BMP Verification and Resource Improvement Identification in Maryland

JASON KEPPLER

WATER QUALITY GOAL IMPLEMENTATION TEAM MEETING

AUGUST 19, 2019

BMP Verification Task Force

- In the fall of 2016, MDA formed the **BMP Verification Task Force** in response to the new requirement to strengthen the accountability and transparency of reported BMP practices.
- Currently consists of 5 individuals who work regionally throughout in all 23 counties in Maryland.
  - No verifiers work in an SCD in which they've written conservation plans.
- Verifiers are mobile and work on 3-week rotations in each Soil Conservation District.
- Verifiers are equipped with Laptops, iPads, Parcel spreadsheets and Verification forms to prepare and perform duties.

The Daily Life of the Verifier…..

- A typical 3-week stint of a task force member flows as follows:
  - Headquarters provides the Verifier with a list of parcels to visit ranked by N-reduction potential.
  - Headquarters provides pre-populated verification forms with WIP-eligible BMP data pulled directly from ***Conservation Tracker*** that includes the following:
    - BMP-ID: A unique identification number
    - Practice code and type
    - Install amount and Install date
    - Cost-share data, both MACS or Federal
    - Cooperator contact information
    - Farm/Tract numbers and Maryland Property Account ID information

The Daily Life of the Verifier, continued….

- Typically, the first week of the verification period is spent reviewing conservation plans to identify BMP locations and to perform a QAQC of the data in ***Conservation Tracker***.
  - If discrepancies in data are found between the conservation plan, cost-share contract data, and Conservation Tracker data, the BMP is assigned an "ADMIN" status which will be joined with the field-observed Verification Status during reporting to the SCD.
- As plans are reviewed, Verifiers map extents using ArcGIS.
  - ArcGIS app includes several years of imagery layers to confirm locations for BMPs that no longer exist.
  - If a practice cannot be mapped due to insufficient data, it can be mapped in the field using the ArcGIS Collector app on the iPad.
  - The goal in the future is to use spatial mapping as a means to reconcile data.

The Role of the SCD

- After completing the plan review, the Verifier provides the SCD with a list of parcels they would like to visit during that verification period.
- The SCD contacts **EVERY** landowner/cooperator, explains the verification process, and gains access to the farm for the Verifier.
  - Cooperators tend to be more comfortable speaking with SCD representatives that they know.
  - Less than one percent of landowners/cooperators have denied access to their property.
- During the final week of the verification period, the Verifier will schedule a "Close-out" meeting with SCD staff to deliver important information found in the field and prepare them for reconciliation.
- Reconciliation of administrative issues found during verification.
  - Every 2 months, the SCDs receive a "Reconciliation Spreadsheet" detailing database items that need to be corrected based on verification data.
  - SCDs are asked for retirement dates for BMPs that no longer exist or no longer provide WQ benefit.
  - This process includes filling in information gaps (such as install dates) for RI's identified where the Verifier did not have access to interview the cooperator.

Farm-by-Farm Verification

- After confirming access, Verifiers spend the next 2 weeks of the verification period visiting each parcel in a manner to maximize efficiency and review the most reduction potential.
  - Properties managed by the same cooperator are grouped to limit contact.
  - Properties that have been visited by MDA for other purposes are culled from the list.
  - Bio-security measures are in place, including for poultry operations.
- Each BMP is measured by its model definition and NRCS standard. These general questions are also considered:
  1. Are NRCS Standards and Specifications in place at the time of construction still being met or does the practice still meet RI visual indicators?
  2. Is the BMP being utilized as intended and achieving its original purpose?
  3. Are resource concerns being addressed?
  4. Were any alterations made to the project that lessened the effectiveness?
  5. Is any maintenance needed to bring the BMP to the minimum NRCS standard or to an RI level?

