

## Appendix C

### Earthquake Time History Plots

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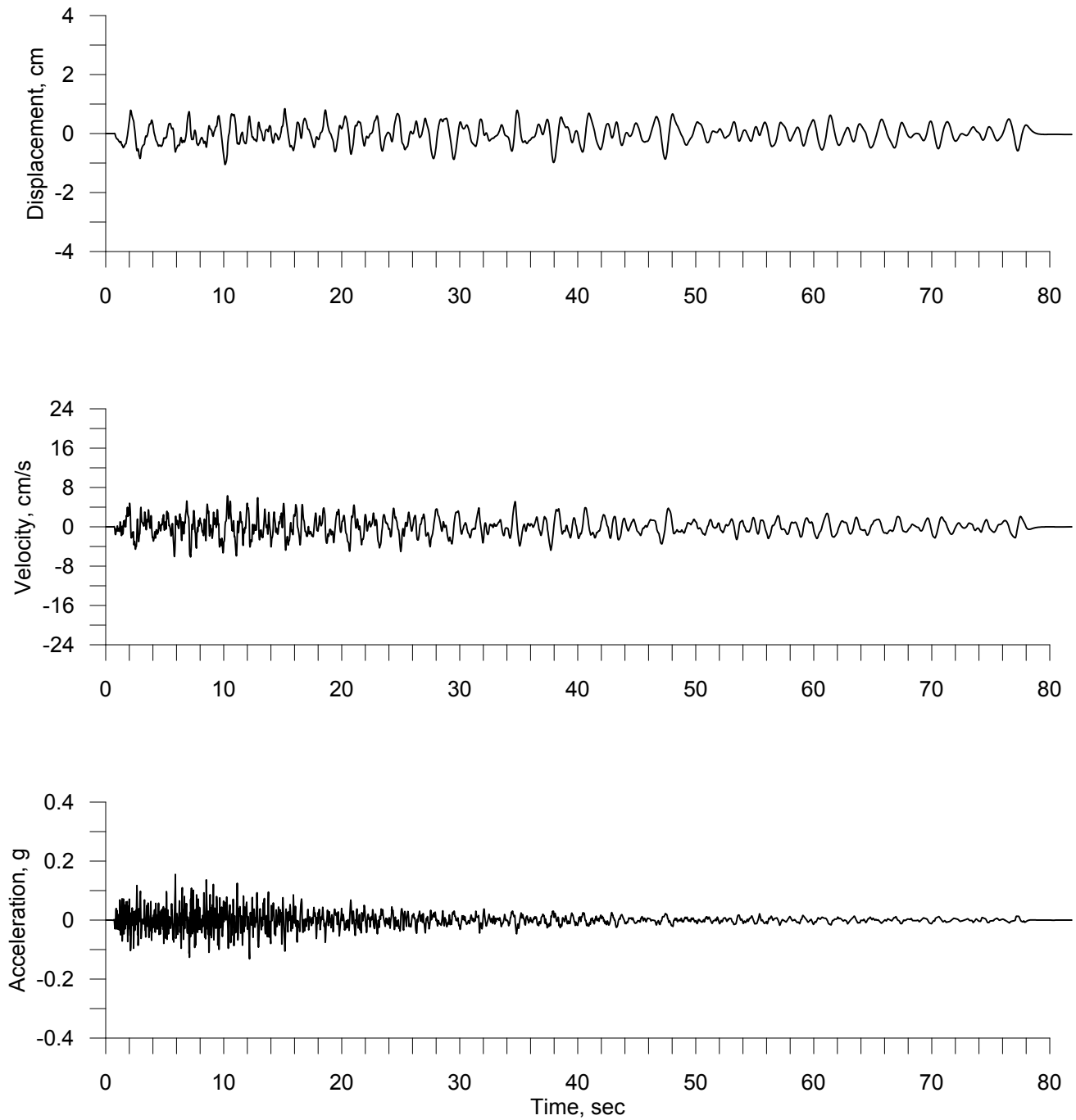


FIGURE C-1  
Spectrally Matched Time History - OLE  
1965 Puget Sound Earthquake, USGS Station 2101, 176 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

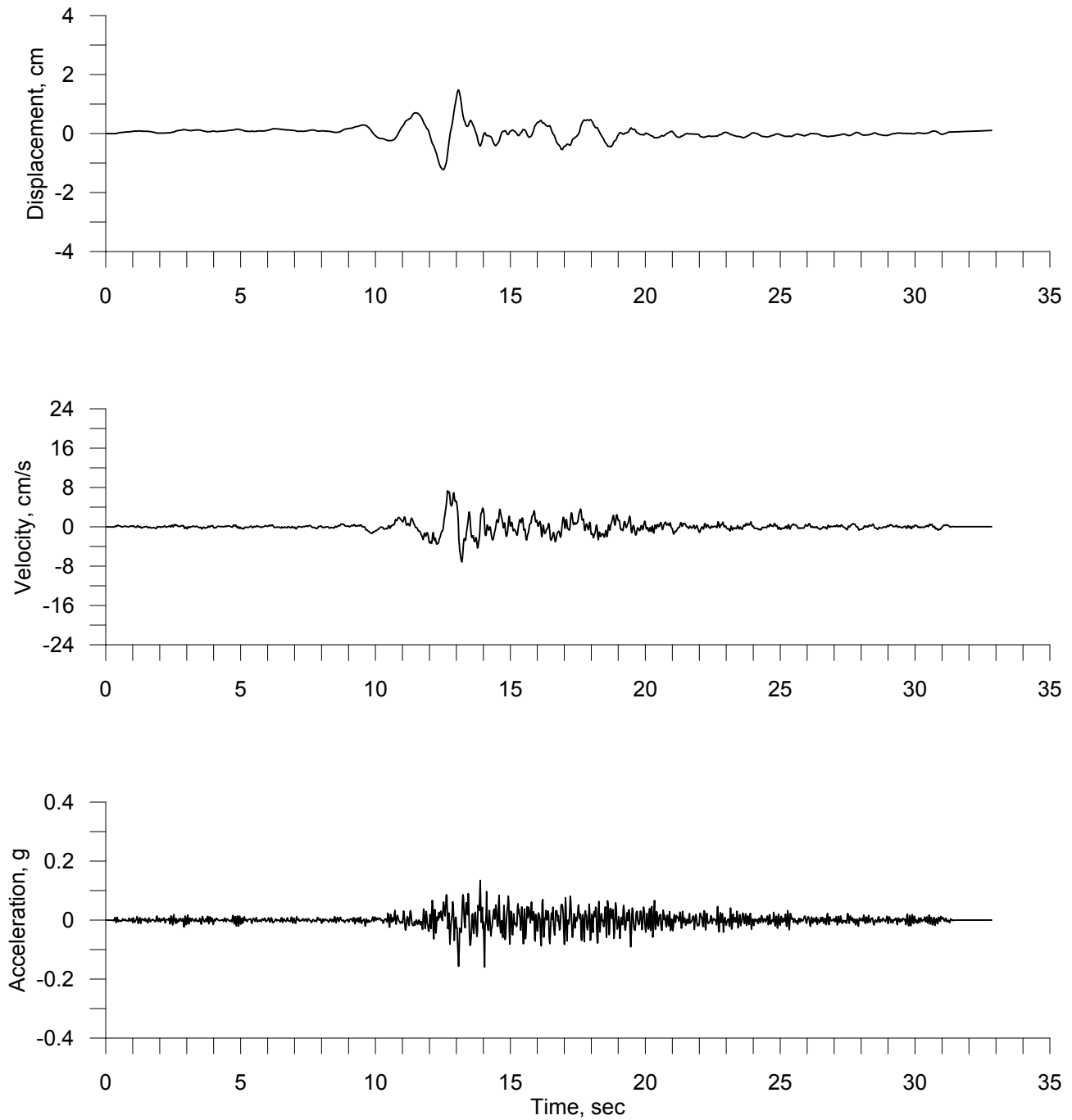


FIGURE C-2  
Spectrally Matched Time History - OLE  
1974 Peru Coast Earthquake, Zarate Station, 0 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

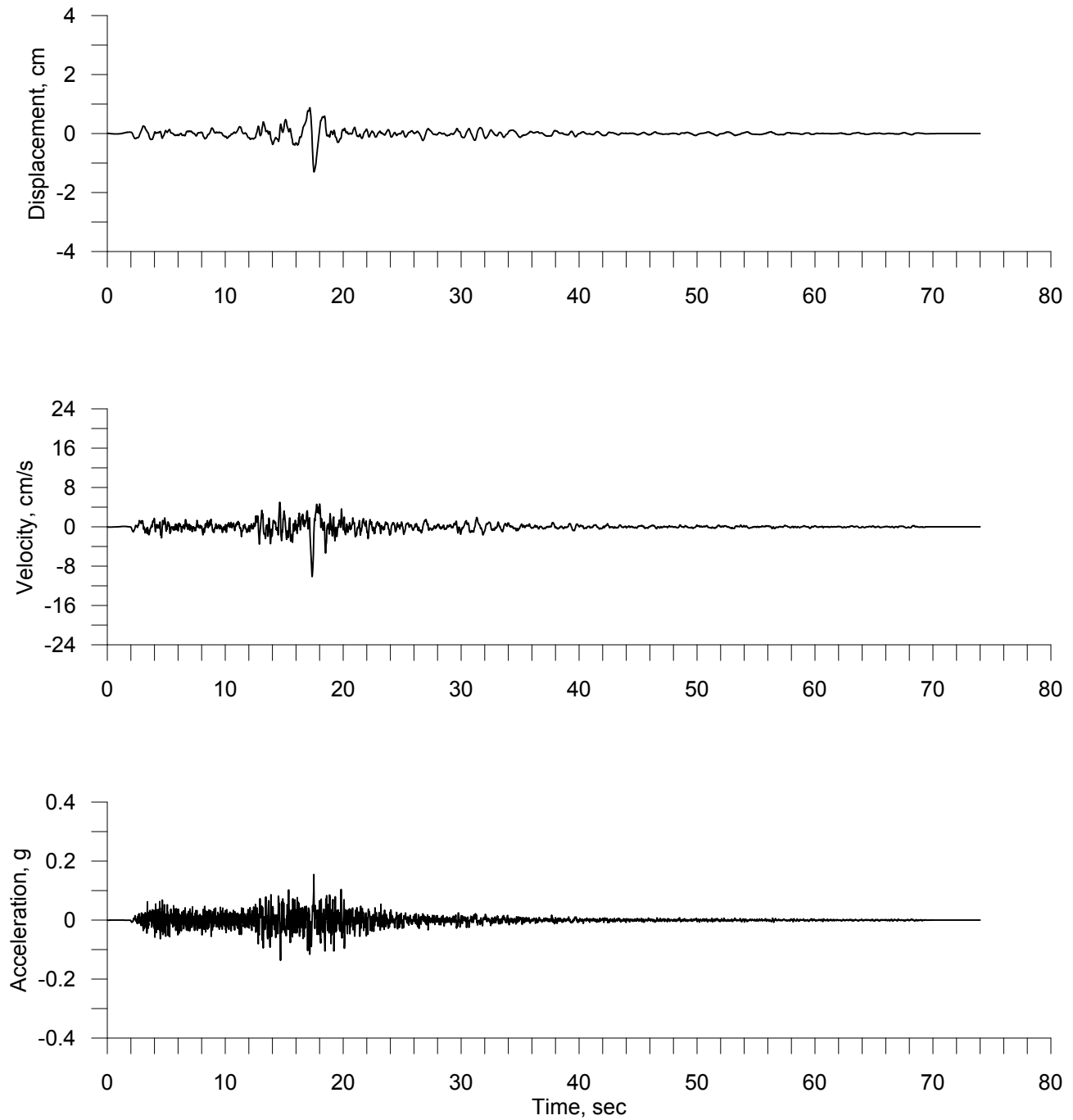


FIGURE C-3  
Spectrally Matched Time History - OLE  
1997 Michoacan Earthquake, Unio Station, 0 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

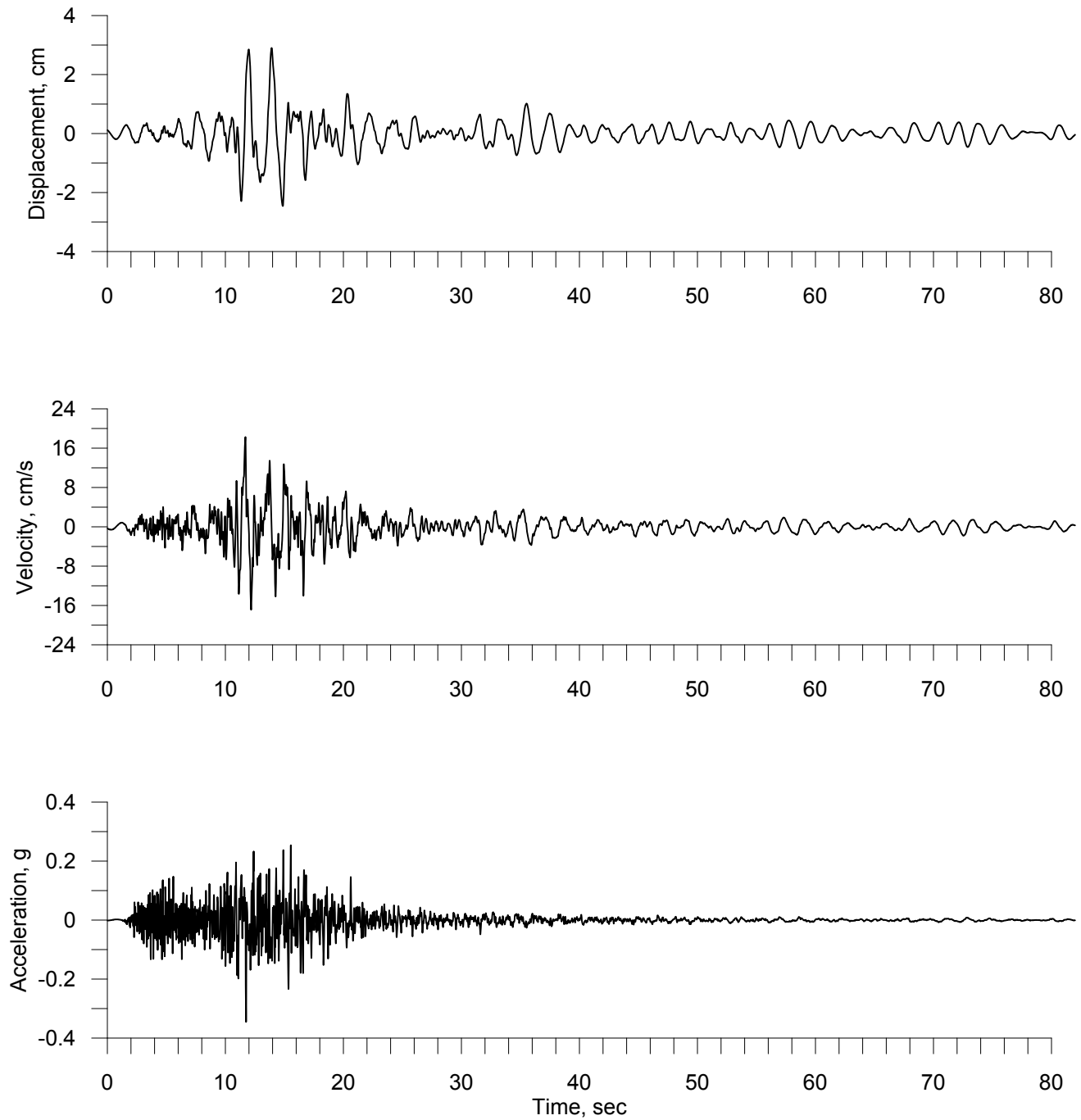


FIGURE C-4  
Spectrally Matched Time History - CLE  
2001 Nisqually Earthquake, PCEP Station, 0 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

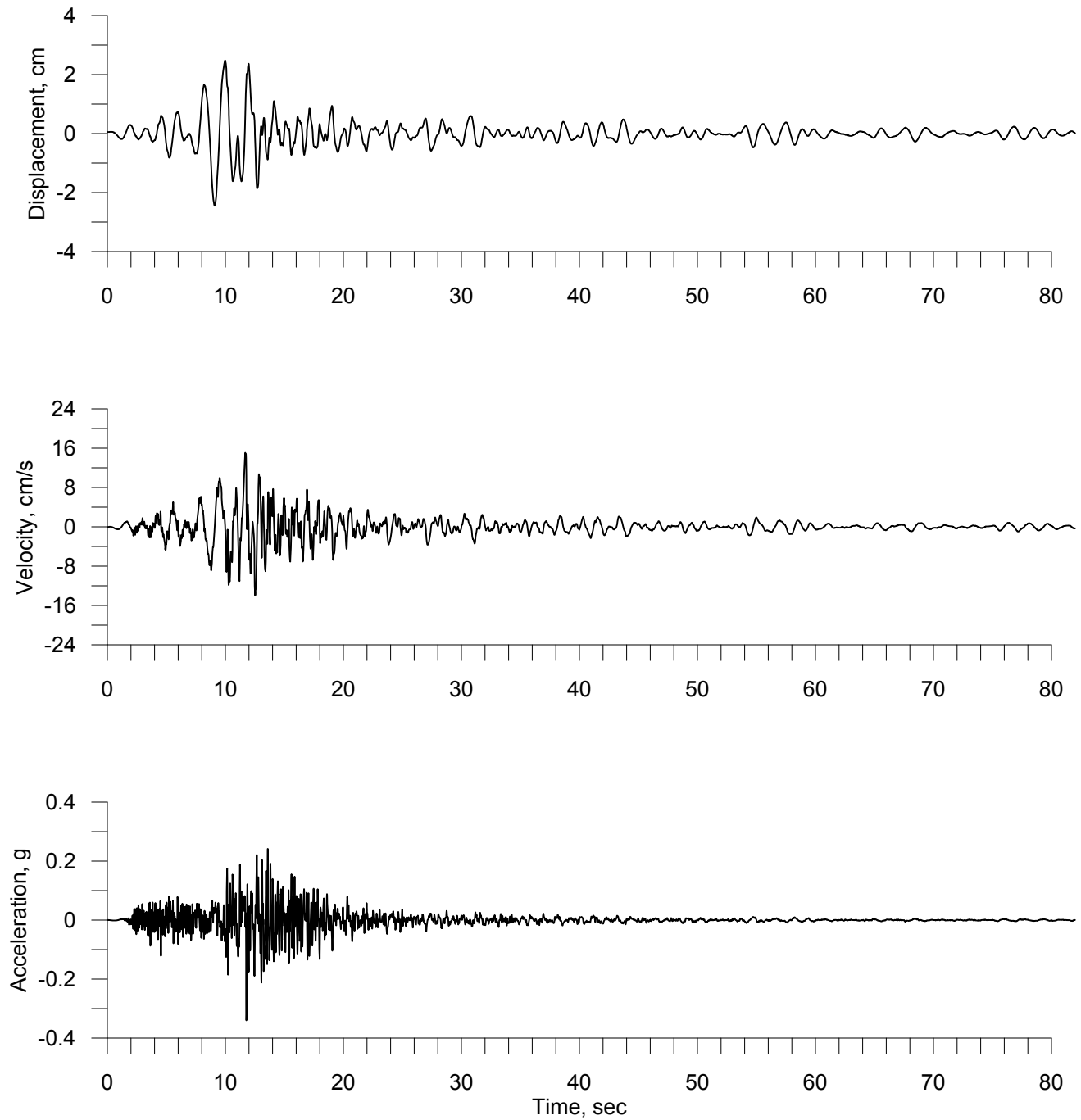


FIGURE C-5  
Spectrally Matched Time History - CLE  
2001 Nisqually Earthquake, PCEP Station, 90 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

