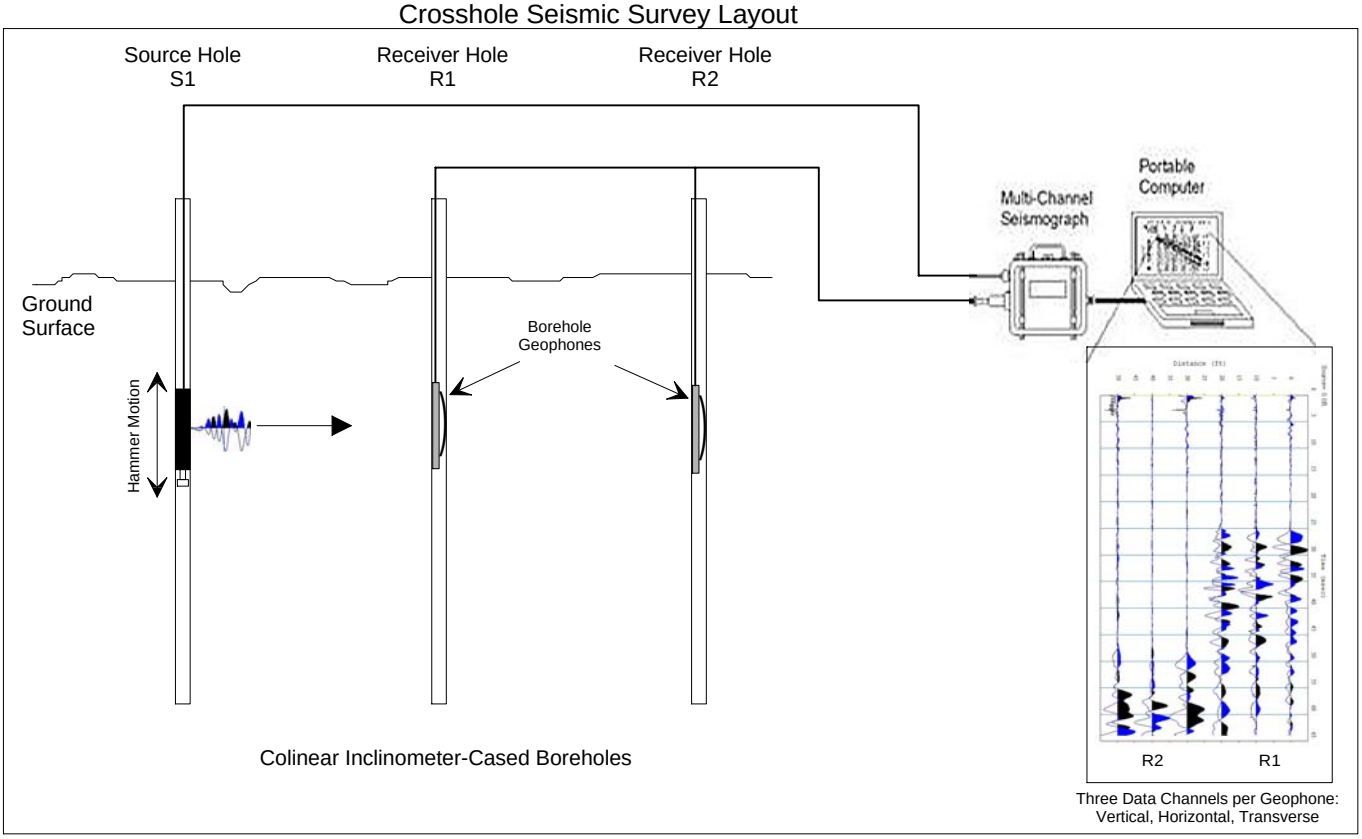
