

Glennstone Phase 3 Dry Pond 3

(City of Durham ID# 00410)

Annual Certification Inspection Journal (ACIJ) – Interim Report

TRAC-2020-07-01

July 2020

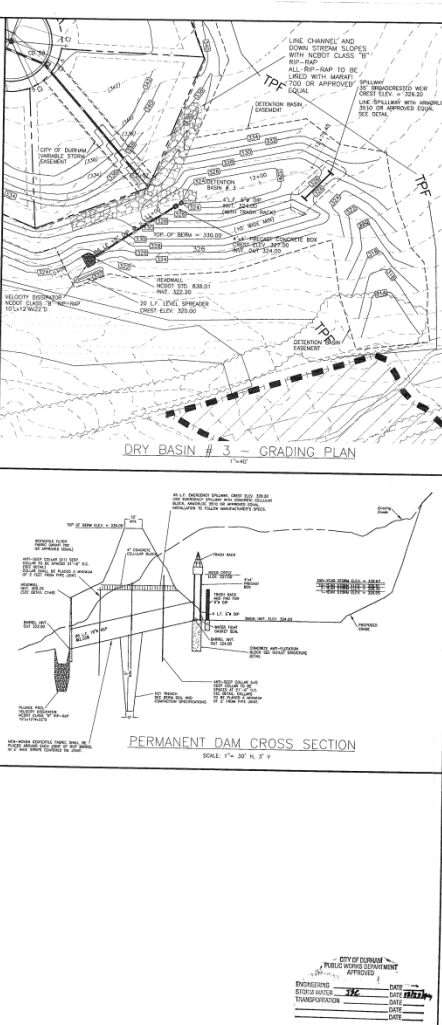
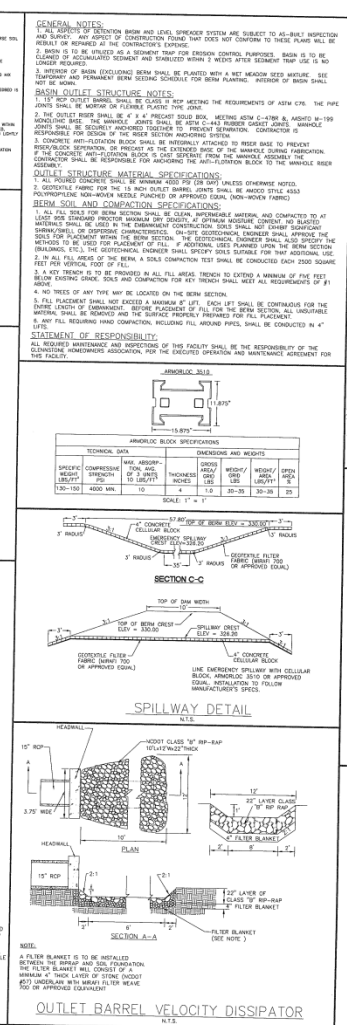
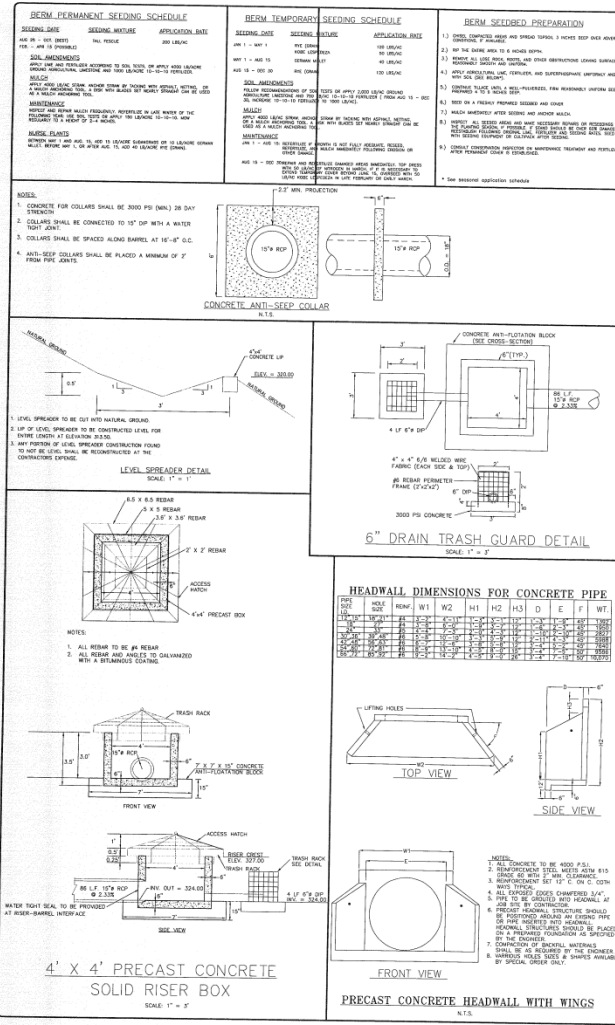


STORMWATER
MANAGEMENT ENGINEERING

RESTORATION + BALANCE IS KEY

Reimagining How Stormwater Is Managed

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415, Durham, NC 27713
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



PLANNERS

RL Horvath Associates, Inc.

137 MARKET STREET, SUITE 400 • DUNHAM, NC 27701 • PHONE: (919) 490-4444 FAX: (919) 490-4444

CLIENTS

CITY OF DURHAM

STORMWATER

CONSTRUCTION

DETENTION BASIN # 3

PLAN

DATE

6/24/04

SCALE

1" = 30' N.E.V.

SHEET NO.

C146

OF

1

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
 400 Laurel Springs Drive #415 Durham, NC 27713 Ph: 919/973-0715
 E-mail: dave@stormwaterme.net
www.stormwaterme.net





Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



Glennstone Ph3 DP3 Vital Statistics (Limited)

City of Durham ID#: 00410

Type of Facility: Dry Pond

Structural Dam Height: 8-ft

Access: At the Eastern End of Glennstone Drive (on the East Side of the Glenn Road/Glennstone Drive Intersection)

Owner/Permittee: Glennstone Homeowners Association Inc.