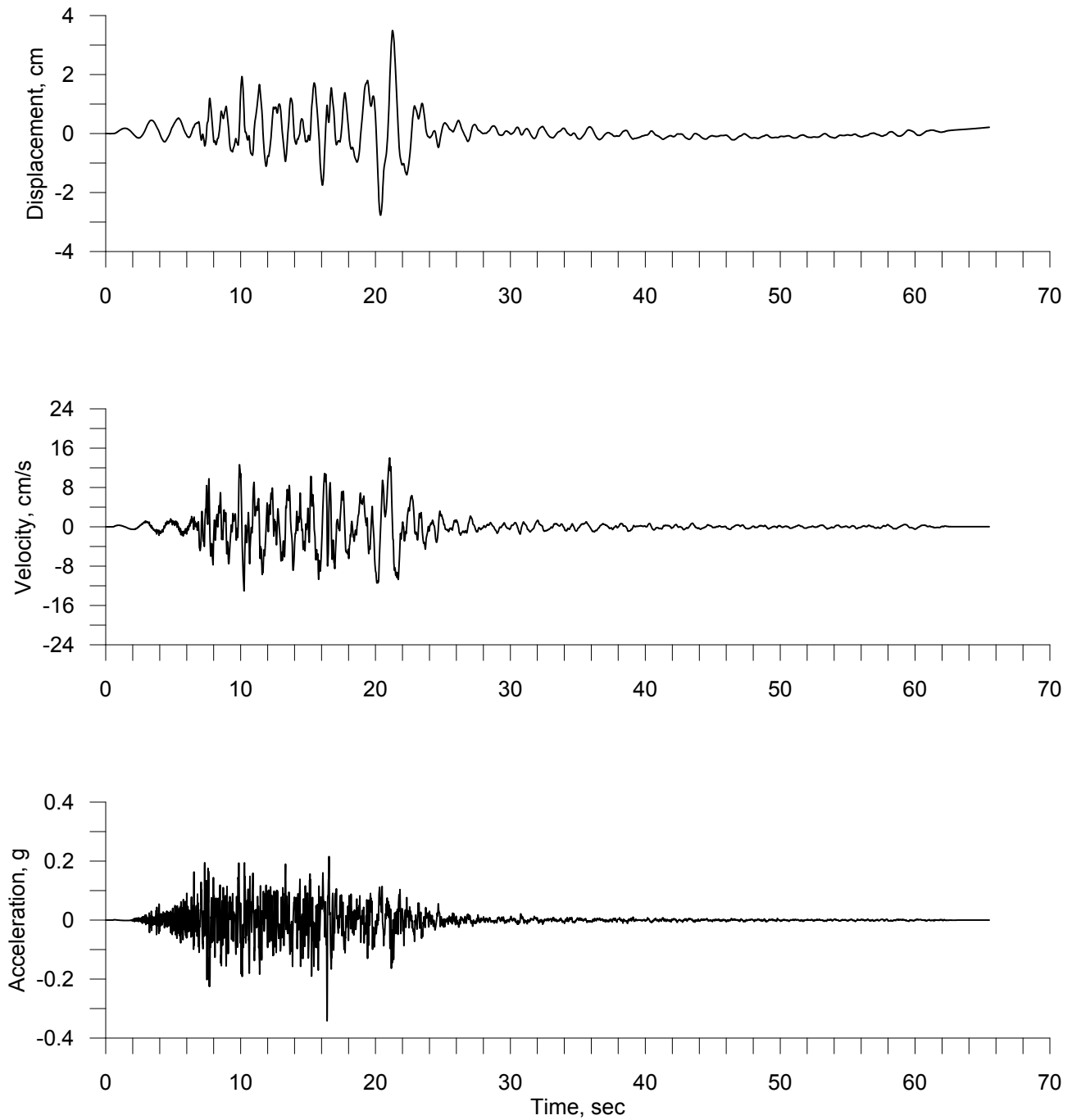


FIGURE C-6  
Spectrally Matched Time History - CLE  
1997 Michoacan Earthquake, Cale Station, 180 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska



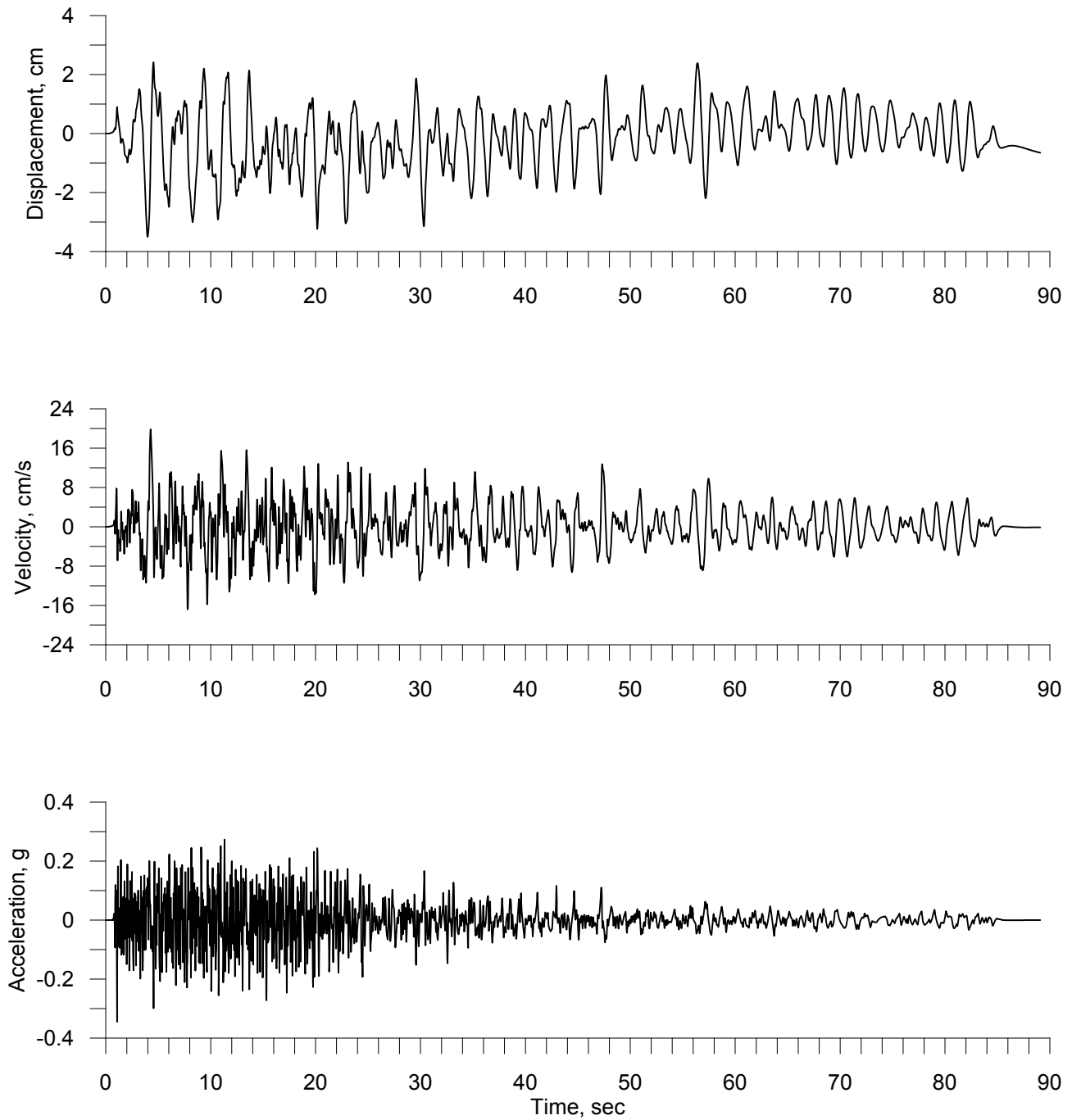


FIGURE C-7  
Spectrally Matched Time History - CLE  
1949 Western WA Earthquake, Olympia Station, 356 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

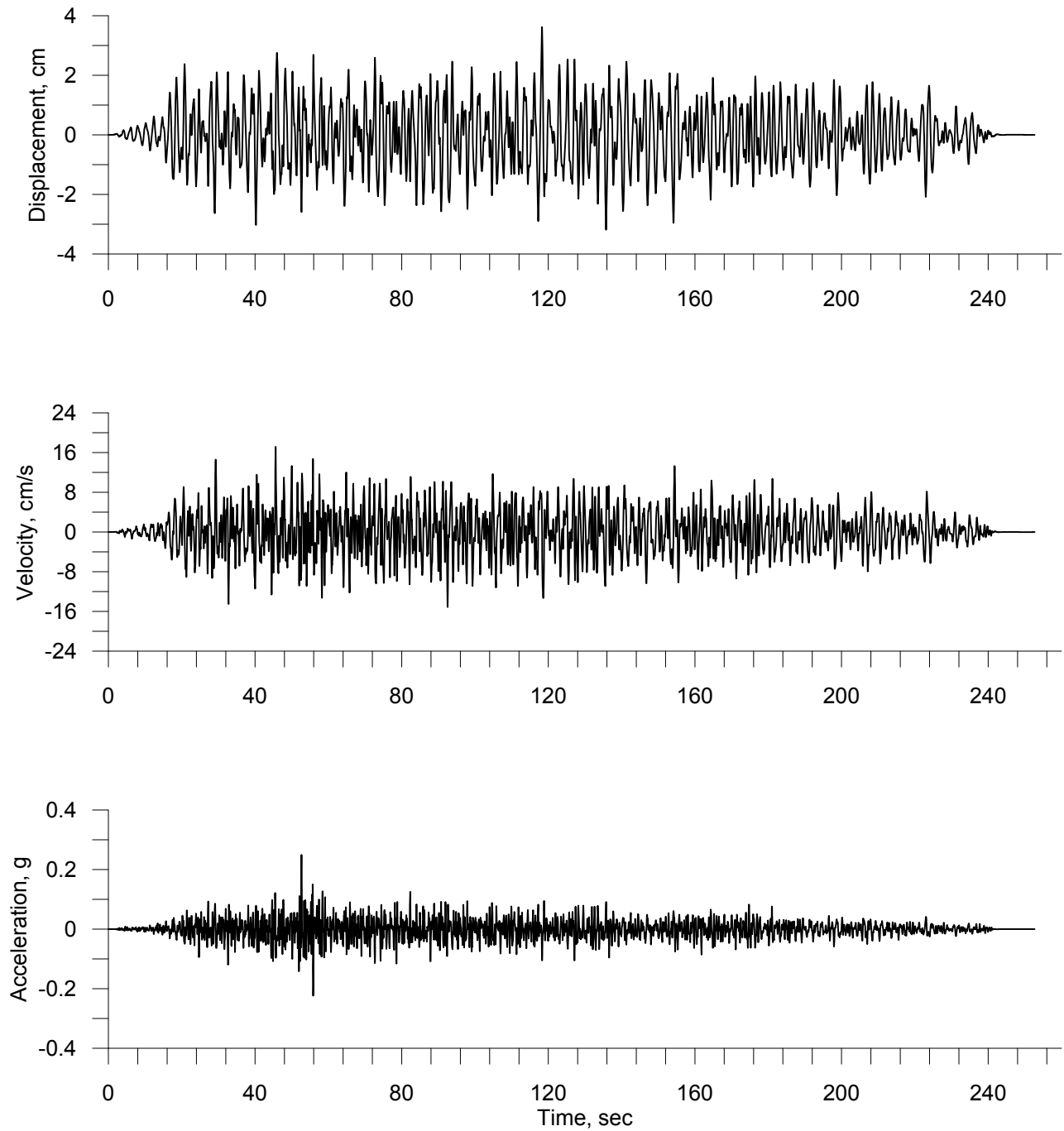


FIGURE C-8  
Spectrally Matched Time History - CLE  
Cascadia Megathrust Synthetic Earthquake, ALL005  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

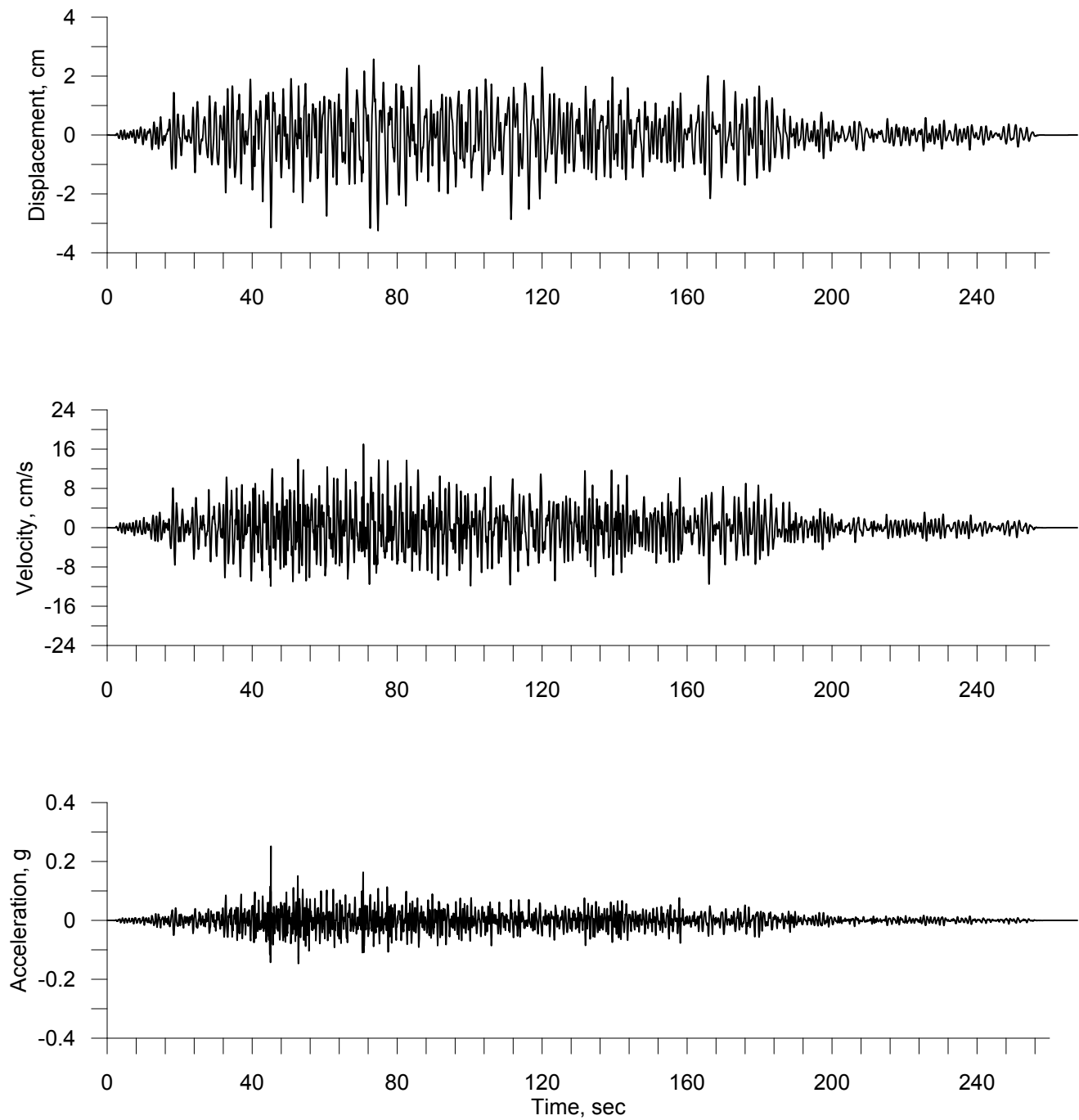


FIGURE C-9  
Spectrally Matched Time History - CLE  
Cascadia Megathrust Synthetic Earthquake, ALL009  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

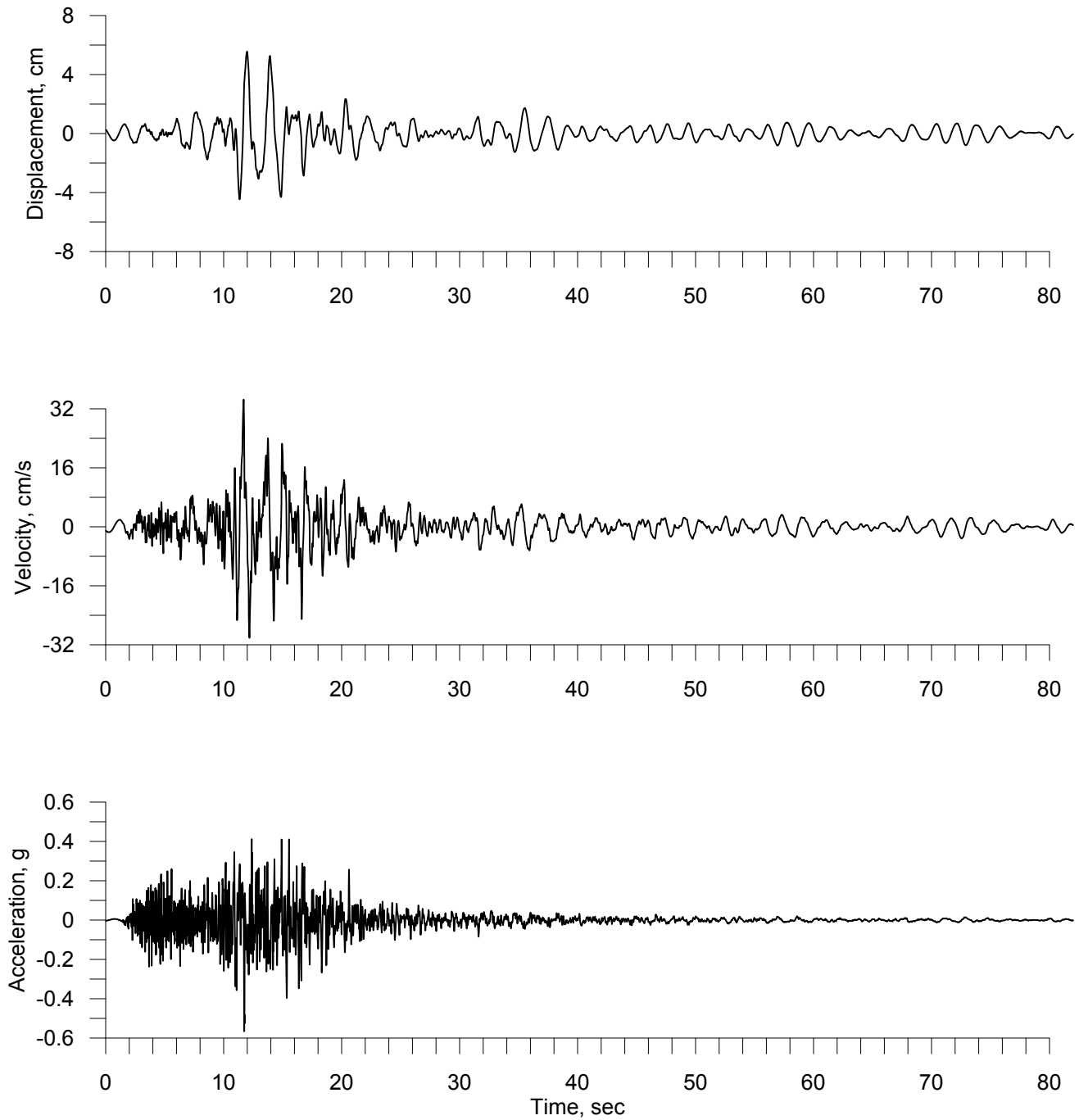


FIGURE C-10  
Spectrally Matched Time History - MCE  
2001 Nisqually Earthquake, PCEP Station, 0 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

