

## ENGINEERING NEWSLETTER

FEBRUARY 1995

### *AGENCY NAME CHANGE*

#### The Soil Conservation Service is Now Renamed The Natural Resources Conservation Service

Included in the recent changes in the Federal system, the USDA has regrouped and redistributed its agencies to achieve efficiency. Part of this downsizing includes renaming agencies to more accurately reflect their role, including the Soil Conservation Service (SCS), now renamed the Natural Resources Conservation Service (NRCS). Please change all plan references (signature blocks, references, etc.) to reflect their new name.

### *PONDS*

#### Small Pond Approval Chart

To clarify the small pond approval process and hierarchy, the Water Resources Administration (WRA) has developed the attached "Small Pond Review Flow Chart." This chart attempts to summarize the limits set by numerous sections of state codes and regulations.

#### Existing Pond Policy

As our long-standing policy states, the Howard Soil Conservation District (HSCD) requires existing ponds to either be certified as is, upgraded to current specifications and certified, or removed. However, the District has recently developed a waiver policy with conditions (attached). Please make a note of it.



#### Road Embankment = Pond Embankments

On the larger parcels, developers and engineers are looking at natural valley storage behind road crossings as a means to temporarily store runoff for stormwater quantity control. While the debate continues regarding the environmental pros (e.g., less excavation, less disturbance) and cons (e.g., larger rip rap outfalls, longer and more frequent inundation upstream, erosion from storm drains), the technical design and classification of these impoundments do have limitations. The current MD-378 states that the pond classification "... is related to the potential hazard to life and property that might result from a sudden major breach." Current interpretation of MD-378 includes unlooped utilities, which typically are carried within road crossings, and, in cases of sole access, the roadway itself, as properties to be considered. A theoretical breach could isolate those developments beyond the crossing from water, sewer, electric, telephone, and means of ingress/egress. Therefore, please keep utilities looped, and out of the embankment, and provide a secondary means of access, or else design as a class "b" or "c" structure, with WRA permit required.

Finally, when is a road embankment a "pond"? For undersized culverts, the Natural Resources Conservation Service (NRCS) and the WRA have developed guidelines to help in design. Basically, if an 8:1 phreatic line from the 100 year storm (DHW) projects outside the proposed embankment or the 100 year depth is greater than twice the barrel/culvert diameter, you have a pond, whether intended or not. Furthermore, if a riser is placed on the culvert, a pond is automatically assumed, and must be designed accordingly. Contact the HSCD for further details.

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## No Slopes Less Than 3:1

Recognizing the fact that all ponds require constant maintenance, including mowing to keep woody vegetation from emerging, the HSCD does not allow for any earthen pond structure (embankment, emergency spillway, etc.) to be constructed with slopes less than 3:1. This is also consistent with Section 19.0 of the Maryland Standards & Specifications for Erosion & Sediment Control.

## Minimum Core Depth Below Barrel = 2.0'

In accordance with previous reviews by the State Engineer, a minimum of 2.0 feet is required between the barrel/cradle of principal spillways, and the bottom-of-core. Please be sure that the designs comply with this requirement.

## Tiered Ponds

Questions regarding breach analysis have arisen in cases where two ponds are built in series, i.e., one above the other. First, the lower pond must be capable of safely passing the breach of the upper pond, without overtopping. In other words, the entire upper pond breach must pass through the principal and emergency spillways. Second, if the upper pond is found to be a class "b" or "c" pond, all lower ponds must assume the same classification.

## Chillum Soils = HSG "C"

Just a reminder that the current (10/74) Maryland NRCS listing of hydrologic soil groups (HSG), Exhibit 2-1A of the Engineering Field Manual, differs from the national listings within TR-55. Please use this locally determined value for your hydrologic models.

## County (Department of Public Works) Requirements

As many are probably aware, the Department of Public Works (DPW) is now requiring all pond structures to be constructed of concrete. MD-378 also allows for concrete structures. However, please note that concrete bedding/cradles are required (no stone allowed) and barrels must be specified to meet ASTM C-361, with proper class noted. Also, beware of blanket references to county specifications conflicting with MD-378 requirements. For example, the county's cradle specification (62.02) calls for Mix No. 1, while 378 requires the higher strength Mix No. 3. Also, brick is not an allowable pond structure component, while county inlet specifications (SD-4.01 & 4.02) allow for brick. Please study and note the difference.

Furthermore, the county now requires barrel cradles to be designed as Type A-2, per SCS TR-46. While this specification tends to produce collars which exceed MD-378, please take care to extend the phreatic line to the bottom of the cradle and size the collars accordingly.

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## ***EROSION & SEDIMENT CONTROL***

### **1994 Maryland Standards And Specifications For Soil Erosion & Sediment Control**

No, this is not a misprint it is the 1994 Standards & Specs. The update was just released by the Maryland Department of the Environment (MDE), and will be required on first-submission plans that require HSCD signature approval on and after *June 1, 1995*. Questions and comments regarding major and minor changes, and on how to purchase the specifications should be directed to MDE at (410) 631-3543.

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## Erosion Control Matting

This specification shall be required to be included in all plans showing vegetated channels to keep seed and soil from being washed away during initial growing stages. Rather than require a particular matting and proof that it will withstand velocities up to 6 fps, please use only in channels with up to 4.5 fps of flow (Ho. Co., Vol. I, pp. 23-7.06). However, remember that the matting is only temporary. Permanent stabilization should be based on vegetation used and soil types. See the Maryland Standards & Specs for details.

Rip rap and concrete should be used for higher velocities. But on very steep grades where undermining of channels is likely, gabion and concrete, with intermittent cutoffs, should be employed. Note that the FHA, Hydraulic Engineering Circular No. 15, "*Design Of Roadside Channels With Flexible Linings*" offers an excellent means to design stable channels. This circular is available through the National Technical Information Service, (703) 487-4600.

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## **GENERAL**

### Department Of Public Works Due Dates

In order to expedite redlines and other plans in which the HSCD has interests, we will strive to meet the DPW-assigned due dates. We trust the DPW will allow for ample time for routing, log-in and review.



## Sorry -- No Free Copies

Because our District is involved in the design as well as the review approval of Best Management Practices throughout the county, we have many references stored in-office. Unfortunately, many of these items are copyrighted (e.g., county topography) and are neither free nor for sale from us. Copies that are allowable (e.g., old photos, as-builts, etc.) are available for a minimal photocopy fee.

