Table A1 Data used in backstripping analysis. Ages are those input while interpolated ages are based on the decompacted sediment thicknesses of sediment units between dated sequence boundaries. Best estimate paleodepths are given in meters. Error bars in analyses allow a -30% and + 50% range about the best estimate. Proportions of different lithologies are given in percent. See text for discussion.

Formation/ Sequence	Age (Ma)	Interpolated Age (Ma)	Best Est. Paleodepth	Depth (ft)	Thickness (m)	Clay	Silt-stone	Sand-stone	Micrite	Calci-siltstone	Calc-arenite	Glauc-onite	Mica
Anchor-Dickinson I													
base of borehole	140	140.00		6357									
Potomic Raritan	100	100.00	0	2400	1206.1	40	40	20	0	0	0	0	0
UK undiff.	65	65.00	50	2000	121.92	40	5	40	0	5	10	0	0
Cape May Leg 150X													
e10a	35.2	35.20	125	1500	0.01	0	0	0	0	0	0	0	0
e10b	34.8	34.80	100	1360	42.66	97	0	1	0	0	1	1	0
o1a	32.4	32.40	150	1360	0.01	0	0	0	0	0	0	0	0
o1b	0	32.13	150	1353	2.12	0	57	9	0	0	0	34	0
o1c	32	32.00	150	1350	0.91	0	88	2	0	0	0	10	0
o2a	30.4	30.40	100	1350	0.01	0	0	0	0	0	0	0	0
o2b	0	30.09	75	1328	6.7	0	54	14	0	0	0	32	0
o2c	29.9	29.90	50	1315	3.96	0	56	31	0	0	0	13	0
o3a	28.5	28.50	100	1315	0.01	0	0	0	0	0	0	0	0
o3b	28.4	28.40	100	1305	3.04	0	37	19	0	0	0	44	0
o5a	26.2	26.20	80	1305	0.01	0	0	0	0	0	0	0	0
o5b	26	26.00	80	1300	1.51	0	83	13	0	0	1	3	0
o6a	24.9	24.90	80	1300	0.01	0	0	0	0	0	0	0	0
o6b	0	24.80	80	1275	7.61	0	74	21	0	0	0	4	0
o6c	0	24.62	60	1254	14.02	96	0	1	0	0	0	3	0
o6d	24.2	24.20	30	1180	36.58	0	34	51	0	0	0	15	0

kw0.a	23.5	23.50	40	1180	0.01	0	0	0	0	0	0	0	0
kw0.b	0	23.41	50	1170	3.04	0	30	63	0	0	0	7	0
kw0.c	0	23.00	40	1125	16.76	0	32	43	0	0	0	25	0
kw0.d	22	22.00	25	1062	35.97	0	28	22	0	0	0	50	0
kw1a.a	20.6	20.60	60	1062	0.01	0	0	0	0	0	0	0	0
kw1a.b	0	20.52	60	1055	2.12	0	24	74	0	0	2	0	0
kw1a.c	0	20.52	50	970	0.01	88	0	11	0	0	1	0	0
kw1a.d	20.2	20.20	20	942	8.52	0	36	61	0	0	3	0	0
kw1b.a	20.2	20.20	30	942	0.01	0	0	0	0	0	0	0	0
kw1b.b	19.8	19.80	30	850	28.03	0	28	71	0	0	1	0	0
kw1c.a	19.4	19.40	30	850	0.01	0	0	0	0	0	0	0	0
kw1c.b	18.3	18.30	20	710	42.66	0	36	63	0	0	1	0	0
kw2a.a	17.5	17.50	20	710	0.01	0	0	0	0	0	0	0	0
kw2a.b	16.5	16.50	20	615	28.95	0	56	43	0	0	1	0	0
kw2b.a	16.1	16.10	20	615	0.01	0	0	0	0	0	0	0	0
kw2b.b	15.6	15.60	20	576	11.88	0	50	46	0	0	4	0	0
kw2c.a	14.7	14.70	30	576	0.01	0	0	0	0	0	0	0	0
kw2c.b	14.3	14.30	30	503	22.24	0	37	63	0	0	0	0	0
kw3.a	13.8	13.80	50	503	0.01	0	0	0	0	0	0	0	0
kw3.b	0	13.67	20	470	10.05	89	0	10	0	0	0	0	0
kw3.c	13.4	13.40	10	432	21.64	0	38	62	0	0	0	0	0
ch1.a	12.9	12.90	10	432	0.01	0	0	0	0	0	0	0	0
ch1.b	12.7	12.70	10	357	22.85	0	30	70	0	0	0	0	0
ch2.a	12.5	12.50	0	357	0.01	0	0	0	0	0	0	0	0
ch2.b	0	12.29	0	345	3.65	99	0	1	0	0	0	0	0
ch2.c	11.9	11.90	0	322	7.01	0	79	21	0	0	0	0	0
ch3.a	10.3	10.30	0	322	0.01	0	0	0	0	0	0	0	0
ch3.b	9.7	9.70	0	274	14.62	0	24	76	0	0	0	0	0
ch4.a	9.4	9.40	0	274	0.01	0	0	0	0	0	0	0	0
ch4.b	8.8	8.80	0	210	19.5	0	32	68	0	0	0	0	0
ch5.a	8.6	8.60	0	210	0.01	0	0	0	0	0	0	0	0
ch5.b	8.2	8.20	0	140	21.33	0	23	77	0	0	0	0	0

