COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

September 18, 2019

Mr. Michael Liberati
Corteva Environmental Remediation
974 Centre Road, Building 735
Wilmington, DE 19805

VIA ELECTRONIC MAIL

Re: 2019 Leaf-on Maintenance Inspection Reports for Allied Ready Mix, City Shops and Constitution Park BMAs
Former DuPont Waynesboro Site, Area of Concern 4
Waynesboro, Virginia
EPA ID# VAD003114832

Dear Mr. Liberati:

This letter acknowledges the receipt and review of the 2019 Leaf-on Maintenance Inspection Reports (Report) dated August 19, 2019, submitted to the Virginia Department of Environmental Quality, Office of Remediation Programs (VDEQ) by AECOM on behalf of the E.I DuPont de Nemours and Company (DuPont).

The Department has no further comments and accepts the submittal as complete.

If you have any questions, you may contact me at 540-574-7802 or by email at William.jordan@deq.virginia.gov.

Sincerely,

W. Calvin Jordan
Corrective Action Project Manager
Office of Remediation Programs

cc: DuPont Waynesboro Correspondence File
Joel Hennessey, US EPA
Ceil Mancini, Joshua Collins, AECOM

AECOM
625 West Ridge Pike, Suite E100
Conshohocken, Pennsylvania 19428
www.aecom.com

610 832 3500 tel
610 832 3501 fax

Memorandum

To	Michael Liberati, Corteva Environmental Remediation Nancy Grosso, Corteva Environmental Remediation	Page 1 of 3
CC	Cameron Dixon, AECOM Kristy Hoffman, AECOM	
Subject	Allied Ready Mix BMA – 2019 Leaf-on Maintenance Inspection Former DuPont Waynesboro Site, Area of Concern 4	
From	Andrew Miano, AECOM Joshua Collins, AECOM	
Date	August 19, 2019	

This memorandum summarizes the 2019 Leaf-on Maintenance Inspection (inspection) of the Allied Ready Mix Bank Management Area (BMA) conducted in June 2019. The inspection constitutes the second maintenance inspection following completion of interim measures construction activities in November 2018. Inspection activities followed the scope described in the Maintenance Plan included as Appendix M of the Basis of Design Report, Phase 1A BMAs, South River AOC 4 (Anchor QEA et al., 2016). The purpose of the maintenance inspection is to identify potential BMA maintenance needs, focusing on vegetative development, bank stability, and the integrity of the installed bank remediation features. This inspection also focused on evaluating repair work completed in the spring of 2019 including newly installed erosion control fabric and live stakes (AECOM, 2019a). Additionally, hydroseed was applied to the bank to increase vegetative coverage. Additional attachments to this memorandum include:

- Table 1 – Maintenance inspection log
- Appendix A - Photographic log
- Appendix B - Waynesboro Off-Site Cap Areas Inspection Record Sheet

Findings

The results of the maintenance inspection documented stable bank conditions throughout the remediated portions of the BMA and the areas of localized torn erosion control fabric, exposed geocell, and minor erosion noted in the 2019 Leaf-off inspection memo have been repaired (AECOM, 2019a; 2019b). A brief summary of findings is provided below; complete details of the maintenance inspection are included in Table 1 and in the photographic log (Appendix A).

Vegetation

- Areas along the BMA that exhibited dislodgment or damage of planted saplings and container stock along the high water line in February 2019 were successfully repaired with new erosion control fabric and live stakes (AECOM, 2019a).
- Healthy growth of planted native vegetation was noted throughout the BMA. Coverage by native plants has increased compared to the 2019 Leaf-off inspection (AECOM 2019b), both due to naturally occurring succession and repair activities (including hydroseeding and installed live stakes).
- Extensive natural recruitment of Red Maple (*Acer rubrum*) within the embeded stone toe was documented throughout the BMA.

- Newly installed live stake survivorship is 50% or above throughout the inspection area. Live stake establishment will continue to be monitored as part of the 2019 leaf-off inspection.
- The success of the hydroseed application was variable. Although the overall vegetation coverage increased post application there are still areas where vegetative coverage is below 50%. Native vegetative coverage will continue to be monitored during the leaf-off period of 2019.
- Established grasses and other native herbaceous vegetation along the BMA provided enhanced coverage of the erosion control fabric.