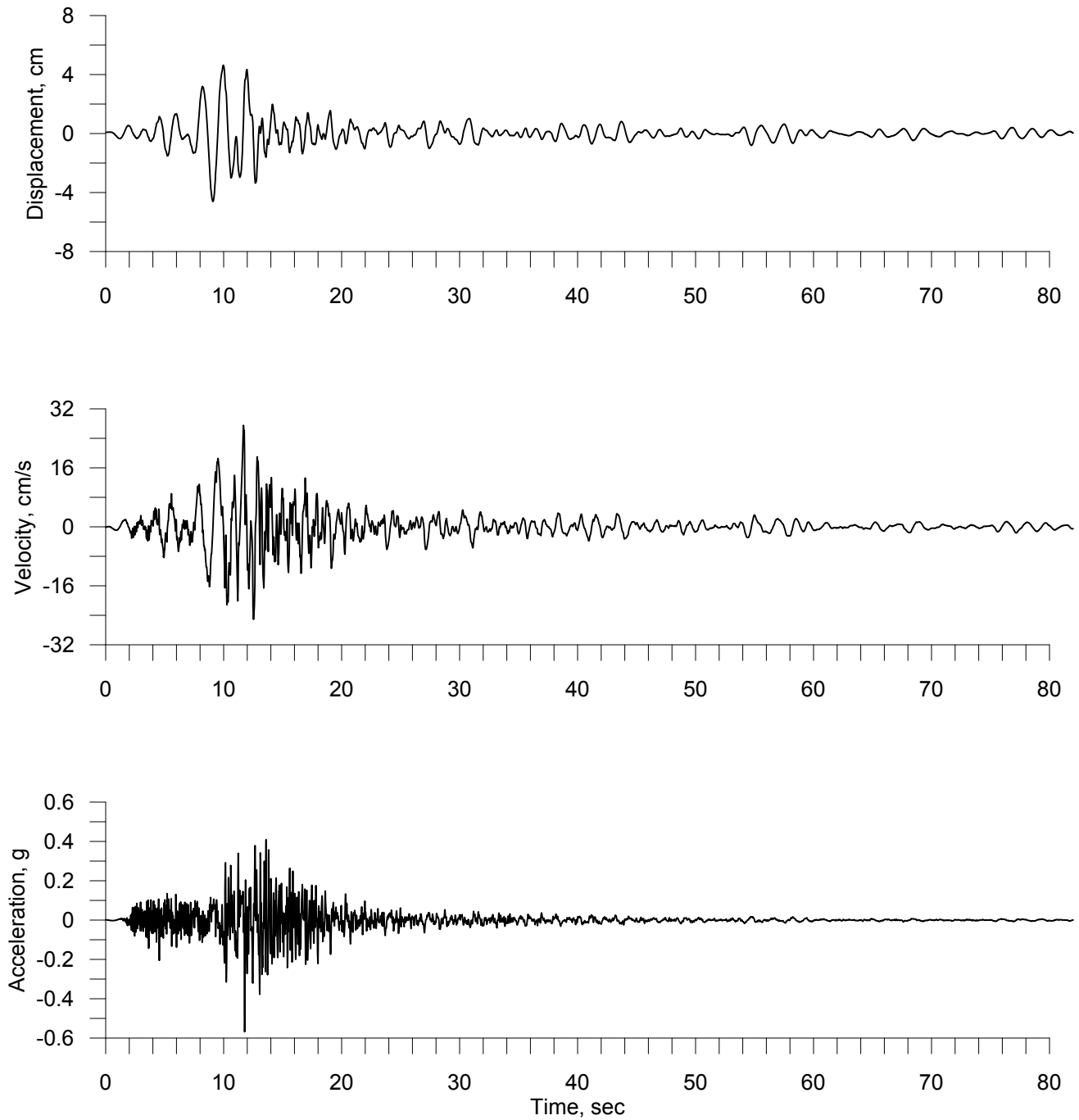


FIGURE C-11  
Spectrally Matched Time History - MCE  
2001 Nisqually Earthquake, PCEP Station, 90 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

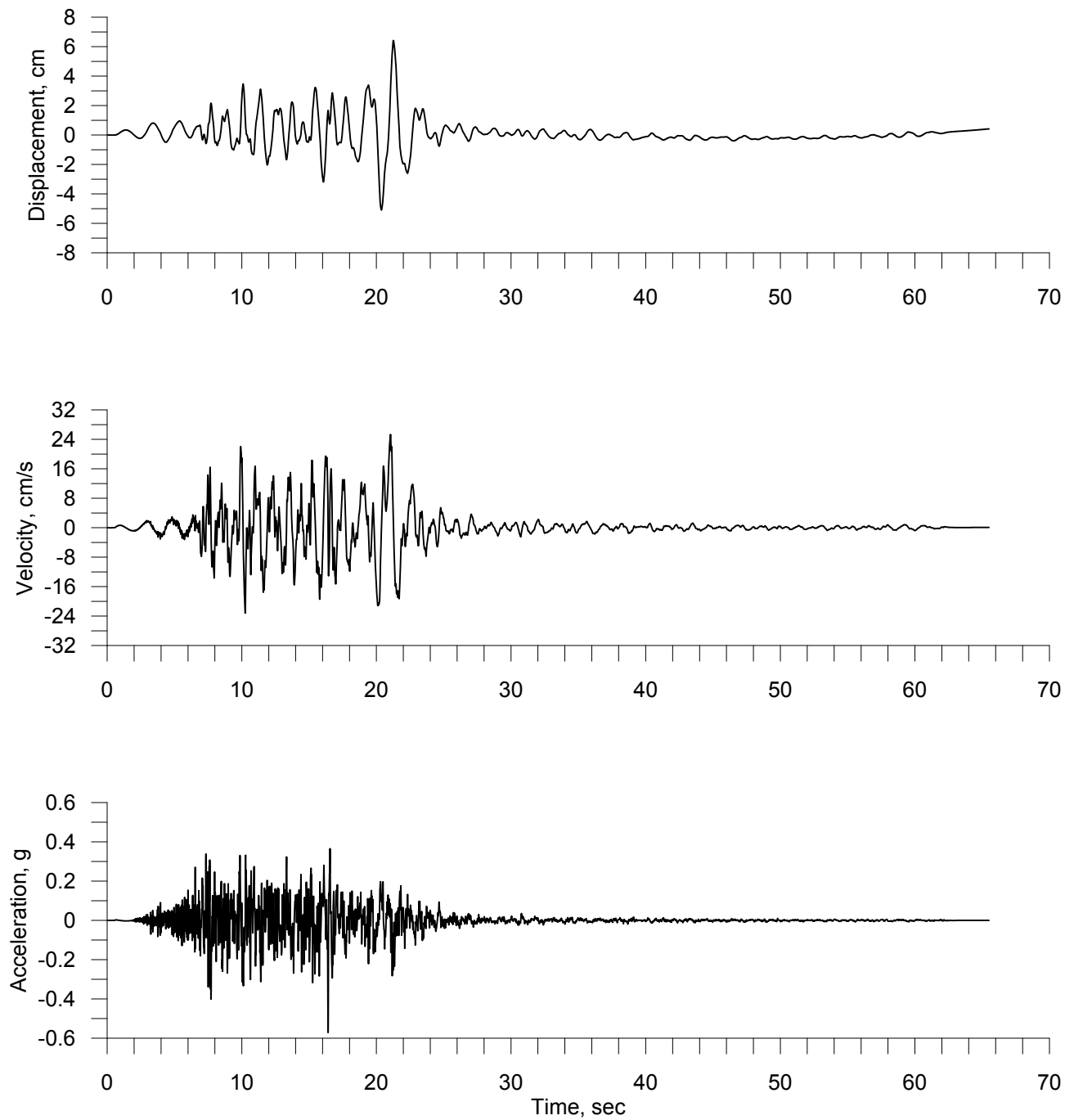


FIGURE C-12  
Spectrally Matched Time History - MCE  
1997 Michoacan Earthquake, Cale Station, 180 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

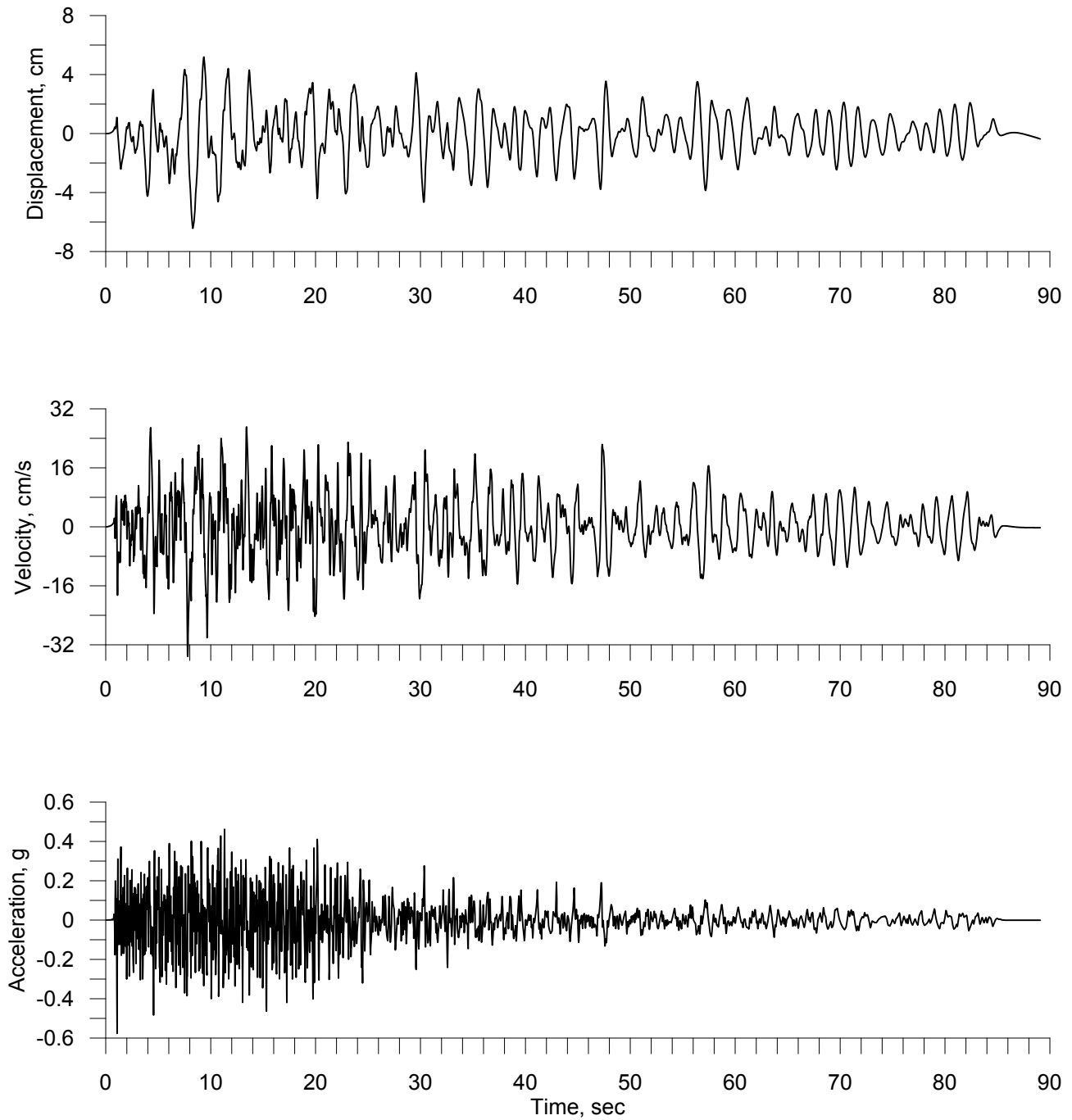


FIGURE C-13  
Spectrally Matched Time History - MCE  
1949 Western WA Earthquake, Olympia Station, 356 deg Component  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

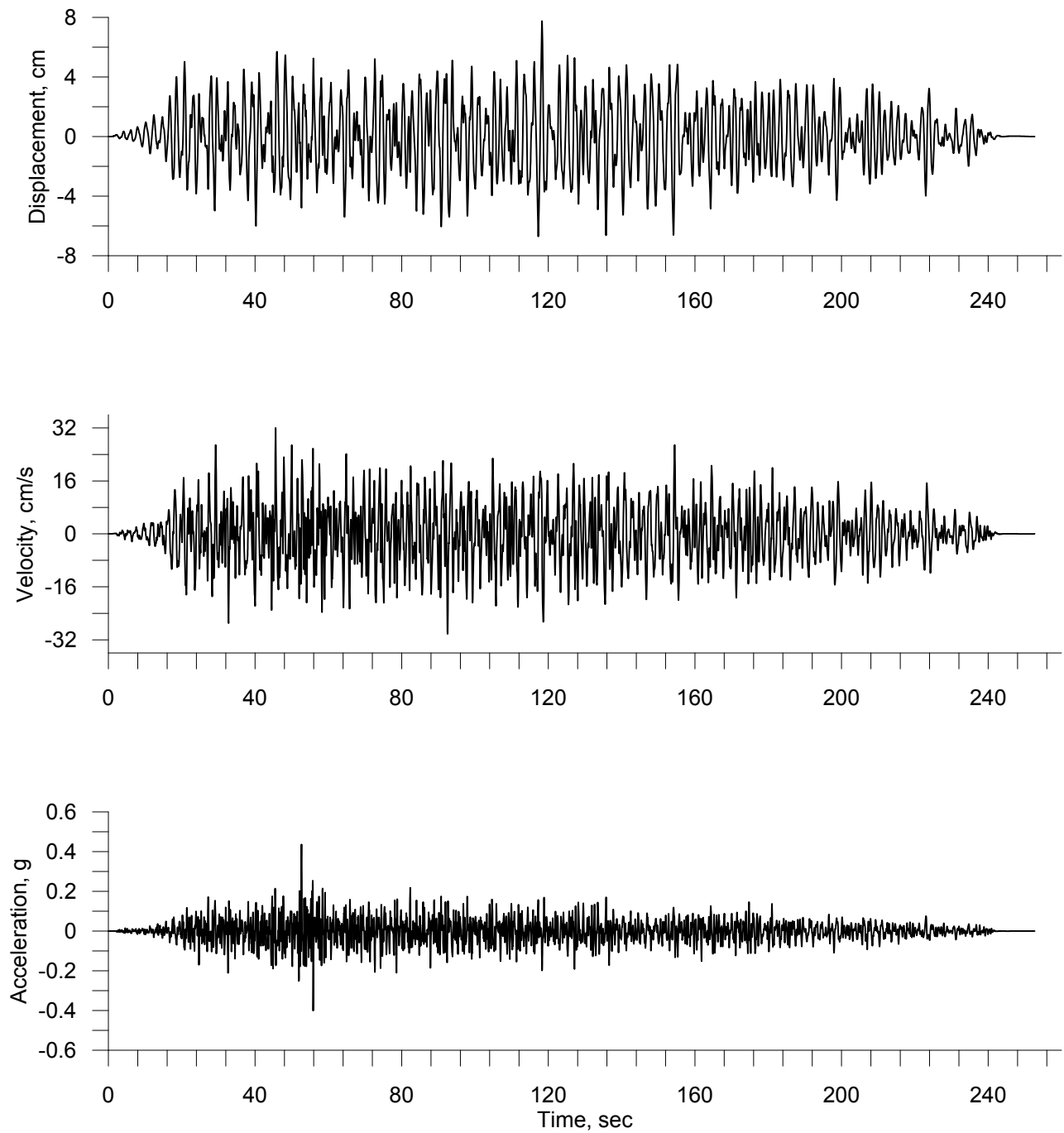


FIGURE C-14  
Spectrally Matched Time History - MCE  
Cascadia Megathrust Synthetic Earthquake, ALL005  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska



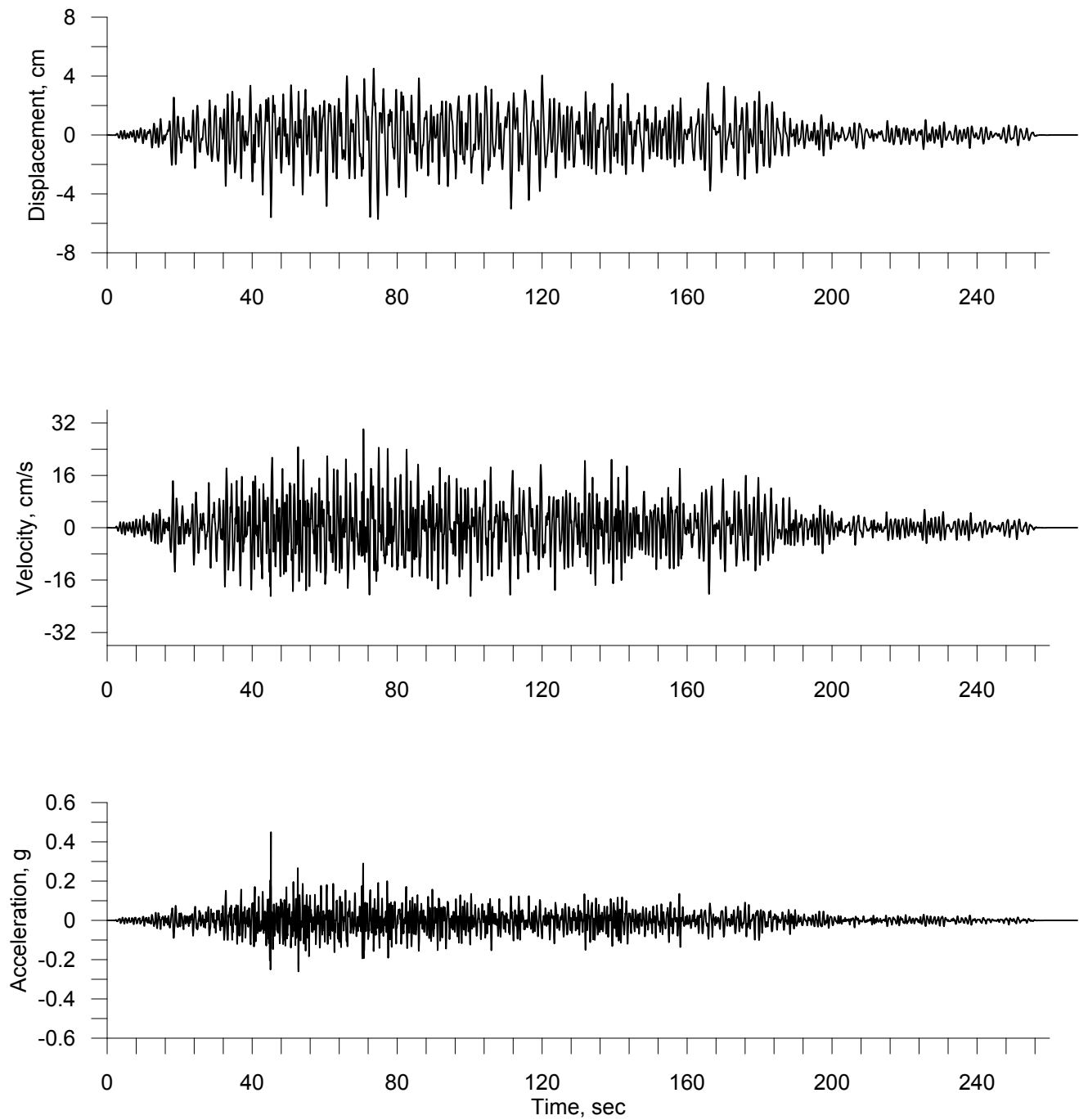


FIGURE C-15  
Spectrally Matched Time History - MCE  
Cascadia Megathrust Synthetic Earthquake, ALL009  
Rock (NEHRP B/C Boundary) Site  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