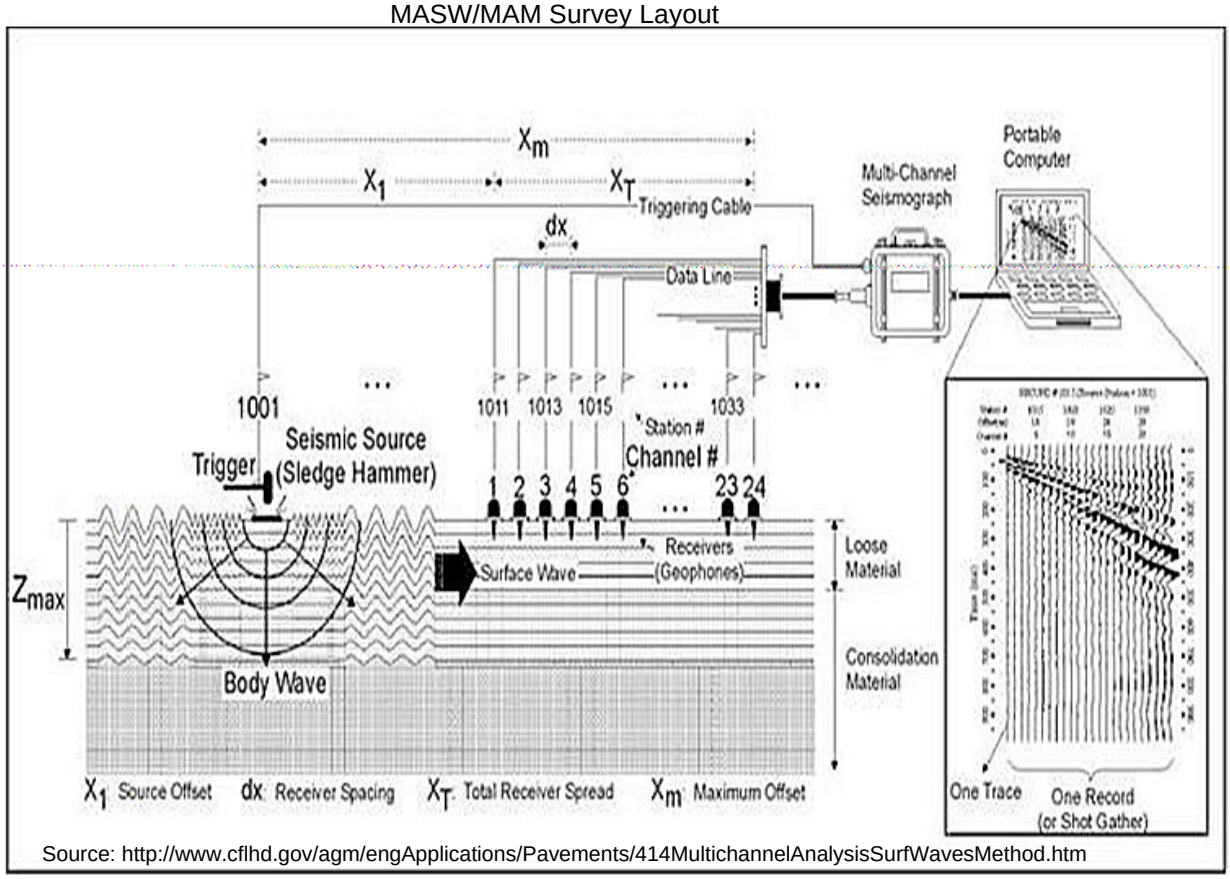
Crosshole Seismic Survey Layout



