

HENRICO COUNTY ENVIRONMENTAL COMPLIANCE MANUAL

WORKSHEET 14.02 - SITUATION TWO

Compile existing site-specific data and determine existing site imperviousness (I_{EXIST}). For the purposes of these calculations, site area (A_{SITE}) is defined as the entire parcel. A_{EXIST} represents the actual amount of existing impervious cover on the site.

A_{SITE} = _____ acres

A_{EXIST} structures = _____ acres

 parking lot = _____ acres

 roadway = _____ acres

 other = _____ acres

Total A_{EXIST} = _____ acres

I_{EXIST} = $(\text{Total } A_{EXIST} \div A_{SITE}) \times 100$

I_{EXIST} = _____ % (expressed in whole numbers)

Compile post-development site-specific data and determine post-development site imperviousness (I_{POST}). For the purposes of these calculations, site area (A_{SITE}) is defined as the entire parcel. A_{POST} represents the actual amount of impervious cover on the site once the proposed development is complete.

A_{SITE} = _____ acres

A_{POST} structures = _____ acres

 parking lot = _____ acres

 roadway = _____ acres

 other = _____ acres

Total A_{POST} = _____ acres

I_{POST} = $(\text{Total } A_{POST} \div A_{SITE}) \times 100$

I_{POST} = _____ (expressed in whole numbers)

If $I_{EXIST} \leq 16\%$ and $I_{POST} \leq 16\%$, STOP. There is no pollutant removal requirement. Otherwise, refer to the **CALCULATION OF POLLUTANT REMOVAL REQUIREMENTS** section at the beginning of this chapter for development situation determination.

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Calculate the pre and post-development pollutant loadings for the site using the Simple Method.

$$L = P \times P_J \times [0.05 + (0.09 \times I)] \times C \times A \times 2.72 / 12$$

Where:

P_J	=	unitless rainfall correction factor
	=	0.9 for all of Tidewater, Virginia
P	=	annual rainfall depth in inches
	=	43 for the Richmond Metropolitan Area
C	=	flow weighted mean concentration of total phosphorus
	=	0.26 mg/l for the entire County
$I_{\text{WATERSHED}}$	=	average land cover condition of the Bay watershed
	=	16 percent

Calculate the existing development load (L_{PRE}):

$$L_{\text{EXIST}} = [0.05 + (0.009 \times I_{\text{WATERSHED}})] \times 2.28 \times A_{\text{SITE}}$$

$$= [0.05 + (0.009 \times \underline{16})] \times 2.28 \times \underline{\hspace{2cm}}$$

$$L_{\text{EXIST}} = \underline{\hspace{2cm}} \text{ pounds per year}$$

Calculate the post-development load (L_{POST}):

$$L_{\text{POST}} = [0.05 + (0.009 \times I_{\text{POST}})] \times 2.28 \times A_{\text{SITE}}$$

$$= [0.05 + (0.009 \times \underline{\hspace{2cm}})] \times 2.28 \times \underline{\hspace{2cm}}$$

$$L_{\text{POST}} = \underline{\hspace{2cm}} \text{ pounds per year}$$

Calculate the pollutant removal requirement for this project (RR_{PROJECT}):

$$RR_{\text{PROJECT}} = L_{\text{POST}} - L_{\text{PRE}}$$

$$= \underline{\hspace{2cm}} - \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}} \text{ pounds per year}$$