Determining a BMP Status

- Upon visual inspection of a BMP, the Verifier can make any one of the following Status Determinations:
  - **Meets Standard**
  - **Does Not Meet Standard**
  - **No Longer Present**
  - **Administrative** (can be joined with any of the above other statuses)
  - **Meets Standard, No Animals** (for those practices that Meet Standard, but are no longer providing the intended water quality benefit or for BMP types that are not WIP eligible, such as Poultry HUAs)
  - **TYPO/Duplicate** (for those practices found to be database entry errors or those that never existed)
- After verification forms are completed, they are delivered to Headquarters for database entry, whereupon reconciliation reports are created for SCD feedback.

MARYLAND AGRICULTURAL WATERSHED IMPLEMENTATION PROGRAM
ON-FARM BMP VERIFICATION MAINTENANCE AND USE

Plan #: 116365
Parcel #: 122183

Cooperator Contact Information

[redacted]

SCD: Allegany
Farm/Tract: [redacted]
MPV Acct ID: [redacted]

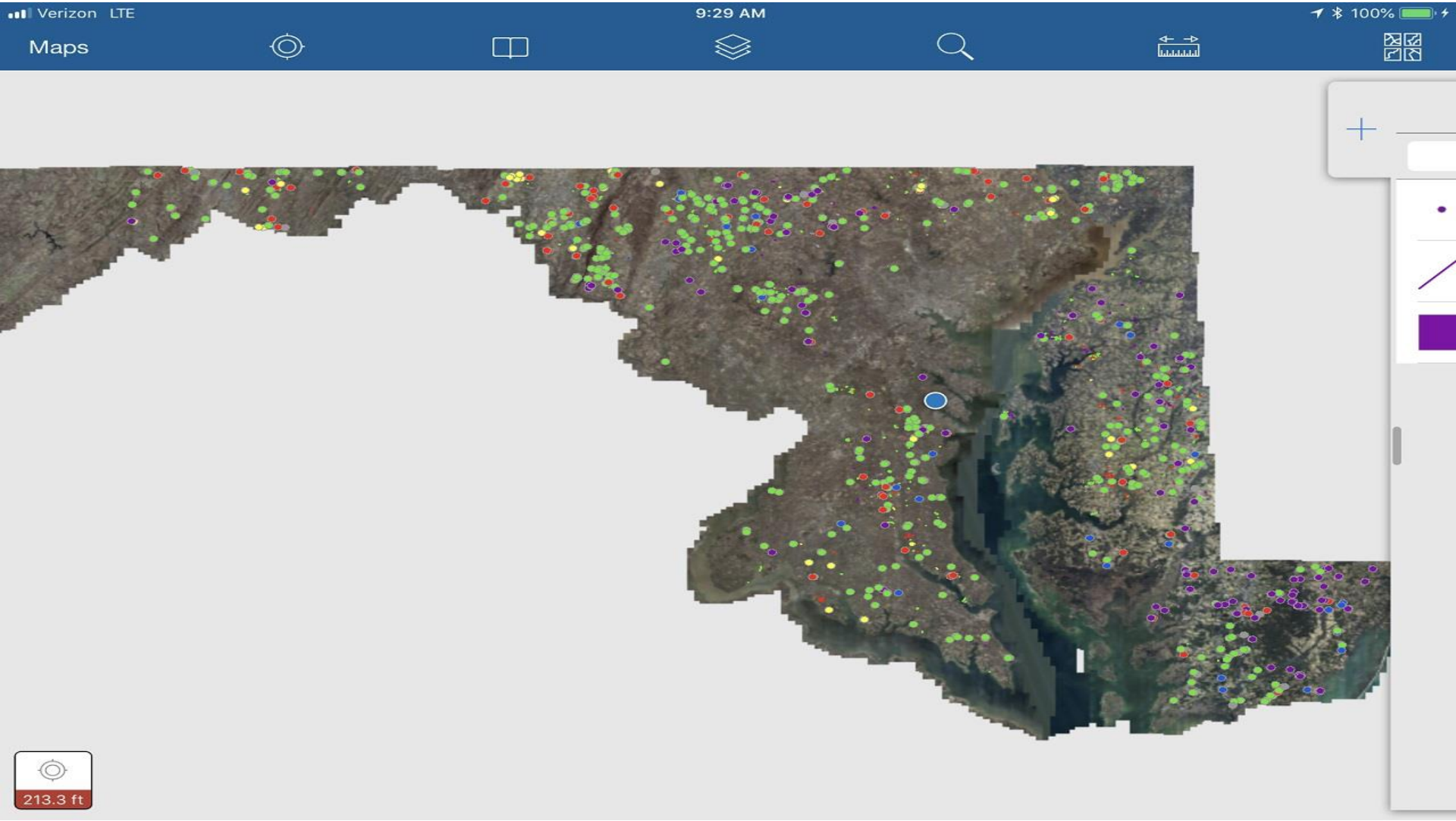
BMP ID	BMP Practice Code and Name	Install Date / Verified Date	Install Amount / Verified Amount	Unit	MACS / FED CS	1. Are NRCS Standards & Specs in place at time of construction still being met or does the practice still meet RI visual indicators?	2. Is the BMP being utilized as intended and achieving its original purpose?	3. Are resource concerns being addressed?	4. Were any alterations made to the project that lessened the effectiveness ?	5. Is any maintenance needed to bring the BMP to the minimum NRCS standard or to an RI Level?*	BMP Status
131382	382 - Fence	05/29/2007	8,585.00	FT	EQIP	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	MS DNMS DNE ADMIN
131383	614 - Watering Facility	05/29/2007	3.00	NO	EQIP	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	MS DNMS DNE ADMIN
167427	558 - Roof Runoff Structure	11/10/1994	1.00	NO	19930871	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	MS DNMS DNE ADMIN
167428	382 - Fence	12/09/1996	3,300.00	FT	19960938	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	Y☐ N☐ N/A☐	MS DNMS DNE ADMIN

