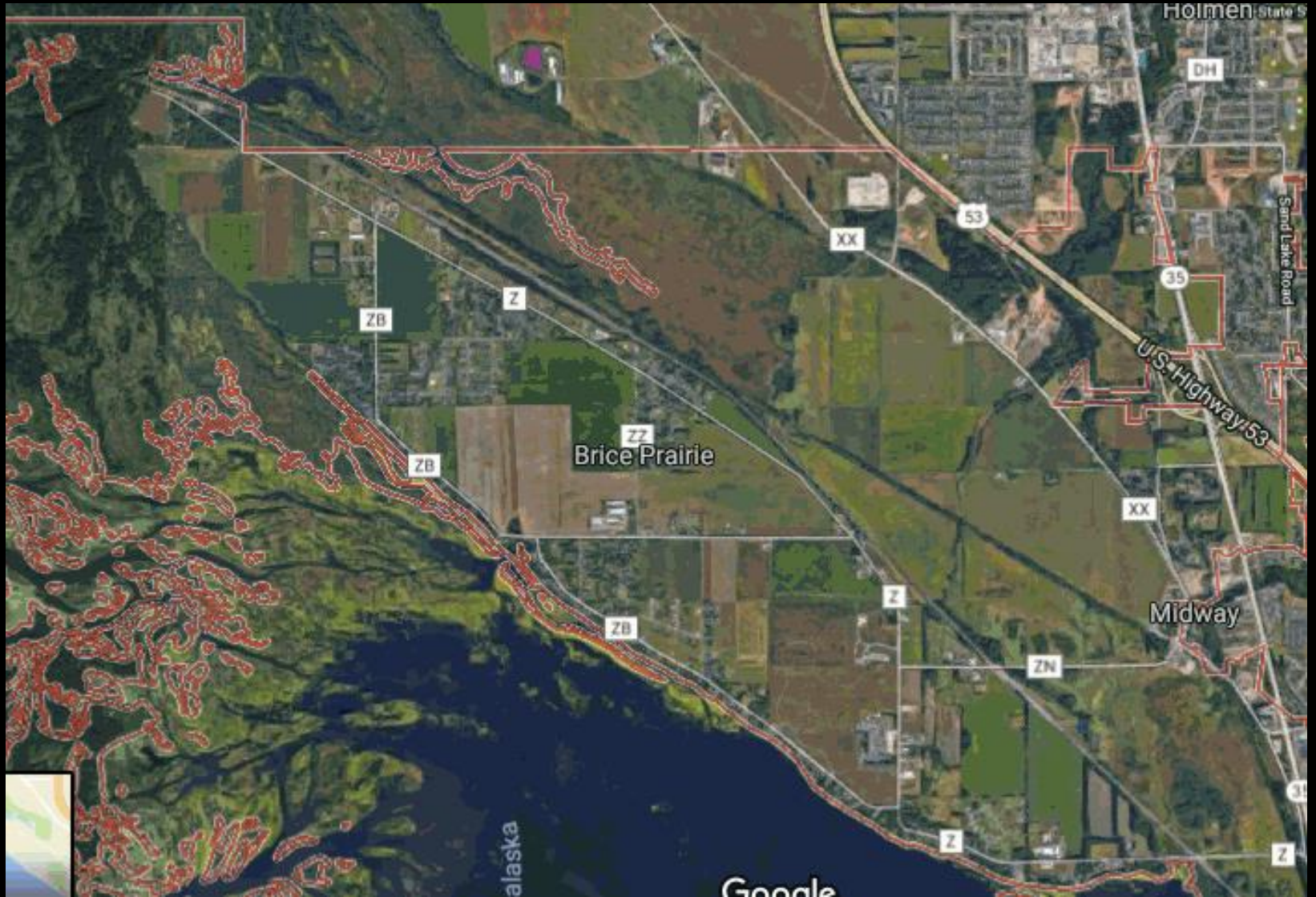
Nitrate Mitigation and Wetlands

Septic System Impact and New Technology

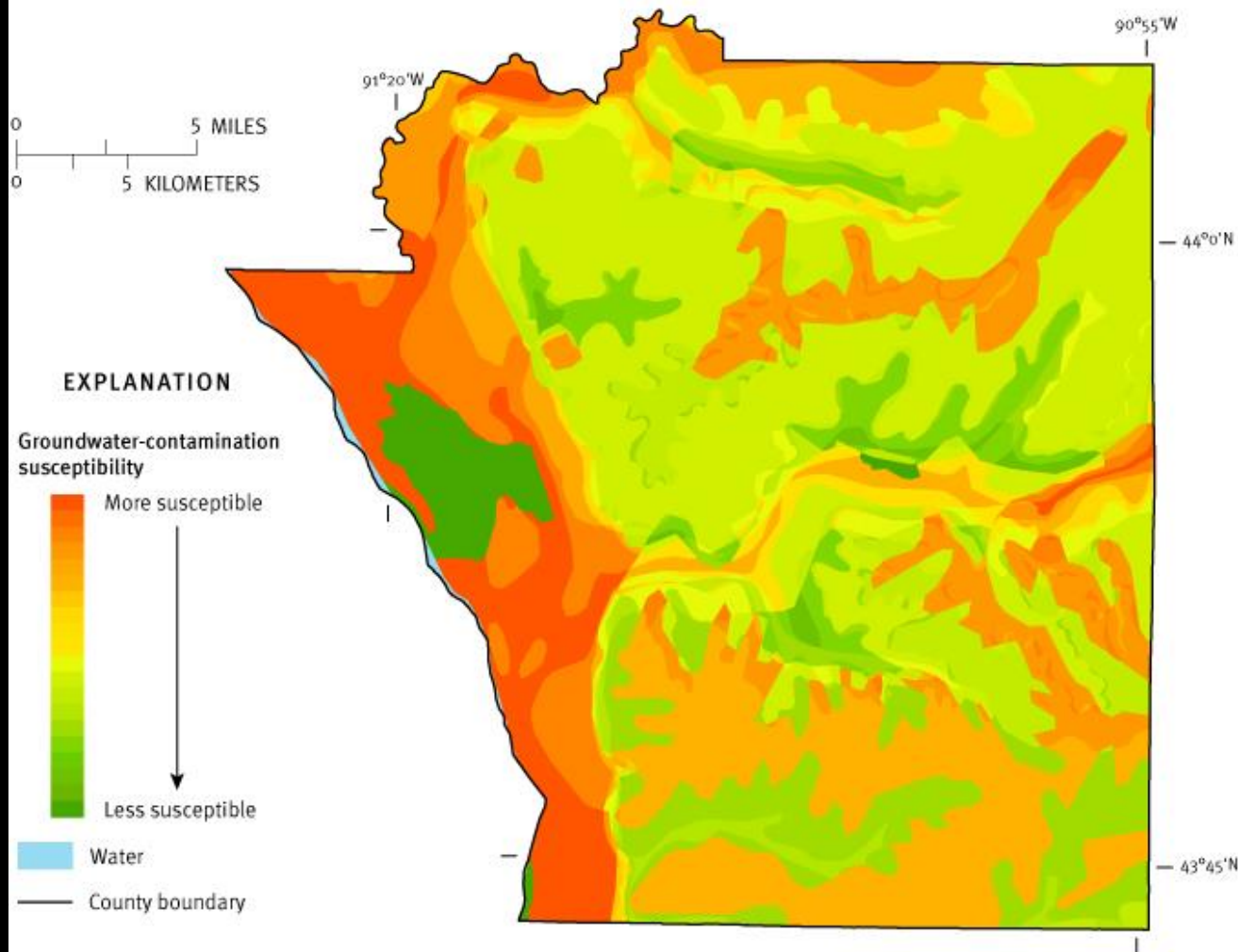
Tn Holland



Tn Onalaska



La Crosse County – Groundwater-Contamination Susceptibility Analysis

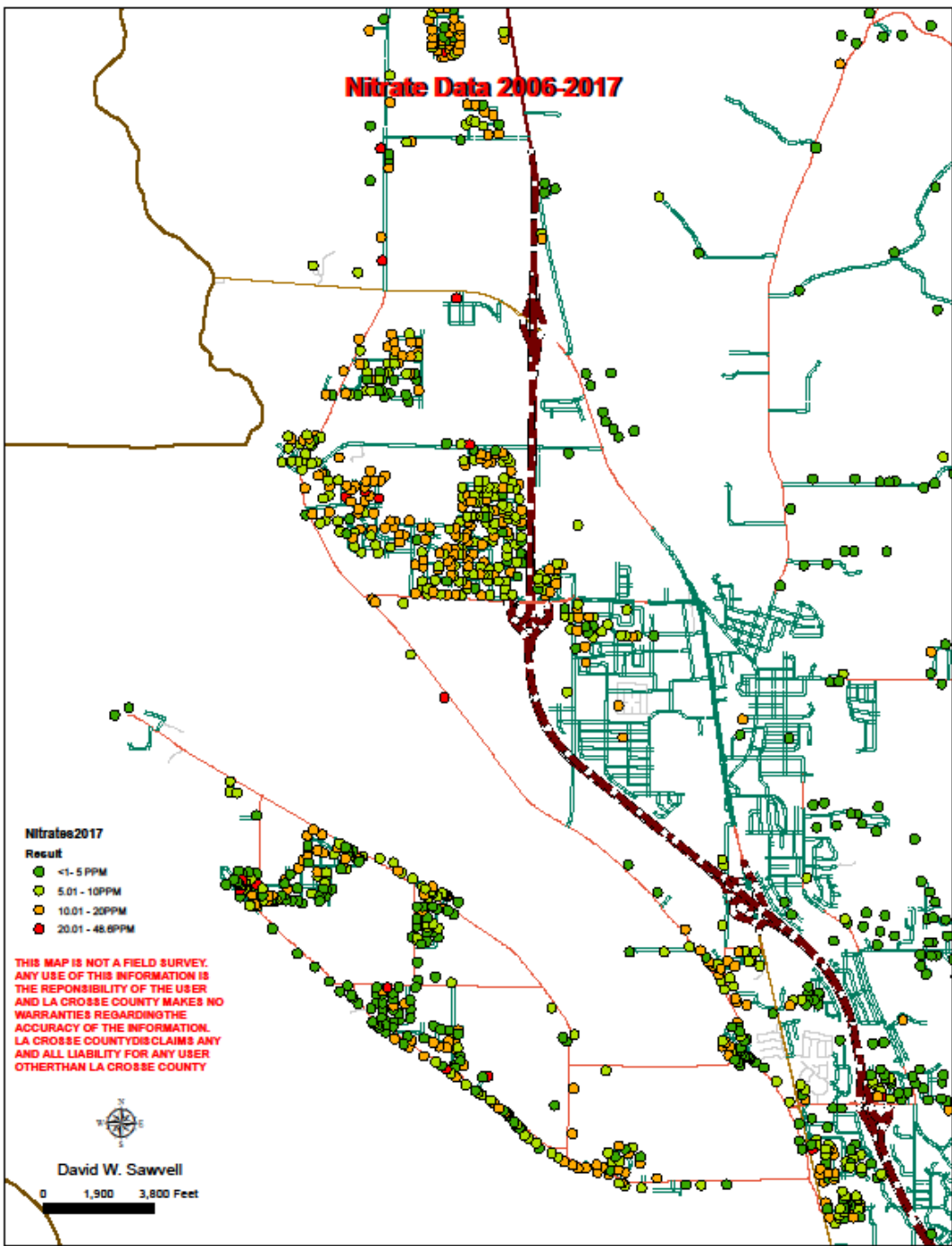


This groundwater-contamination susceptibility map is a composite of five resource characteristic maps, each of which was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

Map source: Schmidt, R.R., 1987, Groundwater contamination susceptibility map and evaluation: Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 5, PUBL-WR-177-87, 27 p.

Figure created for the "Protecting Wisconsin's Groundwater Through Comprehensive Planning" web site, 2007, <http://wi.water.usgs.gov/gwcomp/>

Nitrate Data 2006-2017



Nitrate2017

Result

- <math>< 5\text{ PPM}</math>
- 5.01 - 10PPM
- 10.01 - 20PPM
- 20.01 - 48.6PPM

**THIS MAP IS NOT A FIELD SURVEY.
ANY USE OF THIS INFORMATION IS
THE RESPONSIBILITY OF THE USER
AND LA CROSSE COUNTY MAKES NO
WARRANTIES REGARDING THE
ACCURACY OF THE INFORMATION.
LA CROSSE COUNTY DISCLAIMS ANY
AND ALL LIABILITY FOR ANY USER
OTHER THAN LA CROSSE COUNTY**



