



2018 VACo Annual Conference

# Using GIS to Improve Erosion and Sediment Control Program Efficiency



# Erosion & Sediment Control Laws in Virginia (9VAC25-840-60. Maintenance and Inspections)

- *“ALL EROSION AND SEDIMENT CONTROL STRUCTURES AND SYSTEMS SHALL BE MAINTAINED, INSPECTED AND REPAIRED AS NEEDED TO ENSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. “*
- *“THE VESCP AUTHORITY SHALL PROVIDE FOR AN INSPECTION IMMEDIATELY FOLLOWING INITIAL INSTALLATION OF EROSION AND SEDIMENT CONTROLS, AT LEAST ONCE IN EVERY TWO-WEEK PERIOD, **WITHIN 48 HOURS FOLLOWING ANY RUNOFF PRODUCING STORM EVENT**, AND AT THE COMPLETION OF THE PROJECT PRIOR TO THE RELEASE.”*

# The Importance of Erosion and Sediment Control



- PROTECT THE ENVIRONMENT
- PREVENT DAMAGE TO PROPERTY
- AVOID CLOGGING OF EXISTING DRAINAGE SYSTEMS

**CONTAIN ALL MATERIAL ON-SITE!**



# COMMON E&S CONTROL MEASURES:



The background of the slide is a light gray gradient. It is decorated with several realistic water droplets of various sizes, some clustered in the top-left and bottom-right corners, and others scattered individually. The droplets have highlights and shadows, giving them a three-dimensional appearance.

HOW DO YOU DETERMINE IF A  
POST-RAIN INSPECTION IS NEEDED?

(HALF AN INCH OF RAINFALL OR HIGHER IN 24 HRS)

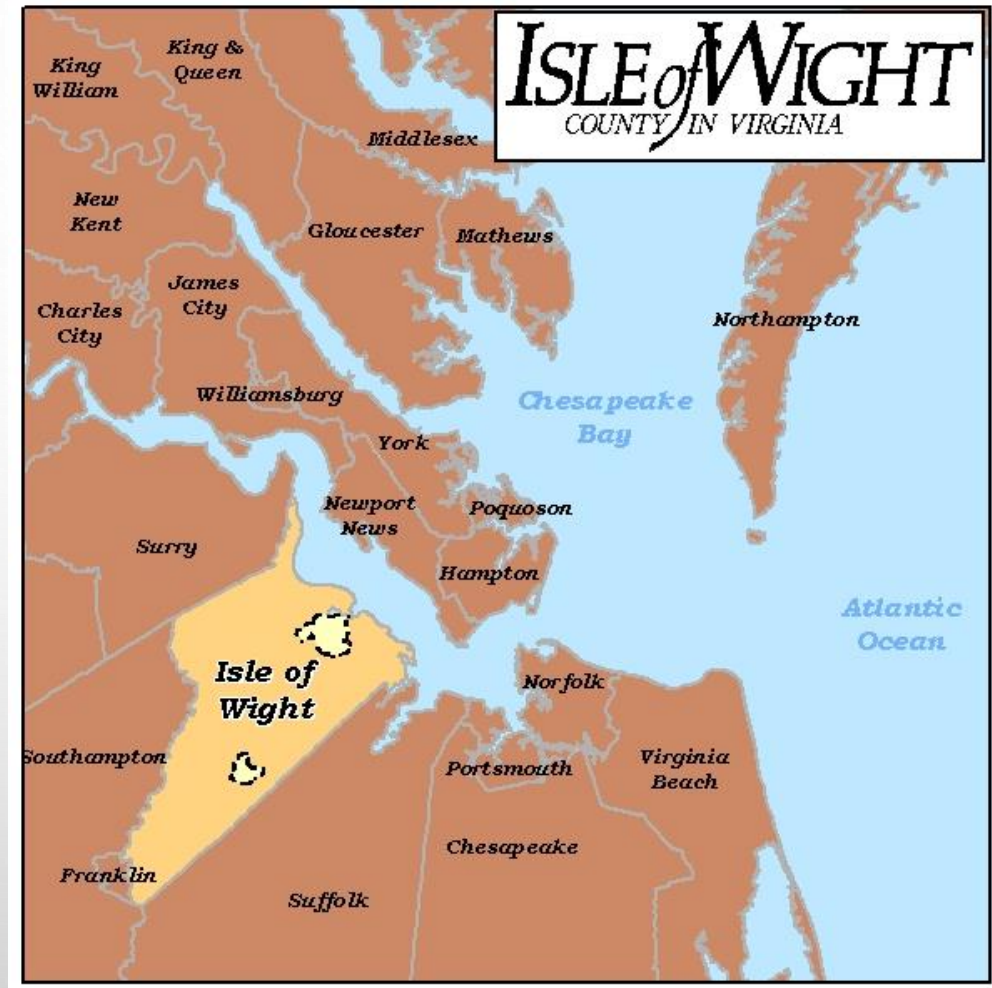
## HOW DO YOU DETERMINE IF A POST-RAIN INSPECTION IS NEEDED?