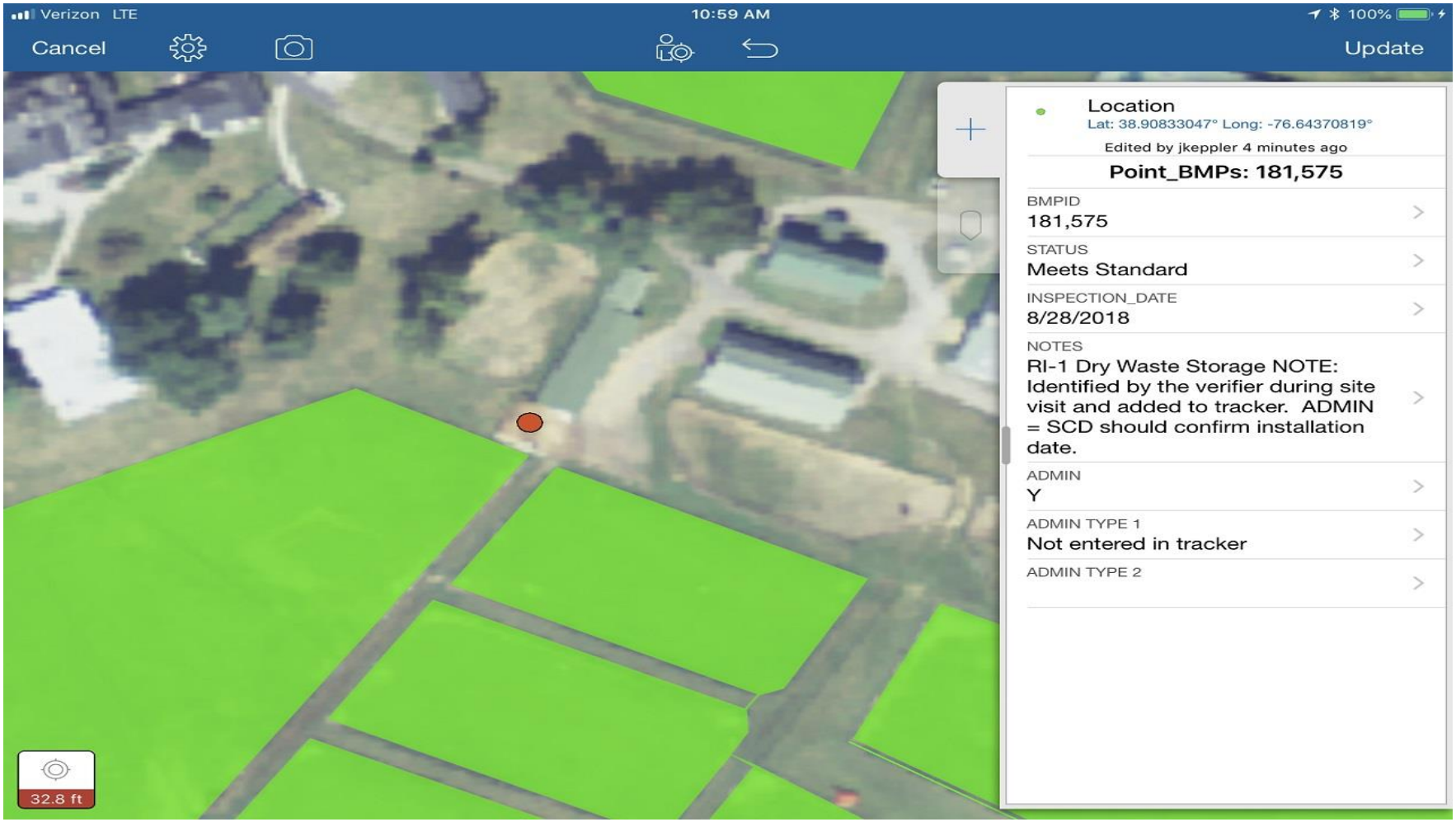
* Forest and Grass Buffers should be evaluated for water quality functionality and not planting density or species mix. Observation of some noxious and/or invasive weeds should be noted but alone will not result in an unsatisfactory review. If checked "Y" briefly describe below 1) the maintenance work required, and 2) the follow-up discussion with SCD staff to address project deficiencies.

