LimnoTech

Water Environment | Scientists Engineers

Leveraging Historical BMP Data To Meet Present-Day Reporting Requirements

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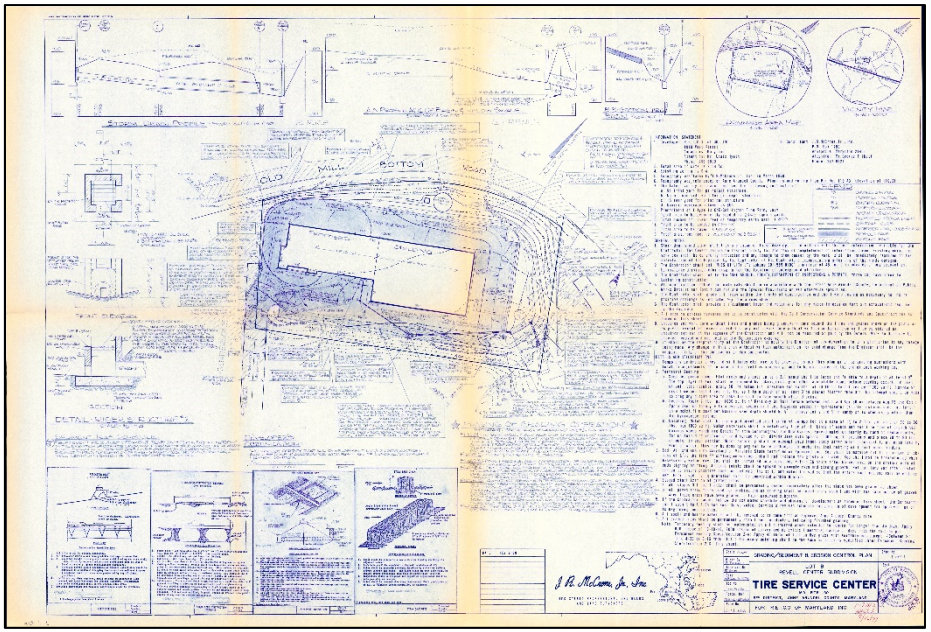
Outline

- Project overview
- Regulatory background
- Data cleanup/management challenges and solution
- Key data updates
  - P_E
  - Treatment trains
  - Overlapping Permits and BMPs

Project Overview

- Assist Anne Arundel County in updating historic Stormwater BMP database
  - Review the existing stormwater BMP database records;
  - Research, correct, and populate the required database fields for existing records;
  - As necessary, create new records for existing legacy BMPs; and
  - Develop GIS BMP points and drainage areas.
- Awarded Spring 2016



Regulatory Background

- MDE requires restoration plans as part of all MS4 permits
  - Helps address TMDL WLAs
- Two components of restoration plans:
  - Restoration of 20% impervious surface area that has little or no stormwater management
    - Chesapeake Bay TMDL
  - Implementation of BMPs to reduce loads to meet WLAs
    - All other "local" TMDLs

BMP Tracking to Meet Regulatory Requirements

- Verify existing BMPs
- Changes in design requirements over time yield different credits
- Improved tracking for maintenance needs
- Historical data cleanup allows adjustment of impervious area baseline

Reviewing and Updating BMP Records

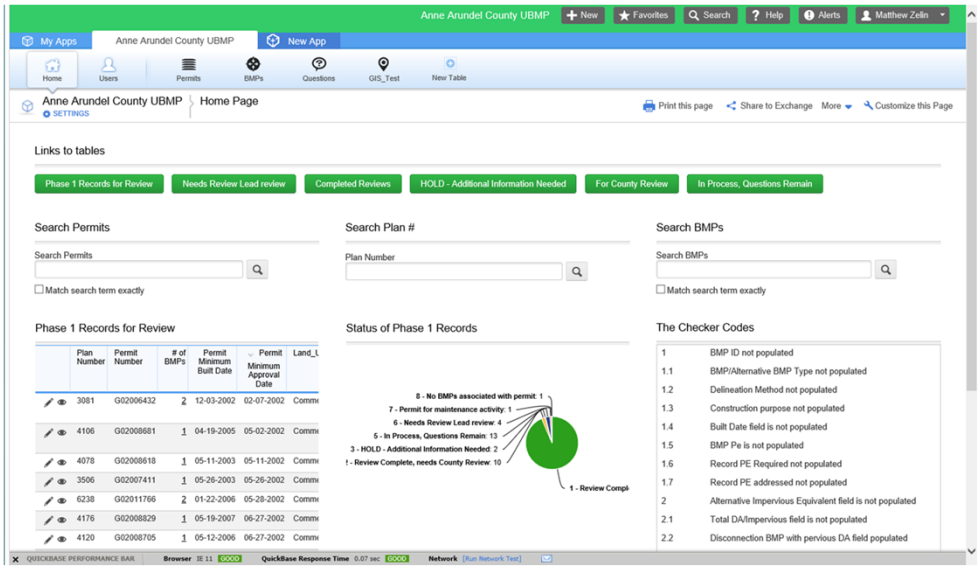
- Review scanned and physical plans
- Update existing information in DB
  - Type of development
  - BMP type
  - Drainage area
  - Rainfall depth treated
  - Water quality volume treated
  - Milestone dates
- Determine location of BMPs
- Delineate drainage areas