Stability

- River bank angles remained unchanged and maintain a consistent bank angle throughout the BMA as designed (Table 1).
- Localized scour was only observed at the top of the slope at 00+50' where fabric is torn; no geocell is exposed.
- There were no "at-risk" trees (e.g. trees that may no longer be stable due to erosion) within the remediated portions of the BMA.
- Although the remediated BMA remained stable, there continues to be heavy erosion present in the non-remediated downstream area of the second BMA section.

Installed Features

- Rock toe features were intact, with sediment deposition filling in the interstices providing substrate for natural recruitment of native tree species.
- Erosion control fabric was mostly intact but was exposed in certain areas that were repaired.
- Minor tearing of the erosion control fabric was observed 00+50'.
- Geocell was not exposed anywhere along the BMA.
- Rip rap fortified outfall culverts, Steel Run confluence, and bank abutment remained intact and functioning as designed.

The maintenance inspection conducted at the Allied Ready Mix BMA documented the integrity of the installed bank stabilization, and the completion of the repair work completed in the spring of 2019 (AECOM, 2019a). Native vegetation coverage, due to planted live stakes and hydroseeding, is increasing along the BMA but remains below 50% coverage in some areas. Vegetative growth and the integrity of the newly installed erosion control fabric will continue to be monitored in the 2019 leaf-off maintenance inspection .

PATH FORWARD

The following maintenance activities are planned for the Allied Ready Mix BMA based on the findings of the 2019 leaf-on inspection:

- Continue to monitor vegetative growth, bank stability, and installed features to assess the effectiveness of recent BMA repairs and to identify potential BMA maintenance needs.

REFERENCES

AECOM. 2019a. Constitution Park and Allied Ready Mix Bank Management Area Post-Construction Bank Repair Memorandum, Former DuPont Waynesboro Site Area of Concern 4. May 2019

AECOM. 2019b. 2018/2019 Allied Ready Mix BMA Leaf-off Maintenance Inspection Memorandum, Former DuPont Waynesboro Site Area of Concern 4. March 2019.

Anchor QEA, AECOM, and E.I. du Pont de Nemours and Company. 2016. Basis of Design Report, Phase 1A Bank Management Areas, South River Area of Concern 4. September 2016.

