Drainage and SWM

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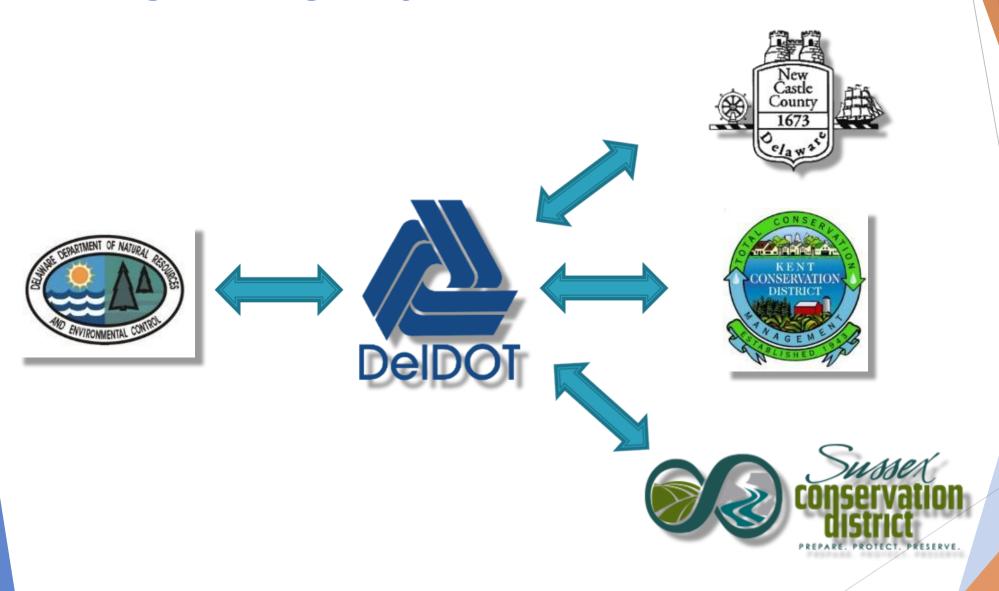Kent County

Jason Reichart, P.E.
Gate Keeping Checklist

M&O Capital Drainage Related Expenditures

$11.5 million dollars/year to maintain, repair, or replace drainage related infrastructure!

Delegated Agency Review Coordination

DA Review Responsibility

DelDOT

- All drainage/SWM within DelDOT ROW
  - Storm sewer
  - Open drainage
  - BMPs
  - E&S
- On-site runoff or BMP discharge to DelDOT ROW
- Impacts to existing DelDOT BMPs
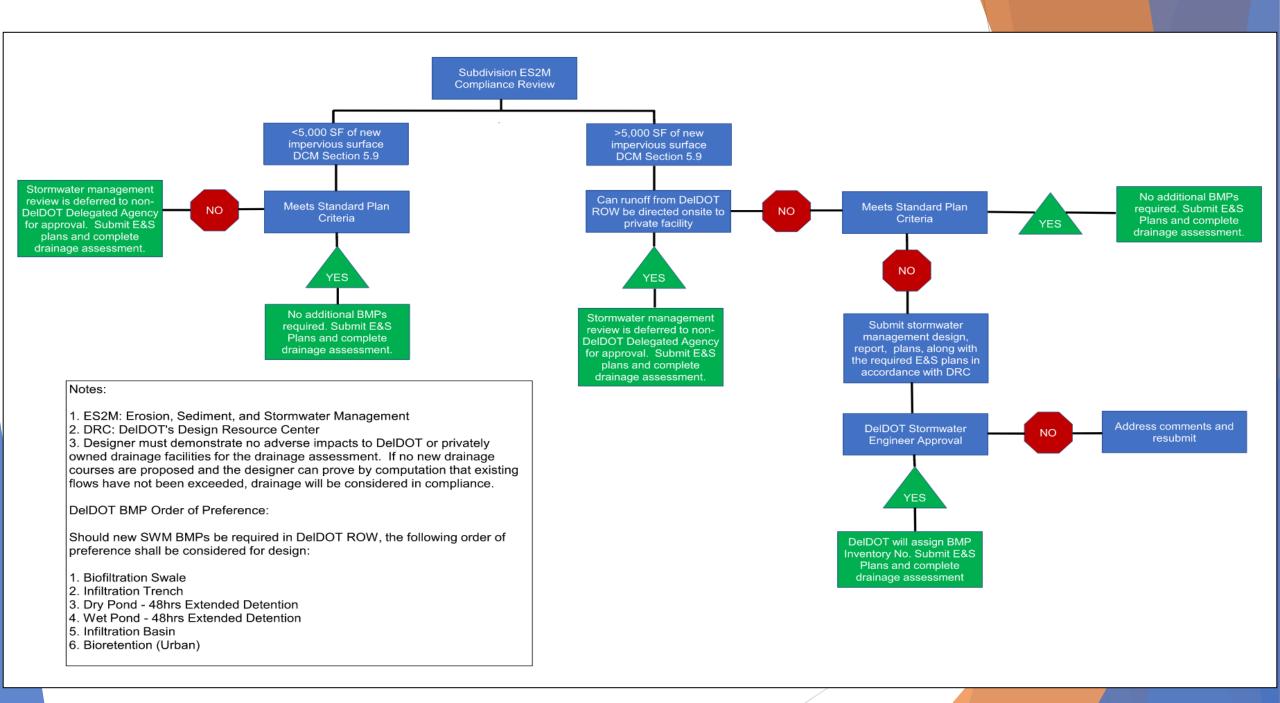
Other Delegate Agencies