Reviewer Name, Position and Signature

Date of Review

For Admin Use Only:
Status entered into Conservation Tracker _____ Initials:_____


Verizon LTE
9:29 AM
100%
Maps
213.3 ft


Verizon LTE
10:59 AM
100%
Cancel
Update
Location
Lat: 38.90833047° Long: -76.64370819°
Edited by jkeppler 4 minutes ago
Point_BMPs: 181,575
BMPID
181,575
STATUS
Meets Standard
INSPECTION_DATE
8/28/2018
NOTES
RI-1 Dry Waste Storage NOTE: Identified by the verifier during site visit and added to tracker. ADMIN = SCD should confirm installation date.
ADMIN
Y
ADMIN TYPE 1
Not entered in tracker
ADMIN TYPE 2
32.8 ft

Verizon LTE 11:02 AM 100%

Cancel Done Update

181575 - T1005 - Dry Waste Storage - 28Aug2018.JPG

76.64370819°
d.gov_maryland 2
31,575
NOTE:
during site
er. ADMIN
stallation
32.8 ft

Ground-truthing every BMP…..

- Since the fall of 2016, the task force has verified 35% of all the WIP-eligible practices installed in Maryland.
- At our current pace, we will complete verification of all WIP-eligible practices before 2025.
- We have found that this process has produced co-benefits, to include:
  - Identifying new opportunities to install BMPs as we find resource concerns during site visits and deliver that information to the SCD for outreach.
  - The opportunity to identify and repair BMPs that do not meet standard (3.62%)
  - Improving the quality of our data and identifying gaps between agency data.
  - Identification of Resource Improvement practices eligible for reduction credit.