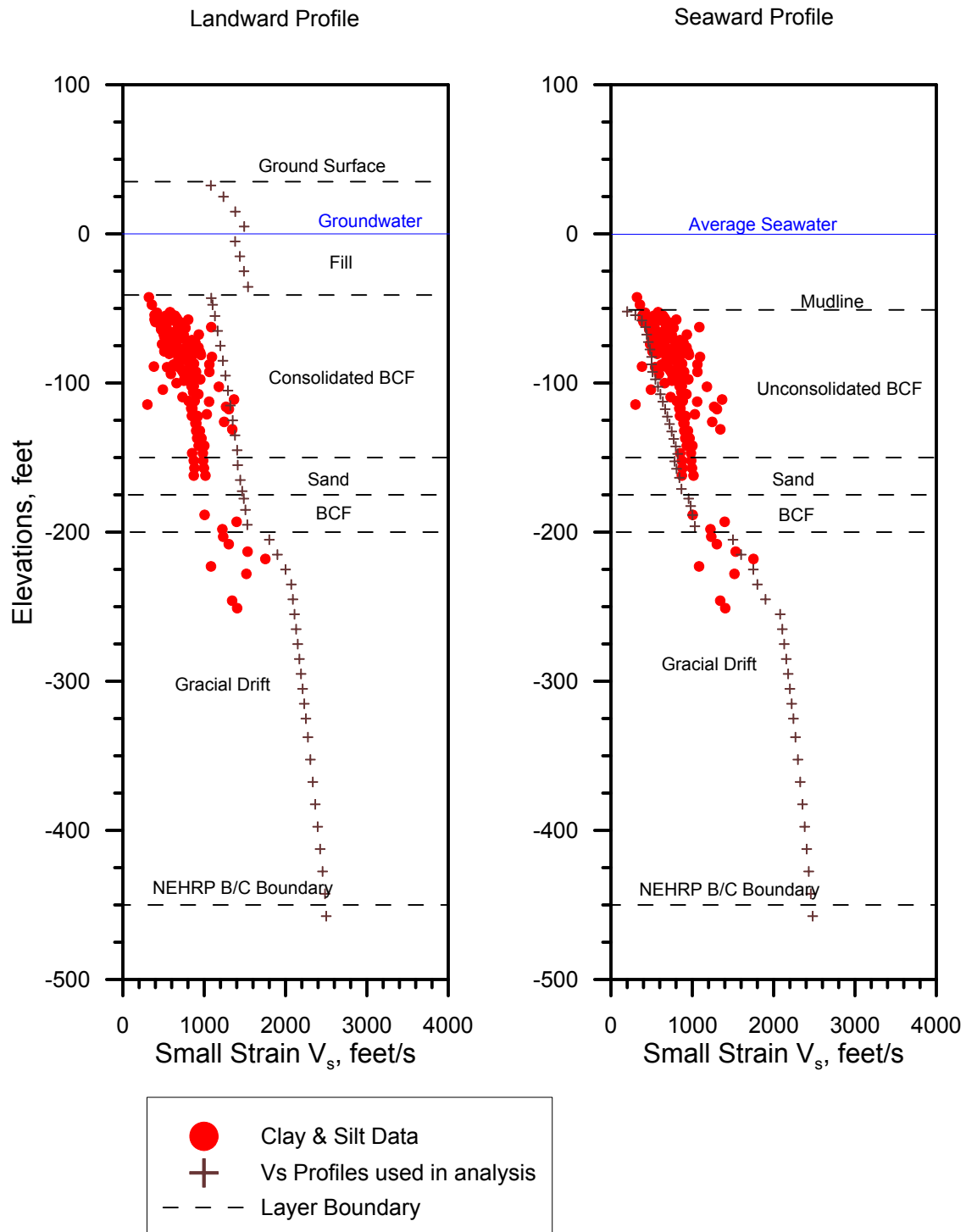


FIGURE C-16  
Idealized Soil Profiles for Site Response Analysis  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

Darendeli for PI = 0% (2001)

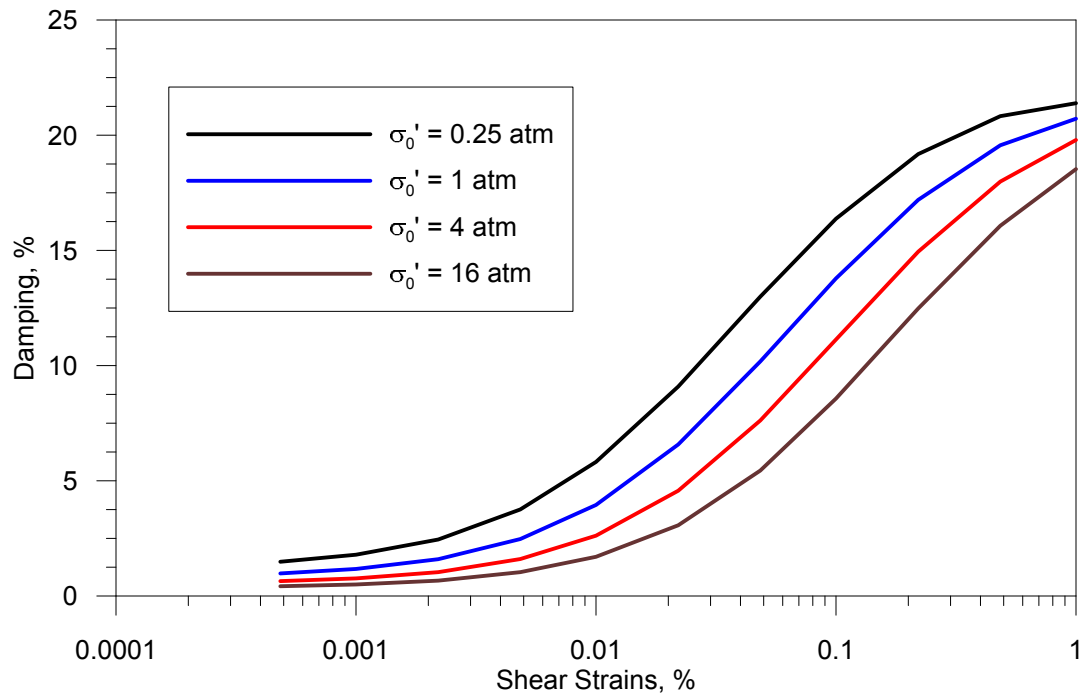
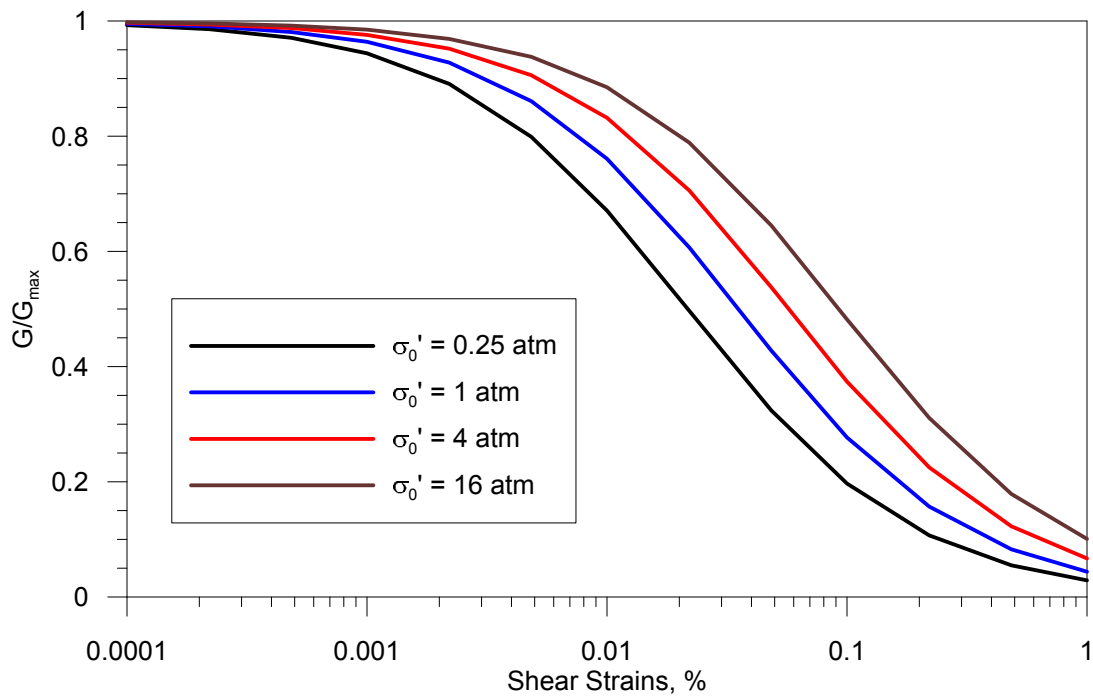


FIGURE C-17  
 $G/G_{\max}$  and Damping vs. Shear Strain Curves  
 for Sandy and Gravelly Soils  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

Darendeli for PI = 15% (2001)

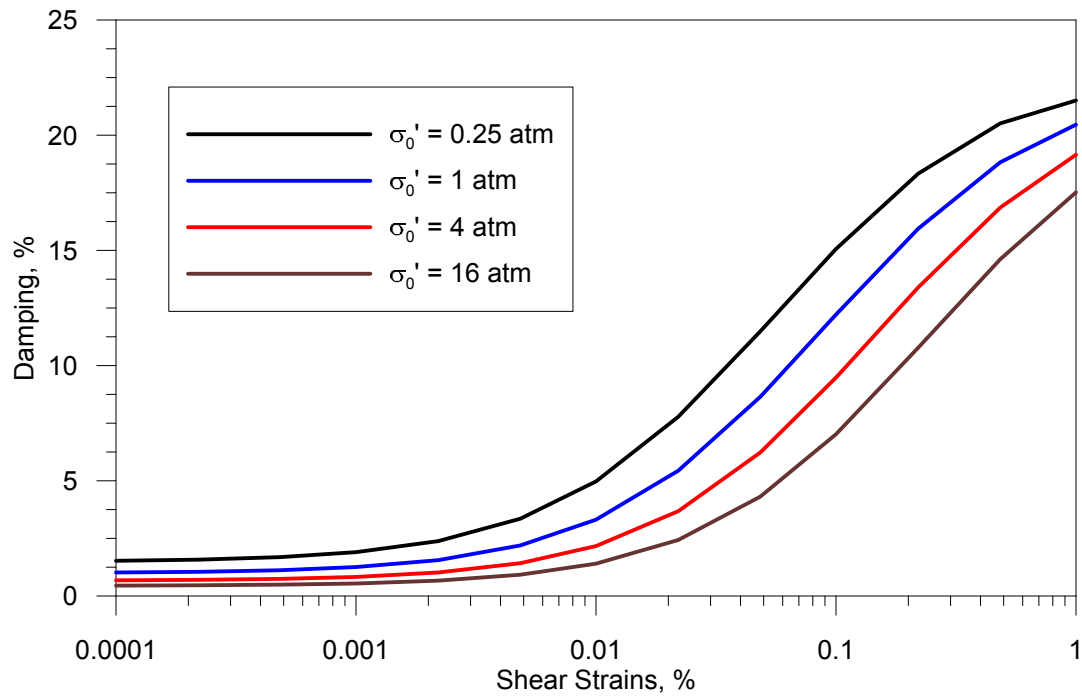
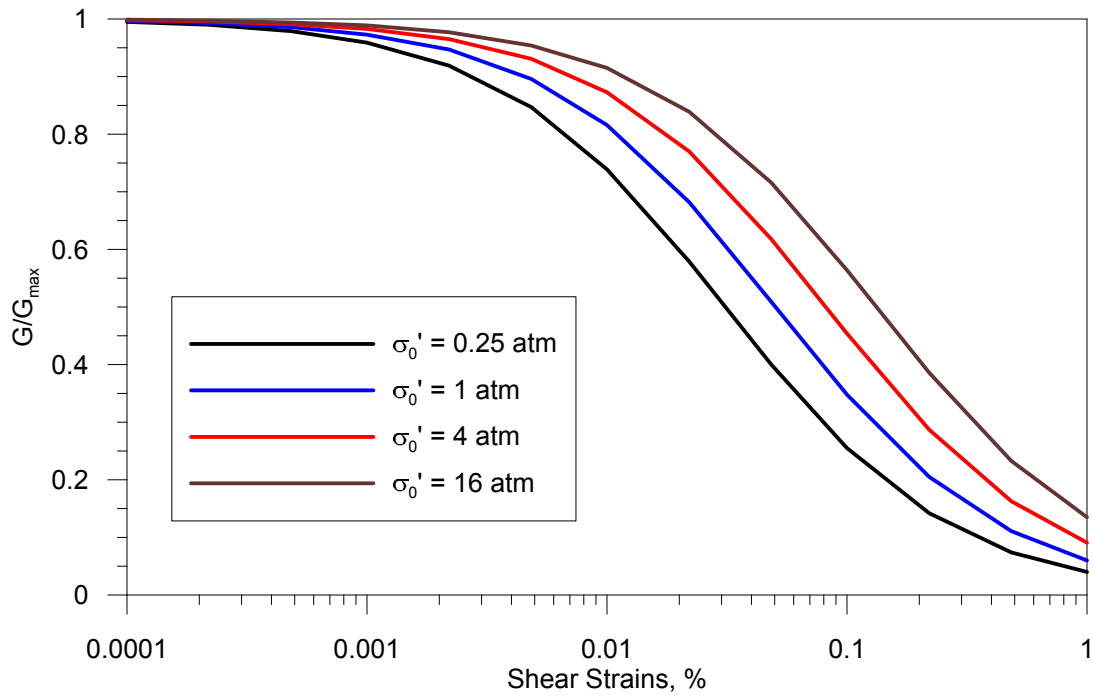


FIGURE C-18  
 $G/G_{\max}$  and Damping vs. Shear Strain Curves  
 for Clayey Soils  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

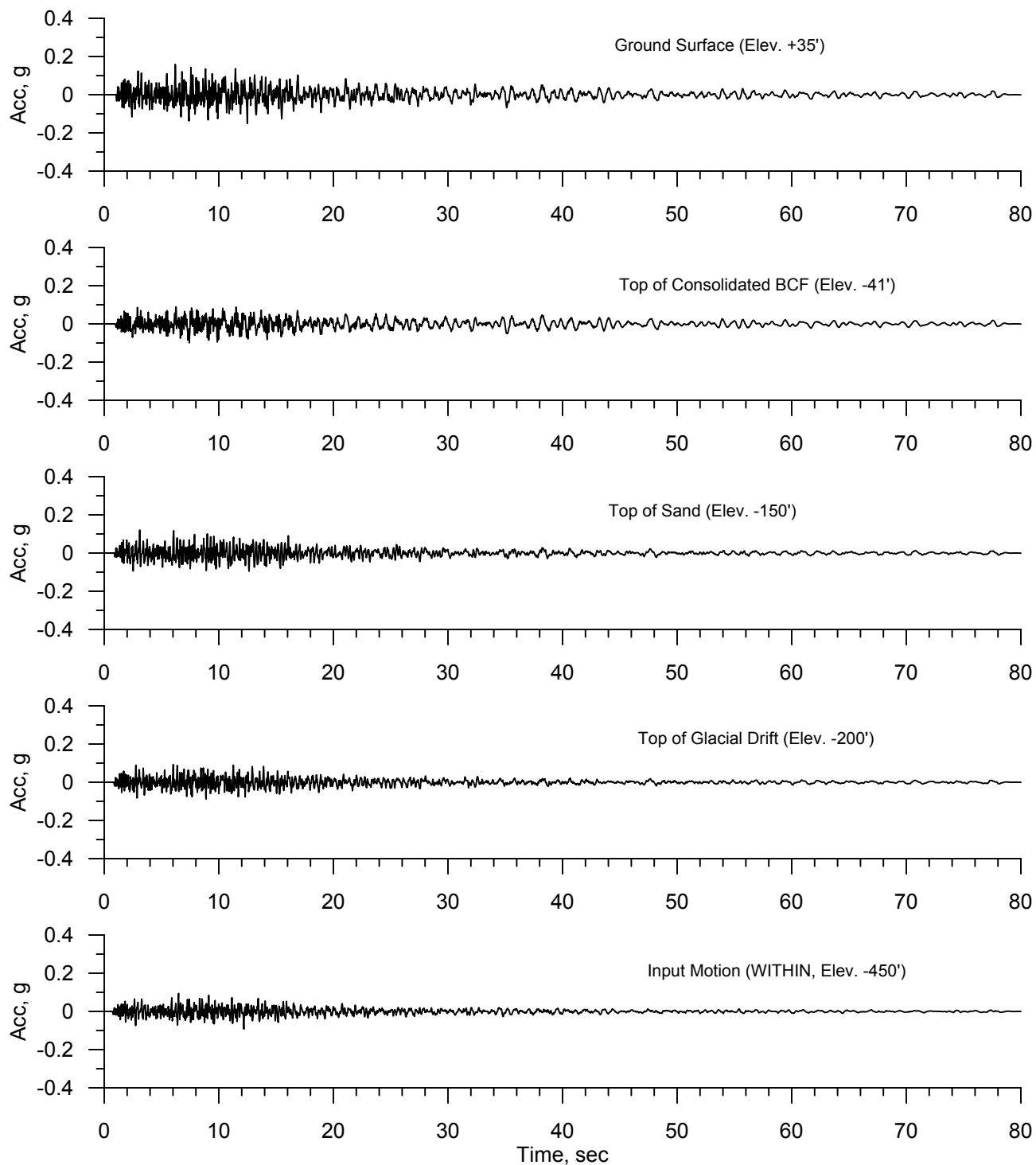


FIGURE C-19  
 Calculated Time Histories - OLE  
 1965 Puget Sound Earthquake at USGS Station 2101, 176 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