(HALF AN INCH OF RAINFALL OR HIGHER IN 24 HRS)





- THE COUNTY HAS A TOTAL LAND AREA OF 320+/- SQUARE MILES
- DIVISION STAFF CONSISTS OF 7 EMPLOYEES WHICH INCLUDES 2 FULL-TIME INSPECTORS





## THE MILLION DOLLAR QUESTION:

HOW DO WE MAKE THE MOST EFFICIENT USE  
OF STAFF TIME WHILE STILL MEETING STATE  
REQUIREMENTS?







## National Weather Service

# Advanced Hydrologic Prediction Service

[Home](#)[News](#)[Organization](#)Search for: ☒ NWS☐ All NOAA[Go](#)Local forecast by  
"City, St"City, St  [Go](#)[RSS](#) [RSS Feeds](#)[Warnings](#)[Current](#)[By State/County...](#)[UV Alerts](#)[Observations](#)[Radar](#)[Satellite](#)[Snow Cover](#)[Surface](#)[Weather...](#)[Observed Precip](#)[Forecasts](#)[Local](#)[Graphical](#)[Aviation](#)[Marine](#)[Hurricanes](#)[Severe Weather](#)[Fire Weather](#)[Text Messages](#)[By State](#)[By Message Type](#)[National](#)[Forecast Models](#)[Numerical Models](#)[Statistical](#)[Models...](#)[MOS Prod](#)[GFS-LAMP Prod](#)[Climate](#)[Warnings & Forecasts](#)[Graphical Forecasts](#)[National Maps](#)[Radar](#)[Water](#)[Air Quality](#)[Satellite](#)[Climate](#)[River Observations](#)[River Forecasts](#)[Experimental  
Long-Range River Flood Risk](#)[Precipitation](#)[River Download](#)[Other Information](#)[QPE: Quantitative  
Precipitation Estimates](#)[Download](#)[About NWS  
Precip Analysis](#)[Other Useful  
Information](#)[Survey &  
Feedback](#)[Regional / RFC  
Precip Data](#)**Last Update: 10/22/2018 2010 GMT****(1) Choose Format****(2) Select Time  
Range****(3) Select Date****(4) Select Download****(5) Press the  
"Download"  
Button**☐ NCEP Stage IV Archive☒ NetCDF☐ GeoTIFF☐ Full resolution image forFull Area ☐ Year☐ Month☒ Day

Year

Month

Day

2018

October

22

1 Day

Last 7 Days

Last 14 Days

Last 30 Days

Last 60 Days

[Download](#)**File Name****Files Included**

nws\_precip\_1day\_20181022\_netcdf

nws\_precip\_1day\_20181022\_ak.nc  
nws\_precip\_1day\_20181022\_conus.nc  
nws\_precip\_1day\_20181022\_pr.nc

## General Information

The precipitation data are quality-controlled, multi-sensor (radar and rain gauge) precipitation estimates obtained from National Weather Service (NWS) River Forecast Centers (RFCs) and mosaicked by National Centers for Environmental Prediction (NCEP). The original data from NCEP is in GRIB (GRIdded Binary or General Regularly-distributed Information in Binary form) format (files pre-March 22nd, 2017 are in XMRG format) and projected in the Hydrologic Rainfall Analysis Project (HRAP) grid coordinate system, a polar stereographic projection true at 60°N / 105°W.