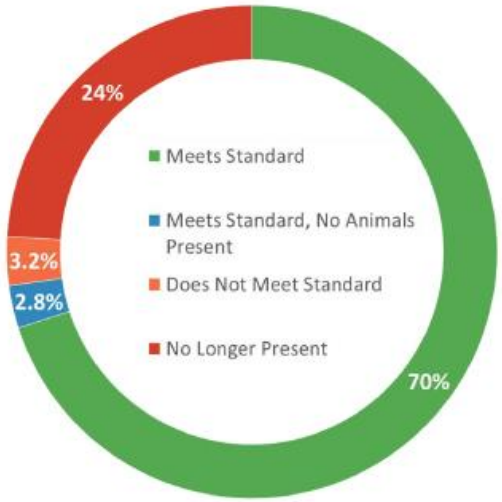


Figure B-3: Maryland BMP Status Determinations.

	Resource Improvement Practice Name	Additional Practice Information
RI-1	Dry Waste Storage	
RI-2	Animal Compost Structure	
RI-3	Alternative Crop/Switchgrass	
RI-4a	Watercourse Access Control – Narrow Grass	10’-34’ Width Exclusion Area, Natural Grass or planted
RI-4b	Watercourse Access Control – Narrow Trees	10’-34’ Width Exclusion Area, Native Trees or planted
RI-5	Watercourse Access Control - Grass	35'+ Width Exclusion Area, Natural or planted Grass
RI-6	Watercourse Access Control-Trees	35'+ Width Exclusion Area, Natural or planted Trees
RI-7	Grass Nutrient Exclusion Area on Watercourse	10'-34' Width Nutrient Exclusion Area
RI-8	Grass Buffer on Watercourse	35'+ Width Buffer
RI-9	Forest Nutrient Exclusion Area on Watercourse	10'-34' Width Nutrient Exclusion Area
RI-10	Forest Buffer on Watercourse	35'+ Width Buffer
RI-11	Vegetative Environmental Buffer for Poultry - Grass	Warm Season Grass
RI-12	Vegetative Environmental Buffer for Poultry - Trees	Trees
RI-13	Conversion to Pasture	
RI-14	Conversion to Hayland	
RI-15	Rotational Grazing	
RI-16	Barnyard Clean Water Diversion	
RI-17	Water Control Structure	
RI-18	Watering Trough	

Verifying Resource Improvements

- Since their design may not be as extensive as similar state funded or NRCS practices, RI practices must be re-verified at more frequent intervals.
- If the RI is found to be no longer present or functional, we have one year to bring it back into standard before it is removed from Conservation Tracker.

Re-Verification Intervals (Years)	Resource Improvement BMPs
3	Vegetative Environmental Buffer for Poultry (Grass), Conversion to Pasture or Hayland, Rotational Grazing
5	Dry Waste Storage Structure, Animal Compost Structure, Alternative Crop/Switchgrass, Watercourse Access Control, Grass Nutrient Exclusion Area, Grass Buffer on Watercourse, Vegetative Environmental Buffer for Poultry (Trees), Barnyard Clean Water Diversion, Water Control Structure, Watering Trough
10	Forest Nutrient Exclusion Area on Watercourse, Forest Buffer on Watercourse.

How are Resource Improvements found?

