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MEMORANDUM

To: City Manager Municipalities of Alachua County

From: Rory P. Causseaux, P.E.

Date: August 1, 2016

RE: Alachua County Draft Stormwater Manual dated May 6, 2016

1. Attached is a presentation of "another perspective" to the Draft Manual as presented to the City of Newberry July 25, 2016.

2. Attached is an abbreviated presentation using excerpts from the City of Newberry July 25, 2016 presentation.

3. Case Study Results by CHW:
   (Draft results as of July 29, 2016)
   A. Single – Family Residential
      1) Oakmont Phase 2:
         a. Application of "BAM" (required for western Alachua County – Sensitive Karst Area – SKA)
         b. Increase cost of construction = $2.32 million
         c. Increase cost of lots = $16,473 / lot
         d. Nitrogen Removal =
            $2.32 million / 363.7 lbs. / yr.
            = $6,391 per lbs. / yr.

      2) Finley Woods:
         a) Application of "BAM" (required for western Alachua County – Sensitive Karst Area – SKA)
         b) Increase cost of construction = $1,774,000
         c) Increase cost per lot = $18,674 / lot
         d) Nitrogen Removal =
            $1,774,000 / 478 lbs. / yr.
            = 3,711 per lbs. / yr.

      3) Lugano Phase 1:
         a) Application of "BAM" (required for western Alachua County – Sensitive Karst Area – SKA)
         b) Increase cost of construction = $1,876,000
         c) Increase cost per lot = $13,028 / lot
         d) Nitrogen Removal =
            $1,876,000 / 306 lbs. / yr.
            = $6,131 per lbs. / yr.

B. Commercial
   1. Dollar General SW Archer Road
      a) Application of "BAM" (required for western Alachua County – Sensitive Kerst Area – SKA)
      b) Increase cost of construction = $46,550 or 3.5 times the cost of the current stormwater facility.
      c) 9.32 lbs. Nitrogen removed or $46,550 / 9.32 lbs. N / yr. = $4,995 / lb. / yr.

4. "BAM" Product Findings
   a) Our web research to date yields two things: 1) case study and publications related to FDEP, FDOT, other municipalities, etc. as it relates to BAM implementation and the associated stormwater BMPs being introduced by this manual all reference or directly source input from UCF and/or Dr. W., and 2) vendor sources have been limited to the two cited below—contractors have only yielded these two sources thus far.
   b) In speaking with Marion County engineering staff, they have retrofit three ponds already, have THIRTY (30) more designated to be retrofit (limited to only 1-foot to 2-feet of BAM based on ***cost*** and ***practicality***.....reducing pollutant load reduction goals for retrofits to 50% in some. Bold & Gold is the ONLY technology and vendor source for BAM that they are aware of, are using.

Vendor #1 (Bold & Gold):
Paul Arcuri
The Rain Collectors, Inc.
1387 Shotgun Rd.
Sunrise, FL 33326
Paul@TheRainCollectors.com
www.theraincollectors.com

Scope #1: **VENDOR INSTALLED** – material, mixing, hauling, placement, tax, vendor markup
Cost #1: $190.91/CY

Vendor #2 (Bold & Gold):
Chris Bogdan
407.298.5121 Office
407.578.9393 Facsimile
407.608.9860 Cellular
www.pti-pipe.com
www.BoldandGoldMedia.com
www.pipe-r.com

Scope #2: **CONTRACTOR INSTALLED** – material, mixing, hauling, placement, testing, tax, vendor markup, contractor markup
Cost #2: $242.00/CY

The above does NOT include any other excavation cost or info. Use the numbers below for cut/fill:

- $8 – 10/CY for excavation and haul off of waste material. **Consider this to be excavation of the overexcavation or wick area.**
- $9 – 10/CY for clean sand import to the project. **Consider this to be clean sand for the overexcavation/wick area not designated as BAM.**

This gives us a comparison of two vendor sources and two methods for BAM procurement + installation. For the sake of these studies I recommend using a cost for BAM procured and installed, best feasible available, as a rounded figure of **$200.00/CY**. This would be for the BAM component only, turnkey installed in an open, prepared hole. We can site the range provided from sources as $190.00/CY to $250.00/CY installed.

5. Comparison of Alachua County Draft Stormwater Manual dates May 6, 2016 vs. Pinellas County Draft Manual dated May 9, 2016.
   a. See attached comparison memo.

   b. Note: Two significant differences
      1) Pinellas County manual contains no application for groundwater discharge and, hence, no use of "BAM". Alachua County manual defines Sensitive Karst Area geography for Alachua County and the application of BAM in all basin bottoms located in SKA.
      2) Pinellas uses 55% Nitrogen removal for surface water discharge, while Alachua County uses 70% Nitrogen removal. FDEP 2007 / 2008 study suggested 50 – 55% Nitrogen removal was cost effective.

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