

**Wet Detention Basin Operation and Maintenance Agreement**

*Return to Rebecca F. Person*

I will keep a maintenance record on this BMP. This maintenance record will be kept in a log in a known set location. Any deficient BMP elements noted in the inspection will be corrected, repaired or replaced immediately. These deficiencies can affect the integrity of structures, safety of the public, and the removal efficiency of the BMP.

The wet detention basin system is defined as the wet detention basin, pretreatment including forebays and the vegetated filter if one is provided.

**This system (check one):**

does  does not incorporate a vegetated filter at the outlet.

**This system (check one):**

does  does not incorporate pretreatment other than a forebay.

Important maintenance procedures:

- Immediately after the wet detention basin is established, the plants on the vegetated shelf and perimeter of the basin should be watered twice weekly if needed, until the plants become established (commonly six weeks).
- No portion of the wet detention pond should be fertilized after the first initial fertilization that is required to establish the plants on the vegetated shelf.
- Stable groundcover should be maintained in the drainage area to reduce the sediment load to the wet detention basin.
- If the basin must be drained for an emergency or to perform maintenance, the flushing of sediment through the emergency drain should be minimized to the maximum extent practical.
- Once a year, a dam safety expert should inspect the embankment.

After the wet detention pond is established, it should be inspected **once a month and within 24 hours after every storm event greater than 1.0 inches (or 1.5 inches if in a Coastal County)**. Records of operation and maintenance should be kept in a known set location and must be available upon request.

Inspection activities shall be performed as follows. Any problems that are found shall be repaired immediately.

| BMP element:                             | Potential problem:                                     | How I will remediate the problem:   |
|--|--|---|
| The entire BMP                           | Trash/debris is present.                               | Remove the trash/debris.  |
| The perimeter of the wet detention basin | Areas of bare soil and/or erosive gullies have formed. | Regrade the soil if necessary to remove the gully, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application. |
|  | Vegetation is too short or too long.                   | Maintain vegetation at a height of approximately six inches.  |

| BMP element:                    | Potential problem:   | How I will remediate the problem:   |
|---------------------------------|--|---|
| The inlet device: pipe or swale | The pipe is clogged.   | Unclog the pipe. Dispose of the sediment off-site.  |
|                                 | The pipe is cracked or otherwise damaged.  | Replace the pipe.   |
|                                 | Erosion is occurring in the swale.   | Regrade the swale if necessary to smooth it over and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion.   |
| The forebay                     | Sediment has accumulated to a depth greater than the original design depth for sediment storage. | Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP.  |
|                                 | Erosion has occurred.  | Provide additional erosion protection such as reinforced turf matting or riprap if needed to prevent future erosion problems.   |
|                                 | Weeds are present.   | Remove the weeds, preferably by hand. If pesticide is used, wipe it on the plants rather than spraying.   |
| The vegetated shelf             | Best professional practices show that pruning is needed to maintain optimal plant health.        | Prune according to best professional practices  |
|                                 | Plants are dead, diseased or dying.  | Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one-time fertilizer application to establish the ground cover if a soil test indicates it is necessary. |
|                                 | Weeds are present.   | Remove the weeds, preferably by hand. If pesticide is used, wipe it on the plants rather than spraying.   |
| The main treatment area         | Sediment has accumulated to a depth greater than the original design sediment storage depth.     | Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP.  |
|                                 | Algal growth covers over 50% of the area.  | Consult a professional to remove and control the algal growth.  |
|                                 | Cattails, phragmites or other invasive plants cover 50% of the basin surface.                    | Remove the plants by wiping them with pesticide (do not spray).   |

| BMP element:        | Potential problem:  | How I will remediate the problem:  |
|---------------------|---|--|
| The embankment      | Shrubs have started to grow on the embankment.  | Remove shrubs immediately.   |
|                     | Evidence of muskrat or beaver activity is present.  | Use traps to remove muskrats and consult a professional to remove beavers.                                 |
|                     | A tree has started to grow on the embankment.   | Consult a dam safety specialist to remove the tree.  |
|                     | An annual inspection by an appropriate professional shows that the embankment needs repair. (if applicable) | Make all needed repairs.   |
| The outlet device   | Clogging has occurred.  | Clean out the outlet device. Dispose of the sediment off-site.   |
|                     | The outlet device is damaged  | Repair or replace the outlet device.   |
| The receiving water | Erosion or other signs of damage have occurred at the outlet.   | Contact the local NC Division of Water Quality Regional Office, or the 401 Oversight Unit at 919-733-1786. |

