

Beaufort County Stormwater Management Utility Board (SWMU Board) Meeting Minutes

April 19, 2017 at 2:00 p.m. in Executive Conference Room, Administration Building, Beaufort County Government Robert Smalls Complex, 100 Ribaut Road, Beaufort, South Carolina

Board Members

Present

Don Smith
Patrick Mitchell
William Bruggeman
Marc Feinberg
Allyn Schneider

Absent

Larry Meisner
James Fargher

Ex-Officio Members

Present

Andy Kinghorn
Kim Jones

Absent

Scott Liggett
Van Willis

Beaufort County Staff

Tom Keaveny
Rebecca Baker
Melissa Allen
Carolyn Wallace
Chad Stanley
John Miller
Eric Larson (Via Teleconference)

Visitors

Joe Mina, Applied Technology & Management
Keith Readling, Raftelis Financial Consultants
Ellen Comeau, Clemson Extension
Ernie Wiggers, Nemours Wildlife Foundation
Danielle Mickel, USCB WQL
Mike Monday, USCB WQL
York Glover, Council Member

1. Meeting called to order – Don Smith

- A. Agenda – Approved.
- B. March 15, 2017 - Approved.

2. Introductions – Completed.

3. Public Comment(s) – None.

4. Reports – Mr. Eric Larson and Mr. David Wilhelm provided a written report which is included in the posted agenda and can be accessed at:

<http://www.bcgov.net/departments/Administrative/beaufort-county-council/boards-and-commissions/council-appointed/board-list/stormwater-management-utility-board/agendas/2017/041917.pdf>

A. Utility Update – Eric Larson

Please reference the report which is included in the posted agenda. No additional updates.

B. Monitoring Update – Eric Larson

Please reference the report which is included in the posted agenda. No additional updates.

- C. Stormwater Implementation Committee (SWIC) Report** – Eric Larson
Please reference the report which is included in the posted agenda. No additional updates.
- D. Stormwater Related Projects** – Eric Larson
Please reference the report which is included in the posted agenda. No additional updates.
- E. Professional Contracts Report** – Eric Larson
Please reference the report which is included in the posted agenda. No additional updates.
- F. Regional Coordination** – Eric Larson
Please reference the report which is included in the posted agenda. No additional updates.
- G. Municipal Reports** – Eric Larson
Please reference the report which is included in the posted agenda. No additional updates.
- H. Municipal Separate Storm Sewer System (MS4 Update)** – Eric Larson
Please reference the report which is included in the posted agenda. No additional updates.
- I. Maintenance Projects Report** – David Wilhelm
Please reference the report which is included in the posted agenda. No additional updates.

5. Unfinished Business –

A. Hearing on Stormwater Fee Appeal – Nemours Plantation – Mr. Joe Mina with Applied Technology & Management (ATM) presented a report that was prepared for the County analyzing the current percent impervious surface factor that is applied to calculate stormwater fees for silviculture. ATM provided a silviculture hydrology review and the assumptions and methodology utilized to create their analysis. The TR-55 method was used for measuring runoff and a table was provided showing the progression of the curve numbers through the lifecycle of a model timber harvest site, based on four soil types. Based on their analysis, they determined that the current 5% impervious surface factor that is applied to calculate stormwater fees is supported.

Mr. Ernie Wiggers asked if the assumptions used in the report have been tested for Beaufort County. Mr. Mina indicated yes, they have been tested throughout the nation. He mentioned that you would see this type of standard analysis used for any type of site being developed from a new Wal-Mart site to single family homes.

Lengthy discussion took place and included the following:

- If the 5% impervious factor was continuous for the lifetime.
- The impact of agriculture use land.
- Silviculture having an impervious impact.
- History of the 5% impervious surface factor and the new County rate structure.
- Law S453 that was imposed in 2009, freezing the rates that could be charged on agriculture exempt land.
- Requests for waivers on specific properties analyzing their affect could be prepared by the owner and presented to the board (this would be a burden of property owner to prepare).
- Gross area charge on undeveloped land versus agriculture exempt land.
- Cropland vs silviculture and the difference in how the fees are calculated.