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



Glossary of Stormwater Dry Pond Elements

Cut Slope: An interior slope (excluding the upstream face of a dam embankment) of an impoundment.

Dam Embankment: An earth-fill structure that dams a stream valley and creates an impoundment, either permanently or intermittently. A dry pond is an intermittent impoundment.

Drainage Area: That land that drains to a stormwater impoundment.

Emergency Spillway: A large channel that allows storms that exceed the capacity of an impoundment to safely bypass the dam. An adequate emergency spillway is the best assurance against the catastrophic failure of dam due to overtopping.

Inlet: A pipe or channel that conveys storm flows to an impoundment.

Riser Structure: The principal water releasing structure in an impoundment.

Principal Spillway Pipe: The pipe that drains the riser through the dam embankment.

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



Key

Identified inspection work item that must be addressed before the facility can be certified.

Note about a condition that is felt to be acceptable or that identifies work that's been completed.

Note on Means and Methods

Except in general terms, the means and methods for the correction or alleviation of any maintenance items identified in this journal are **not** provided.



Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net

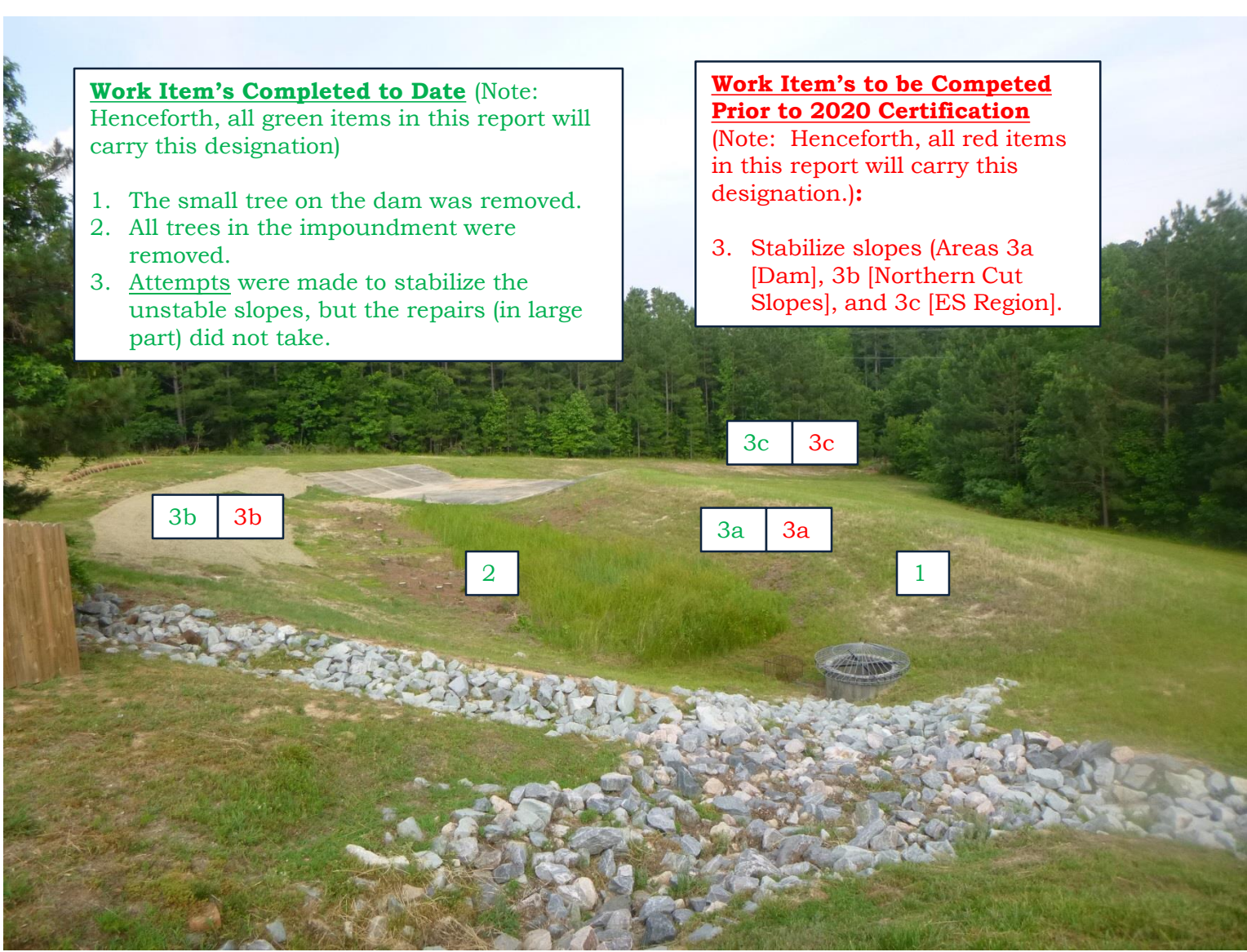


Work Item's Completed to Date (Note: Henceforth, all green items in this report will carry this designation)

1. The small tree on the dam was removed.
2. All trees in the impoundment were removed.
3. Attempts were made to stabilize the unstable slopes, but the repairs (in large part) did not take.

Work Item's to be Competed Prior to 2020 Certification (Note: Henceforth, all red items in this report will carry this designation.):

3. Stabilize slopes (Areas 3a [Dam], 3b [Northern Cut Slopes], and 3c [ES Region]).



June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





PF: Stabilize all bare and eroded areas with turf grass.

October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



Work Item's Completed to Date:

1. The small tree on the dam was removed.
2. All trees in the impoundment were removed.
3. Attempts were made to stabilize the unstable slopes, but the repairs (in large part) did not take.

Work Item's to be Competed Prior to 2020 Certification:

3. Stabilize slopes (Areas 3a [Dam], 3b [Northern Cut Slopes], and 3c [ES Region]).



1

3a 3a

2

June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



PF: Stabilize all bare and eroded areas with turf grass.

PF: Clean-off ES, remove vegetation from cracks, and seal cracks with sealant.

PF: Stabilize all bare and eroded areas with turf grass.