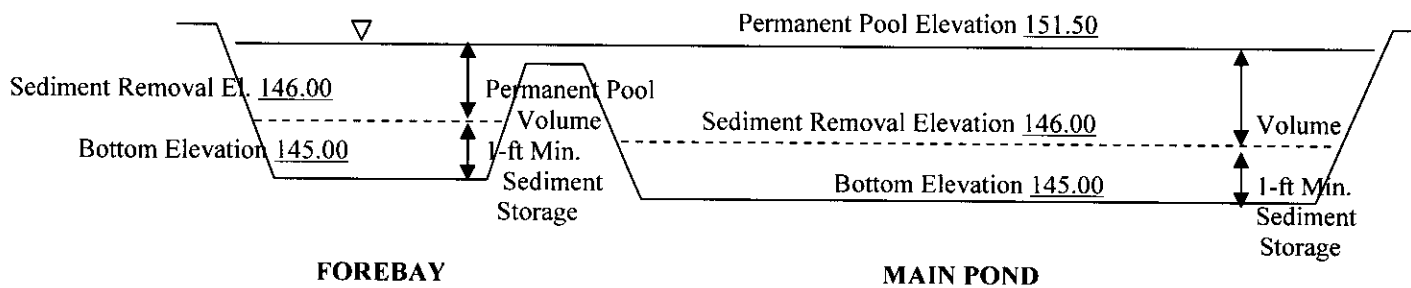
BMP Maintenance Plan attached as Exhibit B.

The measuring device used to determine the sediment elevation shall be such that it will give an accurate depth reading and not readily penetrate into accumulated sediments.

When the permanent pool depth reads 5.5 feet in the main pond, the sediment shall be removed.

When the permanent pool depth reads 5.5 feet in the forebay, the sediment shall be removed.

**BASIN DIAGRAM**  
(fill in the blanks)



I acknowledge and agree by my signature below that I am responsible for the performance of the maintenance procedures listed above. I agree to notify DWQ of any problems with the system or prior to any changes to the system or responsible party.

Project name: Park Place (formerly The Reserve at Bingham)

BMP drainage area number: Tributary to Basin 2

Print name: Watson G. Caviness

Title: President, Caviness & Cates Building and Development Company

Address: 639 Executive Pl., Suite 400, Fayetteville, NC 28305

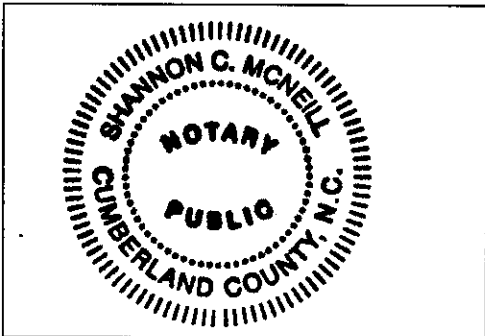
Phone: (910)703-1661

Signature: \_\_\_\_\_

Date: 12/20/2012

Note: The legally responsible party should not be a homeowners association unless more than 50% of the lots have been sold and a resident of the subdivision has been named the president.

