Technical Memorandum_____

Significant Sediment Nonpoint Sources in the non-tidal Swan Creek Watershed

The U.S. Environmental Protection Agency (EPA) requires that Total Maximum Daily Load (TMDL) allocations account for all significant sources of each impairing pollutant (CFR 2012). This technical memorandum identifies the significant nonpoint sources of sediment in the Swan Creek watershed. Detailed allocations are provided for those nonpoint sources included within the Swan Creek Sediment TMDL Load Allocations (LAs). These are conceptual values that are designed to meet the TMDL thresholds. The State reserves the right to allocate the sediment TMDL among different sources in any manner that is reasonably calculated to protect the designated uses of the non-tidal Swan Creek from sediment related impacts.

The non-tidal Swan Creek Sediment TMDL is presented in terms of an average annual load established to ensure the support of aquatic life. In order to use a reference watershed approach for this TMDL, sediment loads are estimated using a watershed model. For this analysis, the Chesapeake Bay Program Phase 5.3.2 (CBP P5.3.2) watershed model was chosen. The nonpoint source sediment loads generated within the Swan Creek watershed are calculated as edge-of-stream (EOS) loads and represent a long-term average loading rate. Individual land-use EOS loads are calculated as a product of the land-use acreage and the average annual simulated sediment loading rates (lbs/ac/yr) from the 2009 Progress Scenario (US EPA 2010). The 2009 Scenario represents land-use, loading rates, and BMP implementation simulated using precipitation and other meteorological inputs from the period 1991-2000 to represent variable hydrological conditions. The 1991-2000 simulation period represents the baseline loading rates in the TMDL for Chesapeake Bay segments. Further details of the nonpoint source sediment load calculations can be found in Sections 2.2, 4.2, and 4.3 of the main TMDL report.

The baseline nonpoint source sediment loads were estimated using the CBP P5.3.2 watershed model 2009 Progress Scenario. The controllable loads for each nonpoint source sector were calculated as the difference between the CBP P5.3.2 “No Action” and “E3” scenario loads. The LAs for the nonpoint source sectors were then calculated based on applying an equal percent reduction to the controllable loads for each sector, as described in Section 4.6 of the main TMDL report.

In the Swan Creek watershed, crops, pasture, and nurseries were identified as controllable nonpoint sources. Forest is the only non-controllable source, as it represents the most natural condition in the watershed. Sediment loads from urban lands are regulated under the National Pollutant Discharge Elimination System (NPDES) and are considered a point source that must be included in the Waste Load Allocation (WLA) portion of a TMDL (US EPA 2002). Therefore, the reductions required from urban land sediment loads are defined in the point source technical memorandum.

Table 1 provides one possible scenario for the allocations of the nonpoint source sediment loads that will allow the total TMDL to be met in the Swan Creek watershed. Based on the analysis

described above and in Section 4.6 of the main TMDL report, no reductions to nonpoint source loads were recommended. Therefore, the LA is the same as the baseline load and can be considered an informational allocation.

Table 1: Swan Creek Sediment TMDL Allocation by Nonpoint Source Category

General Land Uses[1]	Detailed Land-Use	Baseline Load	LA	Reduction
Forest	Forest	87	87	0%
	Harvested Forest	3	3	0%
Pasture	Pasture	13	13	0%
Crop	Crop	256	256	0%
Nursery	Nursery	1	1	0%

[1]The source categories represent aggregates of multiple sources (e.g., crop is an aggregate of high till, low till, and hay).

REFERENCES

CFR (Code of Federal Regulations). 2012. *40 CFR* 130.2(i). http://edocket.access.gpo.gov/cfr_2011/julqtr/40cfr130.2.htm (Accessed April, 2012).

US EPA (U.S. Environmental Protection Agency). 2002. *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs*. Washington, DC: U.S. Environmental Protection Agency.

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