October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net

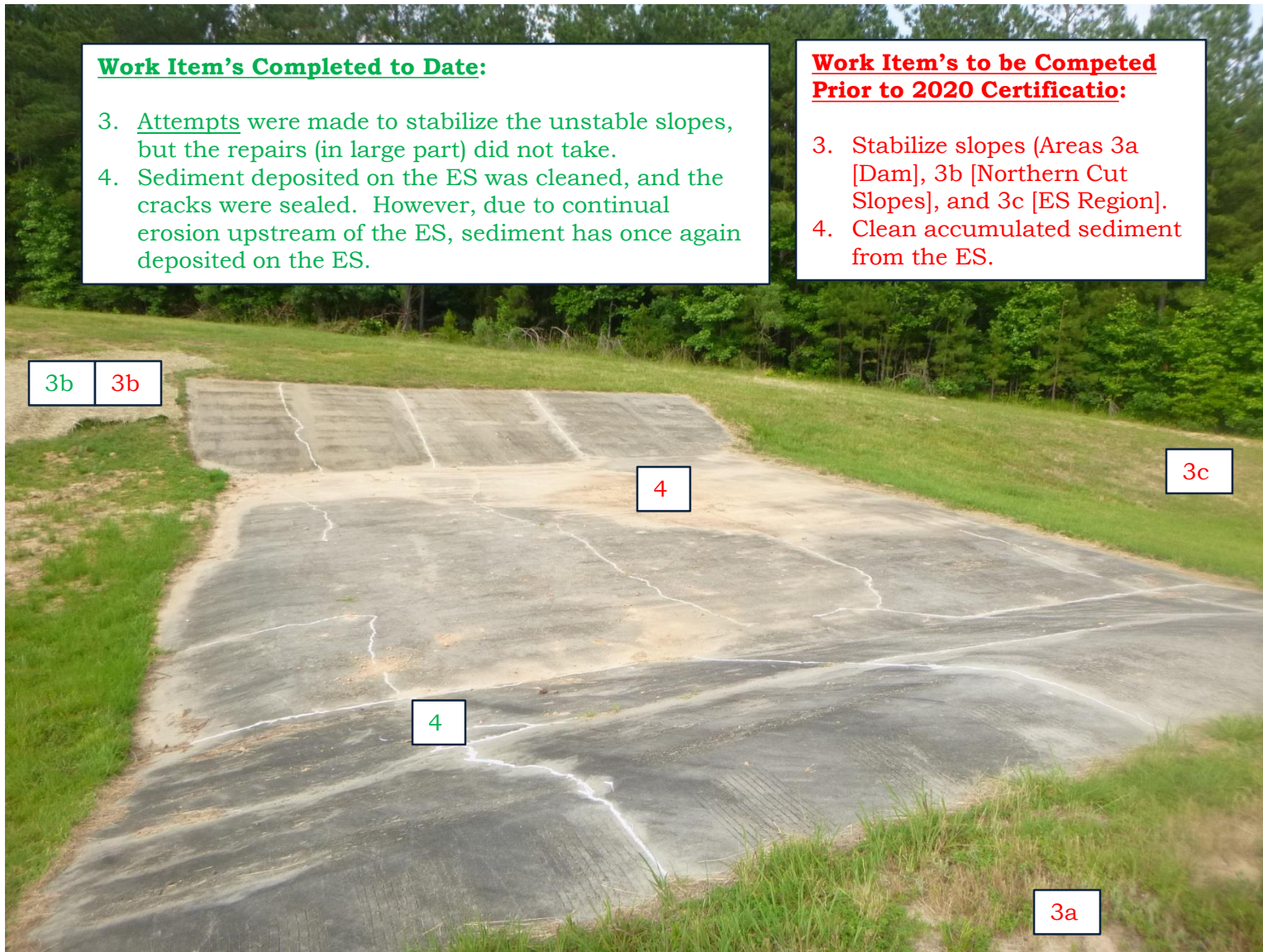


Work Item's Completed to Date:

- 3. Attempts were made to stabilize the unstable slopes, but the repairs (in large part) did not take.
- 4. Sediment deposited on the ES was cleaned, and the cracks were sealed. However, due to continual erosion upstream of the ES, sediment has once again deposited on the ES.

Work Item's to be Completed Prior to 2020 Certificatio:

- 3. Stabilize slopes (Areas 3a [Dam], 3b [Northern Cut Slopes], and 3c [ES Region]).
- 4. Clean accumulated sediment from the ES.




June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





PF: Stabilize all bare and eroded areas with turf grass.

October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



Work Item's Completed to Date:

4. Sediment deposited on the ES was cleaned, and the cracks were sealed. However, due to continual erosion upstream of the ES, sediment has once again deposited on the ES.

Work Item's to be Completed Prior to 2020 Certification:

3. Stabilize slopes (Areas 3a [Dam], 3b [Northern Cut Slopes], and 3c [ES Region]).



June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





PF: Stabilize all bare and eroded areas with turf grass.

October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



Work Item's Completed to Date (Note: Henceforth, all green items in this report will carry this designation)

2. All trees in the impoundment were removed.
3. Attempts were made to stabilize the unstable slopes, but the repairs (in large part) did not take.
4. Sediment deposited on the ES was cleaned, and the cracks were sealed. However, due to continual erosion upstream of the ES, sediment has once again deposited on the ES.

Work Item's to be Completed Prior to 2020 Certificatio:

3. Stabilize slopes (Areas 3a [Dam], 3b [Northern Cut Slopes], and 3c [ES Region]).
4. Clean accumulated sediment from the ES.



3b

3b

2

4

Suggestions

It is suggested that the repair of the northern cut slope be repaired in accordance with the City's EMR/EMP program. The rationale for this is provided on Sheet 12c.

June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



EMR/EMP

It is recommended that the stabilization of this slope be entered into the City's EMR/EMP program. The reasons for this are many. Attempts to repair this slope have been undertaken three different times over the last few years, with all three attempts not succeeding in providing needed stabilization (please see Sheet 12d for some limited photographic documentation of these efforts). The soils in this area are shallow (approximately 6" above bedrock) and comprised primarily of sandy (erodible) soils. In addition, a large mowed field, just upstream of this slope, generates significant volumes and velocities of water. These flows and velocities just tear the slope to pieces. Given that multiple, costly attempts to repair this slope have not succeeded, a different kind of repair approach needs to be undertaken.