MASW/MAM Survey Layout



Source: http://www.cflhd.gov/agm/engApplications/Pavements/414MultichannelAnalysisSurfWavesMethod.htm

TABLE 1. Shear Wave Velocities Determined by Crosshole Seismic Testing.

09-103			09-211			09-301		
Depth	Elevation	Velocity ft/s	Depth	Elevation	Velocity ft/s	Depth	Elevation	Velocity ft/s
1	765	844	0.5	765	1988	1	815	491
6	760	908	5.5	760	926	6	810	651
11	755	488	10.5	755	922	11	805	643
16	750	440	15.5	750	1076	16	800	516
21	745	425	20.5	745	815	21	795	516
26	740	656	25.5	740	1334	26	790	495
31	735	604	30.5	735	834	31	785	481
36	730	704	35.5	730	856	36	780	450
41	725	757	40.5	725	729	41	775	647
46	720	498	45.5	720	679	46	770	599
51	715	**	50.5	715	654	51	765	875
56	710	**	55.5	710	**	56	760	877
61	705	**	60.5	705	**	61	755	850
66	700	**	65.5	700	**	66	750	767
71	695	**	70.5	695	**	71	745	767
76	690	**	75.5	690	**	76	740	672
81	685	**	80.5	685	**	81	735	697
86	680	**	85.5	680	**	86	730	911
91	675	**	90.5	675	**	91	725	859
96	670	**	95.5	670	**	96	720	619
101	665	**	100.5	665	**	101	715	718
						106	710	642
						107.5	708.5	668
						Average Shear Wave Velocity Over 100ft Interval (Vs100) ft/s		671.5

** Denotes zone where shear-wave was not observed in the seismic record. Records were further collected in between each interval where the shear wave was not observed in the bedrock portion of the holes.