Data Cleanup Challenges

- Changes in design requirements/credits over time
  - Move from regional SW management to Environmental Site Design
  - Change from controlling runoff from 1” storm to mimicking conditions of wooded site
- Lack of documentation in plans
- MDE vs. local data needs

Utilized Intuit QuickBase

- Allows multiple users
  - No locks
- On cloud server, accessible through web browser
- Easy to track progress and share results with client
- Flexibility in reporting
  - County needs
  - MDE requirements



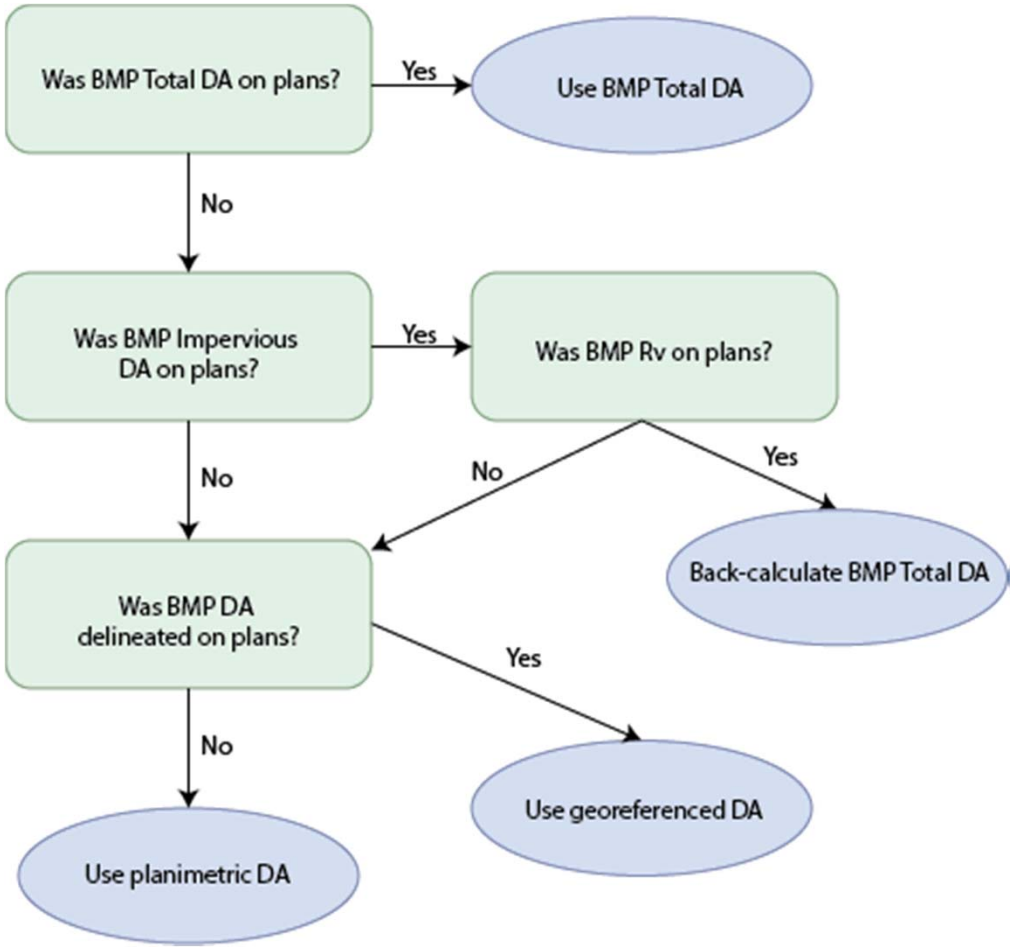
P_E Data

- MDE requires P_E (depth retained) values for BMPs or POIs as part of geodatabase
- Not always readily available
- Methodology to approximate P_E for each BMP based on best-available data

$$P_E\ achieved = \frac{Credited\ Volume}{Runoff\ Coefficient\ * Total\ Drainage\ Area}$$

