Appendix D - Liner Flow Chart for Wet Detention Ponds

Start

- In situ soil <10^{-7} cm/sec permeability to 3' below pond bottom?
  - Yes
    - "Answer yes in lieu of permeability testing for:
      USDA-Sandy clay, silty clay or clay (from actual boring)
      USCS-Avg. LL>25, no LL<20, Avg. PI>12 & no PI<10
    - "Dirty source areas=
      Industrial, commercial, institutional parking lots or roads and all arterial roads.
  - No

- Local municipality requires liner to protect well or groundwater?
  - Yes
    - Yes: Type B Liner Required to Protect Groundwater
    - No: Type A Liner Required to Protect Groundwater
  - No

- Drainage basin includes Tier I industrial?
  - Yes
    - Yes
    - No
  - No

- Drainage basin has storage or loading areas For Tier 2 industrial?
  - Yes
    - Yes: Type B Liner Required to Protect Groundwater
    - No
  - No

- Drainage basin has fueling or vehicle maintenance areas?
  - Yes
    - Yes: Type B Liner Required to Protect Groundwater
    - No
  - No

- Drainage basin has dirty source Areas** >15%?
  - Yes
    - Yes: Type B Liner Required to Protect Groundwater
    - No: Type A Liner Required to Protect Groundwater
  - No

- Tier I, Tier 2 or fueling/maint. areas >5% of watershed?
  - Yes
    - Yes: Type B Liner Required to Protect Groundwater
    - No: Type A Liner Required to Protect Groundwater
  - No

- In situ soil <10^{-6} cm/sec Permeability to 3' below pond bottom?
  - Yes
    - Yes: Type B Liner Required to Protect Groundwater
    - No: Type A Liner Required to Protect Groundwater
  - No

- 80% TSS requirements met onsite for areas listed above***?
  - Yes
    - Yes: Type B Liner Required to Protect Groundwater
    - No: Type A Liner Required to Protect Groundwater
  - No

- 80% TSS requirements met onsite for areas listed above***?
  - Yes
    - Yes: Type B Liner Required to Protect Groundwater
    - No: Type A Liner Required to Protect Groundwater
  - No

- **Dirty source areas=
  Industrial, commercial, institutional parking lots or roads and all arterial roads.

- See considerations for a Type C liner for safety, to prevent erosion or for aesthetics.

Warnings:
- Liners near karst features are prone to fail. Additional investigation required near known or suspected karst features.
- Ponds installed in contaminated areas require additional DNR approvals to protect surface and groundwater. Additional investigation required near known or suspected contamination.
- See criteria for construction requirements in bedrock.

*** Answer yes in lieu of testing for:
USDA-Silt loam, sandy clay loam, clay loam, silty clay loam (from actual boring)
USCS-Avg. LL>16, no LL<14, Avg. PI>7 & no PI<5

*** Includes Tier I, Tier II, fueling, vehicle maintenance areas, dirty source areas, etc.