Table 1
2019 Leaf-on Maintenance Inspection log
Allied Ready Mix BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (ft)[1]	Undercutting				Exposed Roots			At Risk Trees			Installed Stabilization Features Intact					Local Scour			Overall Change Since Previous Inspection (Y/N)
	Approximate Bank Angle (Degrees)	Consistent Grade (Y/N)[2]	Notes	Photo # (Appendix A)	Exposed Roots (L/M/H)[3]	Notes	Photo # (Appendix A)	At Risk Trees Present (Y/N)[4]	Notes	Photo # (Appendix A)	Rock Toe/LWD (Y/N)[5]	Geocell (Y/N)[6]	Erosion Control Fabric (Y/N)[6]	Notes	Photo # (Appendix A)	Scour Present (Y/N)[7]	Notes	Photo # (Appendix A)	
00 - 20	20	Y		1	NA	No woody vegetation established adjacent to water; red maple saplings establishing at toe of slope	1,2	N	No woody plants adjacent to edge of water	1,2	NA	NA	NA	No fabric or geocell installed; upstream of remediation	1,2	Y	Some scour associated with foot traffic along bank	1,2	N
00 + 00	45	Y		3,4	NA	Minimal vegetation adjacent to water; Live stakes 60% established	3,4	N	No at-risk trees present	3,4	Y(Rock Toe)	Y	Y	Erosion control fabric 80% exposed ; no geocell exposed	3,4	Y	Some scour associated with foot traffic along bank; sand deposition above rock toe	3,4	Y (new erosion control fabric and live stakes installed)
00 + 50	50	Y		5	NA	Minimal vegetation adjacent to water; Live stakes 60% established	5,6,7	N	No at-risk trees present	5,6,7	Y(Rock Toe)	Y	Y	Erosion control fabric 80% exposed ; small tear located in the fabric at top of slope; scour is present where fabric is torn; no geocell exposed	5,6,7,8	N	Sand deposition at toe of bank.	5,6,7,8	Y (new erosion control fabric and live stakes installed)
00 + 100	50	Y		9	NA	Native herbaceous vegetation adjacent to water; Live stakes 60% established	9,10	N	No at-risk trees present	9,10	Y(Rock Toe)	Y	Y	Erosion control fabric 80% exposed ; no geocell exposed	9,10	N	Sand deposition at toe of bank.	9,10	Y (new erosion control fabric and live stakes installed)
00 + 150	50	Y		11	NA	Native herbaceous vegetation adjacent to water; Live stakes 70% established	11,12	N	No at-risk trees present	11,12	Y(Rock Toe)	Y	Y	Erosion control fabric 60% exposed ; no geocell exposed	11	N	Sand deposition at toe of bank.	11	Y (new erosion control fabric and live stakes installed)
00 + 200	50	Y		13	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 70% established	13	N	No at-risk trees present	13	Y(Rock Toe)	Y	Y	Erosion control fabric 50% exposed ; no geocell exposed	13	N	Sand deposition at toe of bank.	13	Y (new erosion control fabric and live stakes installed)
00 + 250	50	Y		14	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 60% established	14	N	No at-risk trees present	14	Y(Rock Toe)	Y	Y	Erosion control fabric 50% exposed ; no geocell exposed	14	N	Sand deposition at toe of bank.	14	Y (new erosion control fabric and live stakes installed)
00 + 300	40	Y		15,16	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	15,16	N	No at-risk trees present	15,16	Y(Rock Toe)	Y	Y	Erosion control fabric 80% exposed ; no geocell exposed; outfall and drainage structure intact	15,16	N	Sand deposition at toe of bank.	15,16	Y (new erosion control fabric and live stakes installed)
00 + 350	40	Y		17	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	17	N	No at-risk trees present	17	Y(Rock Toe)	Y	Y	Erosion control fabric 20% exposed ; no geocell exposed	17	N	Sand deposition at toe of bank.	17	Y (new erosion control fabric and live stakes installed)
00 + 400	50	Y		18	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	18	N	No at-risk trees present	18	Y(Rock Toe)	Y	Y	Erosion control fabric 20% exposed ; no geocell exposed	18	N	Sand deposition at toe of bank.	18	Y (Increased vegetation coverage due to plantings and hydroseeding)
00 + 450	50	Y		19,20	NA	Significant establishment of herbaceous vegetation adjacent to water; Live stakes 50% established	19,20	N	No at-risk trees present	19,20	Y(Rock Toe)	Y	Y	Erosion control fabric 30% exposed on lower half of bank, no geocell exposed	19,20	N	Sand deposition at toe of bank.	19,20	Y (Increased vegetation coverage due to plantings and hydroseeding)
00 + 500	40	Y		21	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	21	N	No at-risk trees present	21	Y(Rock Toe)	Y	Y	Erosion control fabric 40% exposed ; no geocell exposed	21	N	Sand deposition at toe of bank.	21	Y (Increased vegetation coverage due to plantings and hydroseeding)
00 + 550	30	N	Lower bank; ~20 degrees Upper bank; ~40 degrees	22	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	22,23	N	No at-risk trees present	22,23	Y(Rock Toe)	Y	Y	Erosion control fabric 20% exposed ; no geocell exposed	22,23	N	Sand deposition at toe of bank.	22,23	Y (Increased vegetation coverage due to plantings and hydroseeding)
00 + 600	30	N	Lower bank; ~20 degrees Upper bank; ~40 degrees	24	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	24	N	No at-risk trees present	24	Y(Rock Toe)	Y	Y	Erosion control fabric completely covered in native vegetation ; no geocell exposed	24	N	Sand deposition at toe of bank.	24	Y (Increased vegetation coverage due to plantings and hydroseeding)
00 + 650	30	N	Lower bank; ~20 degrees Upper bank; ~40 degrees	25	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	25	N	No at-risk trees present	25	Y(Rock Toe)	Y	Y	Erosion control fabric completely covered in native vegetation ; no geocell exposed	25	N	Sand deposition at toe of bank.	25	Y (Increased vegetation coverage due to plantings and hydroseeding)
00 + 700	30	N	Lower bank; ~20 degrees Upper bank; ~40 degrees	26	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	26,27,28	N	No at-risk trees present	26,27,28	Y(Rock Toe)	Y	Y	Erosion control fabric completely covered in native vegetation ; no geocell exposed	26,27,28	N	Sand deposition at toe of bank.	26,27,28	Y (Increased vegetation coverage due to plantings and hydroseeding)
00 + 750	30	N	Lower bank; ~20 degrees Upper bank; ~40 degrees	29	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	29	N	No at-risk trees present in remediated area	29	Y(Rock Toe)	Y	Y	Erosion control fabric completely covered in native vegetation ; no geocell exposed	29	N		29	Y (Increased vegetation coverage due to plantings and hydroseeding)
00 + 1250	20	N	Non-remediated upstream section; ~80 degrees Remediated section ; ~40 degrees	30	H	Exposed roots just upstream of remediated bank	30	Y	One large at risk tree just upstream of remediated bank	30	Y(Rock Toe)	Y	Y	Entirely rip rap portion of bank	30	N		30	N
00 + 1300	20	Y	Fortified tributary channel	31,32,33	NA	No exposed roots	31,32,33	N	No at-risk trees present	31,32,33	Y(Rock Toe)	Y	Y	Entirely rip rap portion of bank	31,32,33	N		31,32,33	N
00 + 1350	50	Y		34	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	34	N	No at-risk trees present	34	Y(Rock Toe)	Y	Y	Erosion control fabric 50% exposed ; no geocell exposed	34	N		34	Y (new erosion control fabric and live stakes installed)
00 + 1400	50	Y		35	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	35	N	No at-risk trees present	35	Y(Rock Toe)	Y	Y	Erosion control fabric 50% exposed ; no geocell exposed	35	N		35	Y (new erosion control fabric and live stakes installed)
00 + 1450	80	Y		36	NA	Native herbaceous vegetation establishing adjacent to water; Live stakes 50% established	36	N	No at-risk trees present	36	Y(Rock Toe)	Y	Y	Erosion control fabric 50% exposed ; no geocell exposed; Rip rap fortified bank abutment intact	36	N	Heavy erosion present immediately downstream of remediated BMA	36	Y (new erosion control fabric and live stakes installed)
00 + 1500	90	Y	Bank heavily undercut downstream of remediation	37,38	H	Severe root exposure downstream of remediated bank	37,38	Y	High density of at risk trees downstream of remediated bank	37,38	NA	NA	NA	No fabric or geocell installed; downstream of remediation	37,38	Y	Heavy erosion present downstream of remediated BMA	37,38	N