- Relief given to those with conservation easements through the credit application approval process (applied to qualifying marshland and timber).

Mr. Keith Readling with Raftelis Financial Consultants presented a report that was prepared for the County that evaluated the stormwater fee revenue impacts that would be associated with possible changes to agriculture exempt silviculture runoff factors and how the shortfall in revenue could be made up. The County's current rate structure has three components: administration charge, impervious area charge and gross area charge. Raftelis developed four different financial models by revising the assumed impervious to be 4% down to 1% (in whole increments) and modeled three different scenarios for recovering lost revenue for each of those financial models.

Lengthy discussion took place and included the following:

- Cropland vs silviculture fees.
- Billings can vary year to year based on the fact that lands deemed eligible for Ag Use Exemption can fluctuate.
- Timberland with conservation easements being calculated at the lower rate.
- Nemours Plantation having parcels under conservation easement (3,500 acres not).
- History of the .001 run off factor and how it was vetted through the workshops.
- Disturbance of tomato farming (cropland) vs what is created by active silviculture.
- The 2009 S543 law and effect on revenue.

After Mr. Readling, discussion continued:

- Options/direction for this appeal – recommend adjusting the rate structure or approving the appeal.
- County Council not being in favor of an increase in fees in the past.
- It was questioned why the property owners should be responsible for providing the evidence for an appeal.
- Concerns of opening up other issues by granting the appeal.
- How long the rate stays at .005 once identified as disturbed.

It was clarified that the appeal made by Nemour's Plantation was in reference to the staff's decision to classify the land as disturbed, which changed the rate factor from .001 to .005, causing an increase in stormwater fees.

A motion was made to ask Mr. Wiggers to provide the data necessary to justify the request. No second.

The Board took no action.

[The reports prepared by ATM and Raftelis Financial Consultants are attached to the minutes.](#)

6. New Business

A. Proposed Budget for FY2018 – Mrs. Carolyn Wallace provided a brief overview of the proposed budget, highlighting components of the projected revenue and expenditures. She noted regulatory is now fully staffed as is the infrastructure staff. And the County is looking to add a few capital improvement projects. She mentioned the County is on schedule for most projects in the 10 year plan.

A motion was made to accept the budget as presented. Discussion took place about whether or not this issue was time sensitive or could it be delayed a month. Mr. Eric Larson explained that County Council is trying to approve budgets during two meetings in April. There were concerns about the possible financial impact that the Nemour's appeal may have that might not be incorporated into the budget. Mrs. Wallace mentioned that the budget would need to be approved prior to when the appeal may be settled. Mr. Larson pointed out the contingency budget could be adjusted if needed based on future action on the Nemour's appeal. The Board unanimously (5:0) approved to recommend the budget as presented.

7. Public Comment(s) – None.

8. Executive Session

A motion was made to go into Execution Session. The Board unanimously (5:0) approved to go into Executive Session.

9. Matters Arising Out of Executive Session – None.

10. Next Meeting Agenda – Approved with additions.

Additions for May 17th under New Business

- Discussion regarding consideration of reviewing the rate structure study related to agriculture and silviculture
- SC170 Drainage Issues
- Voting for Stormwater Management Utility Board Chairman and Vice Chairman

Addition for May 17th – Executive Session

- Project PP Continuation

11. Meeting Adjourned



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April 17, 2017

Eric W. Larson, P.E., AICP
Director, Environmental Engineering & Land Management
Director, Disaster Recovery Task Force
Manager, Stormwater Utility
120 Shanklin Road
Beaufort, S.C. 29906

Re: Silviculture Hydrology review and recommendation for Percent Impervious factor.

Dear Eric:

ATM was retained by Beaufort County to perform an analysis of the current stormwater fee rule which applies a 5% impervious surface assumption for the calculation of Stormwater fees to properties being used for Silvicultural purposes. ATM performed this analysis by starting with the TR-55 method for measuring runoff, which is the professional standard for these types of calculations. ATM consulted the SC Forestry Commission for information on current Forestry and Timber harvesting practices, and reviewed aerial photography of the county to determine some of the historical coverages and how they are affected by timber harvesting through the years. ATM reviewed significant literature and publicly available internet information on forestry to determine assumptions and methods used to create this analysis.