## Table Of Contents



## Layers

- ☐ Survey Monuments
- ☒ Address
- ☐ RAINFALL GRID
- ☐ County Watersheds
- ☐ TRANSPORTATION LAYERS
  - ☒ Road Centerline (Named Roads)
    - HWY
    - SECONDARY
    - PRIVATE
  - ☐ Extended Driveways and Agricultural
  - ☐ Railroad
- ☐ UTILITY LAYERS
  - ☐ COMMUNICATIONS
  - ☐ Streetlights
  - ☒ WATER SYSTEM
    - ☐ Water Availabilty
    - ☒ Fire Hydrant
    - ☒ Water Valve
    - ☒ Water Line
    - ☒ Water Storage Tank
    - ☒ Water Source
    - ☒ Water Vault
  - ☐ WASTEWATER SYSTEM
    - ☐ Sewer Availabilty
    - ☒ Wastewater Valve
    - ☒ HRSD Interceptor
    - ☒ Sewer Pressurized Main
    - ☒ Sewer Gravity Main
    - ☒ Pump Stations
    - ☒ Sewer Manhole
    - ☒ Vacuum Access Points
    - ☒ Vacuum Vault
    - ☒ Vacuum Main
    - ☒ Wastewater Vault

ArcGIS® ArcMap™

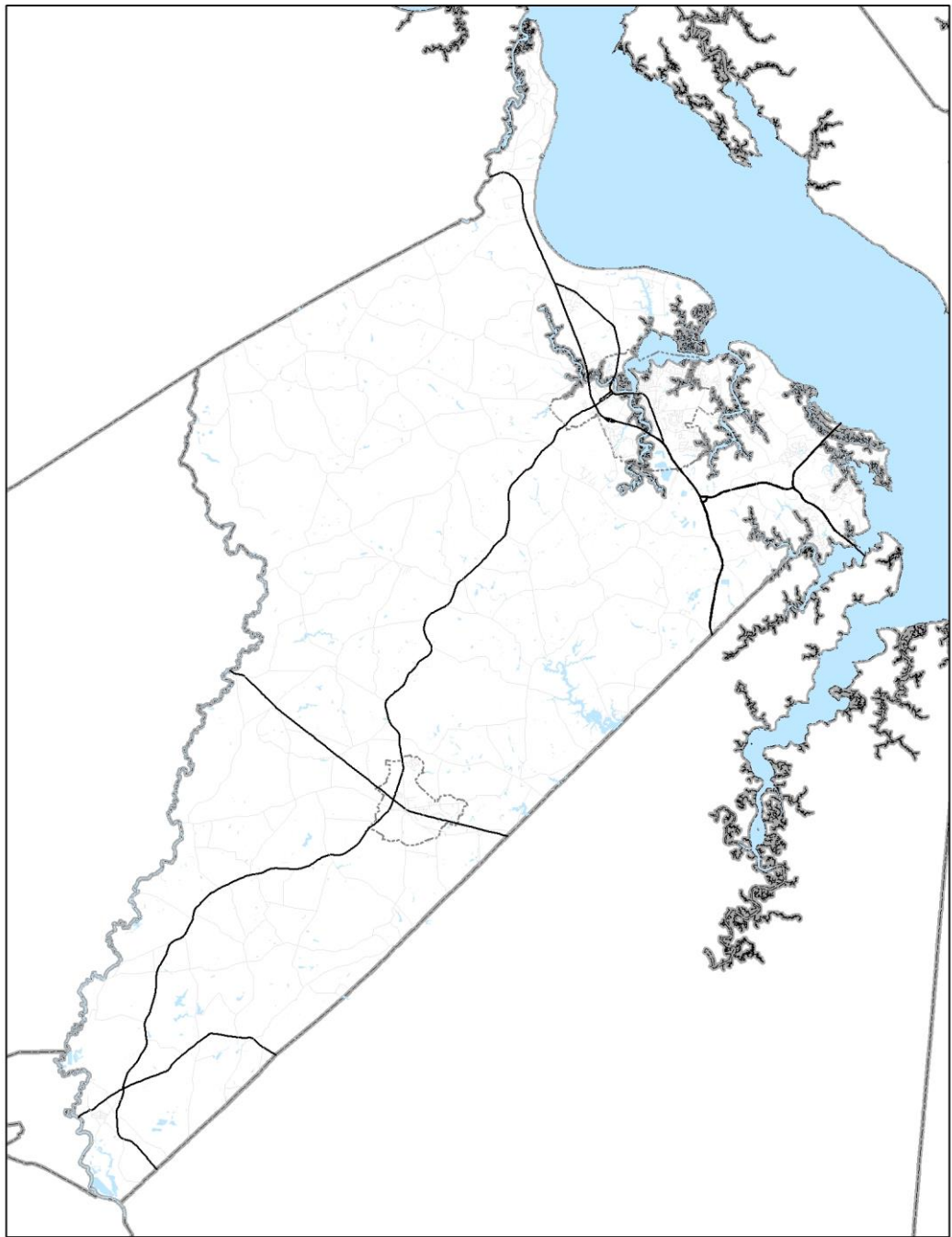
10.6.1

Initializing Application...