I, Shannon C McNeill, a Notary Public for the State of North Carolina, County of Cumberland, do hereby certify that Watson G Caviness personally appeared before me this 20th day of December, 2012 and acknowledge the due execution of the forgoing wet detention basin maintenance requirements. Witness my hand and official seal,



(N.P. SEAL)

SEAL

My commission expires 6/9/2015

**EXHIBIT B**

**BMP Maintenance Plan**

Park Place, Phase One, Single Family Residential  
City of Fayetteville  
December 2012

**I. General BMP Information**

| BMP ID Name           | Street with Block Number | Parcel Tax ID |
|-----------------------|--------------------------|---------------|
| Wet Detention Basin 2 | ___ Clear Pines Drive    | _____         |
|                       |                          |               |
|                       |                          |               |
|                       |                          |               |
|                       |                          |               |
|                       |                          |               |

**II. BMP Site Location Map (attached)**

**III. Maintenance Annual Budget** [Provide a simple annual budget for maintenance and inspection of BMPs and list the source of funding, i.e. owner, trust, HOA, etc. Edit chart below as necessary]

| <b>Annual Budget for BMP Maintenance / Inspections</b>      |   |   |
|---|---|---|
| <b>Expenses</b>   | <b>Estimated Costs</b>  | <b>Source</b>   |
| Routine inspections   | \$75 per month x 11 months<br>plus \$300 per year annual<br>= \$1,125 | City of Fayetteville<br>(Maintenance Fund)                    |
| Sediment removal<br>(every 7 years)                         | \$75,396 per year<br>/ 7years<br>\$10,771                             | City of Fayetteville<br>(Maintenance Fund)                    |
| Plant management / weed<br>control                          | \$20  | Home Owner's Association                                      |
| Replacement supplies,<br>rock, plants, soil media,<br>mulch | \$200   | Home Owner's Association                                      |
| Mowing and litter removal                                   | \$75 per month = \$900  | Home Owner's Association                                      |
| Seeding   | \$123   | Home Owner's Association                                      |
| [15% Contingency]   | \$1,971   | \$187 Home Owner's Assn.<br>+ 1,784 City of Fayetteville      |
| <b>Total</b>  | \$15,110  | \$1,244 Home Owner's Assn.<br>+ \$13,681 City of Fayetteville |

**IV. Escrow Account Activity**

Provide documentation of BMP maintenance escrow account activity. This may be provided in the form of a bank statement which includes the current balance, deposits and withdraws for the previous 12 months. **(Not Applicable)**

**V. Maintenance Inspection Reports**

As indicated in the Stormwater Control Ordinance, annual maintenance inspection reports shall be submitted to the City Engineer. The first report shall be submitted one year following the final approval date of the BMP and each year thereafter on or before the approval anniversary date. All maintenance activities and inspection reports shall be documented using the forms contained in the Administrative Manual. Annual maintenance inspection reports shall be performed by a qualified professional as defined in Section 23-38 of the Ordinance. These inspections shall be discontinued only if the BMPs are accepted for maintenance by the City of Fayetteville.

**VI. Routine Maintenance Tasks and Schedule**

| <b>Wet Detention Basin<br/>Maintenance Tasks and Schedule</b> |  |
|---|--|
| <b>TASK</b>   | <b>SCHEDULE</b>  |
| Forebay observation and cleanout                              | Monthly  |
| Bank mowing and observation / stabilization of eroded areas   | Monthly  |
| Outlet / inlet observation and cleanout                       | Monthly  |
| Unwanted vegetation and trash removal                         | Monthly  |
| Visual observation of water quality                           | Monthly  |
| Overall facility observation                                  | Within 24 hours after every storm event greater than 1.0 inch                                    |
| Inspect / exercise all mechanical devices, valves, etc.       | Yearly   |
| Inspect for structural damage, leaks, etc.                    | Yearly   |
| Inspect the embankment  | Yearly   |
| Forebay inspection and cleanout                               | Yearly- Remove sediment every 7 years or when the sediment volume exceeds 50% of storage volume. |
| Volume measurement  | Yearly - Dredging needed every 20 years or when 25% of permanent pool volume has been lost.      |
| Rodent management   | As needed  |
| Security  | As needed  |

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