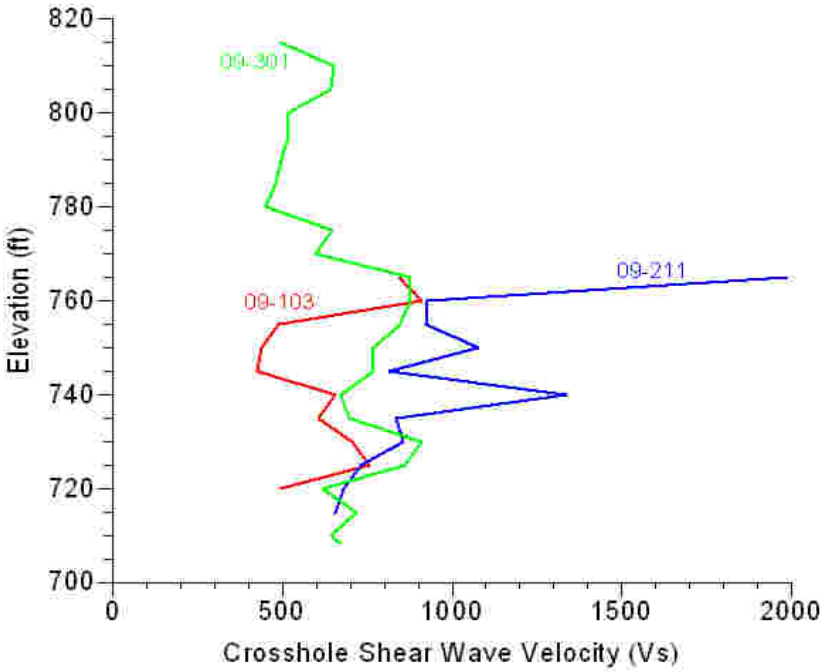


TABLE 2. Shear-Wave Velocities Determined by MASW/MAM Surveys

09-103			09-211			09-208		
Depth(ft)	Elevation	S-velocity(ft/s)	Depth(ft)	Elevation	S-velocity(ft/s)	Depth(ft)	Elevation	S-velocity(ft/s)
0.0	766.3	483	0.0	765.0	673	0.0	749.0	348
2.6	763.7	781	2.6	762.4	659	2.6	746.4	255
5.6	760.8	364	5.6	759.4	703	5.6	743.4	467
8.8	757.5	145	8.8	756.2	833	8.8	740.2	423
12.3	754.0	501	12.3	752.7	940	12.3	736.7	424
16.1	750.2	633	16.1	748.9	917	16.1	732.9	573
20.2	746.1	575	20.2	744.8	733	20.2	728.8	671
24.6	741.7	553	24.6	740.4	590	24.6	724.4	761
29.2	737.1	535	29.2	735.8	512	29.2	719.8	777
34.2	732.1	528	34.2	730.8	672	34.2	714.8	833
39.5	726.8	548	39.5	725.5	974	39.5	709.5	858