ch6.a	8	8.00	0	140	0.01	0	0	0	0	0	0	0	0
ch6.b	7.5	7.50	0	90	15.23	97	0	3	0	0	0	0	0
plio.a	1.8	1.80	0	90	0.01	0	0	0	0	0	0	0	0
plio.b	1.6	1.60	0	75	4.56	0	36	64	0	0	0	0	0
holo.a	0.01	0.01	0	75	0.01	0	0	0	0	0	0	0	0
holo.b	0	0.00	0	33	12.79	97	0	3	0	0	0	0	0
holo.c	0	0.00	0	0	10.06	0	35	65	0	0	0	0	0

Formation/ Sequence	age (Ma)	interpolated age (Ma)	best est. paleodepth	depth (ft)	thickness (m)	clay	silt-stone	sand-stone	micrite	calci-siltstone	calc-arenite	glauc-onite	mica
Island Beach Rotary Modified													
base of borehole	130												
Potomc Raritan	95	95.00	-6	.	579.77	60	20	20	0	0	0	0	0
Bass River	95	95.00	69.05	.	0.01	0	0	0	0	0	0	0	0
Bass River	93	93.00	69.05	.	170.9	40	10	0	50	0	0	0	0
unconformity	86	86.00	16.67	.	0.01	0	0	0	0	0	0	0	0
Magothy	0	84.24	16.67	.	61.57	5	5	90	0	0	0	0	0
Merchantville	0	84.24	69.05	.	0.01	0	0	0	0	0	0	0	0
Merchantville	83	83.00	69.05	.	43.56	5	5	90	0	0	0	0	0
Woodbury	83	83.00	38.1	.	0.01	0	0	0	0	0	0	0	0
Woodbury	0	73.12	38.1	.	98.01	20	80	0	0	0	0	0	0
Marshalltown	0	73.12	69.05	.	0.01	0	0	0	0	0	0	0	0
Marshalltown	71	71.00	69.05	.	25.12	5	0	95	0	0	0	0	0
Navesink-N.Egypt	71	71.00	95.24	.	0.01	0	0	0	0	0	0	0	0
Navesink-N.Egypt	65	65.00	95.24	.	96.34	95	0	5	0	0	0	0	0
Atlantic City - Leg 150X													
e7.a	43.6	43.60	135	1450	0.01	0	0	0	0	0	0	0	0
e7.b	43.2	43.20	135	1431	5.78	70	0	0	0	14	16	0	0
e8.a	41.2	41.20	75	1431	0.01	0	0	0	0	0	0	0	0
e8.b	40.5	40.50	75	1390	12.49	0	69	3	0	0	22	6	0
e9a	37	37.00	75	1390	0.01	0	0	0	0	0	0	0	0
e9b	0	36.98	75	1388	0.6	0	65	1	0	20	9	1	4
e9c	0	36.90	75	1382	1.83	0	66	3	0	0	22	9	0
e9d	0	36.82	75	1376	1.83	0	48	16	0	0	17	19	0
e9e	0	36.76	75	1371	1.52	0	82	1	0	4	11	2	0
e9f	0	36.66	75	1364	2.13	0	77	1	0	3	13	6	0
e9g	36.5	36.50	75	1352	3.66	0	88	0	0	0	11	1	0
e10a	35.4	35.40	100	1352	0.01	0	0	0	0	0	0	0	0