David W. Sawvell

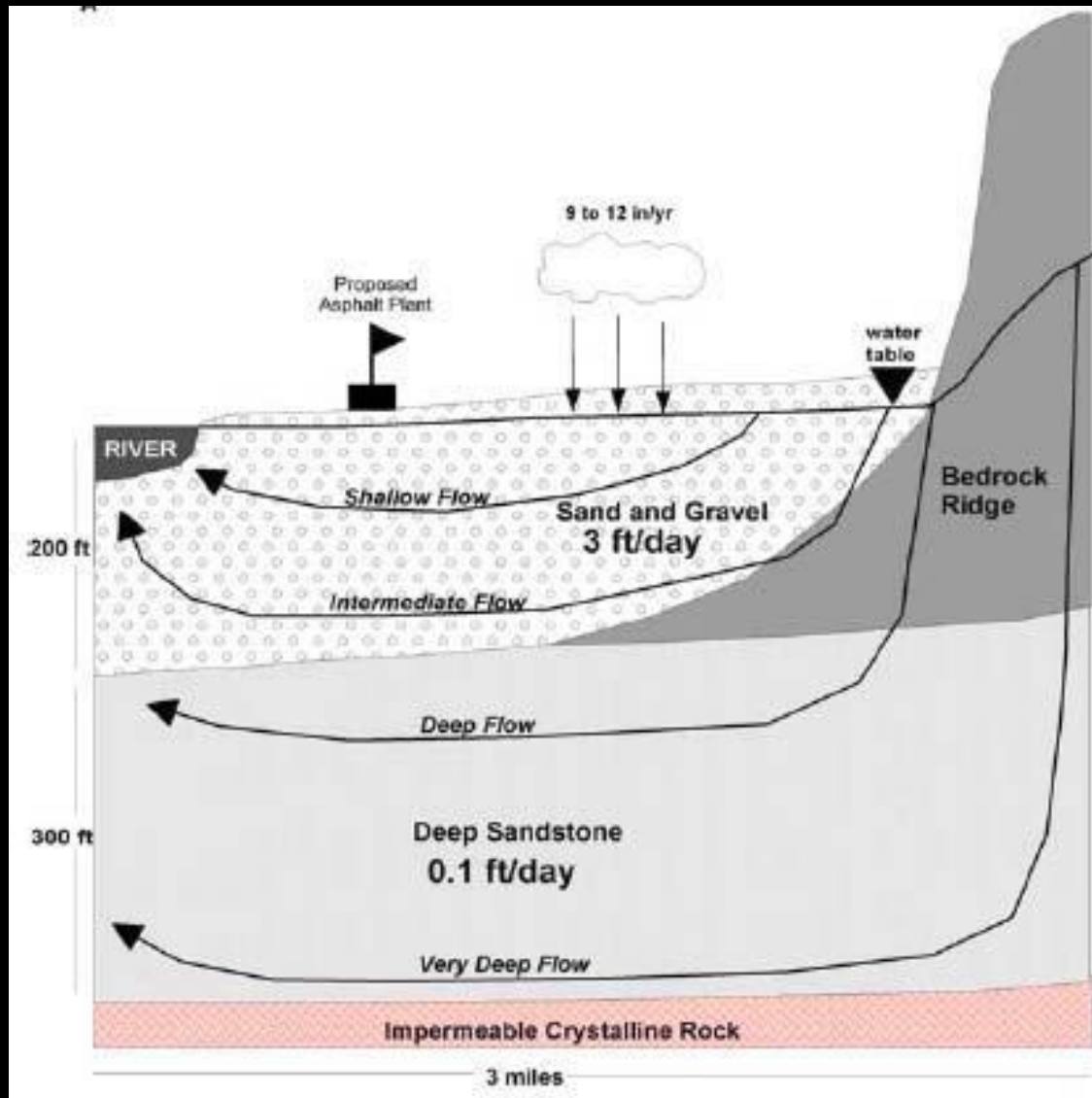
0 1,500 3,000 Feet

Well Water

Well water is obtained from an unconfined shallow sand-and-gravel aquifer 10-20 feet below the surface and 200 feet thick.