45.0	721.3	666	45.0	720.0	1199	45.0	704.0	939
50.9	715.4	854	50.9	714.1	1423	50.9	698.1	1030
57.0	709.3	1019	57.0	708.0	1550	57.0	692.0	1134
63.5	702.9	1184	63.5	701.5	1642	63.5	685.5	1138
70.2	696.1	1231	70.2	694.8	1640	70.2	678.8	1191
77.2	689.1	1325	77.2	687.8	1700	77.2	671.8	1205
84.5	681.8	1285	84.5	680.5	1703	84.5	664.5	1224
92.1	674.2	1292	92.1	672.9	1787	92.1	656.9	1410
115.8	650.5	1325	115.8	649.2	1787	115.8	633.2	1410
Average Shear Wave Velocity to 100 ft (Vs100)		853 ft/s	Average Shear Wave Velocity to 100 ft (Vs100)		1214 ft/s	Average Shear Wave Velocity to 100 ft (Vs100)		925 ft/s

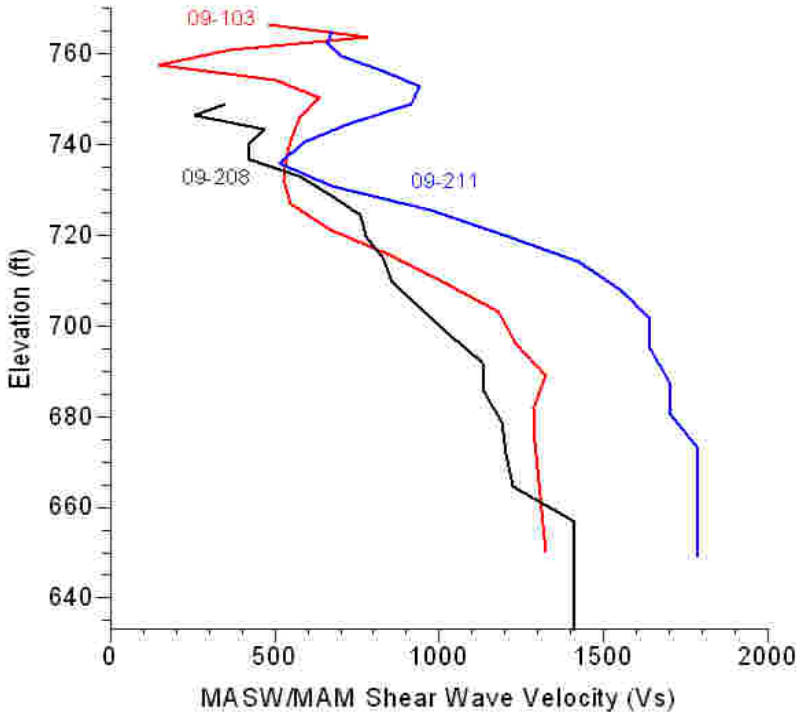
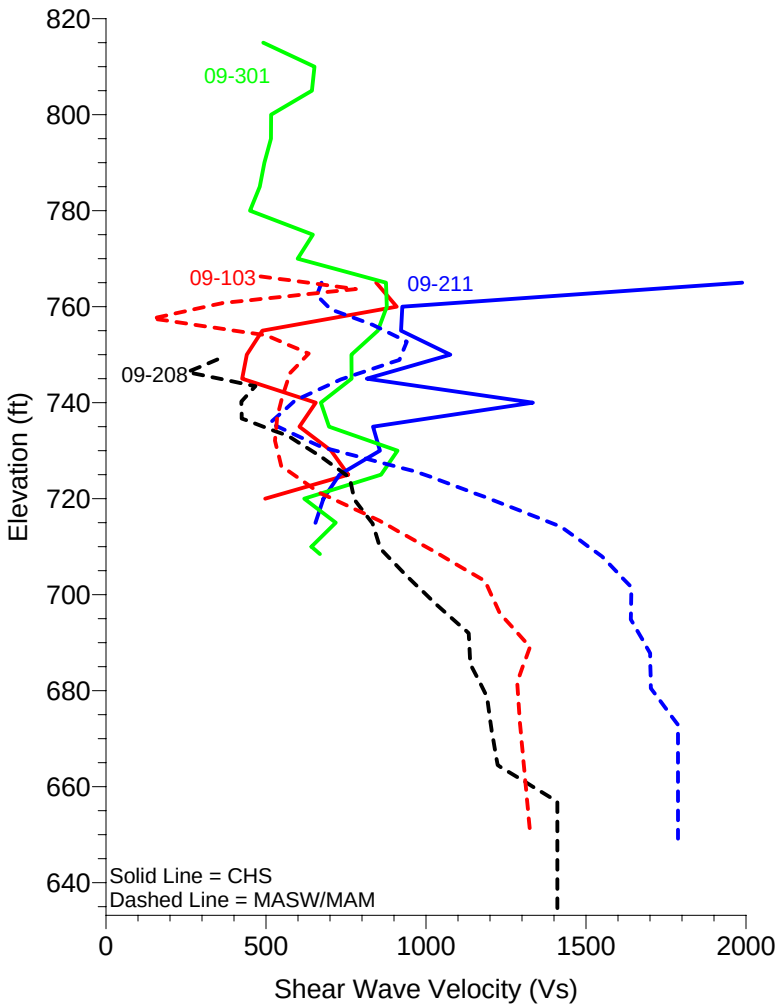