- During development or when updating a Conservation Plan
  - Identified RI's are included in the completed plans and added to the ***Conservation Tracker*** database by the SCD.
- During BMP Verification of other WIP-eligible BMPs on a parcel
  - Verifiers identify and capture as much information as possible to deliver to the SCD to include in the conservation plan.
- MACS Spot Check or Quality Assurance Review
- Nutrient Trading Evaluations
- Agricultural Certainty Evaluations
- FSCAP Evaluations

Resource Improvement Verification Protocol

- Finalized in 2015, the ***Non Cost-Shared Best Management Practice and Resource Improvement Practice Verification Procedures Manual*** outlines the protocol followed by Conservation Planners and Verifiers to document RI practices.
- Manual includes a one-page description and certification form that lists all of the mandated visual indicators for each of the eighteen approved RI types.
- Steps include an interview with the cooperator or landowner to answer specific questions.
- RI's are incorporated into conservation plans, added to the plan file, and included in Conservation Tracker.
- Verifiers record as much information as possible during the site visit and "ADMIN" the rest for the SCD to reconcile. The RI is not reported until the process is completed.

RI-1: Dry Waste Storage Structure Visual Indicator Checklist

Cooperator Name, Address, and Phone #	FSA Farm / Tract Parcel ID# Field Number:	SCD MDA Plan ID#	Reason for Visit ☐ Initial Inspection ☐ MACS Spotcheck/Q.A.R ☐ Nutrient Trading ☐ Certainty ☐ FSCAP ☐ Landowner Request ☐ Other _____

RI-1 Installation Date:

RI-1 Reportable Units: number; animal type; animal units- (See Appendix A)

Number of Systems: one (per form)

Animal Type: Beef AU:

		Y	N	N/A	Supporting Data & Documentation:
	RI-1 Visual Indicators				
1	Does facility operate without polluting waters?	◯	◯	◯	Visual observation
2	Facility is located ≥ 100' from wells, unless there is a Health Dept. waiver or per State, County or Local Regulation as appropriate.	◯	◯	◯	Estimate by paces
3	Facility is 100 feet from top of bank of any stream or per state, county or local regulations if applicable.	◯	◯	◯	Estimate by paces
4	Storage capacity is adequate to assure compliance with Nutrient Management Regulations and is part of the farmers overall management of manure on the farm. Document the management methodology used by farmer below.	◯	◯	◯	Owner interview
5	Offsite runoff is excluded or accounted for in storage	◯	◯	◯	Visual observation
6	Storage of stackable manure must meet Section 1D of the Maryland Nutrient Management Manual. All runoff is controlled and non-polluting.	◯	◯	◯	Visual observation and Owner Interview
7	No safety concerns present.	◯	◯	◯	Visual observation
8	Slab on grade, or may be other impervious surface such as a concrete pad, synthetic liner or compacted clay pad.	◯	◯	◯	Visual observation
9	Retaining wall if used is straight, not in imminent danger of failure	◯	◯	◯	Visual observation
	Does the practice meet RI-1 Visual Indicators (Circle Y or N)*	◯	◯		

*All Visual Indicators must either have a Y or NA marked. If an N is marked on the checklist, the RI may not be reported until the deficiency is addressed.