e10b	0	35.38	100	1346	1.82	0	74	3	0	0	9	14	0
e10c	0	35.33	125	1333	3.96	0	94	0	0	0	4	2	0
e10d	0	35.32	125	1328	1.52	0	68	2	0	0	0	30	0
e10e	0	35.11	100	1270	17.68	0	92	3	0	0	2	3	0
e10f	0	34.87	75	1200	21.34	0	81	8	0	0	2	9	0
e10g	0	34.83	75	1189	3.35	0	93	4	0	0	1	2	0
e10h	34.8	34.80	75	1181	2.44	0	82	11	0	0	1	6	0
o2a	30.4	30.40	80	1181	0.01	0	0	0	0	0	0	0	0
o2b	30.2	30.20	80	1166	4.56	0	56	15	0	0	1	28	0
o3a	29	29.00	80	1166	0.01	0	0	0	0	0	0	0	0
o3b	28.3	28.30	80	1138	8.52	0	36	10	0	0	0	54	0
o4a	27.5	27.50	80	1138	0.01	0	0	0	0	0	0	0	0
o4b	0	27.49	80	1136	0.6	0	72	6	0	0	0	22	0
o4c	0	27.29	50	1110	7.92	0	71	22	0	0	1	6	0
o4d	0	27.17	50	1095	4.57	0	55	14	0	0	0	31	0
o4e	27	27.00	50	1072	7.01	0	55	34	0	0	1	10	0
o5a	26.8	26.80	80	1072	0.01	0	0	0	0	0	0	0	0
o5b	0	26.42	60	1040	9.74	0	64	14	0	0	1	21	0
o5c	0	26.18	40	1020	6.1	98	0	1	0	0	0	1	0
o5d	25.9	25.90	40	923	7.59	0	30	59	0	0	1	10	0
o6a	25.2	25.20	70	923	0.01	0	0	0	0	0	0	0	0
o6b	24.9	24.90	70	914	2.73	0	36	32	0	0	0	32	0
kw0.a	23.6	23.60	40	914	0.01	0	0	0	0	0	0	0	0
kw0.b	21.9	21.90	40	888	7.91	0	30	6	0	0	7	57	0
kw1a.a	21.1	21.10	30	888	0.01	0	0	0	0	0	0	0	0
kw1a.b	0	21.05	30	882	1.82	0	22	6	0	0	52	20	0
kw1a.c	0	20.32	30	805	23.47	0	89	4	0	0	2	1	4
kw1a.d	20.1	20.10	30	741	7.59	0	27	72	0	0	0	0	1
kw1b.a	20.1	20.10	20	741	0.01	0	0	0	0	0	0	0	0
kw1b.b	0	20.05	20	735	1.82	97	0	1	0	0	0	0	2
kw1b.c	0	19.78	20	700	10.67	0	40	57	0	0	3	0	0
kw1b.d	0	19.57	20	675	7.62	0	75	21	0	0	0	0	4

kw1b.e	19.5	19.50	20	666	2.74	0	35	64	0	0	0	0	1
kw2a.a	17.8	17.80	25	666	0.01	0	0	0	0	0	0	0	0
kw2a.b	0	17.77	25	662	1.21	0	42	42	0	0	0	16	0
kw2a.c	0	17.65	25	645	5.18	90	0	9	0	0	0	0	1
kw2a.d	0	17.62	25	640	1.52	0	43	32	0	0	0	25	0
kw2a.e	0	16.95	25	548	28.04	93	0	7	0	0	0	0	0
kw2a.f	0	16.89	25	538	3.05	0	35	65	0	0	0	0	0
kw2a.g	0	16.78	25	523	4.57	93	0	7	0	0	0	0	0
kw2a.h	16.7	16.70	25	512	3.35	0	60	40	0	0	0	0	0
kw2b.a	16.1	16.10	25	512	0.01	0	0	0	0	0	0	0	0
kw2b.b	15.7	15.70	25	470	12.79	0	93	7	0	0	0	0	0
kw2b.a	13.8	13.80	25	470	0.01	0	0	0	0	0	0	0	0
kw2b.b	13.4	13.40	25	370	30.47	94	0	6	0	0	0	0	0
ch1.a	12.9	12.90	0	370	0.01	0	0	0	0	0	0	0	0
ch1.b	0	12.88	0	358	3.65	0	85	15	0	0	0	0	0
ch1.c	0	12.72	0	245	34.44	0	29	71	0	0	0	0	0
ch1.d	12.7	12.70	0	231.4	4.15	0	85	15	0	0	0	0	0
ch3.a	10.5	10.50	0	231.4	0.01	0	0	0	0	0	0	0	0
ch3.b	0	10.38	0	220	3.46	0	59	41	0	0	0	0	0
ch3.c	0	9.69	0	153	20.42	0	23	77	0	0	0	0	0
ch3.d	0	9.67	0	151	0.61	0	63	37	0	0	0	0	0
ch3.e	9.5	9.50	0	135	4.88	0	23	77	0	0	0	0	0
ch5.a	9	9.00	0	135	0.01	0	0	0	0	0	0	0	0
ch5.b	8	8.00	0	53	24.98	0	45	55	0	0	0	0	0
holo.a	0.01	0.01	0	53	0.01	0	0	0	0	0	0	0	0
holo.b	0	0.01	0	42	3.34	98	0	2	0	0	0	0	0
holo.c	0	0.00	0	0	12.8	0	36	64	0	0	0	0	0