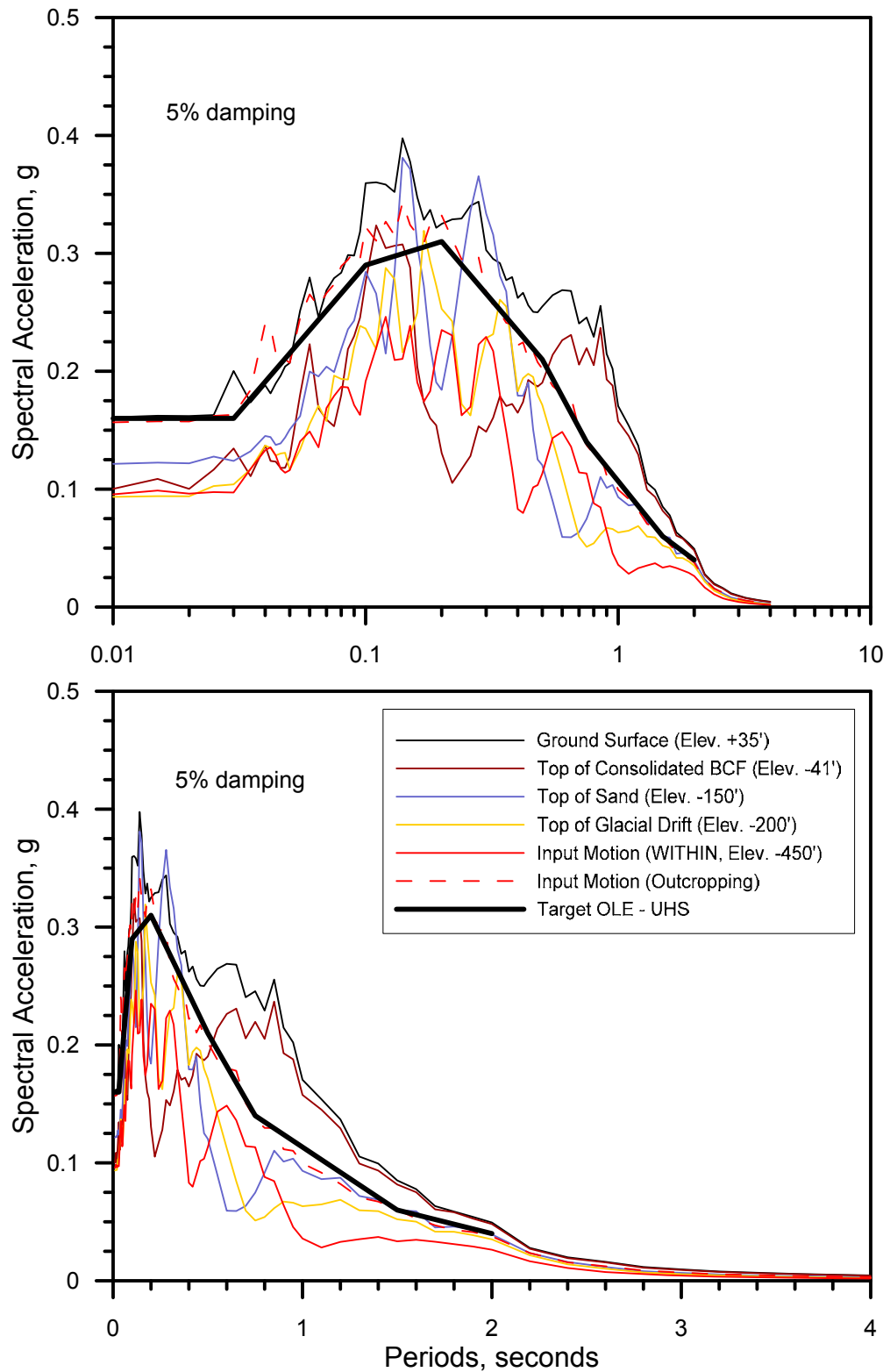


FIGURE C-20  
 Calculated Response Spectra - OLE  
 1965 Puget Sound Earthquake at USGS Station 2101, 176 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

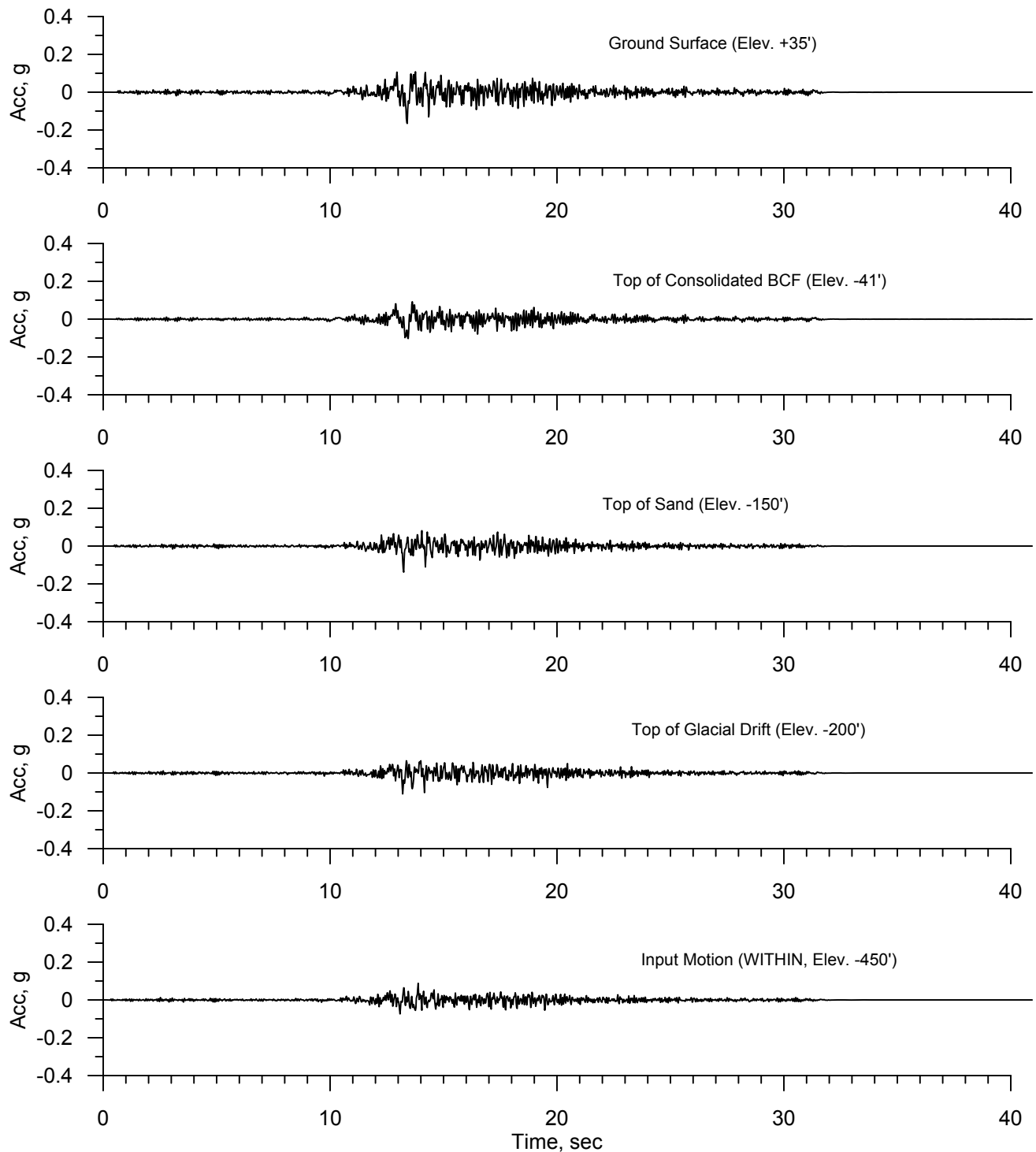


FIGURE C-21  
Calculated Time Histories - OLE  
1974 Peru Coast Earthquake at ZARATE Station, 0 deg component  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

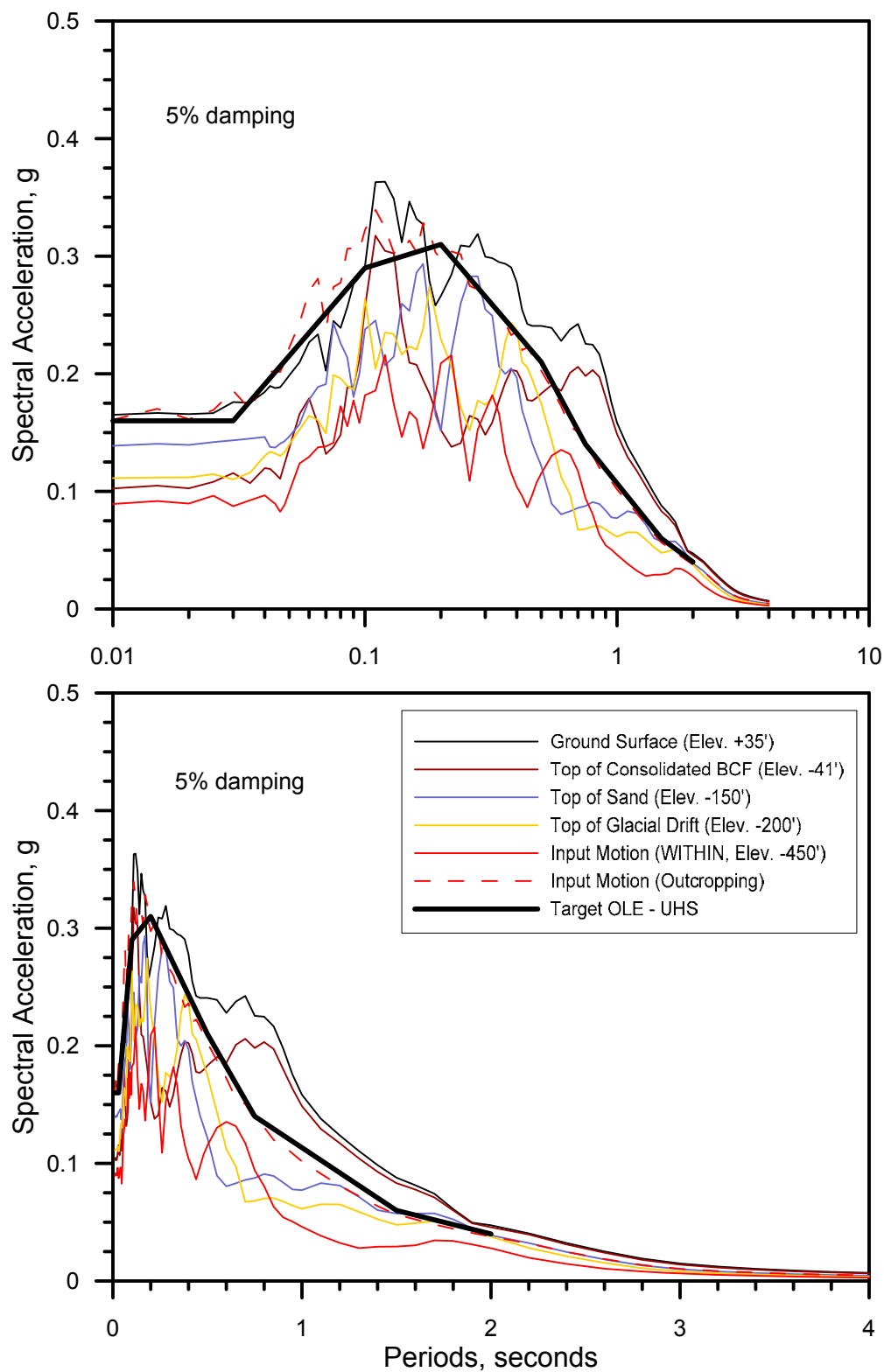


FIGURE C-22  
 Calculated Response Spectra - OLE  
 1974 Peru Coast Earthquake at ZARATE Station, 0 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



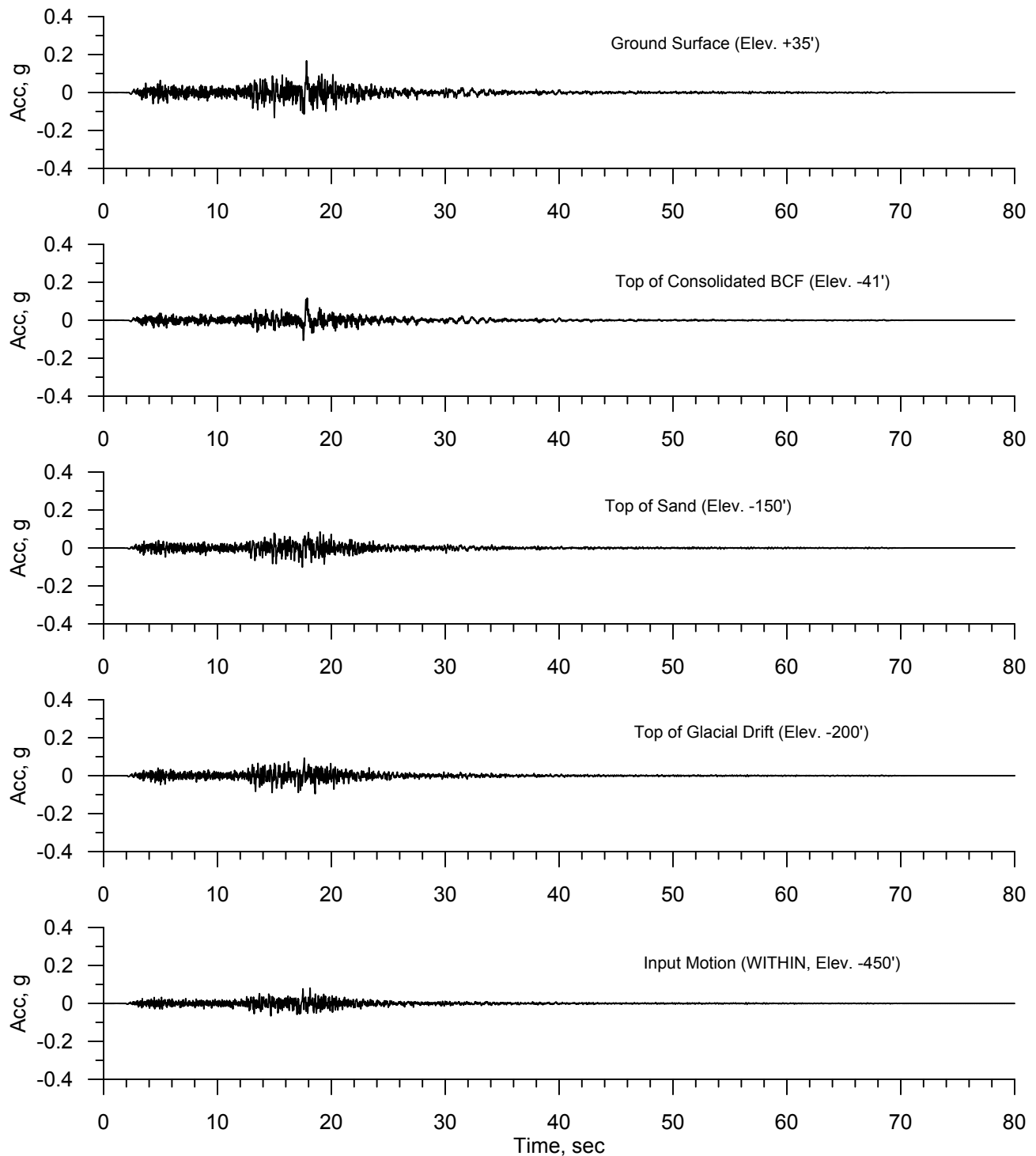


FIGURE C-23  
Calculated Time Histories - OLE  
1997 Michoacan Earthquake at UNIO Station, 0 deg component  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

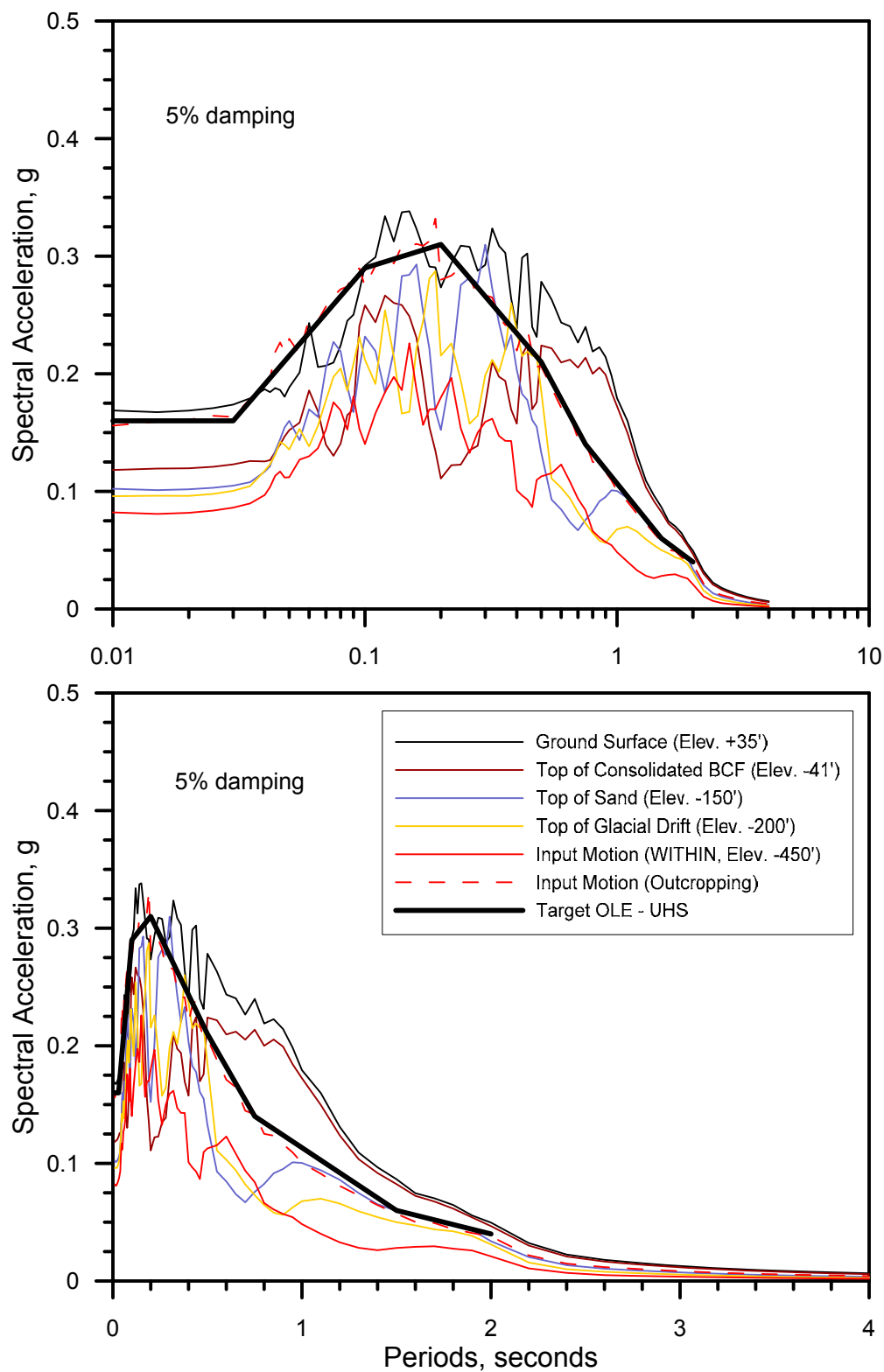


FIGURE C-24  
 Calculated Response Spectra - OLE  
 1997 Michoacan Earthquake at UNIO Station, 0 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