P_E Data Hierarchies

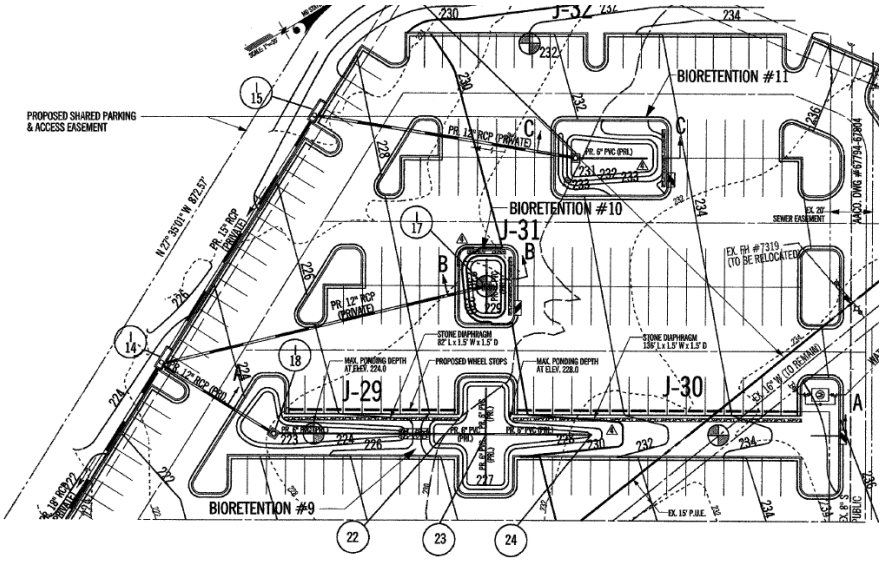
- Example: Total drainage area for BMP not documented on plans
- Use logic to substitute best possible data
- All substitution methods recorded in database



$$P_E\ achieved = \frac{Credited\ Volume}{Runoff\ Coefficient\ * Total\ Drainage\ Area}$$

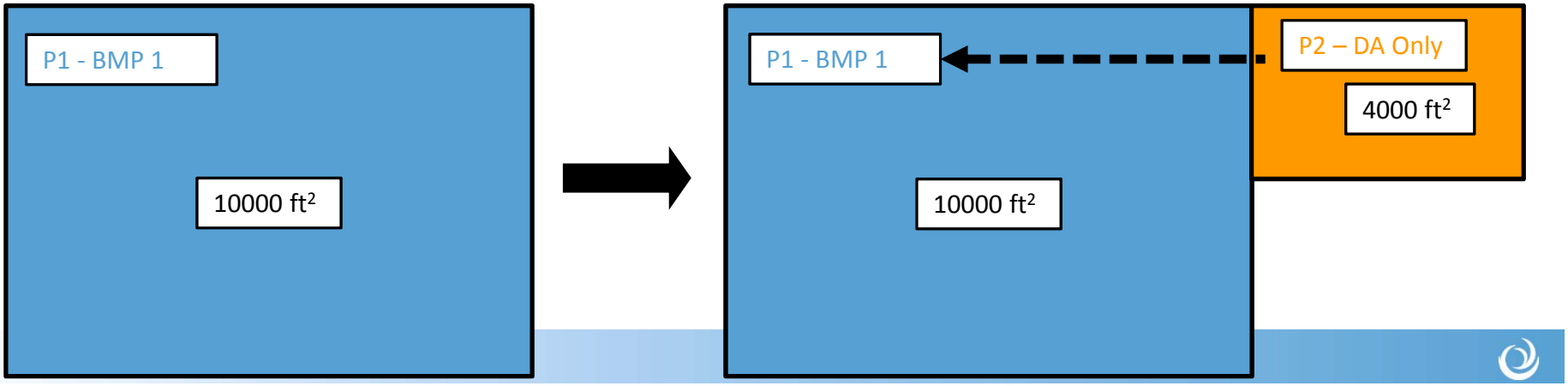
BMP Treatment Trains

- Goal: account for up-stream BMP's impact on downstream BMP
- Establish relationship between treatment train records



Continued Development and Overlapping BMPs

- Sites develop over time
  - Grading permits on top of each other
- Need to capture present and historic site conditions
  - Original/"Historic" conditions in initial permit
  - Modifications to existing conditions may not be shown in "modifying" permit



Summary

- Updating stormwater BMP data to meet regulatory requirements
  - Multiple data and data management challenges
- Intuit QuickBase solution
  - Logistics
  - Flexibility
- Data issues resolved
  - Some missing critical data (PE)
  - Tracking treatment trains
  - Overlapping drainage areas
  - Historical and current conditions