For the 2020 certification season, I would like to submit this facility into the City's EMR/EMP program. It is anticipated that the repair of this slope will require multiple elements—all working together. However, given how much money has been spent previously in this location, the generation of an EMP, as well as its implementation, will need to be multi-layered and adaptively managed. Basically (and this is theoretical at this point), we will implement step 1, see how it works, and make adjustments (as needed) to the step 1 implementation as well as the step 2 and beyond EMP generation and implementation. For example...

Step 1 (Prior to October 30, 2020): Install terraced (three rows: one at the top of the slope, one halfway down the slope, and one at the bottom of the slope) super silt fence (silt fence backed with chain link fence) parallel with the entire slope and then "backfilled" with seeded topsoil/mulch behind the second and third rows of silt fence. Sheet 12d provides a graphical representation of this portion of the EMP.

Anticipated Step 2 (During 2021): Install a gutter channel across the top of the slope to collect drainage coming off the open field and then take than channel down the slope into the pond. It may make the most sense to tie the western end of the gutter into the existing riprap inlet channel and then to provide a new eastern riprap channel to take flows down into the pond.

Anticipated Step 3 (During 2022): Replace the silt fence mulch terracing with a permanent terracing design (e.g., timbers, grass and shrubbery plantings, mulch, etc.).

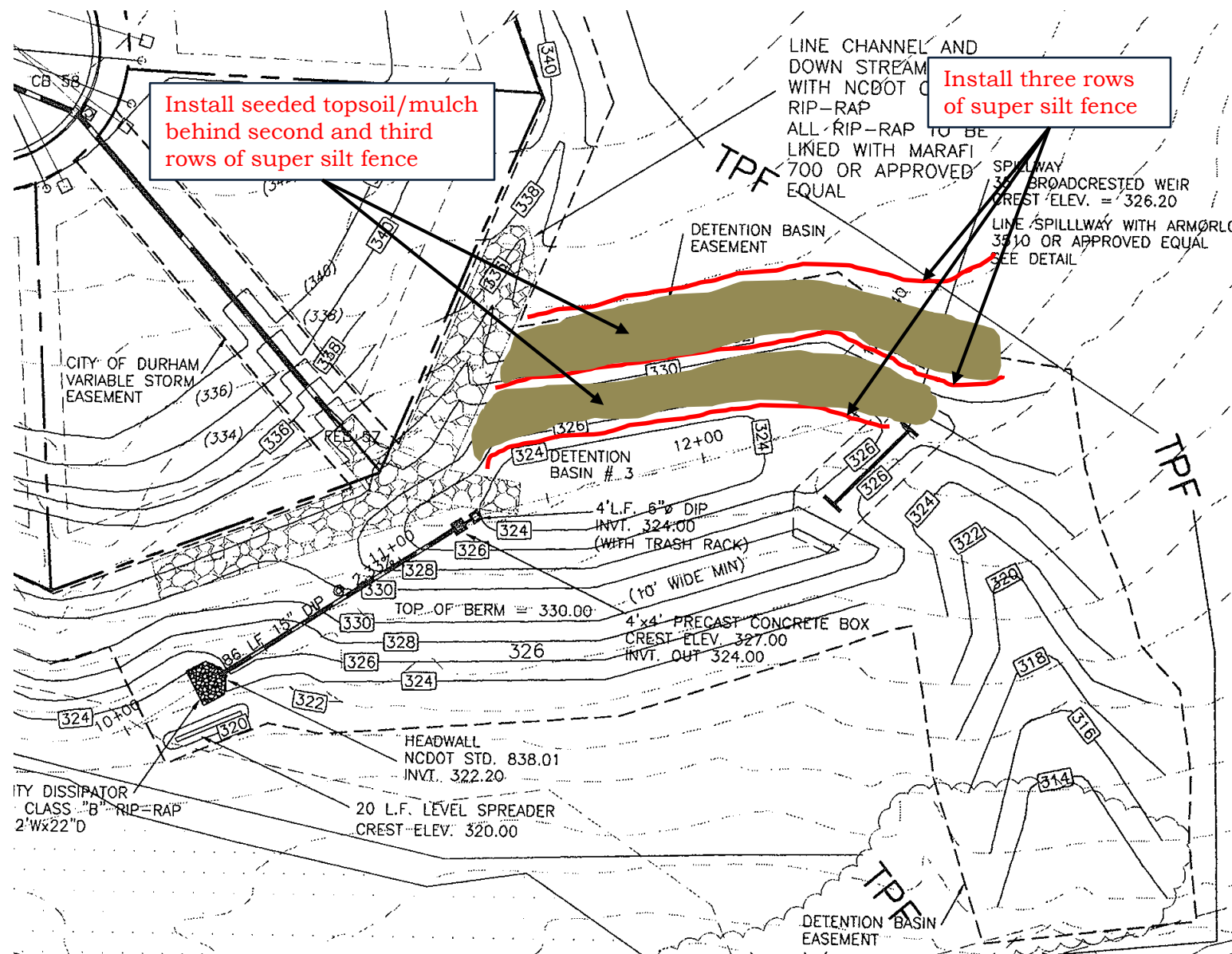
The above is just an example of an approach to EMR/EMP generation and implementation. More details will be provided with the EMR/EMP package in October 2020.

