

Grayland Dune Sheet, Washington

UTM Sector and Datum (xx/yr), Northing, Easting, Estimated Error (EPE +-m), DEM Altitude (Alt m NGVD88).

Exposure Type: Active (AC), Trench (TR), Auger (AU), Road Cut (RC), Creek Cut (CC), Sea Cliff (SC), Slope (SL).

Units: Age: Tertiary (T), Pleistocene (P), Holocene (H), Wave-cut Platform (W); Parent Material; Soil Horizon

Parent Material: Eolian Dune (D), Loess (L), Colluvium (U), Peat (P), Alluvial/Fluvial (V), Lagoonal/Estuary (N), Beach Shoreface (S), Basal Conglomerate (M).

Note: Loess (L) is designated where it overlies bedrock, colluvium, or pre-existing Bw/Bt horizons.

Soil Horizon: Organic (A), Leached (E), Accumulation (B), Fe+3 Accumulation (Bw),

Incipient Clay Accumulation (Btj), Clay Accumulation (Bt), Humate Accumulation (Bh),

Calcrete (Bk), Silcrete (Bq), Reduced Glade Layer (Bg), Subsoil Calcrete (K),

Dune Parent (C), Oxidized Parent (Cox).

Subsurface depth (cm); Dominant Grain Size: Silt, Sand, Pebbles, Cobbles (default is sand)

Sand sizes (Coarse U/L, Medium U/L, Fine U/L, VeryFine U/L)

Bedding: Cross Beds (XB, dipxx), Planar Beds (PB), Fluidization (FL), Heavy Mineral Laminae (HM)

Munsell Maximum Color (moist): lowest value and highest chroma.

Penetrometer: (P. kg/square cm) unconfined compressive strength.

Soil Structure: loose, very weak blocky, weak blocky, strong blocky, columnar/prismatic.

Diagenesis: Fe-ortstein, Fe-humate, allophane, gibbsite, calcrete, silcrete

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY1	10N/83	5193200	414200	10	1	7/6/97	AU
Site Notes: WEST0 Heavy minerals (20%) 0-50 cm, gravelly sand at 80-160 cm, at base of 3 m modern scarp.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HS	0-160						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY2	10N/83	5192370	414980	10	4	7/6/97	AU
Site Notes: WEST1 Heavy mineral placer at 150-200 cm.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-3						
HDBw	3-5	FU		5Y5/4		Loose	
HDCox	5-10						
HDC	10-100	FU		2.5Y4/2		Loose	
HS	100-200	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY3	10N/83	5192470	415820	10	7	7/6/97	AU
Site Notes: WEST2 Heavy mineral placer at 205-300 cm.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-5						
HDBw	5-15	FU		10R2.1/1		Very Weak B.	
HDCox	15-20					Loose	
HDC	20-160					Loose	
HDA	160-162						
HDC	162-200	ML					
HS	200-325	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY4	10N/83	5189850	415430	10	7	7/6/97	AU
Site Notes: TWIN1 Heavy mineral placer 200 cm depth.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-2						
HDCox	2-15	FU				Loose	
HDC	15-150	FU					
HS	150-215	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY5	10N/83	5189900	415890		10	5	7/7/97 AU
Site Notes: TWIN2							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-5						
HDBw	5-8			10YR3/3			Very Weak B.
HDC	8-90	FU		2.5Y4/2			Loose
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY6	10N/83	5189850	416230		10	5	7/7/97 AU
Site Notes: TWIN3							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-5						
HDC	5-200	FU		2.5Y5/3			
HS	200-325	ML					
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY7	10N/83	5189850	416230		10	5	7/7/97 AU
Site Notes: TWIN3A							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDC	0-125						
HS	125-200						
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY8	10N/83	5185915	416150		10	5	7/7/97 AU
Site Notes: MARI1							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-3						
HDC	3-150	FU		2.5Y6/3			
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY9	10N/83	5185910	416400		10	6	7/7/97 AU
Site Notes: MARI2							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-5			10YR4/4			
HDBw/Cox	5-10			2.5Y6/4			
HDC	10-150	FU		2.5Y6/3			
HS	150-300	ML					
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY10	10N/83	5182660	417160		10	5	7/7/97 AU
Site Notes: COUN3							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
Disturbed	0-75						
HS	75-125	FU					
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY11	10N/83	5182660	417740		10	3	7/5/97 AU
Site Notes: COUN2							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
Disturbed	0-25						
HP	25-92						
HD	92-100	FU					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY12	10N/83	5182590	417870	10	5	7/5/97	AU
Site Notes: COUN1 Debris flow 31-85 cm, tsunami? sand laminae at 99-100 cm.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HP	0-30						
HU	30-85						
HP	85-138						
HS	138-140						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY13	10N/83	5179890	416590	10	4	7/13/97	AU
Site Notes: MIDW0							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDC	0-150	FU		2.5Y5/3			
HS	150-190	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY14	10N/83	5179870	417020	10	4	7/13/97	AU
Site Notes: MIDW2							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDC	0-125	FU		5Y5/3			
HS	125-150	ML		5Y4/3			