- On-site *drainage* and SWM
- Water quality treatment credits applied towards improvements in ROW
- Discharge flows and volume to DelDOT ROW
- Discharge flows to Tax Ditches or private property
- On-site E&S

Entrance Plan Drainage/SWM Approval

Development Coordination Gate Keeping Check List

Pipe, catchbasin, flared-end sect., curb, underdrain schedules	4.3.5.F, Fig. 4.3.5-b, & 4.3.5-c
Stormwater management report and plans	5.8, ES$_2$M Sec. 1
Drainage report with spread calcs, HGL, etc. and completed pipe cover/angle chart: http://www.deldot.gov/information/business/subdivisions/ Pipe_Cover_Angle_Worksheet.xlsm	5.7.2.7
E&S plans w/ sequence of construction	5.9, ES2M Sec. 1
H&H calculations for ditches - Provide typical sections and shear stress calcs	5.7.2.1, 7.2.3.5.1 RDM 6.7.3
H&H calculations for culverts	5.7.2.2, Fig. 5.7.2.5a -5b & RDM Fig. 6-1 & 6-3, RDM 6.9

Subdivision ES2M Compliance Review

<5,000 SF of new impervious surface DCM Section 5.9

>5,000 SF of new impervious surface DCM Section 5.9

Stormwater management review is deferred to non-DelDOT Delegated Agency for approval. Submit E&S plans and complete drainage assessment.

NO → Meets Standard Plan Criteria

YES

No additional BMPs required. Submit E&S Plans and complete drainage assessment.

Can runoff from DelDOT ROW be directed onsite to private facility

NO → Meets Standard Plan Criteria → **YES** → No additional BMPs required. Submit E&S Plans and complete drainage assessment.

YES

Stormwater management review is deferred to non-DelDOT Delegated Agency for approval. Submit E&S plans and complete drainage assessment.

NO

Submit stormwater management design, report, plans, along with the required E&S plans in accordance with DRC

DelDOT Stormwater Engineer Approval → **NO** → Address comments and resubmit

YES

DelDOT will assign BMP Inventory No. Submit E&S Plans and complete drainage assessment

Notes:

1. ES2M: Erosion, Sediment, and Stormwater Management
2. DRC: DelDOT's Design Resource Center
3. Designer must demonstrate no adverse impacts to DelDOT or privately owned drainage facilities for the drainage assessment. If no new drainage courses are proposed and the designer can prove by computation that existing flows have not been exceeded, drainage will be considered in compliance.

DelDOT BMP Order of Preference:

Should new SWM BMPs be required in DelDOT ROW, the following order of preference shall be considered for design:

1. Biofiltration Swale
2. Infiltration Trench
3. Dry Pond - 48hrs Extended Detention
4. Wet Pond - 48hrs Extended Detention
5. Infiltration Basin
6. Bioretention (Urban)

Common Questions

If the project meets the Standard Plan Criteria, why do we still have to do drainage?

The (delegated agency) has already approved the SWM, why do you still need to review it?

When do we use NRCS vs. Rational Method (HEC-22)?

Why should we be required to fix a DelDOT problem?

How do I get the latest drainage or SWM report for the frontage road?

It's "insignificant"! OR That's "ridiculous"!