June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





Install seeded topsoil/mulch behind second and third rows of super silt fence

Install three rows of super silt fence

LINE CHANNEL AND DOWN STREAM WITH NCDOT CLASS "B" RIP-RAP ALL RIP-RAP TO BE LINED WITH MARAFI 700 OR APPROVED EQUAL

SPILLWAY 3' BROADCRESTED WEIR CREST ELEV. = 326.20 LINE SPILLWAY WITH ARMORLC 3#10 OR APPROVED EQUAL SEE DETAIL

EMP Phase 1

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
 400 Laurel Springs Drive #415 Durham, NC 27713 Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



October 2014 Repair

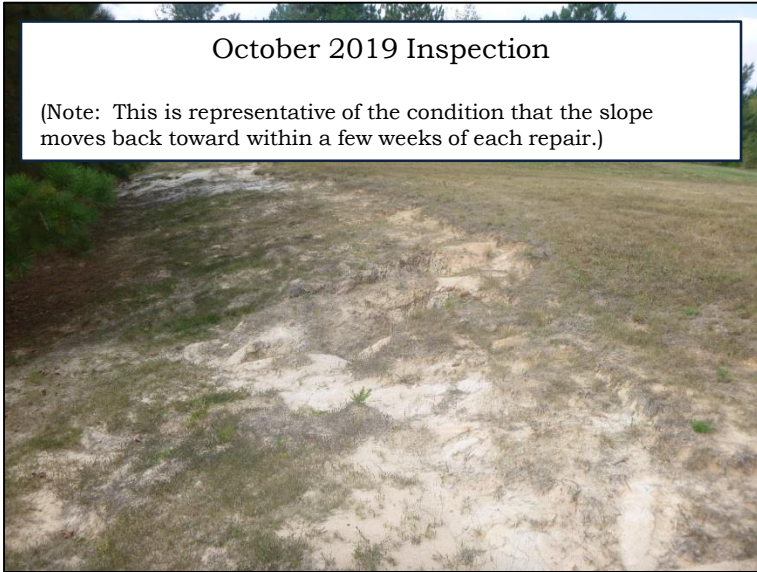


October 2015 Repair



October 2019 Inspection

(Note: This is representative of the condition that the slope moves back toward within a few weeks of each repair.)



June 2020 Repair

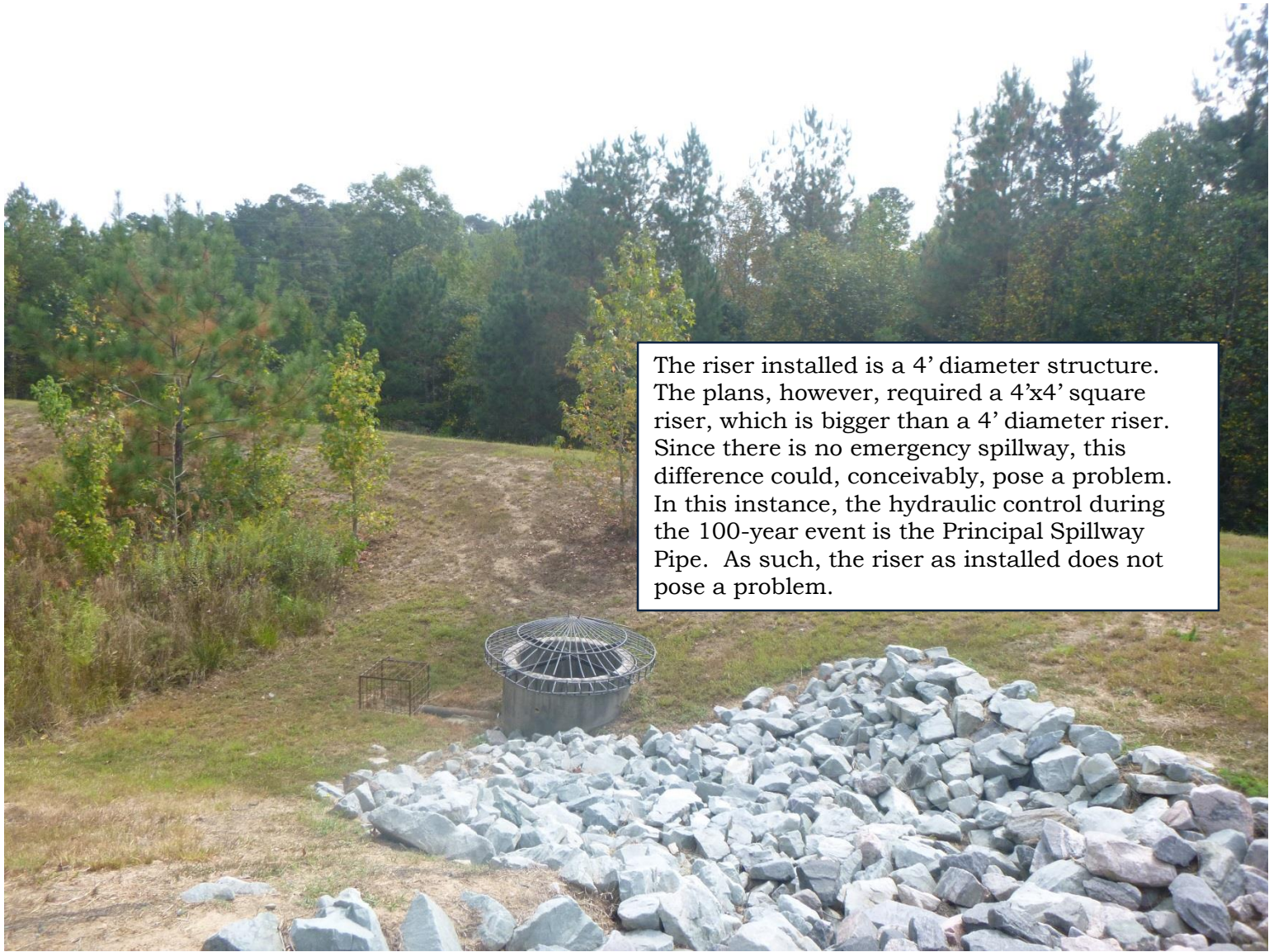


June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph: 919/973-0715
E-mail: dave@stormwaterme.net
www.stormwaterme.net





The riser installed is a 4' diameter structure. The plans, however, required a 4'x4' square riser, which is bigger than a 4' diameter riser. Since there is no emergency spillway, this difference could, conceivably, pose a problem. In this instance, the hydraulic control during the 100-year event is the Principal Spillway Pipe. As such, the riser as installed does not pose a problem.

October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





PF: Cover (w/ soil)
exposed low-flow pipe.

