

WORKSHEET 14.04 - SITUATION FOUR

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}	=	<u> </u> acres
A_{EXIST} structures	=	<u> </u> acres
parking lot	=	<u> </u> acres
roadway	=	<u> </u> acres
other	=	<u> </u> acres
Total A_{EXIST}	=	<u> </u> acres
I_{EXIST}	=	$(Total\ A_{EXIST} \div A_{SITE}) \times 100$
I_{EXIST}	=	<u> </u> % (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}	=	<u> </u> acres
A_{POST} structures	=	<u> </u> acres
parking lot	=	<u> </u> acres
roadway	=	<u> </u> acres
other	=	<u> </u> acres
Total A_{POST}	=	<u> </u> acres
I_{POST}	=	$(Total\ A_{POST} \div A_{SITE}) \times 100$
I_{POST}	=	<u> </u> (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.

HENRICO COUNTY ENVIRONMENTAL COMPLIANCE MANUAL

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_{EXIST}):

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

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

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

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}):

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

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

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

Calculate the overall pollutant removal requirement (RR_{TOTAL})

$$RR_{\text{TOTAL}} = RR_{\text{PROJECT}} + RR_{\text{EXIST}}$$

RR_{EXIST} = the existing pollutant removal requirement for the site

$$RR_{\text{TOTAL}} = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

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