Formation/ Sequence	age (Ma)	interpolated age (Ma)	best est. paleodepth	depth (ft)	thickness (m)	clay	silt-stone	sand-stone	micrite	calci-siltstone	calc-arenite	glauc-onite	mica
Island Beach Rotary													
base of borehole	120			3739									
Potomc Raritan	95	95.00	-6	2355	421.84	60	20	20	0	0	0	0	0
Bass River	95	95.00	69.05	2355	0.11	0	0	0	0	0	0	0	0
Bass River	93	93.00	69.05	1947	124.25	40	10	0	50	0	0	0	0
unconformity	86	86.00	16.67	1947	0.01	0	0	0	0	0	0	0	0
Magothy	0	84.25	16.67	1800	44.71	5	5	90	0	0	0	0	0
Merchantville	0	84.24	69.05	1800	0.11	0	0	0	0	0	0	0	0
Merchantville	83	83.00	69.05	1696	31.89	5	5	90	0	0	0	0	0
Woodbury	83	83.00	38.1	1696	0.11	0	0	0	0	0	0	0	0
Woodbury	0	73.12	38.1	1462	70.91	20	80	0	0	0	0	0	0
Marshalltown	0	73.11	69.05	1462	0.11	0	0	0	0	0	0	0	0
Marshalltown	71	71.00	69.05	1402	18.18	5	0	95	0	0	0	0	0
Navesink-N.Egypt	71	71.00	95.24	1402	0.1	0	0	0	0	0	0	0	0
Navesink-N.Egypt	65	65.00	95.24	1172	70	95	0	5	0	0	0	0	0
Island Beach - Leg 150X													
pa1.a	63	63.00	110	1185	0.01	0	0	0	0	0	0	0	0
pa1.mfs	0	62.79	115	1180	1.51	24	24	9	0	0	3	40	0
pa1.c	62.2	62.20	100	1167	3.96	33	40	11	0	0	3	10	3
pa2.a	59.7	59.70	110	1167	0.01	0	0	0	0	0	0	0	0
pa2.b	0	58.22	115	1155	3.65	12	26	38	0	0	3	17	4
pa2.c	57.3	57.30	90	1148	2.13	37	37	8	0	0	4	9	5
pa3.a	56.5	56.50	100	1148	0.01	0	0	0	0	0	0	0	0
pa3.mfs	0	56.39	120	1138	3.04	25	40	18	0	0	4	11	2
pa3.c	0	55.91	115	1095	13.11	90	0	4	0	0	0	3	3
pa3.d	55.7	55.70	110	1076	5.79	71	0	17	0	0	0	11	1
e1.a	54.7	54.70	135	1076	0.01	0	0	0	0	0	0	0	0