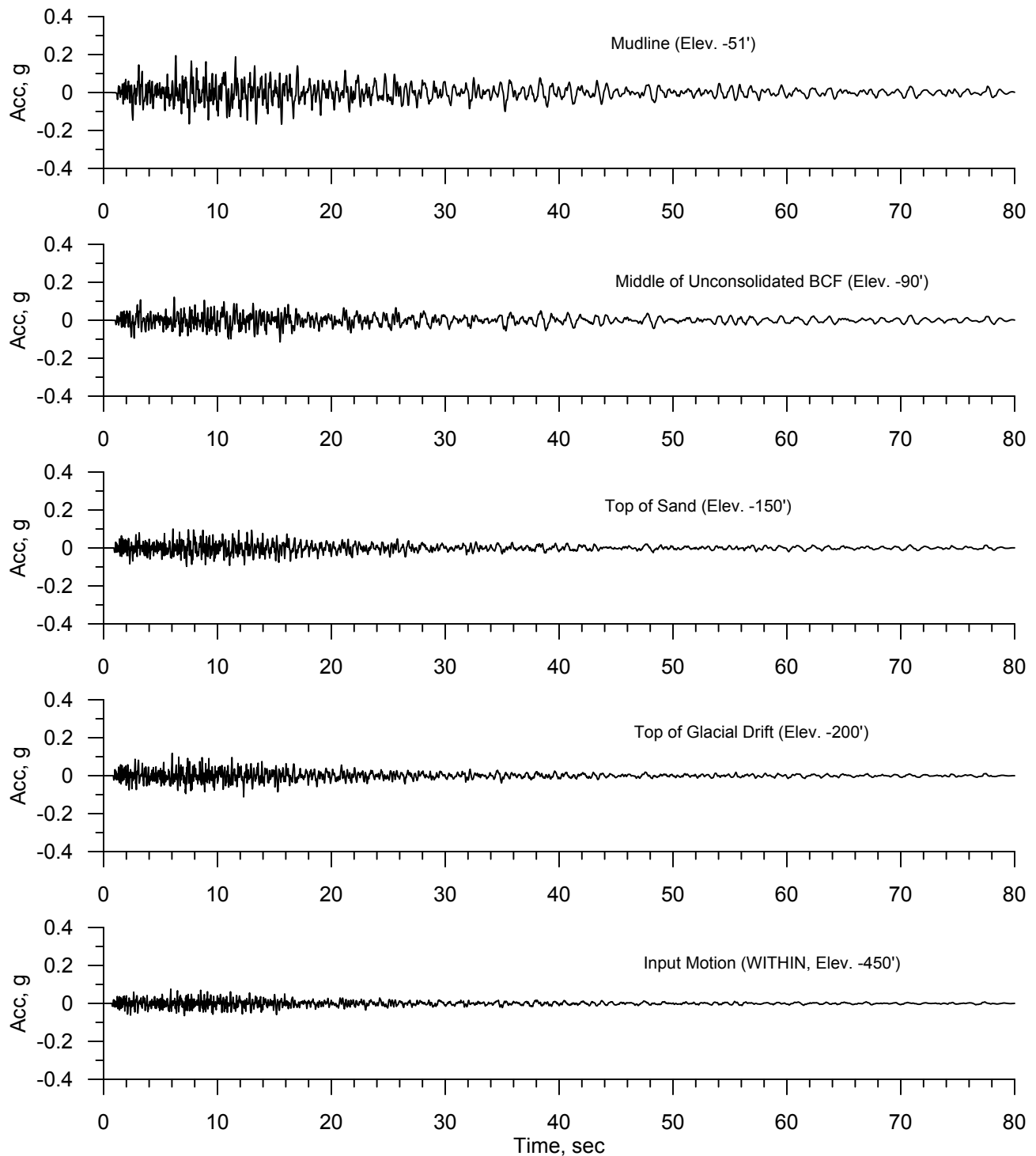


FIGURE C-25  
Calculated Time Histories - OLE  
1965 Puget Sound Earthquake at USGS Station 2101, 176 deg component  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

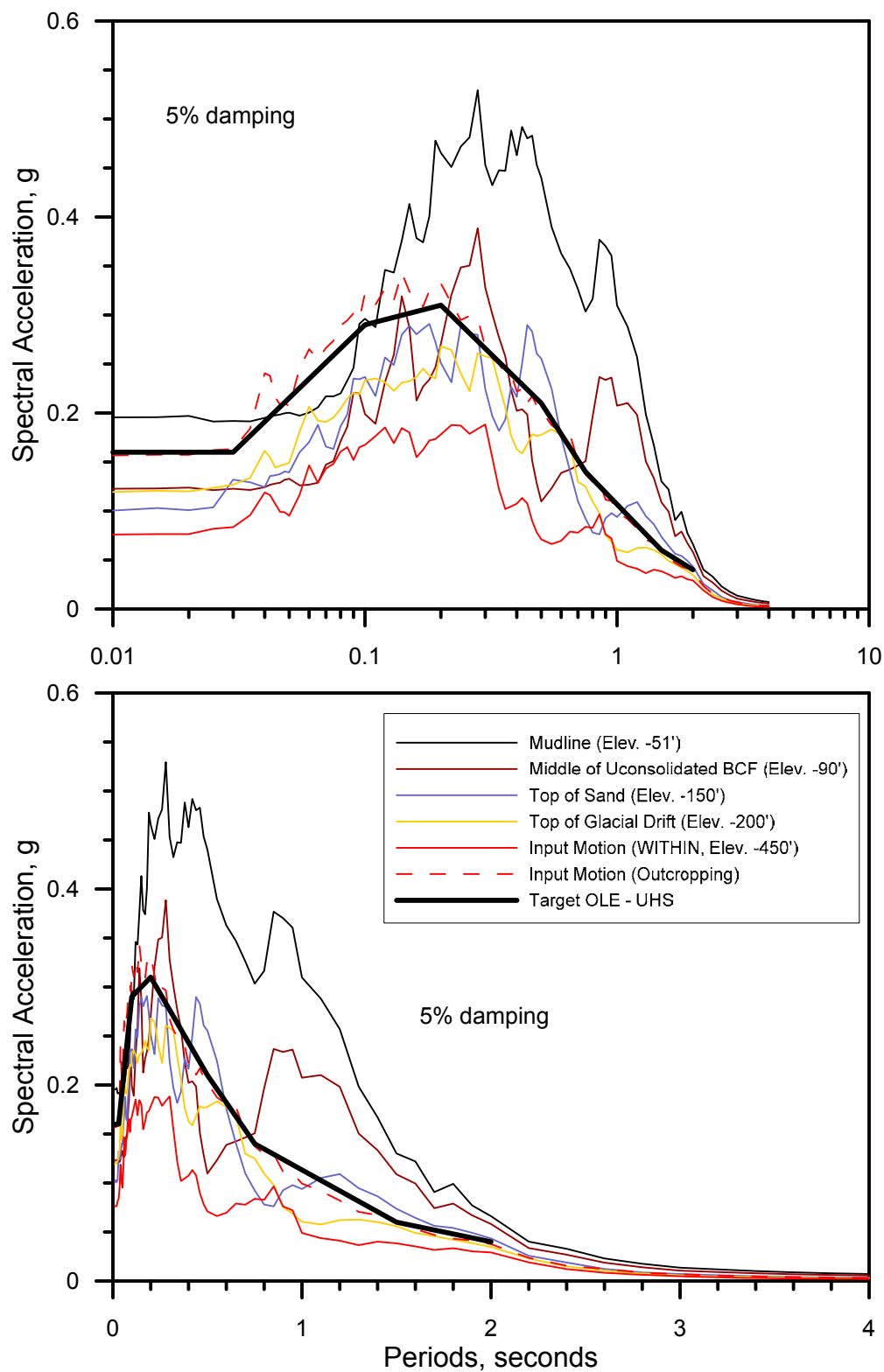


FIGURE C-26  
 Calculated Response Spectra - OLE  
 1965 Puget Sound Earthquake at USGS Station 2101, 176 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

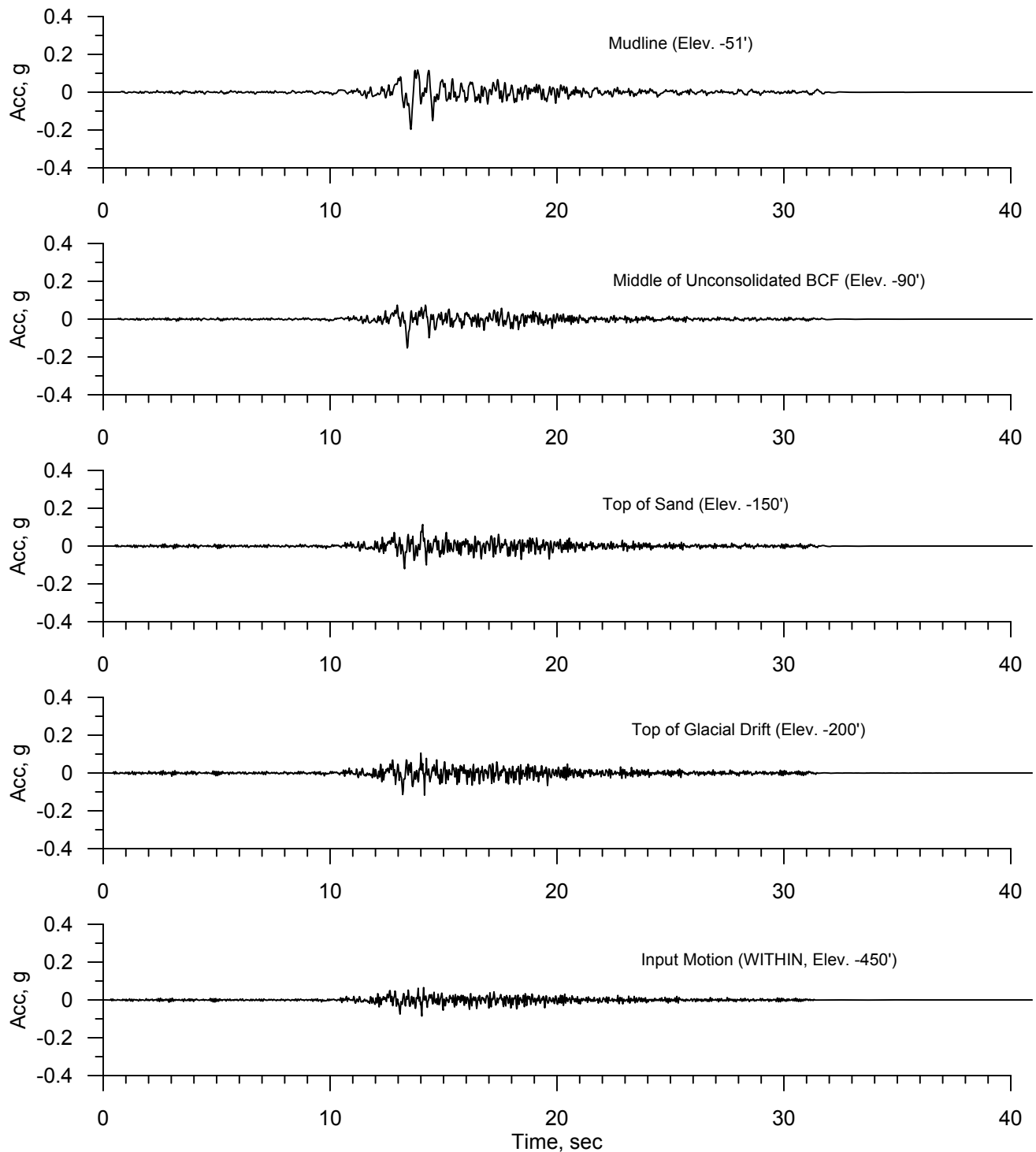


FIGURE C-27  
Calculated Time Histories - OLE  
1974 Peru Coast Earthquake at ZARATE Station, 0 deg component  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

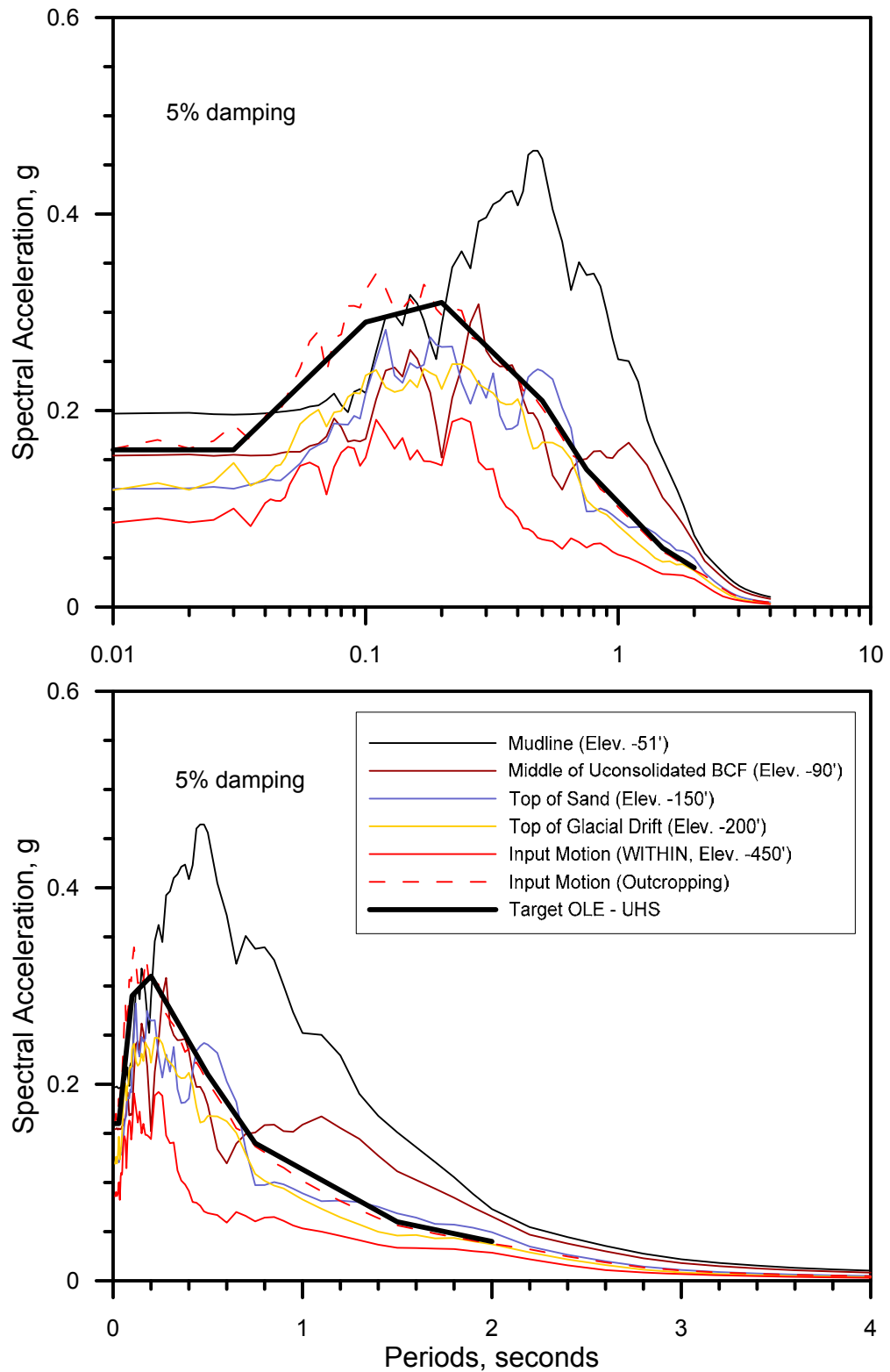


FIGURE C-28  
 Calculated Response Spectra - OLE  
 1974 Peru Coast Earthquake at ZARATE Station, 0 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

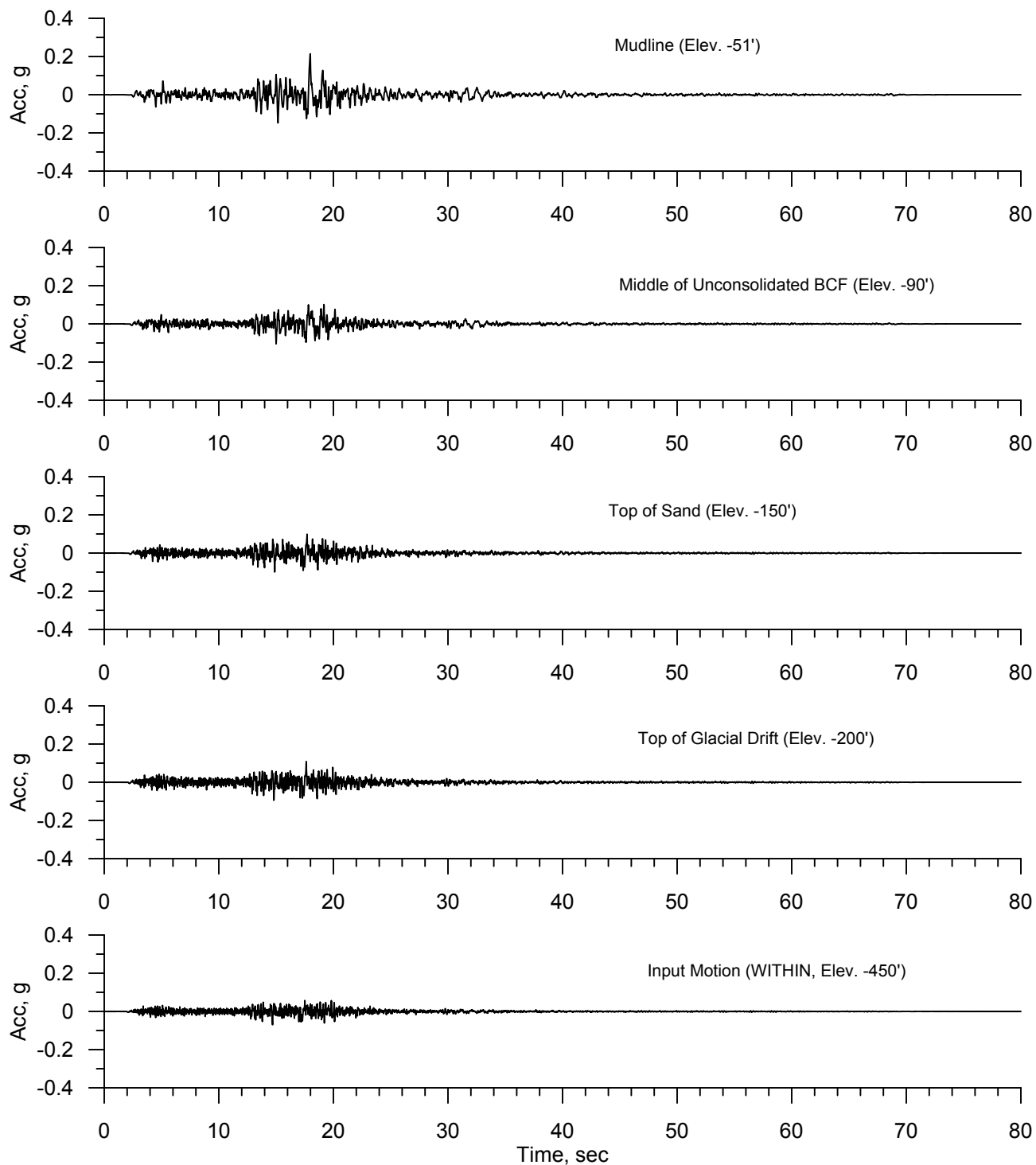


FIGURE C-29  
 Calculated Time Histories - OLE  
 1997 Michoacan Earthquake at UNIO Station, 0 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