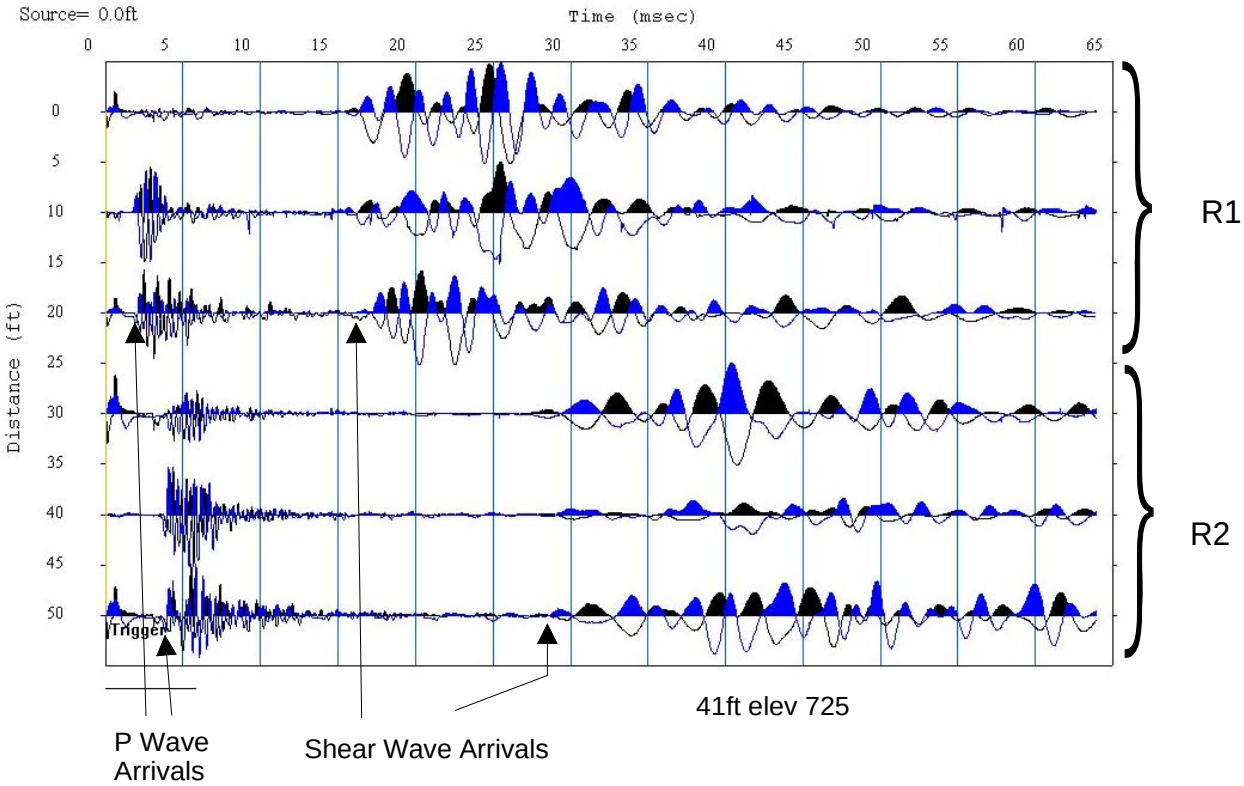
FIGURE 1. Shear Wave Velocities from CHS and MASW/MAM