© 2018 Esri. All Rights Reserved



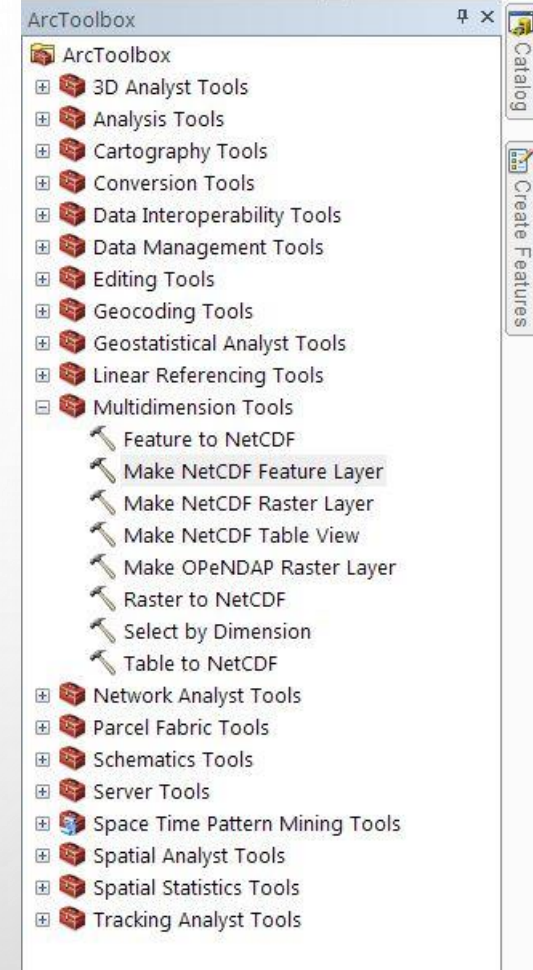