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY15	10N/83	5177250	417170	10	2	7/7/97	AU
Site Notes: WARR1							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-5			5Y4/2			
HDCox	5-10	FU		2.5Y6/6		Loose	
HDC	10-125	FU		2.5Y6/4			
HS	125-130	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY16	10N/83	5177220	417530	10	2	7/7/97	AU
Site Notes: WARR2							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-7						
HDBw	7-20	FU		10YR4/4		Very Weak B.	
HDC	20-175	ML		10YR6/4			
HS	175-237	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY17	10N/83	5176210	417280	10	2	7/4/97	AU
Site Notes: WASH11 Crest of Big Dune. Weak Paleosols at 300 and 700 cm depth. (RC Sample).							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-2						
HDC	2-300			10YR6/2			
HAD	300-302						
HDC	302-700	FU					
HDA	700-702						
HDC	702-750						
HS	750-1000	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY18	10N/83	5176100	417500	10	4	10/31/03	AU

Site Notes: WASH10 Weak paleosol at 220 cm (disturbed by loading from slump on east side of dune ridge).

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
HDA	0-2						
HDC	2-220	ML/FU					
HDA	220-223						
HDS	223-400	ML/FU					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY19	10N/83	5176100	417620		10	7/4/97	AU

Site Notes: WASH9

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
HDA	0-10						
HDBw	10-25	FU		2.5Y6/4		Loose	
HDC	25-500	FU		2.5Y6/2			
HS	500-700	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY20	10N/83	5176080	417770		10	7/7/97	AU

Site Notes: WASH8

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
HDA	0-5	FU		10YR6/3			
HDBw	5-23	FU				Very Weak B.	
HDC	23-100	FU				Loose	
HS	100-150	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY21	10N/83	5175980	418090		10	7/3/97	AU

Site Notes: WASH7 Log taken from photo.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
Disturbed Top							
HD	0-100						
HS	100-250						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY22	10N/83	5175970	418140		10	7/3/97	AU

Site Notes: WASH6

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
HDA	0-20						
HDBw	20-41	FU		10YR6/3			
HDCox	41-62						
HS	62-150	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY23	10N/83	5175890	418450		10	7/3/97	AU

Site Notes: WASH5

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
HDA	0-7						
HDBw	7-30	FU				Very Weak B.	
HSCox	30-83	ML					
HS	83-152	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY24	10N/83	5175880	418470		10	7/3/97	AU

Site Notes: WASH4 Heavy mineral placer below 100 cm.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
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HDA	0-10	FU		5YR2.5/2			
HDBw	10-50			10YR5/6		Very Weak B.	
HS	50-425	ML				Loose	
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY25	10N/83	5175840	418630		10	1	7/3/97 AU
Site Notes: WASH1&A01							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
Disturbed	0-10						
HDBw	10-37	FU		10YR4/4		Very Weak B.	
HDCox	37-50	FU				Loose	
HD/HS	50-125	FU					
HS	125-300	ML		10YR5/3			
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY26	10N/83	5175810	418640		10	2	7/3/97 AU
Site Notes: WASH2							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HV	0-38						
HSBw	38-50						
HS	50-130						
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY27	10N/83	5175710	418980		10	2	7/3/97 AU
Site Notes: WASH3							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HP	0-30						
HDA	30-40						
HDBw	40-65	FU		10YR4/3		Very Weak B.	
HS	65-150	ML		5Y4/3		Loose	
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY28	10N/83	5177440	418020		10	2	7/2/97 AU
Site Notes: NSMI8							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
Disturbed	0-10						
HP	10-23						
HD	23-40	FU					
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY29	10N/83	5177440	418210		10	2	7/2/97 AU
Site Notes: NSMI7 Liquefaction at 80-84 cm.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
Disturbed	0-10						
HP	10-80						
HD	80-103	ML	Liquefaction				
Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY30	10N/83	5177450	418420		10	2	7/2/97 AU
Site Notes: NSMI6							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
Disturbed	0-10						
HP	10-121						
HD	121-140	ML					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY31	10N/83	5177360	418620		10	2	7/2/97 AU
Site Notes: NSMI4 Sand laminae at 45, 52 cm.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HP	0-75						
HD	75-100						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY32	10N/83	5177355	418770		10	2	7/2/97 AU
Site Notes: NSMI5							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HP	0-74						
HD	74-102	FL					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY33	10N/83	5176980	418600		10	2	7/2/97 AU
Site Notes: NSMI3 Detritus layer at 78-88 cm.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
Disturbed	0-8						
HP	8-48						
HD	48-110	FU					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY34	10N/83	5176620	418600		10	2	7/2/97 AU
Site Notes: NSMI2							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
Disturbed	0-20						
HP	20-70						
HD	70-87	FU					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
GRAY35	10N/83	5176520	418510		10	2	7/2/97 AU
Site Notes: NSMI1 sand laminae 41 cm							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HP	0-45						
HD	45-84	FU					