94% of private wells are less than 150 feet deep.

Unconfined Aquifer



Nitrate in Wisconsin

Origin of groundwater nitrate contamination;

90% from agriculture

9% from septic systems

1% from other sources

856,000 tons of nitrogen fertilizers were used in WI
from July 2015 to June 2016

CAFO

Babcock Genetics' 2017 annual report stated 10,000,000 gallons of liquid swine manure was spread over 327 acres on Dummer Family Farms from June-August 2017.

Manure is a source of nitrogen.

Groundwater moves southwest toward the Mississippi River at 3 feet per day.

State Regulations & Groundwater

Current Wisconsin laws are not intended to hold agricultural operations to the nitrate drinking water standard.

NR 151 “Runoff Management” states the following;

*“NR 151.004 State targeted performance standards. Implementation of the statewide performance standards and prohibitions in this chapter **may not be sufficient to achieve water quality standards** under chs. NR 102 to 105 or groundwater standards under ch. NR 140.”*

Septic Systems – 9% of Nitrate in Groundwater

There are 3,000 private septic systems within the Towns of Holland and Onalaska.

Conventional septic systems are not designed to remove nitrate from wastewater.

Nitrogen concentrations generally range 50-60 mg/L in domestic wastewater

An annual fee for nitrate removal surveillance for residential systems is required.

Nitrate Removal Septic Systems Approved for Clark County

A passive aerobic system with concrete septic tank:

- American Environmental Resources, Inc., (775) 323-8504

An active aeration and filtration system with concrete septic tank:

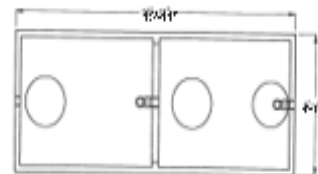
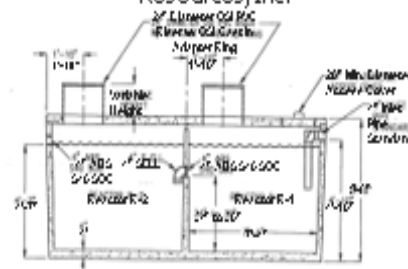
- Jenson Precast (local distributor), (800) 431-9308
www.jensencast.com
- Orenco Systems, Inc. (manufacturer), (800) 348-9843
www.orenco.com/ots/ots_adv_residential.asp

Approved Septic Tank Sizes for Nitrate Removal in Clark County

- American Environmental Resources, Inc. — 1,500 and 2,000 gallons
- Jenson/Orenco — 1,500; 2,000 and 2,500 gallons



Tank Detail American Environmental Resources, Inc.



Southern Nevada Health District
ENVIRONMENTAL HEALTH DIVISION
Individual Sewage Disposal Systems
330 S. Valley View • P.O. Box 3902



Nitrate Removal Guide for Individual Sewage Disposal

State Regulations & Groundwater

Private Onsite Wastewater Treatment Systems

*“SPS 383(4). GROUNDWATER STANDARDS. (a) Pursuant to s. 160.255, Stats., the design, installation, use or maintenance of a POWTS is **not required to comply with the nitrate standard specified in ch. NR 140 Table 1, except as provided under sub. (5).**”*

Reduce the number of residents
using private wells

Task Force Recommendations

1. Develop processes to inform current and potential residents of the nitrate contamination hazard through realtors, builders, county and municipal governments.
2. Extend municipal water systems from the Village of Holmen and City of Onalaska to existing residential developments where cost effective.
3. Allow new residential developments in the Towns of Holland and Onalaska in areas where homes can be connected to public water systems or protected community wells.
4. Rent or purchase lands currently used for row crops and replace with green spaces or land used for recreation.
5. Require green zones in all new subdivisions to protect wells. Green zones are areas with vegetation where no chemicals, manure or other substances are added to the landscape.

Why is it difficult to protect people?

It will be many decades before groundwater nitrate decreases to safe levels even if all sources were brought under control today.

The use of point-of-use treatment devices such as reverse osmosis filtration require constant vigilance and maintenance by the homeowner.

New wells continue to be drilled into the same shallow contaminated aquifer exposing new unsuspecting residents to this hazard.

Why is it difficult to protect people?

Access to municipal water = annexation = \$\$\$