Notes:
1, Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); example, Station 00 + 50' is 50 feet downstream from the start of the BMA
2, A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)
3, The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable- no exposed roots)
4, At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river dislodge the bank soil and erosion-control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)
5, Installed rock toe and large woody debris (LWD) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
6, Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
7, The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)

APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 1	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 – 20' (non-remediated transect under 2nd Street overpass)

~20 degree bank angle; no at risk trees present; patches of invasive knotweed are present at the toe of slope; some scour associated with foot traffic along bank. Red maple saplings are establishing at the toe of slope.

Photo No. 2	Date: 6/13/2019

Direction Photo Taken:

East

Description:

Station 00 – 20' (non-remediated transect under 2nd Street overpass)

~20 degree bank angle; no at risk trees present; sand deposition above rock toe; improvised access point located downstream.

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APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 3	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 00'

~45 degree bank angle; installed rock toe intact; sand deposition above rock toe; live stakes planted on lower bank 60% established; saplings planted on upper bank; 80% of erosion control fabric exposed; improvised access point present. Red maple saplings establishing at toe of slope.

Photo No. 4	Date: 6/13/2019

Direction Photo Taken:

East

Description:

Station 00 + 00'

~45 degree bank angle; installed rock toe intact; live stakes planted on lower bank; red maple saplings establishing at toe of slope; saplings planted on upper bank show new growth; sand deposition observed above rock toe; no geocell exposed.

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APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No.	Date:
5	6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 50'

~50 degree bank angle; installed rock toe intact; live stakes planted on lower bank; red maple saplings establishing at toe of slope; saplings planted on upper bank; erosion control fabric exposed throughout; no geocell exposed.

Photo No.	Date:
6	6/13/2019

Direction Photo Taken:

South

Description:

Station 00 + 50'

Sand deposition above rock toe; erosion control fabric 80% exposed; Live stakes 60% established; red maple saplings are establishing at the toe of slope; sand deposition is present above rock toe.

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APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 7	Date: 6/13/2019

Direction Photo Taken:

East

Description:

Station 00 + 50'

Installed rock toe intact; live stakes planted on lower bank are 60% established; saplings planted on upper bank show new growth; 80% of erosion control fabric exposed; a small tear in the erosion control fabric was observed at the top of slope.

Photo No. 8	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 50'

Tear in the erosion control fabric observed at the top of slope; scour is present where fabric is torn; geocell is not exposed.