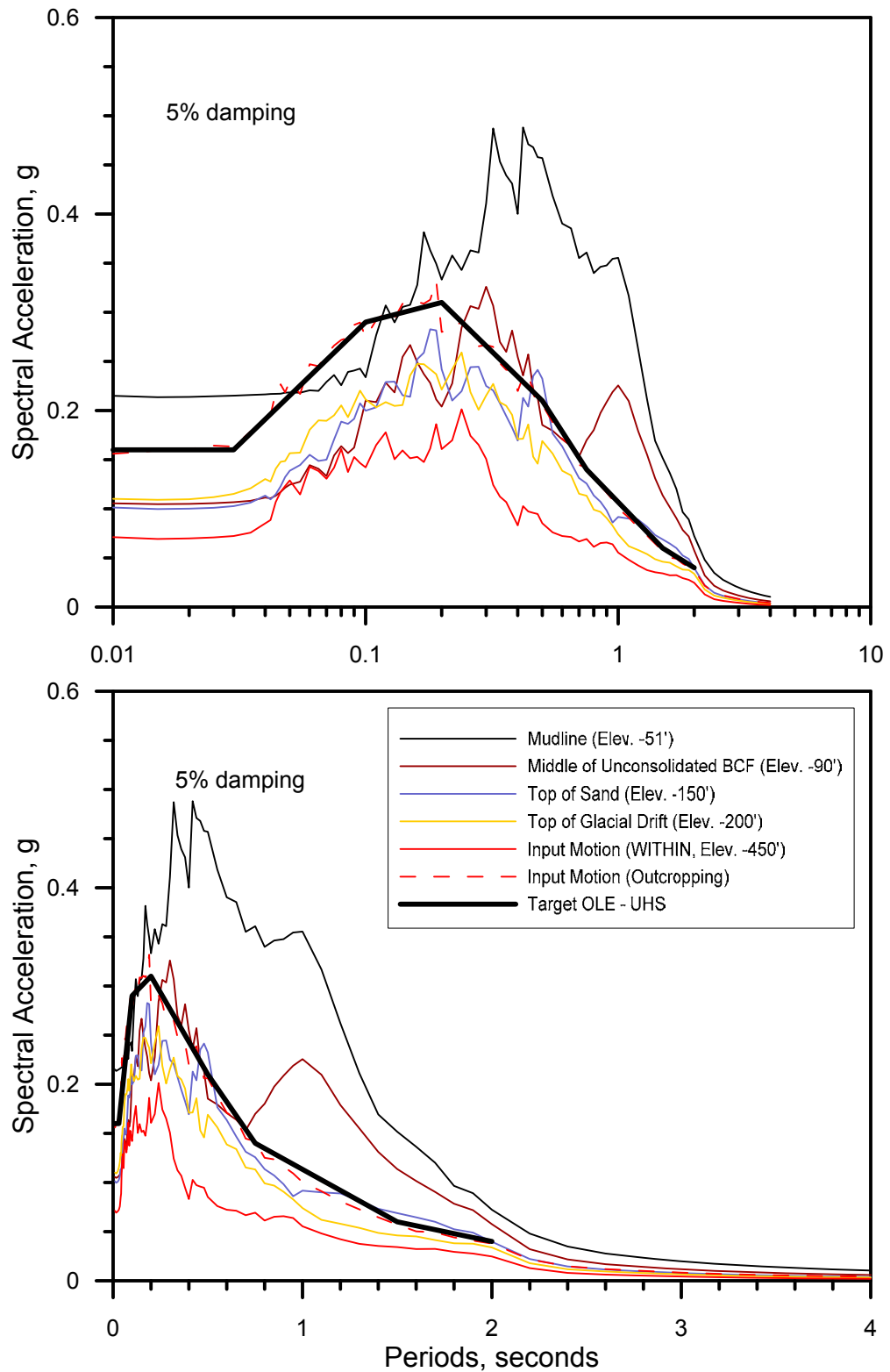


FIGURE C-30  
 Calculated Response Spectra - OLE  
 1997 Michoacan Earthquake at UNIO Station, 0 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



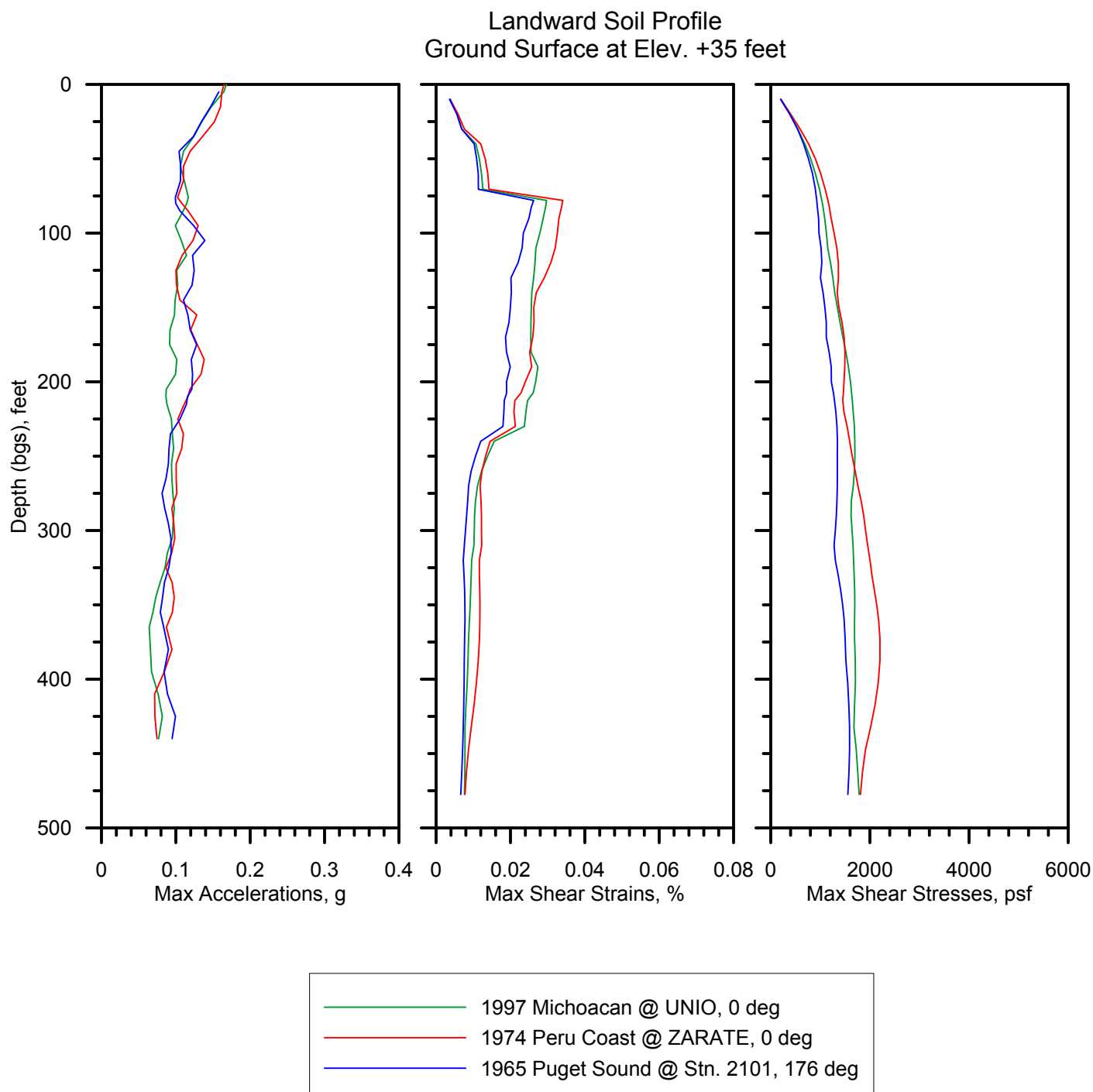


FIGURE C-31  
Calculated Maximum Accelerations, Shear Strains and Shear Stresses vs. Depth  
Landward Soil Profile, OLE  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

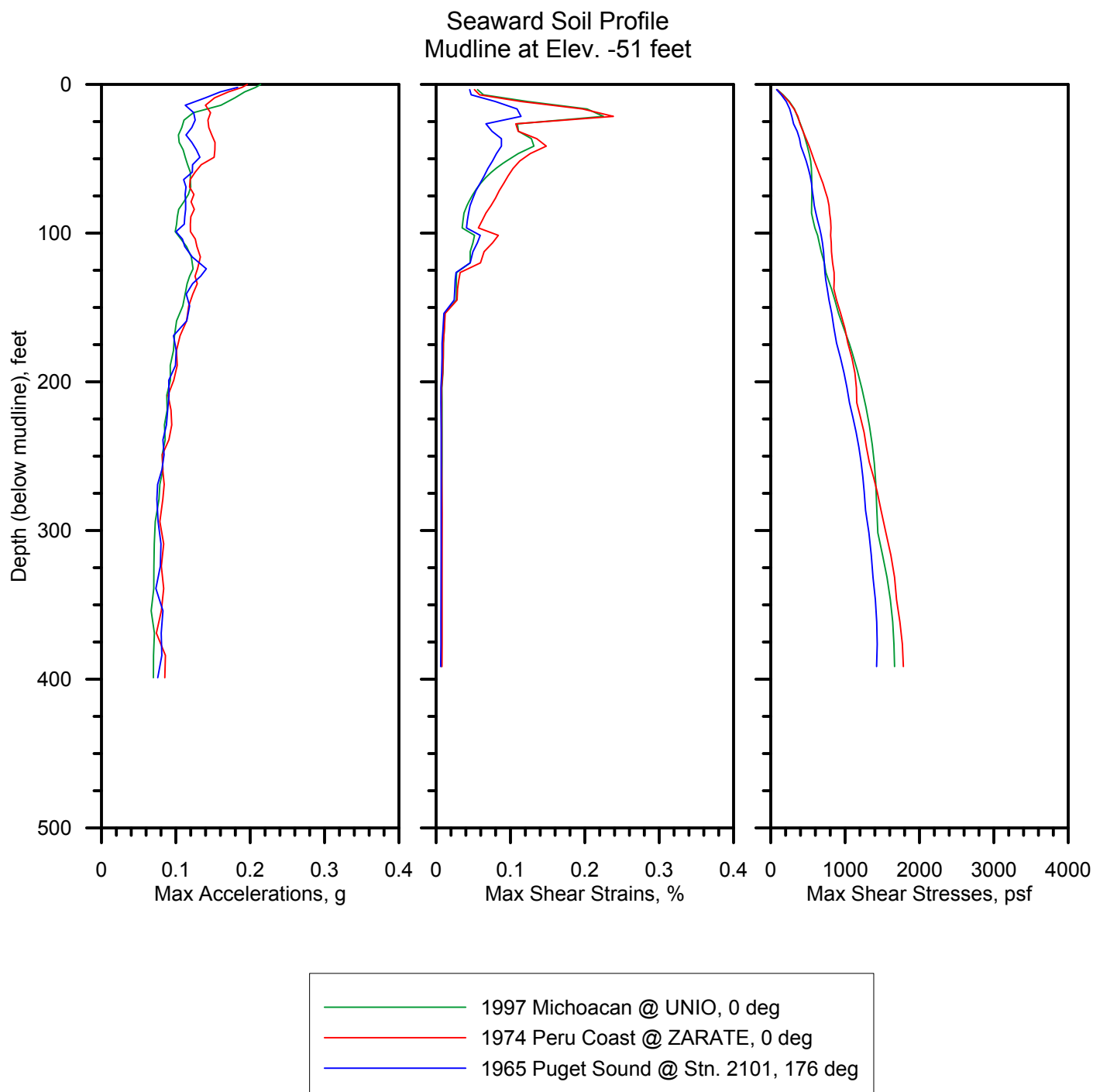


FIGURE C-32

Calculated Maximum Accelerations, Shear Strains and Shear Stresses vs. Depth  
Seaward Soil Profile, OLE  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

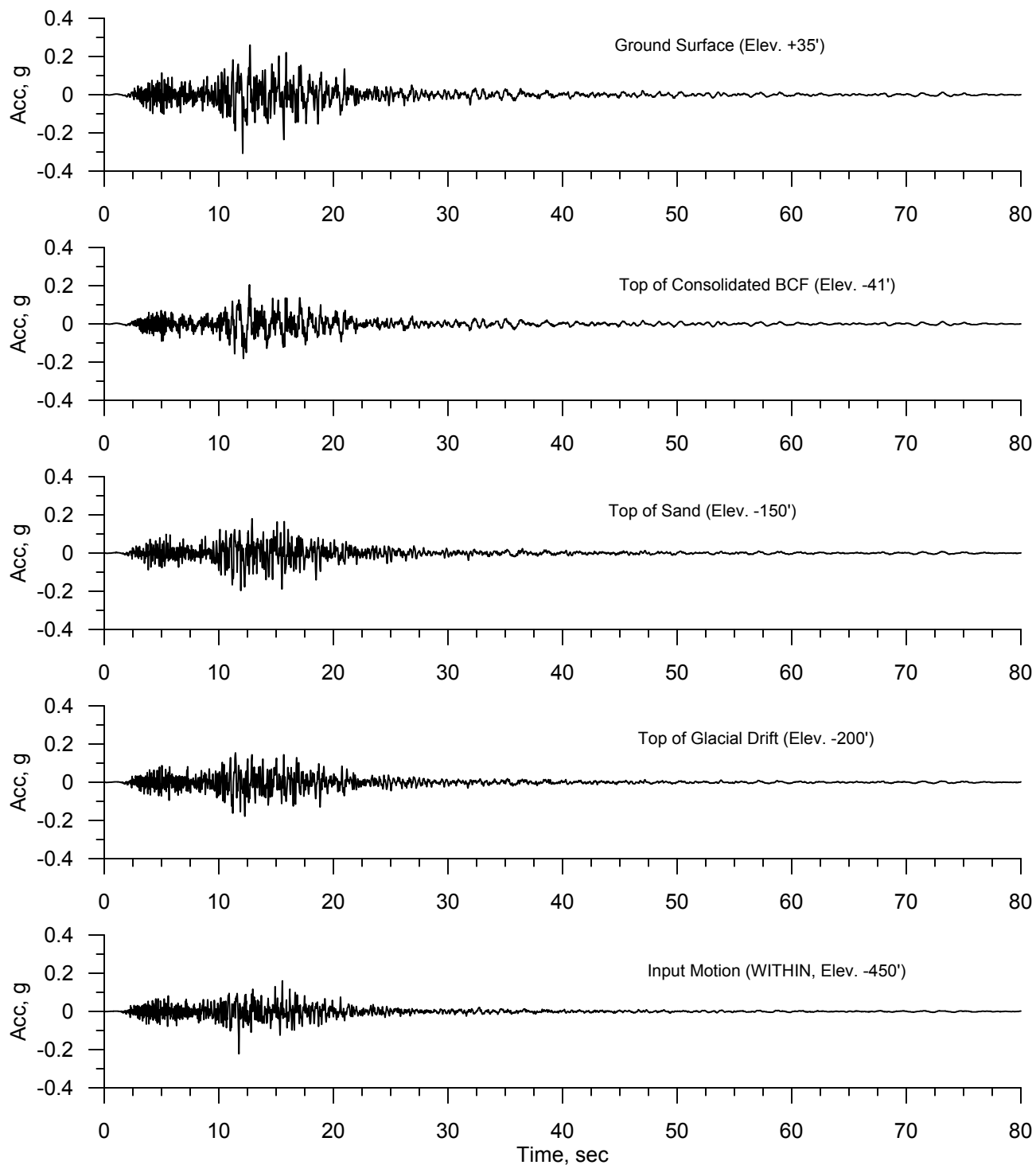


FIGURE C-33  
 Calculated Time Histories - CLE  
 2001 Nisqually Earthquake at PCEP Station, 0 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

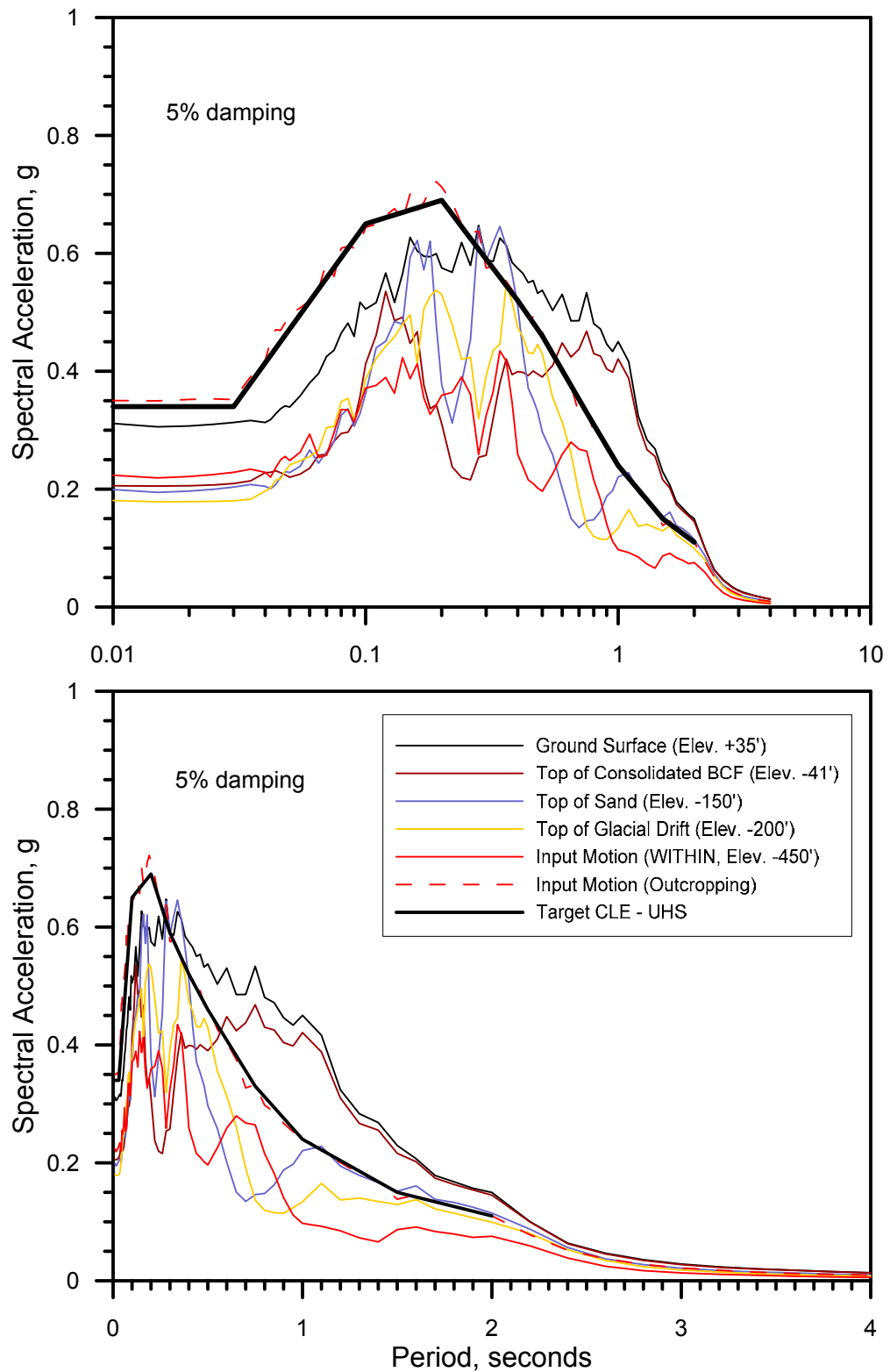


FIGURE C-34  
 Calculated Response Spectra - CLE  
 2001 Nisqually Earthquake at PCEP Station, 0 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

