

**Date:** April 14, 2021

**To:** Kristine Hocking - Senior Civil Engineer  
City of Warrenton

**From:** Kevin Kenniff – Project Manager  
BLA, Inc

**Re:** Riverview West – Townhome Development  
BMP Requirements

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This memo and attachments are intended to supplement the previously submitted memo regarding revised BMP calculations for the overall development dated June 6, 2020, and the recently submitted memo regarding the increased impervious area resulting from the updated proposed townhome development dated April 9, 2021. Both memos have been attached for reference. The June 6, 2020, memo summarizes the total required BMP volume for the development based on the proposed impervious area and also the total provided BMP volume. The original calculation required 1.60 acre-feet of BMP volume for the proposed 15.37 acres of proposed impervious area. The development provides a total of 1.96 acre-feet of BMP volume; however, the volume provided by the permeable pavers (0.30 acre-feet) will be constructed as part of the commercial development and is not presently available. This results in a total BMP volume of 1.66 acre-feet currently available. These values for impervious area and required BMP volumes are based on the original townhome development site plan.

The April 9, 2021, memo summarizes the increase in impervious area associated with the townhome development based on several site plan changes implemented by the owner. The most recent townhome site plan includes an increase in impervious area of 0.12 acres. The total impervious area is now 15.49 acres. The total BMP volume required is 1.61 acre-feet. The current BMP volume provided is 1.66 acre-feet. The proposed increase in impervious area on the townhome development is provided in the BMP features currently installed on the site.

Please contact me at (630) 438-6400 or at [kkenniff@bla-inc.com](mailto:kkenniff@bla-inc.com) if there are any questions or if additional information is required.

Sincerely,

**BLA, Inc.**



Kevin Kenniff, PE, CFM

Project Manager

**Date:** April 9, 2021

**To:** Kristine Hocking - Senior Civil Engineer  
City of Warrenville

**From:** Kevin Kenniff – Project Manager  
BLA, Inc

**Re:** Riverview West – Townhome Impervious Area

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This Memo is intended to address the impervious area calculations for the proposed townhome development. The design of the townhome site plan has progressed and minor changes have been made to the layout of the townhome units, walkways, and patios. Impervious areas were calculated for the current site plan and compared to the original site plan. The original site plan contained approximately 2.13 acres of impervious area. The current site plan contains approximately 2.25 acres of impervious area. The increase of 0.12 acres (5,227 sqft) is primarily the result of a slightly increased townhome unit footprint, slightly enlarged patios, and revised walkways to the townhome end units. The increase in impervious area does not increase the weighted runoff curve number ( $R_{CN}$ ) beyond the  $R_{CN}$  used in the design of the detention ponds and will not affect the design High Water Level nor increase the detention storage required.

Please contact me at (630) 438-6400 or at [kkenniff@bla-inc.com](mailto:kkenniff@bla-inc.com) if there are any questions or if additional information is required.

Sincerely,

**BLA, Inc.**



Kevin Kenniff, PE, CFM

Project Manager

June 30, 2020

City of Warrenville  
3 S 258 Manning Avenue  
Warrenville, Illinois 60555

RE: Riverview West  
PUD Amendment  
BMP Implementation Schedule

To Whom it may concern:

The BMP provisions required for the proposed improvements at the above referenced project are currently being constructed. The Bioswales, Bio-Retention Facility, and Volume Control associated with the detention ponds are currently being constructed with the Phase I improvements. The Permeable Pavement, originally scheduled to be constructed in the Phase I improvements in the east parking lot, has been relocated to the commercial development along Ferry Road. The relocation of the Permeable Pavement has been proposed to provide the same BMP features with a slightly larger footprint and provide an aesthetically more appealing environment to the commercial areas. The Permeable Pavers will be constructed with the development of the commercial property. It is currently unclear when the commercial development will begin, but the owner is committed to developing the property at the earliest possible date. The proposed improvement plans have been revised to show the Permeable Pavement features in the commercial development.

The total required BMP volume for the project is 1.60 ac-ft. The total proposed BMP Infiltration Volume and Volume Control volume is 1.96 ac-ft. The permeable pavers account for 0.30 ac-ft of this volume. The Infiltration and Volume Control currently

being constructed with the Phase I improvements is 1.66 ac-ft, which is in excess of the 1.60 ac-ft required. Please refer to the attached BMP calculation tables for a detailed breakdown of the volumes provided.

Please contact me at 630-438-6400 or at [kkenniff@bla-inc.com](mailto:kkenniff@bla-inc.com) if there are any questions or if additional information is required.

Sincerely,  
**BLA, INC.**

A handwritten signature in blue ink, appearing to read 'K. Kenniff', with a stylized flourish at the end.