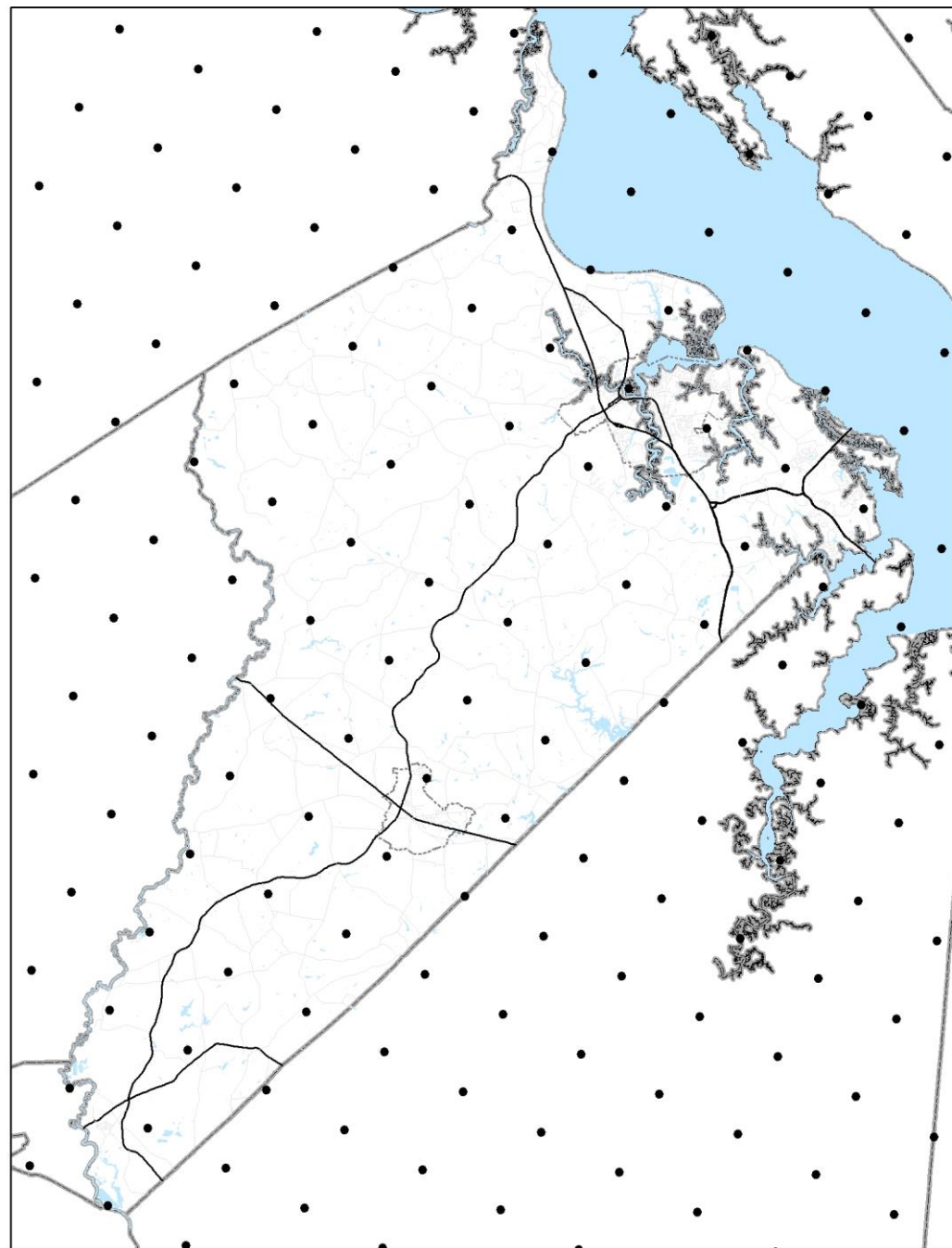