October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





5

**Work Item's to be Competed
Prior to 2020 Certificatio:**

5. Cover (w/ soil) exposed low-flow pipe.

June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



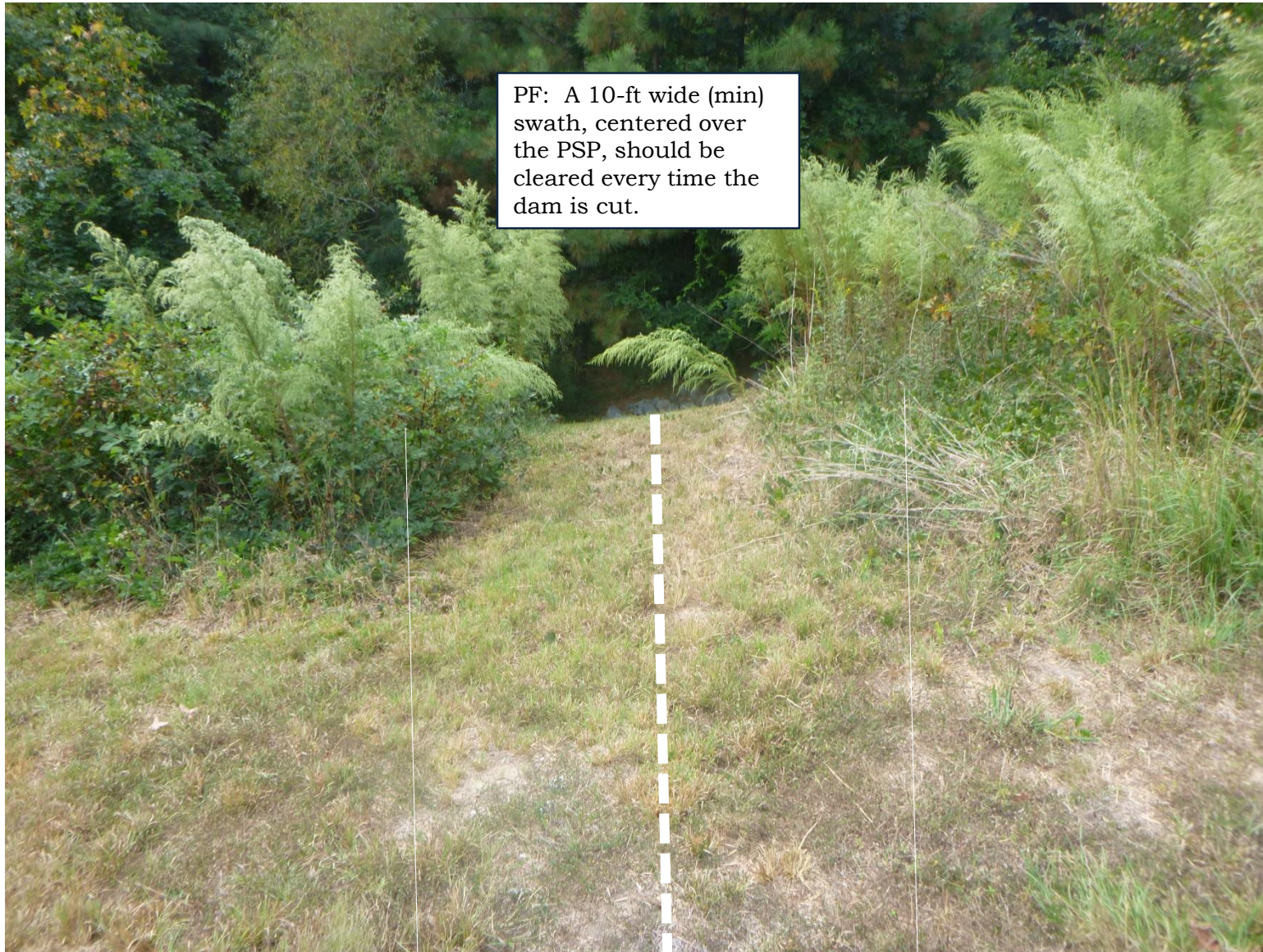


October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





PF: A 10-ft wide (min) swath, centered over the PSP, should be cleared every time the dam is cut.

October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph: 919/973-0715
E-mail: dave@stormwaterme.net
www.stormwaterme.net





6

**Work Item's to be Completed
Prior to 2020 Certificatio:**

6. Clear a 10-ft wide (min) swath, centered over the PSP.

Note: In the future, this area should be cut every time the pond is cut.

June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



Work Item's Completed to Date (Note: Henceforth, all green items in this report will carry this designation)

7. Trees in (and the dead trees bordering) the north eastern riprap channel were removed.



June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





The impoundment for DP3 is, essentially, a wet meadow. The water quality and habitat benefits of this facility in its current condition far surpass that which was required and provided in the original design. As such, it is recommended that this facility be allowed to continue with a wet meadow impoundment.

2017 Note: The City of Durham is now requiring trees in dry pond floors to be removed. A period of three years is being requested from the City to complete this work. As such, the tree removal work should be completed by the October 2020 certification. Note that the herbaceous wetland and wet meadow plants are acceptable and can remain in the pond.

October 2019 Inspection

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph: 919/973-0715
E-mail: dave@stormwaterme.net
www.stormwaterme.net