Kevin Kenniff, P.E.  
Project Engineer

BMP Summary

<b>Best Management Practice (BMP) Summary</b>				
Project:	Riverview West Development		Created by:	MK
Location:	Warrenville, IL		Checked by:	KEK
Date:	7/29/2019			
<b>Proposed Land Coverage:</b>				
	Area (sq ft)	Area (ac)		
Proposed Impervious Area:	669,517	15.37		
<b>BMP Overview:</b>				
Required:	New Impervious Area (ac)	Infiltration Rainfall (in)	Infiltration Volume (cu ft)	Infiltration Volume (ac-ft)
Per DuPage County Ordinance	15.37	1.25	69,741	<b>1.60</b>
Provided:	Volume Calculations		Infiltration Volume (cu ft)	Infiltration Volume (ac-ft)
Bioinfiltration Basin	See attached spreadsheets		15,196	0.35
Bioswale	See attached spreadsheets		30,737	0.71
Permeable Pavers	See attached spreadsheets		13,252	0.30
<b>Total Infiltration Volume Provided:</b>				<b>1.36</b>
*Detention Ponds	Volume Control		Shoreline Planting	<b>0.60</b>
<b>Total Infiltration Volume &amp; Volume Control Provided:</b>				<b>1.96</b>

\* Detention Pond Volume Control Provided in 18" Deep Native Shoreline Plantings in compliance with Section 15-64.C of the DCFSPD for shortage in infiltration Volume

Bioinfiltration Basin

<b>Bioinfiltration Basin (Volume Calculations)</b>				
<b>Surface Storage</b>				
Elevation	Area	Average	Incremental	Cummulative
(ft)	(ft <sup>2</sup> )	Area (ft <sup>2</sup> )	Storage (ft <sup>3</sup> )	Storage (ft <sup>3</sup> )
693	860.04			0
		1616	1616	
694	2371			1616
		2677	2677	
695	2982			4292
		3316	3316	
696.00	3649			7608
		4016	4016	
697.00	4382			11623
		4626	2683	
697.58	4869			14306
Total (ft <sup>3</sup> ) =				14306
<b>Media Storage</b>				
Media Type	Porosity	Area (ft <sup>2</sup> )	Depth (in)	Storage (ft <sup>3</sup> )
CA-7 Aggregate	0.36	1236	24	890
Total (ft <sup>3</sup> ) =				890
Total Storage (Surface Storage + Media Storage) (cu ft) =				<b>15196</b>

Bioswale

<b>Bioswale Volume Calculations - Parking Islands</b>					
Media Type	Porosity	Area (ft <sup>2</sup> )	Depth (in)	Depth (ft)	Storage (ft <sup>3</sup> )
Surface Water	1	8487	12	1.00	8487
CA-7 Aggregate	0.36	8487	30	2.50	7638
				Total	16125
<b>Total Volume Control Storage (ft<sup>3</sup>) =</b>					<b>16125</b>
<b>Total Volume Control Storage (ac-ft) =</b>					<b>0.37</b>

<b>Bioswale Volume Calculations - Southeast Side Site</b>					
Media Type	Porosity	Area (ft <sup>2</sup> )	Depth (in)	Depth (ft)	Storage (ft <sup>3</sup> )
Surface Water	1	4738	12	1.00	4738
CA-7 Aggregate	0.36	4738	30	2.50	4264
				Total	9002
<b>Total Volume Control Storage (ft<sup>3</sup>) =</b>					<b>9002</b>
<b>Total Volume Control Storage (ac-ft) =</b>					<b>0.21</b>

<b>Bioswale Volume Calculations - South of Commercial Property</b>					
Media Type	Porosity	Area (ft <sup>2</sup> )	Depth (in)	Depth (ft)	Storage (ft <sup>3</sup> )
Surface Water	1	4878	3	0.25	1220
CA-7 Aggregate	0.36	4878	30	2.50	4390
				Total	5610
<b>Total Volume Control Storage (ft<sup>3</sup>) =</b>					<b>5610</b>
<b>Total Volume Control Storage (ac-ft) =</b>					<b>0.13</b>

<b>Total</b>	<b>30737</b>
<b>Total</b>	<b>0.71</b>

Pavers

<b>Permeable Pavement Volume Calculations</b>					
Media Type	Porosity	Area (ft <sup>2</sup> )	Depth (in)	Depth (ft)	Storage (ft <sup>3</sup> )
CA-7 Aggregate	0.36	18405	24	2.00	13252
				Total	13252
<b>Total Volume Control Storage (ft<sup>3</sup>) =</b>					<b>13252</b>
<b>Total Volume Control Storage (ac-ft) =</b>					<b>0.30</b>



Detention Ponds

DETENTION POND BMP VOLUME CALCULATIONS				
Media Storage				
PLANTING AREA	Area (ft <sup>2</sup> )	Height (in)	Average Depth (ft)	Storage (ft <sup>3</sup> )
East Pond	5,047	18	0.75	3785
Northeast Pond	5,316	18	0.75	3987
West Pond	18,834	18	0.75	14126
Outlot A Pond	5,819	18	0.75	4364
			Total	26262
<b>Total Pond Volume Control Storage (ft<sup>3</sup>)=</b>				<b>26262</b>
<b>Total Pond Volume Control Storage (ac-ft)=</b>				<b>0.60</b>

Detention Pond BMP Storage includes the 18" deep Native Shoreline Planting Area around the Pond NWL