ATM's Assumptions are as follows:

1. Land coverage can be modeled using TR-55's Curve Number (CN) to determine runoff factors for the properties.
2. CN can be weighted over the lifetime of a normal silviculture and timber harvesting operations.
3. Operations ranging from a 5-year harvest to a 25-year harvest were considered.
4. Weighted CN can be converted to a percent impervious value by comparing the weighted CN for the yearly values to a wooded cover and Impervious cover model.
5. The use of standard SC BMP's to control runoff and water quality as prescribed by the SC Forestry Commission will mitigate any disturbance such as logging trails, thinning and other maintenance uses prior to harvest, and will create the ability to apply a "Good" Hydraulic Condition for CN analysis.
6. The analysis applied either a wooded cover, or a fallow – Crop Residue(CR) condition to provide the most favorable conditions to the landowner in reviewing cover conditions.
7. A regrowth period of five (5) years was assumed from harvest (fallow field) condition to full canopy and restoration of normal wooded cover. This is a hydrologic assumption, and

while cover may be visually restored in a shorter timeframe, the hydrologic performance of a site will take longer to re-establish.

8. During the regrowth period, the CN was weighted to apply a 25% per year growth factor.
9. Site size was not considered, and this analysis is not site specific. It addresses simple percentages of cover to come up with a model of what relative impervious surface percentage is appropriate to apply to a silvicultural site when approximating runoff quantity and quality.

ANALYSIS:

The following tables dictate the Curve Numbers used for analysis (from TR-55)

		Soil Type			
		A	B	C	D
Wooded	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77

NOTE: Poor = Forest litter, understory, and brush are destroyed by heavy grazing or regular burning
 Fair = Woods are grazed but not burned, and some forest litter covers the soil
 Good = Woods are protected from grazing, and litter and brush adequately cover the soil

Fallow-Bare	---	77	86	91	94
Fallow-Crop Residue Cover(CR)	Poor	76	85	90	93
	Good	74	83	88	90

NOTE: Poor = Factors impair infiltration, and tend to increase runoff
 Good = Factors encourage runoff and better than average infiltration and tend to decrease runoff

Note that curve number is highly dependent on the soil type. A type soils have better infiltration and water retention properties, and D type soils are less able to infiltrate and have more natural runoff. As an example, a sandy well drained soil would be considered A, and a swamp or wetland soil or clay soil would be considered a D soil. Analysis was performed for all four soil types for comparison.

The following table shows the progression of the curve numbers through the lifecycle of a model timber harvest site.

CN Values by soils*

Year	Condition	A	B	C	D
1	Cut and seedlings planted	74	83	88	90
2	25% Growth	63	76	84	87
3	50% Growth	52	69	79	84
4	75% Growth	41	62	75	80
5	100% Growth	30	55	70	77
6	Mature	30	55	70	77
7	Mature	30	55	70	77
8	Mature	30	55	70	77
9	Mature	30	55	70	77
10	Mature	30	55	70	77
11	Mature	30	55	70	77
12	Mature	30	55	70	77
13	Mature	30	55	70	77
14	Mature	30	55	70	77
15	Mature	30	55	70	77
16	Mature	30	55	70	77
17	Mature	30	55	70	77
18	Mature	30	55	70	77
19	Mature	30	55	70	77
20	Mature	30	55	70	77
21	Mature	30	55	70	77
22	Mature	30	55	70	77
23	Mature	30	55	70	77
24	Mature	30	55	70	77
25	Mature	30	55	70	77
5 Year Weighted Average CN		48	67	78	82
15 Year Weighted Average CN		37	60	73	79
20 Year Weighted Average CN		36	59	72	79
25 Year Weighted Average CN		34	58	72	78

* CN Values assume Good Hydrologic Condition

The following sample calculation is provided for the 25 year harvest condition. To determine relative percent impervious coverage, it is assumed that every year would have a certain percentage of wooded and impervious to approximate the same weighted CN from the above table.