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PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 9	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 100'

~50 degree bank angle; installed rock toe intact; live stakes planted on lower bank are 60% established; saplings planted on upper bank show new growth; 50% of erosion control fabric exposed; no exposed geocell.

Photo No. 10	Date: 6/13/2019

Direction Photo Taken:

South

Description:

Station 00 + 100'

Installed rock toe intact; sand deposition above rock toe; 50% of the erosion control fabric is exposed.

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Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 11	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 150'

~50 degree bank angle; installed rock toe intact; live stakes planted on lower bank are 70% established; saplings planted on upper bank show new growth; erosion control fabric 60% exposed; no exposed geocell; red maple saplings and grasses establishing at toe of slope.

Photo No. 12	Date: 6/13/2019

Direction Photo Taken:

South

Description:

Station 00 + 150'

Installed live stakes upstream of 00 + 150' show new growth. erosion control fabric 60% exposed; grasses beginning to establish on lower bank; no exposed geocell.

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PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 13	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 200'

~50 degree bank angle; installed rock toe intact; live stakes 70% established; saplings planted on upper bank show new growth; 50% of erosion control fabric exposed; no exposed geocell; red maple saplings and grasses establishing at toe of slope.

Photo No. 14	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 250'

~50 degree bank angle; installed rock toe intact; live stakes 60% established; saplings planted on upper bank show new growth; 50% of erosion control fabric exposed. no exposed geocell; red maple saplings and grasses establishing at toe of slope.

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Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 15	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 300'

~40 degree bank angle; installed rock toe intact; outfall and drainage structure intact; live stakes 50% established; saplings planted on upper bank show new growth, 80% of erosion control fabric exposed throughout.

Photo No. 16	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 300'

Downstream view of live stake growth and exposed erosion control fabric.

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APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 17	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 350'

~40 degree bank angle; installed rock toe intact; live stakes 50% established; red maple saplings establishing at toe of slope; 80% of erosion control fabric exposed.

Photo No. 18	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 400'

~50 degree bank angle; outfall and drainage structure intact; live stakes 50% established; saplings planted along bank show new growth; grasses and red maple saplings establishing at toe of slope; erosion control fabric 20% exposed; sand deposition at toe of bank.

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PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 19	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 450'

~50 degree bank angle; installed rock toe intact; grasses establishing at throughout bank; live stakes 50% established; 30% of erosion control fabric exposed from mid-bank towards the rock toe; sand deposition occurring above rock toe; red maple saplings establishing at toe of slope

Photo No. 20	Date: 6/13/2019

Direction Photo Taken:

South

Description:

Station 00 + 450'

Upstream view of installed vegetation and live stakes; significant native vegetation cover with few invasives; red maple saplings are establishing at the toe of slope.

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PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No.	Date:
21	6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 500'

~40 degree bank angle; installed rock toe intact; grasses establishing throughout bank; live stakes 50% established; erosion control fabric 40% exposed; sand deposition occurring above rock toe; red maple saplings establishing at toe of slope.

Photo No.	Date:
22	6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 550'

~30 degree bank angle; installed rock toe intact; grasses establishing throughout bank; sand deposition occurring above rock toe; red maple saplings establishing at toe of slope; bank 80% covered in vegetation.

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APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 23	Date: 6/13/2019

Direction Photo Taken:

East

Description:

Station 00 + 550'

Downstream view from 00 + 550' and installed live stakes; downstream mid-bank plantings continue to exhibit healthy growth; red maple saplings are establishing at the toe of slope; native grasses established throughout bank; live stakes 50% established.

Photo No. 24	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 600'

~30 degree bank angle; installed rock toe intact; grasses establishing throughout bank; live stakes 50% established; erosion control fabric completely covered with native vegetation; sand deposition occurring above rock toe; red maple saplings establishing at the toe of slope.

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PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No.	Date:
25	6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 650'

~30 degree bank angle; installed rock toe intact; grasses establishing throughout bank; live stakes 50% established; erosion control fabric completely covered with native vegetation; sand deposition occurring above rock toe; red maple saplings establishing at the toe of slope.

Photo No.	Date:
26	6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 700'

~30 degree bank angle; installed rock toe intact; grasses establishing throughout bank; live stakes 50% established; erosion control fabric completely covered with native vegetation; sand deposition occurring above rock toe; red maple saplings establishing at the toe of slope.

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PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No.	Date:
27	6/13/2019

Direction Photo Taken:

East

Description:

Station 00 + 700'

Downstream view of 00 + 700' showing the end of the first remediated section.