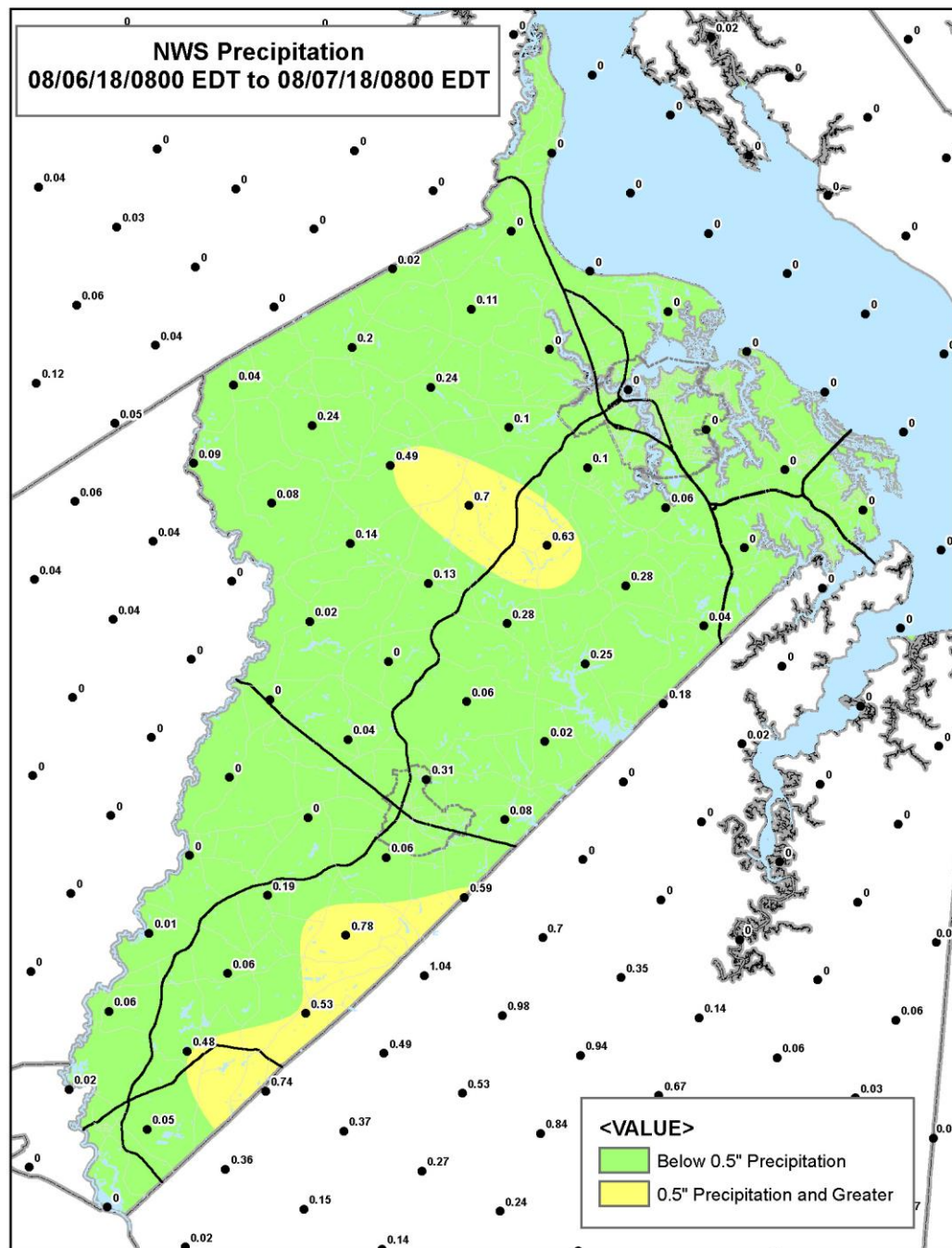


# Current Surface

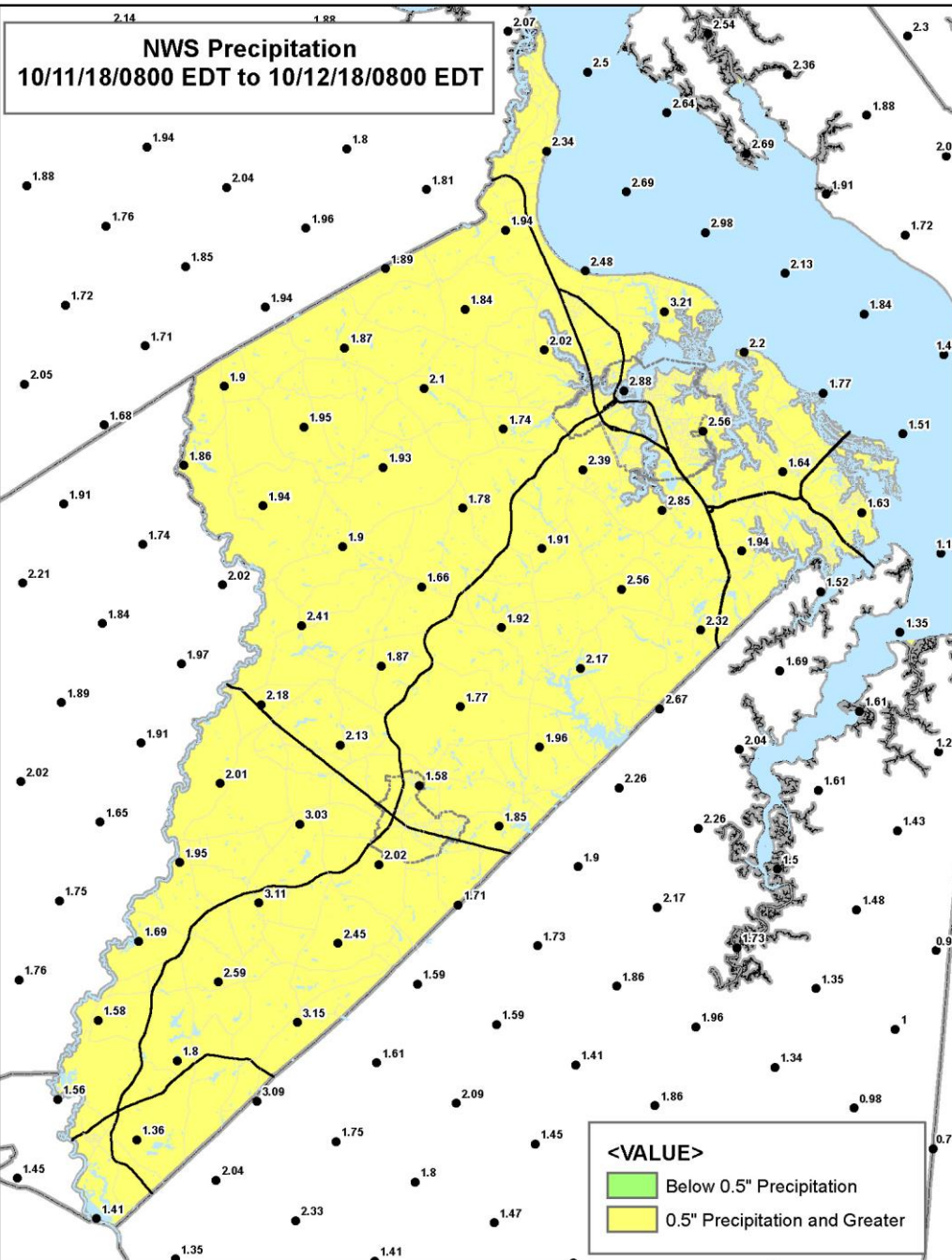


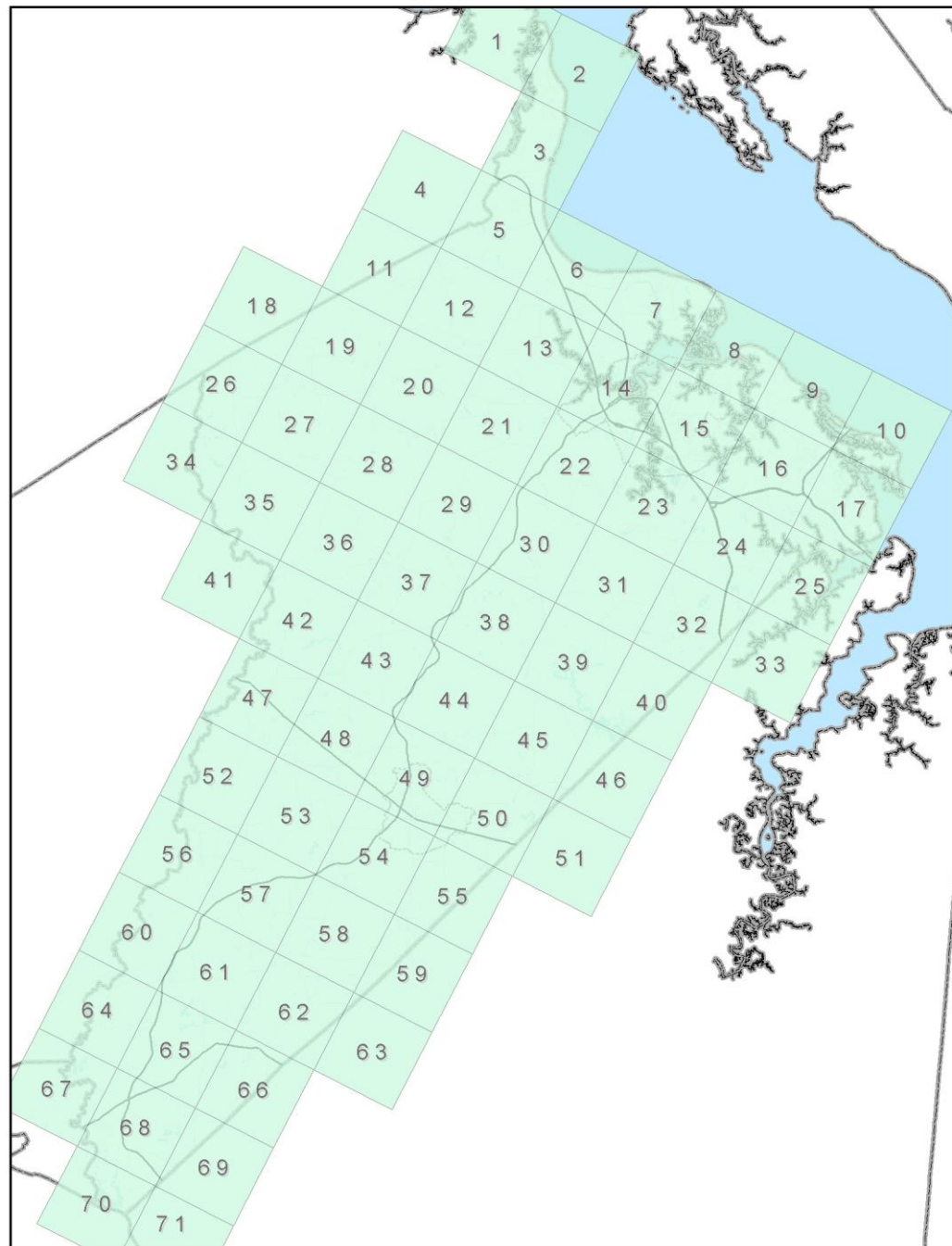












FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW Laserfiche

Paste Cut Copy Format Painter

Calibri 11 A A

B I U

Font

Wrap Text

Alignment

General

Number

Conditions Formatting

A4								
	A	B	C	D	E	F	G	
1	<b>IOW ID</b>	<b>observation</b>						
2	59	1.0433071						
3	58	0.7834646						
4	66	0.7401575						
5	29	0.7047244						
6	30	0.6338583						
7	55	0.5905512						
8	62	0.527559						
9	28	0.492126						
10	63	0.488189						
11	65	0.484252						
12	69	0.3582677						
13	49	0.3110236						
14	31	0.2755905						
15	38	0.2755905						
16	39	0.2480315						
17	20	0.2362205						
18	27	0.2362205						
19	19	0.1968504						
20	57	0.1929134						
21	40	0.1811024						
22	36	0.1377953						
23	37	0.1338583						
24	12	0.1102362						





## CONCLUSION:

- RELIABLE & PRECISE DATA THAT CAN BE ARCHIVED
  - BETTER USE OF STAFF TIME
  - LESS INSPECTIONS
- 





Tory L. Rowland  
Capital Project Engineer  
(757) 357-8084  
email: [TRowland@isleofwightus.net](mailto:TRowland@isleofwightus.net)

Herb Finch  
GIS Director  
(757) 365-6337  
email: [Hfinch@isleofwightus.net](mailto:Hfinch@isleofwightus.net)