FOR A SOILS

94% Wooded	30
6% Impervious	98
Weighted Avg CN	34

FOR B SOILS

93% Wooded	55
7% Impervious	98
Weighted Avg CN	58

FOR C SOILS

93% Wooded	70
7% Impervious	98
Weighted Avg CN	72

FOR D SOILS

95% Wooded	77
5% Impervious	98
Weighted Avg CN	78

Using the same method for each year, the following table was developed:

Equivalent % Impervious vs. length of time until harvest
 Soil type.

Years	A	B	C	D
5	27%	28%	29%	24%
15	10%	11%	11%	10%
20	9%	9%	7%	10%
25	6%	7%	7%	5%

Eric W. Larson, P.E., AICP
April 17, 2017
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Based on the above analysis, ATM has determined that the current 5% impervious surface used is supported by the Hydrologic analysis methodology currently utilized by the professional community.

Please feel free to contact ATM if you would like to discuss the results presented. Thank you!

Sincerely,
APPLIED TECHNOLOGY & MANAGEMENT, INC.

A handwritten signature in blue ink that reads "Joseph A. Mina." The signature is written in a cursive style and is positioned above the typed name and title.

Joseph A. Mina, P.E.
Sr. Engineer



April 17, 2017

Eric W Larson, PE, AICP
Director, Environmental Engineering & Land Management
Director, Disaster Recovery Task Force
Manager, Stormwater Utility
120 Shanklin Road
Beaufort, S.C. 29906

Subject: Financial Implications of Changing Silviculture Runoff Coefficients for Agricultural Use Exemption-Eligible Land Stormwater Fees Within Unincorporated Beaufort County

Dear Eric:

As a subconsultant to Applied Technologies and Management (ATM), Raftelis Financial Consultants (RFC) was retained by Beaufort County to evaluate the stormwater fee revenue implications of possible changes to the silviculture runoff factors used in determining stormwater fees for certain properties and/or portions of properties falling within the unincorporated area of Beaufort County and eligible for the Agricultural Use Exemption (established by law S453 in 2009) as described on the County's website at <http://www.bcgov.net/departments/Engineering-and-Infrastructure/stormwater-management/stormwater-fees.php>.

As the website explains, silvicultural land eligible for the Agricultural Use Exemption and within the unincorporated County is billed at 1/10 of the 2009 SFU stormwater rate as if it were 5% impervious. The 2009 SFU rate was \$50 and an SFU is 4,906 square feet of impervious area. Thus, an acre of land under these conditions is currently billed $(43,560)/(4,906) \times (0.05) \times (0.1) \times (50)$ or about \$2.22 per acre per year. S453 does not allow the stormwater fees for properties that remain eligible for the Agricultural Use Exemption to increase in future years.

RFC was asked how much the stormwater rates for all properties that are not eligible for the Agricultural Use Exemption within unincorporated Beaufort County would have to be increased to maintain the current stormwater fee revenues if the imperviousness of the silvicultural use land were assumed to be some value less than 5%. We developed a financial model that determined revenue losses for four cases, ranging from a revised assumed imperviousness of 1%, to 2%, to 3%, to 4%. Since the new stormwater rate structure includes fees for both impervious area and for gross area, we modeled three different scenarios for recovering the lost revenues: (a) recovery through an impervious area rate increase (only), (b) recovery through a gross area rate increase (only), and (c) recovery through increase to both rates such that about 80% of the recovery is from impervious area charges and about 20% is from gross area charges.

The unincorporated County total stormwater billings for Tax Year 2016 were about \$4,762,500 and of this, billings for silvicultural use lands eligible for the Agricultural Use Exemption and billed at the 5% imperviousness factor were about \$135,800. The tables on the following pages show the rate increases that would be needed to make up losses of various portions of the approximate \$135,800 using each of the three revenue loss recovery options as described above. Note that the current annual rate for impervious area is \$65 per unit and for gross area is \$10 per unit. There is also a fixed charge of \$12 for each account, for a total fee of \$87 per year for a typical home on a lot smaller than 2 acres.

