STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

December 22, 2017

Sammy Macy
Quality Control Manager
Synteen Technical Fabrics, Inc.
1950 West Meeting Street
Lancaster, SC 29270

Subject: Approval of Synteen Geogrids

Dear Mr. Macy:

The Materials and Tests Unit has reviewed the submittal dated September 27, 2017 for Synteen geogrids in accordance with the "NCDOT Guidelines for the Geogrid Evaluation Program". Based on this information, Synteen geogrids listed in the table below are approved for use on North Carolina Department of Transportation projects in accordance with the applicable contract and the following:

Geogrid and Direction (MD, CD)	**Polymer (PET, HDPE, PP)**	**Aperture Size (inches)**	**T_{ult} (lb/ft)**	**$T_{2\%}$ (lb/ft)**	**$T_{5\%}$ (lb/ft)**	**J_{ave} (lb)**	***J* (m-N/ deg)**	**RF_{CR}**			**RF_D**
								3-yr	**75-yr**	**100-yr**	
SF20 (MD,CD)	PET	1.00 x 0.79	2025					1.43	1.51	1.51	1.30
SF35 (MD)	PET	0.79 x1.00	3600					1.43	1.51	1.51	1.30
SF55 (MD)	PET	0.87 x 1.00	5000					1.43	1.51	1.51	1.30
SF65 (MD)	PET	0.79 x 1.00	6200					1.43	1.51	1.51	1.30
SF80 (MD)	PET	0.79 x 1.00	7550					1.43	1.51	1.51	1.30
SF90 (MD)	PET	0.63 x 1.00	9000					1.43	1.51	1.51	1.30
SF110 (MD)	PET	0.63 x 1.00	10300					1.43	1.51	1.51	1.30
SF180 (MD)	PET	0.51 x 1.00	14500					1.43	1.51	1.51	1.30
SF190 (MD)	PET	0.39 x 1.00	20560					1.43	1.51	1.51	1.30
SF350 (MD)	PET	0.39 x 1.00	27600					1.43	1.51	1.51	1.30

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS UNIT
1563 MAIL SERVICE CENTER
RALEIGH, NC 27699-1563

Telephone: (919) 329-4000
Fax: (919) 733-8742
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1801 BLUE RIDGE ROAD
RALEIGH, NC 27607

Geogrid and Direction (MD, CD)	Borrow (ϕ = 30°)										
	RF_{ID}	RF			T_{al} (lb/ft)			C_i	F*	C_{ds}	ρ (deg)
		3-yr	75-yr	100-yr	3-yr	75-yr	100-yr				
SF20 (MD,CD)	1.05	1.50	2.06	2.06	1349	982	982	0.67	0.39	0.67	21.15
SF35 (MD)	1.05	1.50	2.06	2.06	2398	1747	1747	0.67	0.39	0.67	21.15
SF55 (MD)	1.05	1.50	2.06	2.06	3330	2426	2426	0.67	0.39	0.67	21.15
SF65 (MD)	1.05	1.50	2.06	2.06	4129	3008	3008	0.67	0.39	0.67	21.15
SF80 (MD)	1.05	1.50	2.06	2.06	5028	3663	3663	0.67	0.39	0.67	21.15
SF90 (MD)	1.05	1.50	2.06	2.06	5994	4366	4366	0.67	0.39	0.67	21.15
SF110 (MD)	1.05	1.50	2.06	2.06	6860	4997	4997	0.67	0.39	0.67	21.15
SF180 (MD)	1.05	1.50	2.06	2.06	9657	7035	7035	0.67	0.39	0.67	21.15
SF190 (MD)	1.05	1.50	2.06	2.06	13693	9975	9975	0.67	0.39	0.67	21.15
SF350 (MD)	1.05	1.50	2.06	2.06	18382	13391	13391	0.67	0.39	0.67	21.15
Geogrid and Direction (MD, CD)	**Fine Aggregate (ϕ = 34°)**										
	RF_{ID}	RF			T_{al} (lb/ft)			C_i	F*	C_{ds}	ρ (deg)
		3-yr	75-yr	100-yr	3-yr	75-yr	100-yr				
SF20 (MD,CD)	1.10	1.57	2.16	2.16	1287	938	938	0.67	0.45	0.67	24.32
SF35 (MD)	1.08	1.54	2.12	2.12	2331	1698	1698	0.67	0.45	0.67	24.32
SF55 (MD)	1.05	1.50	2.06	2.06	3330	2426	2426	0.67	0.45	0.67	24.32
SF65 (MD)	1.05	1.50	2.06	2.06	4129	3008	3008	0.67	0.45	0.67	24.32
SF80 (MD)	1.05	1.50	2.06	2.06	5028	3663	3663	0.67	0.45	0.67	24.32
SF90 (MD)	1.05	1.50	2.06	2.06	5994	4366	4366	0.67	0.45	0.67	24.32
SF110 (MD)	1.05	1.50	2.06	2.06	6860	4997	4997	0.67	0.45	0.67	24.32
SF180 (MD)	1.05	1.50	2.06	2.06	9657	7035	7035	0.67	0.45	0.67	24.32
SF190 (MD)	1.05	1.50	2.06	2.06	13693	9975	9975	0.67	0.45	0.67	24.32
SF350 (MD)	1.05	1.50	2.06	2.06	18382	13391	13391	0.67	0.45	0.67	24.32
Geogrid and Direction (MD, CD)	**Coarse Aggregate (ϕ = 38°)**										
	RF_{ID}	RF			T_{al} (lb/ft)			C_i	F*	C_{ds}	ρ (deg)
		3-yr	75-yr	100-yr	3-yr	75-yr	100-yr				
SF20 (MD,CD)	1.73	2.47	3.40	3.40	819	596	596	0.67	0.52	0.67	27.63
SF35 (MD)	1.63	2.33	3.20	3.20	1544	1125	1125	0.67	0.52	0.67	27.63
SF55 (MD)	1.55	2.22	3.04	3.04	2256	1643	1643	0.67	0.52	0.67	27.63
SF65 (MD)	1.55	2.22	3.04	3.04	2797	2038	2038	0.67	0.52	0.67	27.63
SF80 (MD)	1.50	2.15	2.94	2.94	3520	2564	2564	0.67	0.52	0.67	27.63
SF90 (MD)	1.50	2.15	2.94	2.94	4196	3057	3057	0.67	0.52	0.67	27.63
SF110 (MD)	1.40	2.00	2.75	2.75	5145	3748	3748	0.67	0.52	0.67	27.63
SF180 (MD)	1.40	2.00	2.75	2.75	7243	5276	5276	0.67	0.52	0.67	27.63
SF190 (MD)	1.40	2.00	2.75	2.75	10270	7481	7481	0.67	0.52	0.67	27.63
SF350 (MD)	1.40	2.00	2.75	2.75	13786	10043	10043	0.67	0.52	0.67	27.63

If you have any questions, please contact C. K. Su at (919) 329-4150 or Brian Hunter at (919) 329-4000.

Sincerely,

Christopher A. Peoples, P.E.
State Materials Engineer

cc: John Pilipchuk, L.G., P.E., State Geotechnical Engineer