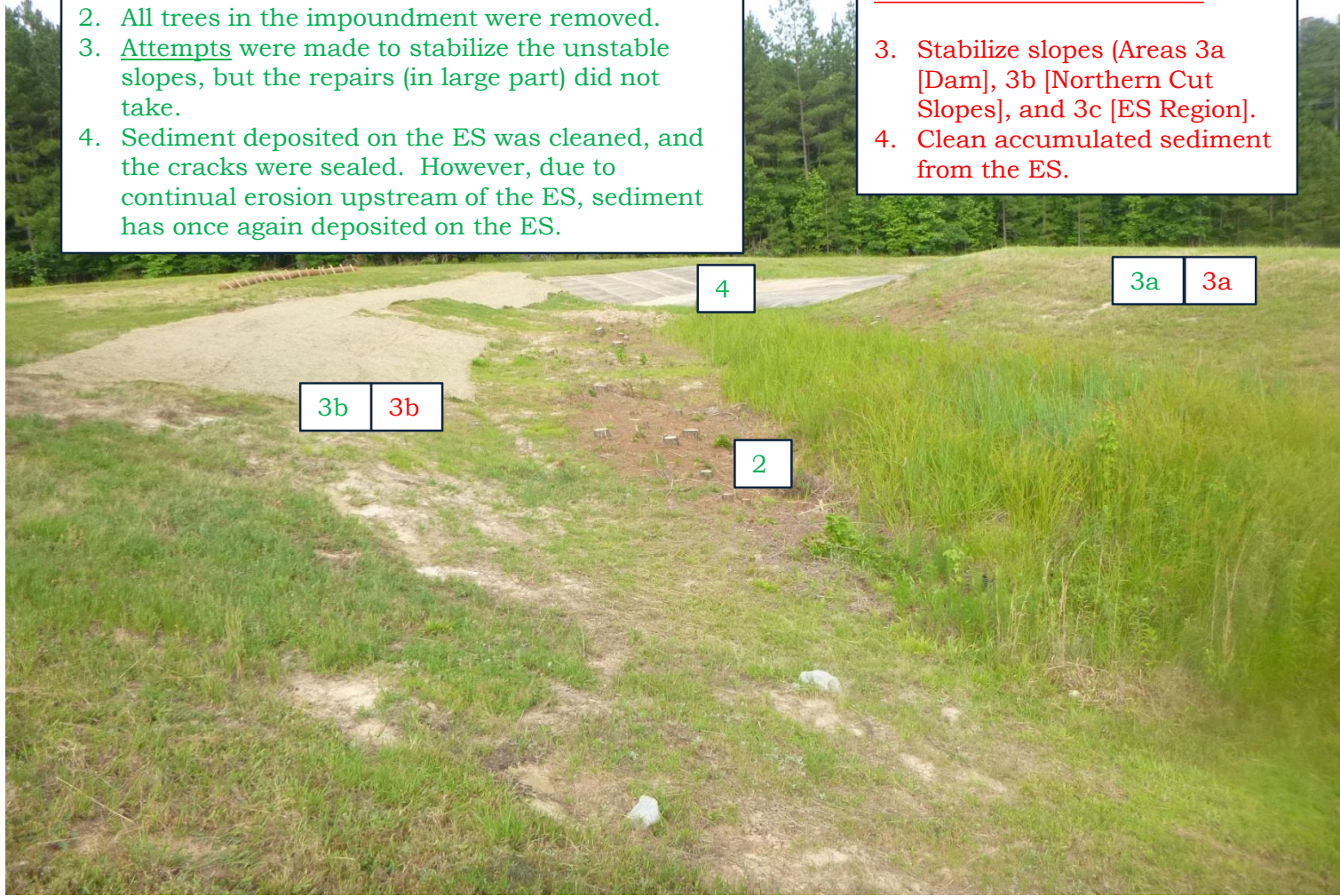


Work Item's Completed to Date (Note: Henceforth, all green items in this report will carry this designation)

2. All trees in the impoundment were removed.
3. Attempts were made to stabilize the unstable slopes, but the repairs (in large part) did not take.
4. Sediment deposited on the ES was cleaned, and the cracks were sealed. However, due to continual erosion upstream of the ES, sediment has once again deposited on the ES.

Work Item's to be Completed Prior to 2020 Certificatio:

3. Stabilize slopes (Areas 3a [Dam], 3b [Northern Cut Slopes], and 3c [ES Region]).
4. Clean accumulated sediment from the ES.