OPTION 1 -- SILVICULTURE IA ASSUMED AT 4% INSTEAD OF 5%

5%	Current Percent Impervious for Silviculture
4%	Assumed Change to Percent Impervious for Silviculture
\$27,150	Annual Revenue Loss from Assumed Change

\$65.57	Impervious Area Rate Required on Others
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\$10.29	Gross Area Rate Required on Others
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\$65.46	Impervious Area	Rate Increases Required on Others
\$10.06	Gross Area	if 80/20 ratio share (both rates go up)

OPTION 2 -- SILVICULTURE IA ASSUMED AT 3% INSTEAD OF 5%

5%	Current Percent Impervious for Silviculture
3%	Assumed Change to Percent Impervious for Silviculture
\$54,301	Annual Revenue Loss from Assumed Change

\$66.14	Impervious Area Rate Required on Others
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\$10.58	Gross Area Rate Required on Others
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\$65.91	Impervious Area	Rate Increases Required on Others
\$10.12	Gross Area	if 80/20 ratio share (both rates go up)

OPTION 3 -- SILVICULTURE IA ASSUMED AT 2% INSTEAD OF 5%

5%	Current Percent Impervious for Silviculture
2%	Assumed Change to Percent Impervious for Silviculture
\$81,452	Annual Revenue Loss from Assumed Change

\$66.71	Impervious Area Rate Required on Others
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\$10.87	Gross Area Rate Required on Others
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\$66.37	Impervious Area	Rate Increases Required on Others
\$10.17	Gross Area	if 80/20 ratio share (both rates go up)

OPTION 4 -- SILVICULTURE IA ASSUMED AT 1% INSTEAD OF 5%

5%	Current Percent Impervious for Silviculture
1%	Assumed Change to Percent Impervious for Silviculture
\$108,602	Annual Revenue Loss from Assumed Change

\$67.28	Impervious Area Rate Required on Others
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\$11.16	Gross Area Rate Required on Others
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\$66.82	Impervious Area	Rate Increases Required on Others
\$10.23	Gross Area	if 80/20 ratio share (both rates go up)

As an explanatory note, taking Option 4 as an example, the revenue loss from changing the impervious percentage from the current percentage of 5% to a new percentage of 1% is about \$108,602 per year. If all of that loss were to be made up by raising the impervious area rates on ratepayers who pay them, the rates would need to increase to \$67.28. A typical single family home would see their annual stormwater fee go from \$87.00 to \$89.28. Similarly, if all of the shortfall were to be made up by raising the gross area rates on ratepayers who pay them, that rate would need to increase to \$11.16 and a typical single family home on a lot smaller than two acres would see their annual stormwater fee go from \$87.00 to \$88.16. If the shortfall were made up with a combination of impervious and gross area rate increases following the revenue allocation schema embodied by the current rate structure, impervious area rates would rise to \$66.82 and gross area rates would rise to \$10.23 such that a typical single family home on a lot smaller than two acres would see their annual stormwater fee go from \$87.00 to \$89.05.

The impacts of these potential rate increases vary with the choice of how the shortfall is made up. When the shortfall is made up entirely with the impervious area rate, properties that are undeveloped are not impacted and those that are highly impervious are most impacted. Similarly, large lightly developed or undeveloped tracts are impacted most by the choice to make up the shortfall with a gross area rate increase. The third option of allocating the makeup of the shortfall roughly 80% to impervious area and 20% to gross area strikes a middle ground.

Thank you for the opportunity to present these findings to Beaufort County. As is always the case, billings can vary from year to year and the lands deemed eligible for the Agricultural Use Exemption could fluctuate. For these reasons, although the analyses we performed were based on actual data provided by the County, the rate implications represented in this letter should be considered approximate.

Please contact me to discuss any of the above further.

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.



Keith Readling, PE
Executive Vice President and
Director of Stormwater Management Consulting