e1.mfs	0	54.64	145	1071	1.51	33	30	6	3	2	2	24	0
e1.c	0	54.22	135	1037	10.36	46	40	3	0	7	1	3	0
e1.d	54	54.00	135	1019	5.49	41	40	7	0	2	5	5	0
e2.a	53.4	53.40	185	1019	0.01	0	0	0	0	0	0	0	0
e2.mfs	0	53.38	185	1017	0.6	23	30	14	0	9	9	15	0
e2.c	0	53.15	155	996	6.4	89	0	2	4	0	5	0	0
e2.d	0	53.04	155	985	3.35	30	38	19	0	3	8	2	0
e2.e	0	52.99	155	980	1.52	76	0	2	16	0	6	0	0
e2.f	52.9	52.90	155	972	2.44	30	30	18	0	17	5	0	0
e3.a	52.3	52.30	155	972	0.01	0	0	0	0	0	0	0	0
e3.mfs	0	51.83	155	940	9.74	78	0	7	14	0	1	0	0
e3.c	0	51.39	100	910	9.14	30	39	16	0	11	3	1	0
e3.d	50.9	50.90	100	876	10.36	30	39	16	0	11	3	1	0
e4.a	49.9	49.90	125	876	0.01	0	0	0	0	0	0	0	0
e4.b	0	49.72	125	865	3.34	39	30	5	0	23	2	1	0
e4.c	0	49.66	125	861	1.22	36	30	4	0	12	13	5	0
e4.d	49.6	49.60	125	857	1.22	30	22	15	0	3	3	27	0
e5.a	48.6	48.60	135	857	0.01	0	0	0	0	0	0	0	0
e5.b	0	48.47	135	852	1.51	26	15	0	0	22	13	24	0
e5.c	48.3	48.30	135	846	1.83	20	19	1	0	35	23	2	0
e7.a	44.5	44.50	135	846	0.01	0	0	0	0	0	0	0	0
e7.b	0	44.12	135	830	4.87	20	27	8	0	28	10	7	0
e7.c	0	43.64	135	810	6.1	68	0	3	23	0	6	0	0
e7.d	43.4	43.40	135	800	3.05	30	34	2	0	14	15	5	0
e8.a	41.2	41.20	75	800	0.01	0	0	0	0	0	0	0	0
e8.c	0	40.88	75	790	3.04	24	30	0	0	6	12	28	0
e9a	40.5	40.50	75	778	3.66	20	29	23	0	2	2	24	0
e9b	37	37.00	75	778	0.01	0	0	0	0	0	0	0	0
e9c	0	36.65	75	758	6.09	12	15	48	0	2	2	21	0
e10a	36.5	36.50	75	750	2.44	10	29	32	0	2	1	26	0
e10b	35.35	35.35	100	750	0.01	0	0	0	0	0	0	0	0
e10c	0	34.94	100	720	9.13	20	35	11	0	0	2	32	0

e11a	34.8	34.80	100	710	3.05	46	40	8	0	0	1	4	1
e11b	34.1	34.10	100	710	0.01	0	0	0	0	0	0	0	0
e11c	0	33.90	100	701	2.73	20	25	3	0	2	0	48	2
o1.a	33.8	33.80	100	697	1.22	96	0	0	0	1	1	1	1
o1.b	32.8	32.80	100	697	0.01	0	0	0	0	0	0	0	0
o1.c	0	32.49	100	685	3.65	14	14	14	0	0	1	57	0
o2a	32.3	32.30	100	678	2.13	20	26	40	0	0	1	13	0
o2b	30.8	30.80	80	678	0.01	0	0	0	0	0	0	0	0
o2c	30.6	30.60	80	622	17.06	10	23	11	0	0	0	56	0
o6a	30.1	30.10	50	602	6.1	29	10	6	0	0	0	55	0
o6b	25.2	25.20	80	602	0.01	0	0	0	0	0	0	0	0
kw1a.a	24.5	24.50	30	508	28.64	11.1	22	7	0	0	0	60	0
kw1a.b	21.6	21.60	20	508	0.01	0	0	0	0	0	0	0	0
kw1a.c	0	21.47	20	485	7	30	44	21	0	0	0	5	0
kw1a.d	0	21.35	10	465	6.1	32	68	0	0	0	0	0	0
kw1a.e	21.2	21.20	0	440	7.59	74	26	0	0	0	0	0	0
kw1b.a	20.2	20.20	5	303	41.79	10	22	68	0	0	0	0	0
kw1b.b	20.2	20.20	20	303	0.01	0	0	0	0	0	0	0	0
kw1b.c	0	20.04	20	279	7.31	10	36	54	0	0	0	0	0
kw1b.d	0	19.91	0	260	5.79	30	50	20	0	0	0	0	0
kw2a.a	19.4	19.40	0	182	23.77	5	15	80	0	0	0	0	0
kw2a.b	17.5	17.50	10	182	0.01	0	0	0	0	0	0	0	0
kw2a.c	0	17.24	10	155	8.22	10	29	61	0	0	0	0	0
holo.a	16.5	16.50	5	78	23.47	96	0	4	0	0	0	0	0
holo.b	0.06	0.06	5	78	0.01	0	0	0	0	0	0	0	0
holo.c	0	0.05	5	65	3.95	5	12	83	0	0	0	0	0
holo.d	0	0.04	3	40	7.62	35	53	12	0	0	0	0	0
holo.c	0.01	0.01	3	0	12.19	5	13	82	0	0	0	0	0