Crosshole Seismic Testing Field Data Examples

A) Test in Ash/Soil

Positive Polarity Hammer Strikes Shown in Black, Reverse Polarity Shown in Blue



B) Test Below Bedrock Interface

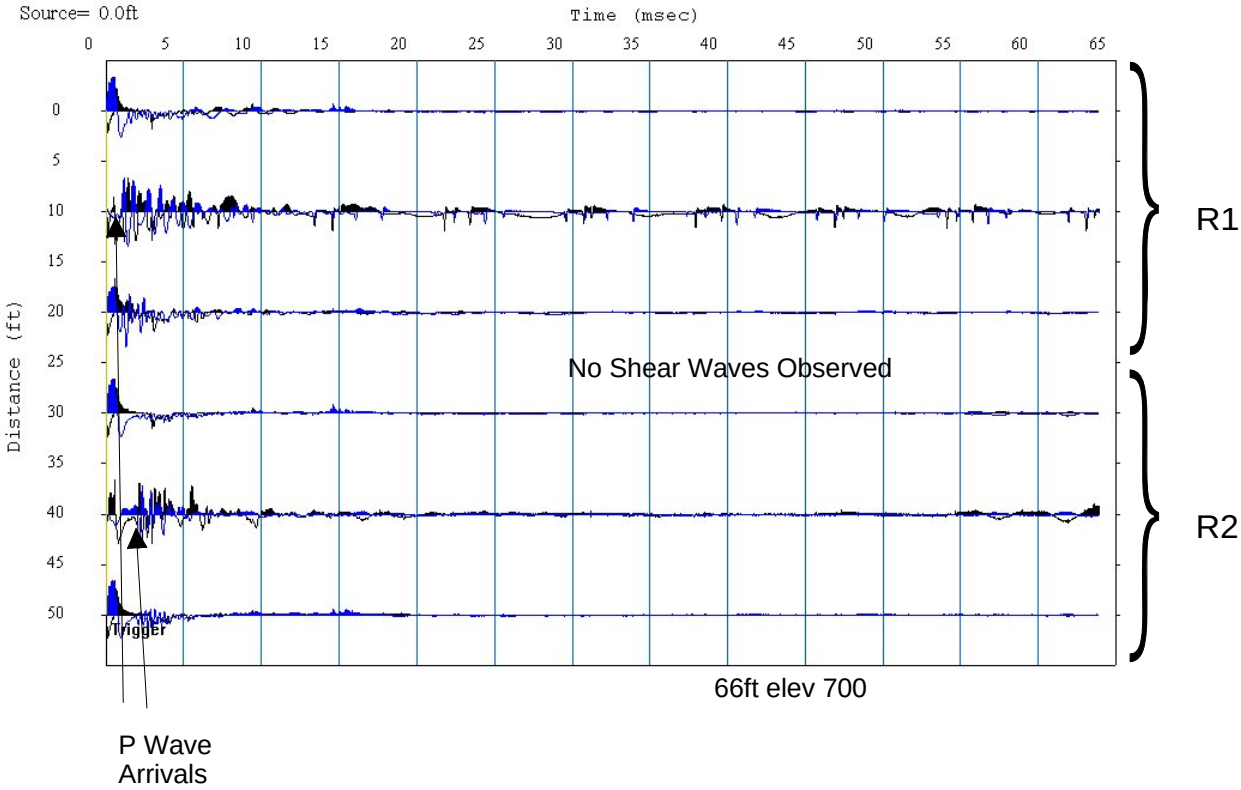


Table 2.1.7_1 Shear Wave Velocities from Crosshole Seismic Testing

09-103			09-211			09-301		
Depth, feet	Elevation ft USGS	Velocity ft/s	Depth, feet	Elevation ft NGVD	Velocity, ft/s	Depth, feet	Elevation ft NGVD	Velocity ft/s
1	765	844	0.5	765	1988	1	815	491
6	760	908	5.5	760	926	6	810	651
11	755	488	10.5	755	922	11	805	643
16	750	440	15.5	750	1076	16	800	516
21	745	425	20.5	745	815	21	795	516
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31	735	604	30.5	735	834	31	785	481
36	730	704	35.5	730	856	36	780	450
41	725	757	40.5	725	729	41	775	647
46	720	498	45.5	720	679	46	770	599
51	715	**	50.5	715	654	51	765	875
56	710	**	55.5	710	**	56	760	877
61	705	**	60.5	705	**	61	755	850
66	700	**	65.5	700	**	66	750	767
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81	685	**	80.5	685	**	81	735	697
86	680	**	85.5	680	**	86	730	911
91	675	**	90.5	675	**	91	725	859
96	670	**	95.5	670	**	96	720	619
101	665	**	100.5	665	**	101	715	718
						106	710	642
						107.5	708.5	668

** Denotes zone where a shear-wave was not observed in the seismic record. Records were further collected in between each interval where the shear wave was not observed in the bedrock portion of the holes.

Table 2.1.7_2 Shear Wave Velocities from MASW/MAM Depth Models

09-103			09-211			09-208		
Depth, feet	Elevation ft USGS	Velocity ft/s	Depth, feet	Elevation ft NGVD	Velocity ft/s	Depth, feet	Elevation ft NGVD	Velocity ft/s
0.0	766.3	483	0.0	765.0	673	0.0	749.0	348
2.6	763.7	781	2.6	762.4	659	2.6	746.4	255
5.6	760.8	364	5.6	759.4	703	5.6	743.4	467
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16.1	750.2	633	16.1	748.9	917	16.1	732.9	573
20.2	746.1	575	20.2	744.8	733	20.2	728.8	671
24.6	741.7	553	24.6	740.4	590	24.6	724.4	761
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34.2	732.1	528	34.2	730.8	672	34.2	714.8	833
39.5	726.8	548	39.5	725.5	974	39.5	709.5	858
45.0	721.3	666	45.0	720.0	1199	45.0	704.0	939
50.9	715.4	854	50.9	714.1	1423	50.9	698.1	1030
57.0	709.3	1019	57.0	708.0	1550	57.0	692.0	1134
63.5	702.9	1184	63.5	701.5	1642	63.5	685.5	1138
70.2	696.1	1231	70.2	694.8	1640	70.2	678.8	1191
77.2	689.1	1325	77.2	687.8	1700	77.2	671.8	1205
84.5	681.8	1285	84.5	680.5	1703	84.5	664.5	1224
92.1	674.2	1292	92.1	672.9	1787	92.1	656.9	1410
115.8	650.5	1325	115.8	649.2	1787	115.8	633.2	1410