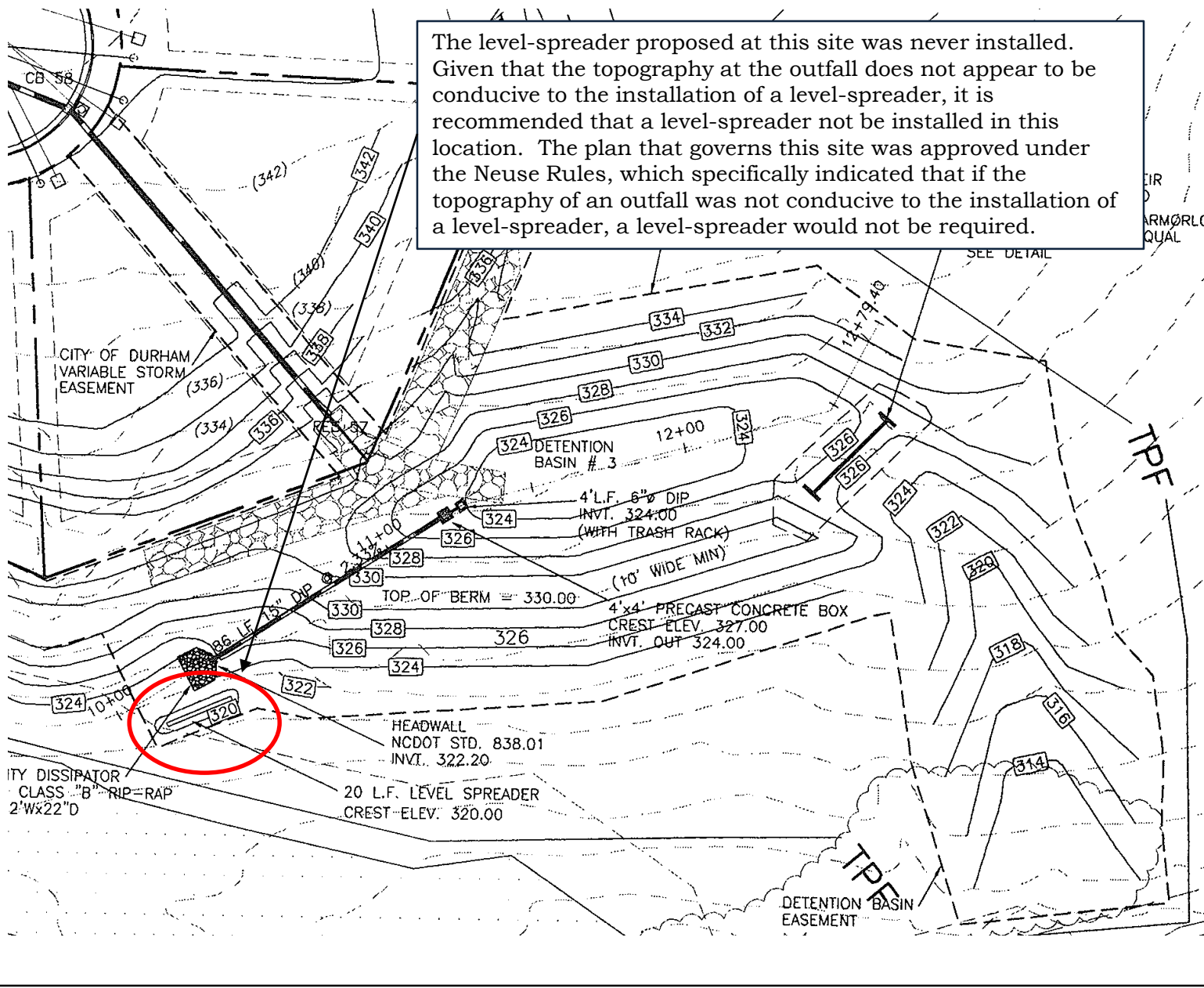


June 2020

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net





The level-spreader proposed at this site was never installed. Given that the topography at the outfall does not appear to be conducive to the installation of a level-spreader, it is recommended that a level-spreader not be installed in this location. The plan that governs this site was approved under the Neuse Rules, which specifically indicated that if the topography of an outfall was not conducive to the installation of a level-spreader, a level-spreader would not be required.

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
 400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
 Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



Letter of Request from Property Owners



Managed by TRAC Management, LLC, PO Box 3674, Chapel Hill, NC 27515

June 12, 2020

Bill Hailey
SCM Maintenance Program Coordinator
Stormwater Development Review Group
Public Works Department, Stormwater and GIS Services
City of Durham
101 City Hall Plaza, Suite 3200
Durham, NC 27701

Dear Mr. Hailey,

I am writing to request additional time and leniency to address the 4 dry pond areas in the neighborhood of Glennstone in Durham, North Carolina. As the property management company who took over the management of the HOA at the end of 2018, we inherited this pond problem after previous management failed to bring them into compliance. Since we took over, we have been working very diligently to try to bring the ponds into compliance and have made great strides toward achieving this while facing considerable obstacles.

My hope is that you will allow us an extension to continue to work with Dave Brown and our new pond management company to continue the improvements without having to deal with the added burden of penalties and fines.

I would like to give you a little bit of the background of the community as it relates to this issue as well as a brief account of the steps we have taken to date to address the situation.

Glennstone is a very diverse single-family community with homes built between 2003 to 2008. In general, the homes range in price from \$175,000 - \$260,000 and sit on quarter-acre lots with 3 bedrooms and two bathrooms. This is not an affluent neighborhood and many owners are non-natives and first-time homebuyers. The HOA dues are very low at \$224 per year and these dues are mainly used for common ground maintenance, pond and storm water management, entrance signs, lights, taxes and management. There are no amenities like a clubhouse, pool, tennis court or other recreational area.

Our company, TRAC Management, LLC was hired at the end of 2018 when a new HOA Board discovered that their previous management firm had been doing very little in the way of management. The ponds had failed their 2018 inspection and many owners had defaulted on their dues for 4 to 5 years. The ownership records were inaccurate and in many cases, homes had been sold without ever communicating the HOA fees and responsibilities to new owners.

Their pond management company, Dragonfly Ponds had been managing these ponds for about 5 years when we took over and despite a monthly maintenance fee of \$375 per month, had let the ponds deteriorate and become overgrown. We contracted with them in early 2019 to begin an extensive additional remediation of the ponds based on the failed 2018 inspection and in June of that year, they claimed to have done all the work and billed us for almost \$13,580. Once again, the ponds failed inspection that fall and despite many phone calls and emails, Dragonfly did not seem to feel it was their responsibility to do the monthly maintenance work or the remediation work that was necessary to pass or even advise us on how to proceed in getting the ponds to pass.

In desperation, we contacted inspector, Dave Brown directly in January 2020 and asked him to meet us along with representatives of Dragonfly to walk the ponds, see what had been done and hear exactly what he thought needed to be done. After hearing the extent of the work he believed still needed to be done, we contacted another pond management company, AllClear Ponds to review the inspection reports, walk the ponds and give us a quote for the remediation work. Their estimate of the necessary work was \$14,000 to \$20,000 including extensive cutting and removal of trees that had overgrown for 8 to 10 years.

Considering that the entire HOA budget at Glennstone is \$30,000, this was a huge hurdle to get past the HOA leadership but we explained that the penalties and consequences could add up to more than they had in the bank.

Therefore, AllClear was contracted in March to complete the remediation work. Subsequent meetings with Dave Brown, TRAC and AllClear have given us reason to believe that despite the huge amount of work that has been accomplished it is possible the ponds may still fail inspection as the grass has not come in strongly enough to stabilize some of the banks. Soils are very poor in these areas and solutions for bringing this along enough for inspectors will require time and a good deal more money.

We realize that it is important and necessary to bring the ponds into compliance and we are doing all we can as a community to address this to the satisfaction of the inspectors, however we respectfully request that the City of Durham take into consideration the hardship this community faces, especially at this time of the pandemic and job loss, and to work with us to achieve our common goals.

Respectfully submitted,

Thomas Whisnant
TRAC Management, LLC

Glennstone Ph3 DP3 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net



Proposed Implementation Schedule

All **red items** (total number identified in this report: Four. Three (**4**, **5**, and **6**) and portions of one (**3**) will be completed by close of business on October 16, 2020.

Work Item's to be Competed Prior to 2020 Certification:

3. Stabilize slopes (Areas 3a [Dam], 3b [Northern Cut Slopes], and 3c [ES Region]).
4. Clean accumulated sediment from the ES.
5. Cover (w/ soil) exposed low-flow pipe.
6. Clear a 10-ft wide (min) swath, centered over the PSP.

An EMR/EMP will be submitted to City of Durham Stormwater Services by the close of business on Friday, October 30, 2020.

Glennstone Ph3 DP1 ACIJ

Stormwater Management Engineering, PLLC
400 Laurel Springs Drive #415 Durham, NC 27713 Ph:
Ph: 919/973-0715 E-mail: dave@stormwaterme.net
www.stormwaterme.net