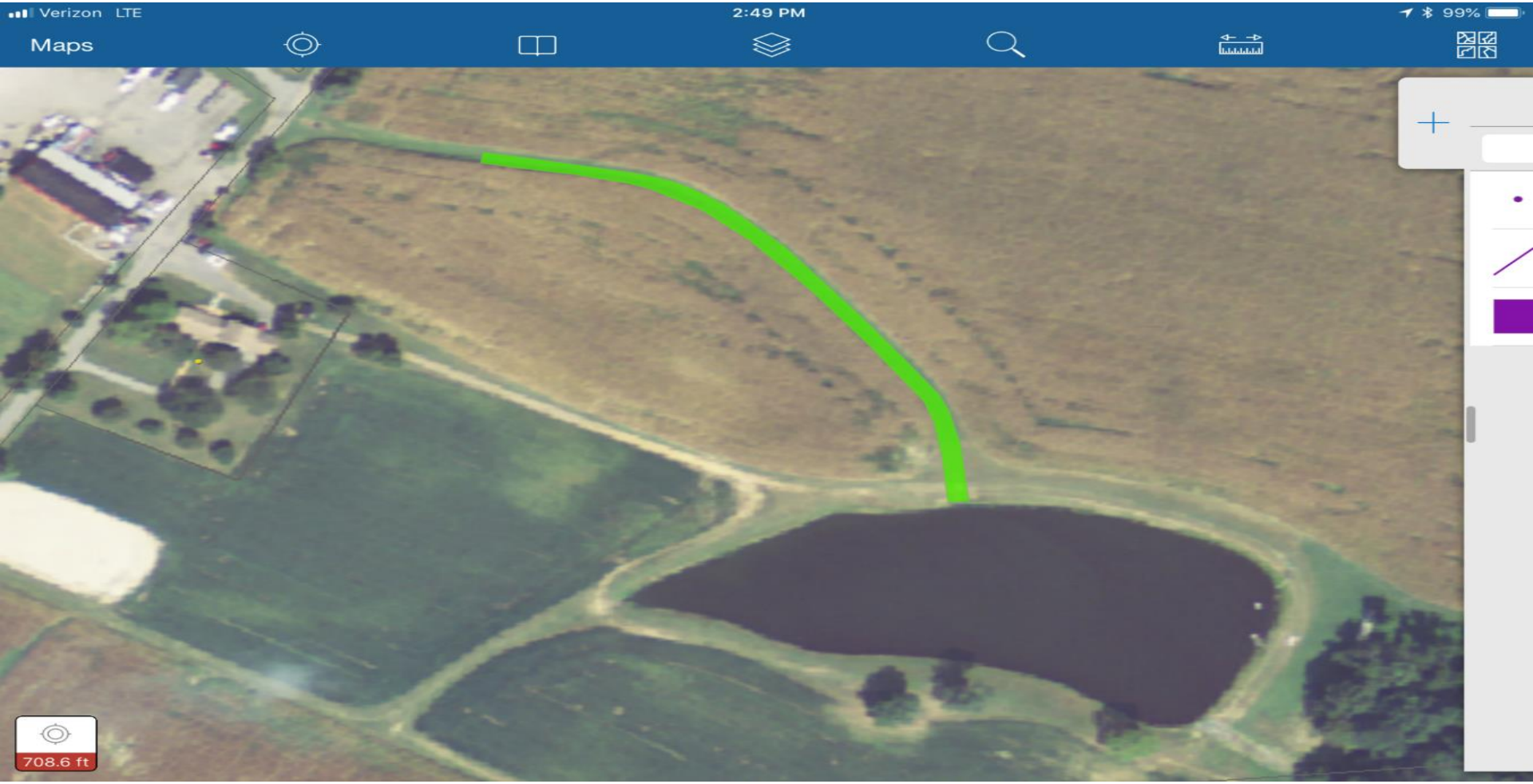
Who was interviewed to obtain supporting documentation- name(s):_____

Description of the RI and Additional Notes or Documentation:

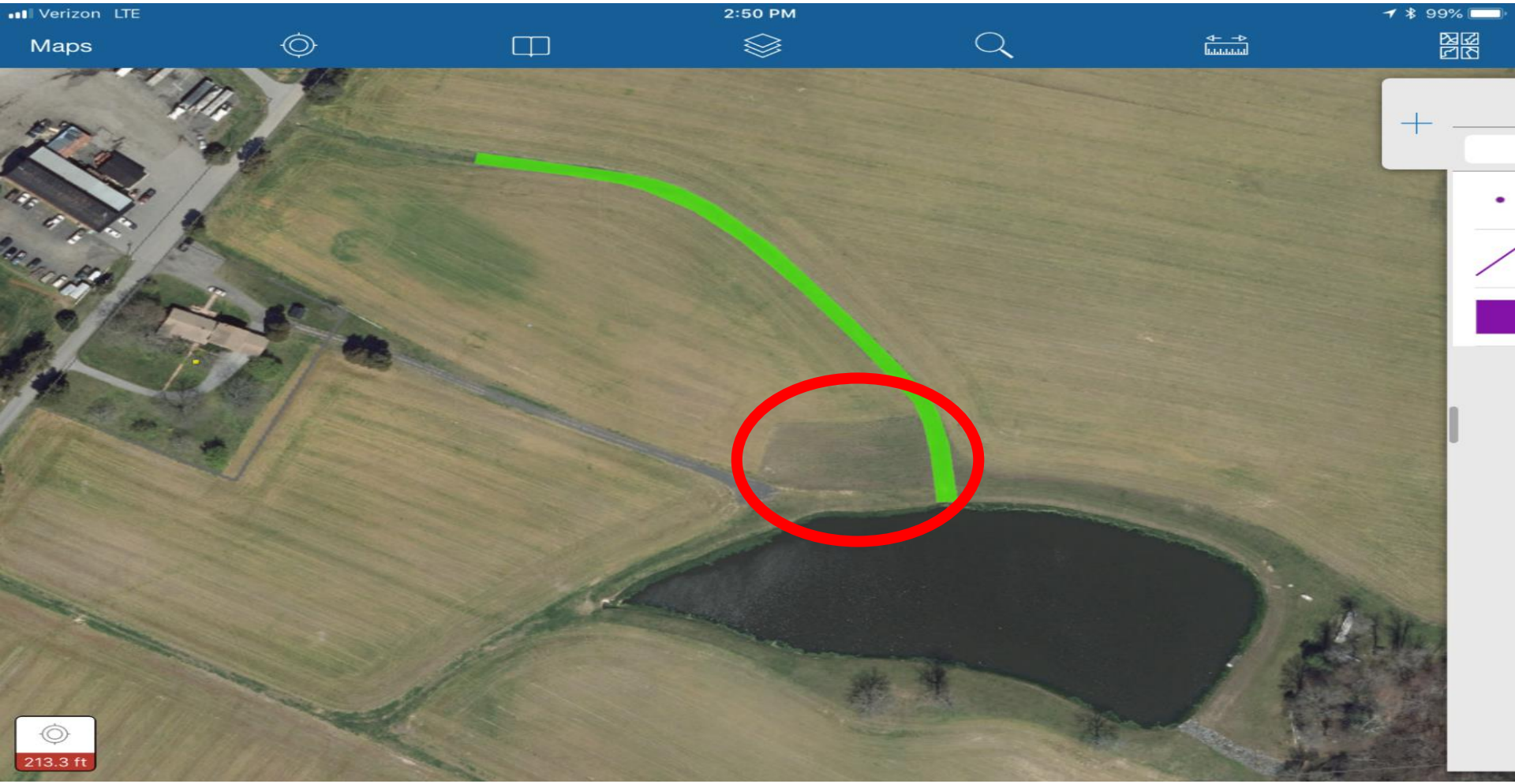
_____

Technical Specialist: Name, Position, and Signature Date of Review

Identifying RI's: 2013 Aerial Imagery



Identifying RI's: Recent Imagery



RI-8 Confirmed during Site

Identifying Conservation: Challenges and Opportunities

- Challenges:
  - Lack of access to non-cooperative operators or those properties without conservation plans.
  - Lack of access to the sect communities. (some success in Southern Maryland)
  - Limited layers of imagery to confirm land conversion or retirement practices.
  - Disposal of older conservation plans and documents to completely “put the puzzle together”.
- Opportunities:
  - Enhancement of the RI process to include other farmer installed practices:
    - Heavy Use Areas? (Equine operations)
    - Alternatives to Conservation Cover? (Vineyards and other land conversions)
    - Solar panels?
  - Use of the Verification Task Force as a means to ground-truth other types of WIP data.

Questions

Jason Keppler

jason.keppler@maryland.gov

410-841-5879