Photo No.	Date:
28	6/13/2019

Direction Photo Taken:

South

Description:

Station 00 + 700'

Upstream view of 00 + 700'; live stakes and rock toe intact; red maple saplings are establishing at toe of slope; erosion control fabric completely covered in native vegetation.

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APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 29	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 750'

~30 degree bank angle; installed rock toe intact; partially exposed roots downstream of BMA; no at risk trees; grasses establishing at top of bank; red maple saplings establishing at the toe of slope; live stakes 50% established; erosion control fabric completely covered in native vegetation.

Photo No. 30	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 1250'

~40 degree bank angle (non-remediated 80); exposed roots of large at risk tree are present upstream of remediation, evidence of heavy scour around roots; no scour present along rock toe of remediation.

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APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No. 31	Date: 6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 1300'

~20 degree bank angle; rip rap fortified tributary channel; no exposed roots; no at risk trees; no fabric or geocell installed; no live stakes or trees planted.

Photo No. 32	Date: 6/13/2019

Direction Photo Taken:

East

Description:

Station 00 + 1300'

Looking downstream from 00 + 1300'; live stakes and rock toe intact; live stakes 50% established; erosion control fabric partially exposed throughout; sand deposition above rock toe.

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APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No.	Date:
33	6/13/2019

Direction Photo Taken:
Southeast

Description:

Station 00 + 1350'

~50 degree bank angle; no exposed roots; no at risk trees; live stakes 50% established; red maple saplings establishing at toe of slope; erosion control fabric 50% exposed; no scour present.

Photo No.	Date:
34	6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 1350'

Erosion control fabric repairs are intact and 50% exposed; no scour present; live stakes 50% established.

AECOM

APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No.	Date:
35	6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 1400'

~50 degree bank angle; no exposed roots; no at risk trees; live stakes 50% established; planted saplings show new growth; newly installed erosion control fabric 50% exposed; no scour present.

Photo No.	Date:
36	6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 1450'

Upstream view of 00 + 1450' showing entire BMA; no exposed roots; no at risk trees; live stakes planted on lower bank above rock toe show new growth and are 50% established; saplings planted throughout rest of bank display new growth; red maple saplings at toe of slope; installed rock toe intact.

AECOM

APPENDIX A
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Corteva	Allied Ready Mix BMA	60594242

Photo No.	Date:
37	6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 1450'

~50 degree bank angle; no exposed roots; no at risk trees; Rip rap fortified bank abutment intact with heavy erosion present immediately downstream of remediated BMA.

Photo No.	Date:
38	6/13/2019

Direction Photo Taken:

Southeast

Description:

Station 00 + 1500'

~90 degree bank angle; heavy erosion present downstream of remediated BMA; severe root exposure and high density of at risk trees due to undercut bank.

Appendix B- Waynesboro Off-Site Cap Areas

Inspection Record Sheet

Maintenance Plan

Location and property owner name: Allied Ready Mix BMA		
Item	Status/ Maintenance Needs	Repairs Needed?
Access Roads	Some washout of gravel access road near fortified tributary channel	1
Trails	Some improvised civilian pathways present near upstream and downstream portions of BMA	1
Drainage Structures	Drainage Structures Intact	1
Outfall Structures	Outfall Structures Intact	1
Rip-Rap Protection	Rip-Rap Intact	1
Cap System Vegetative Cover	Live stakes installed in the Spring of 2019 have established along the toe of the bank; native vegetation has started to cover the erosion control fabric, particularly in the downstream portion of the BMA	1
Cap System Geosynthetics	Newly installed erosion control fabric remains exposed in some areas but vegetation exhibits new growth and establishing well.	1
Cap System Slope Stability	Slope is generally consistent and stable along BMA; heavy erosion present downstream of secondary remediated BMA.	1
Cap System Subsidence	No cap system subsidence observed	1
Fencing and Gates	Fencing and gates intact	1

* 1. Functioning properly; no repairs needed

2. Repairs needed (describe why, what and where), but not time critical

3. Time critical repair needed (describe what and where)

* * Yes/ No

Comments: Empty holes where planted stock was lost during high flow events in February 2019, were backfilled with planting substrate and the erosion control fabric was repaired. Dormant live stakes (4') or similar were installed to replace lost container stock.

Inspected by: Andrew Hally and Andrew Miano Date: June 13, 2019