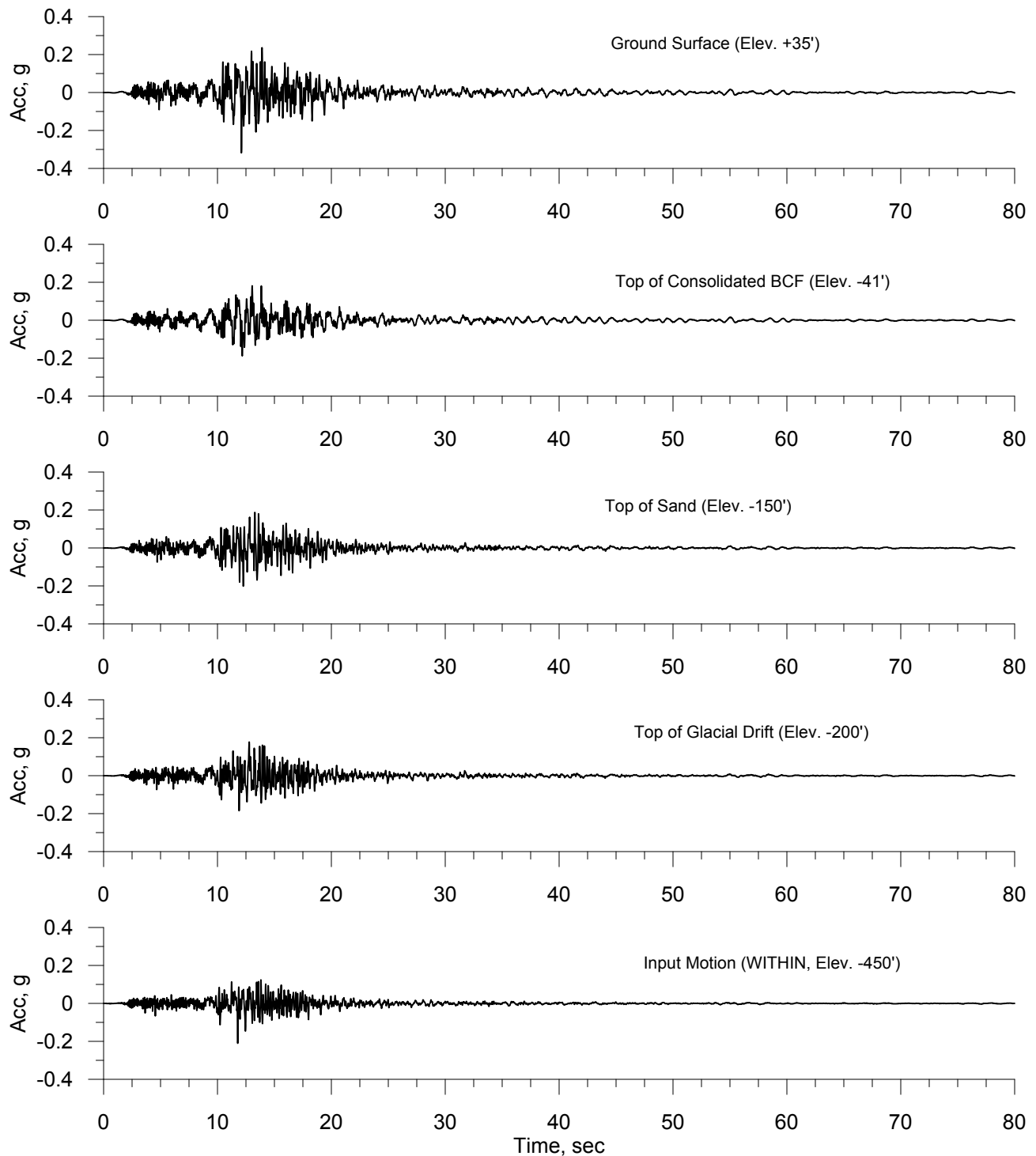


FIGURE C-35  
Calculated Time Histories - CLE  
2001 Nisqually Earthquake at PCEP Station, 90 deg component  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

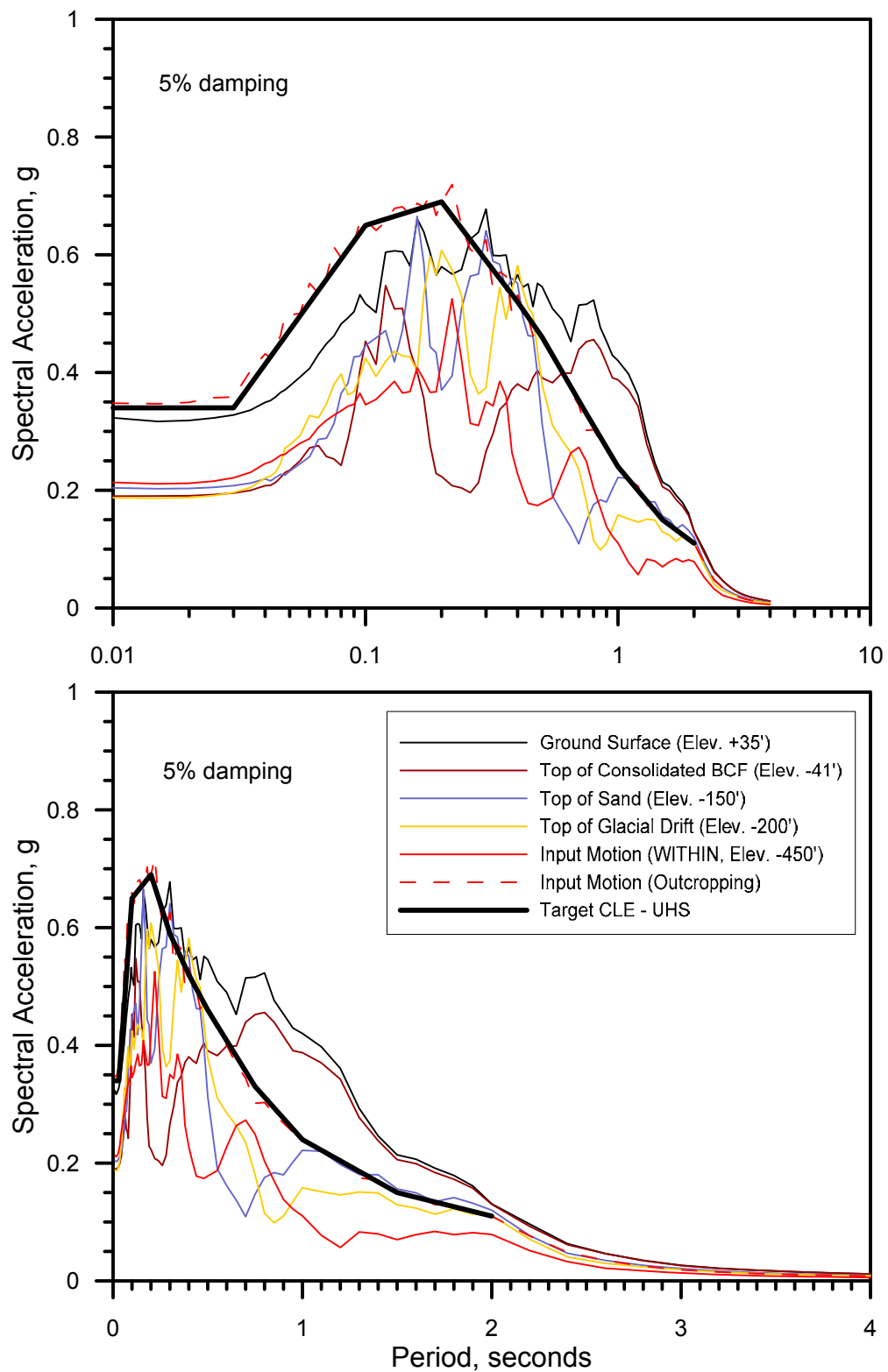


FIGURE C-36  
 Calculated Response Spectra - CLE  
 2001 Nisqually Earthquake at PCEP Station, 90 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

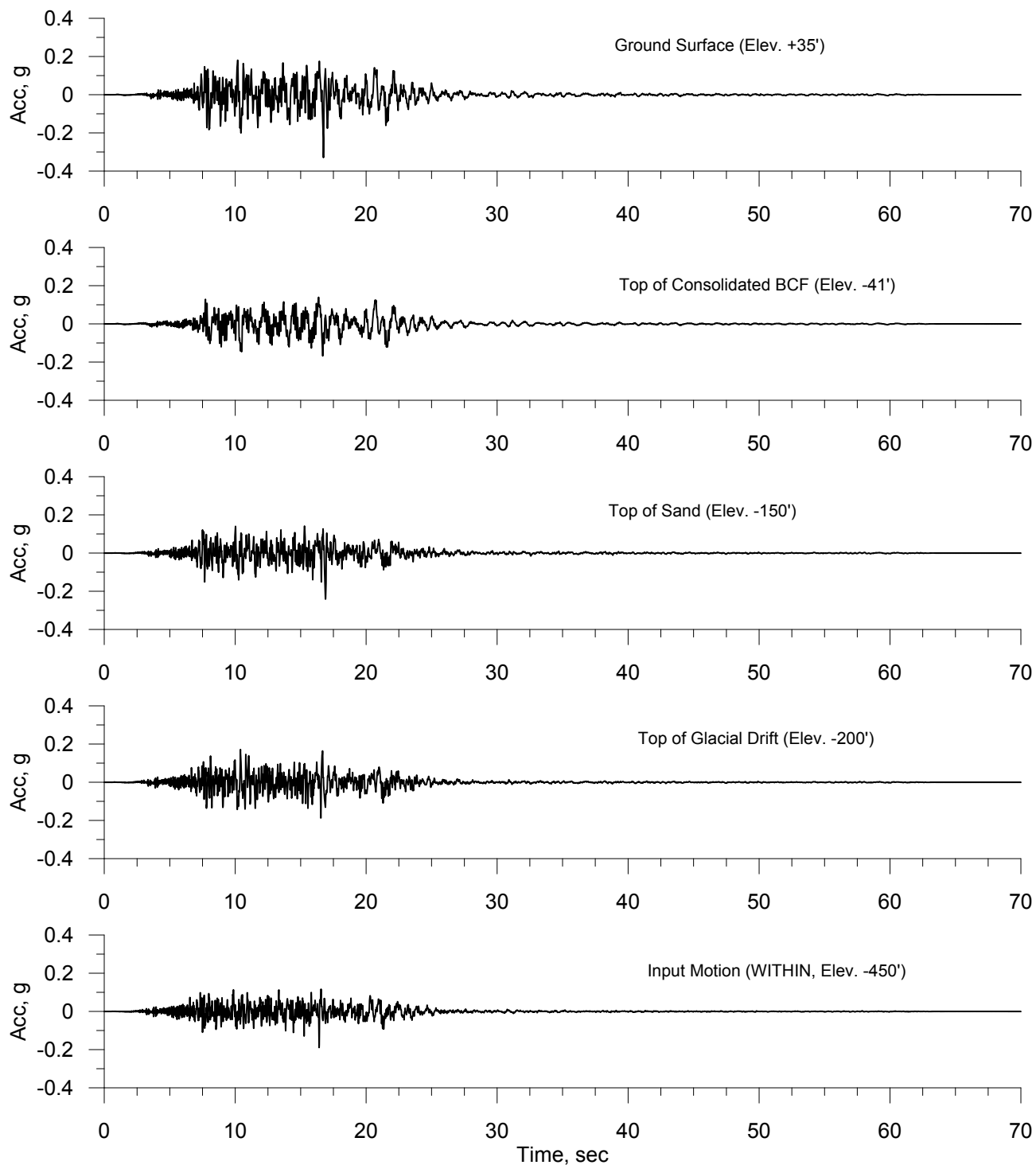


FIGURE C-37  
Calculated Time Histories - CLE  
1997 Michoacan Earthquake at CALE Station, 180 deg component  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

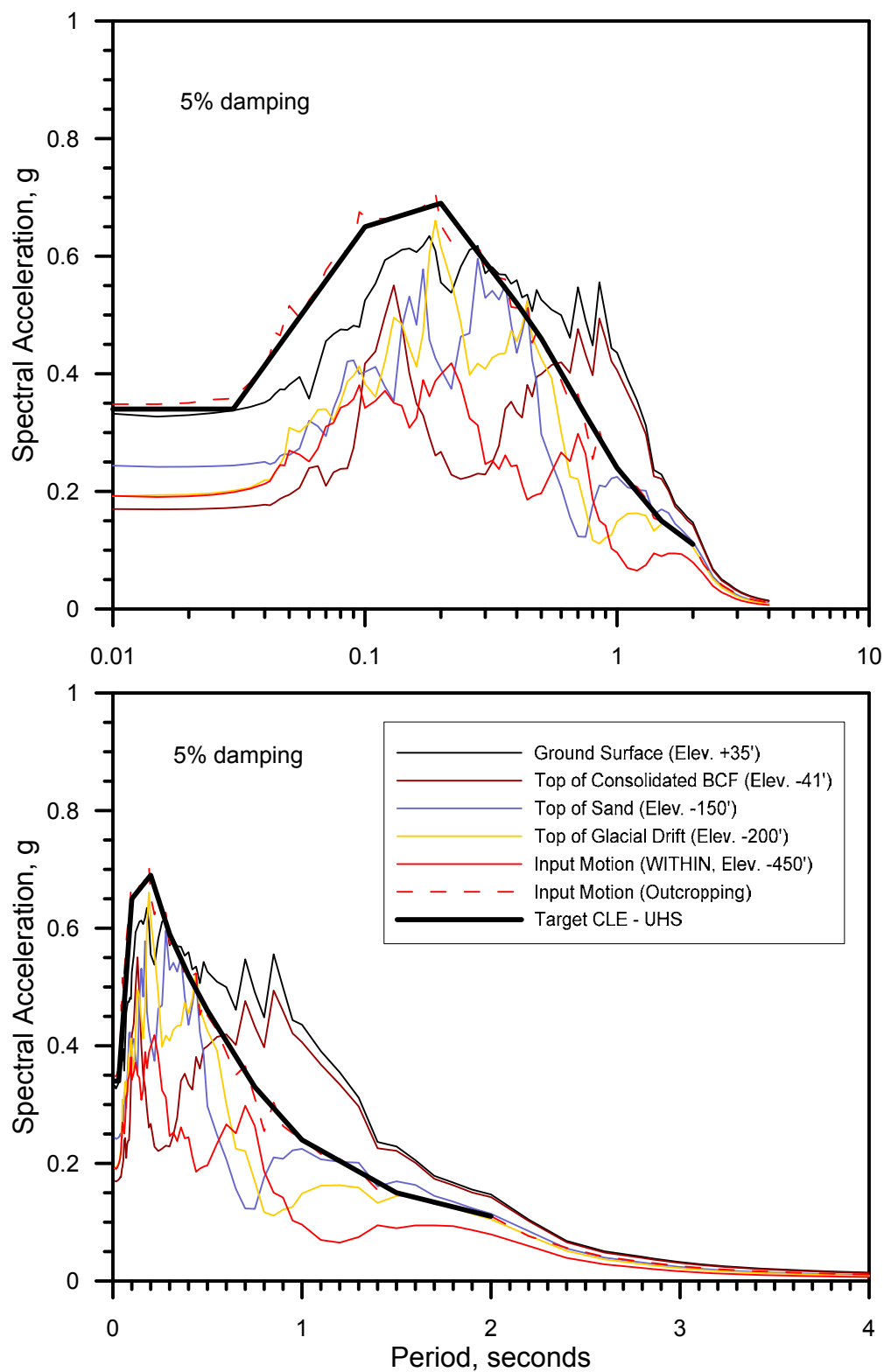


FIGURE C-38  
 Calculated Response Spectra - CLE  
 1997 Michoacan Earthquake at CALE Station, 180 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



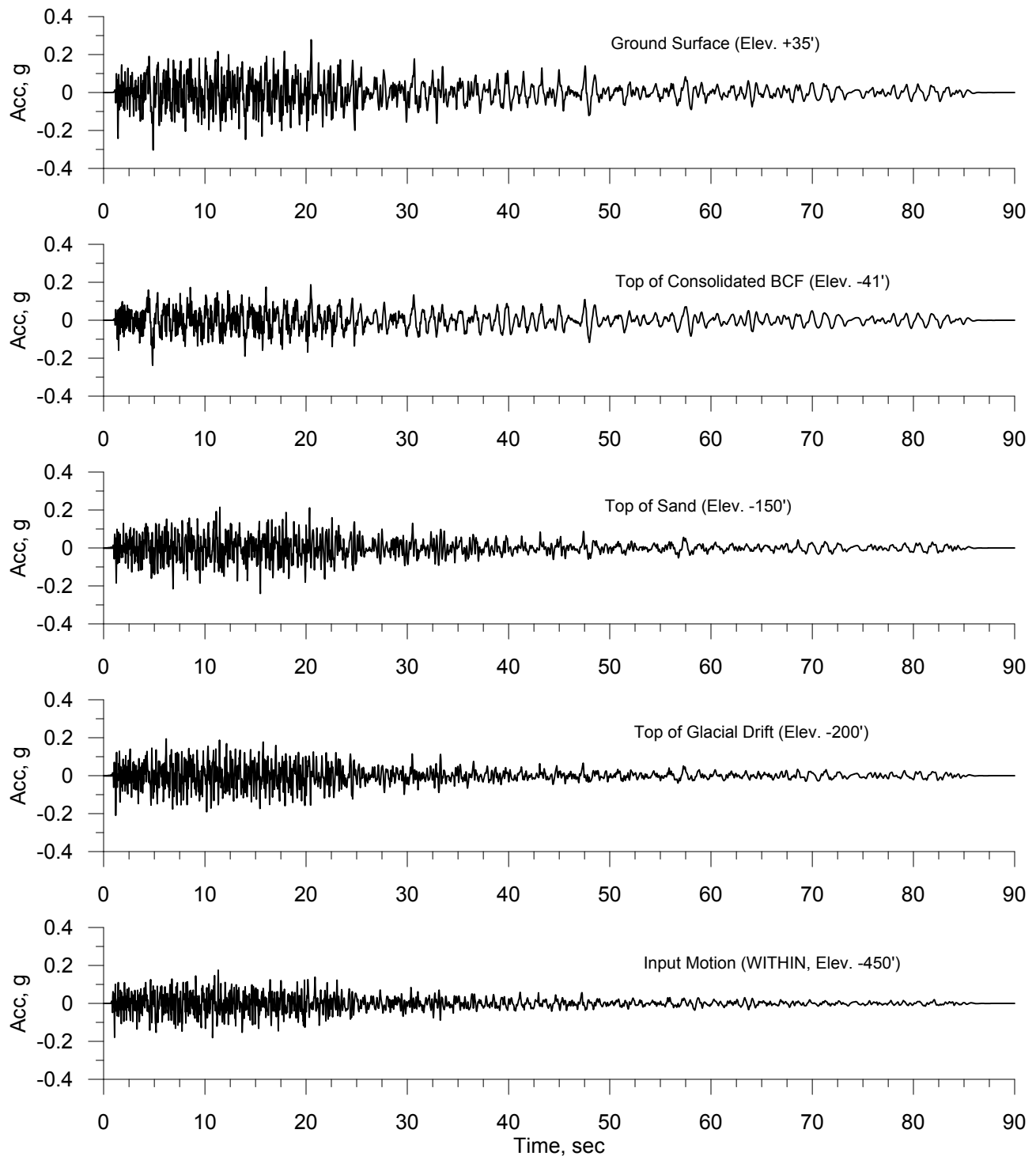


FIGURE C-39  
Calculated Time Histories - CLE  
1949 Western WA Earthquake at Olympia Station, 356 deg component  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

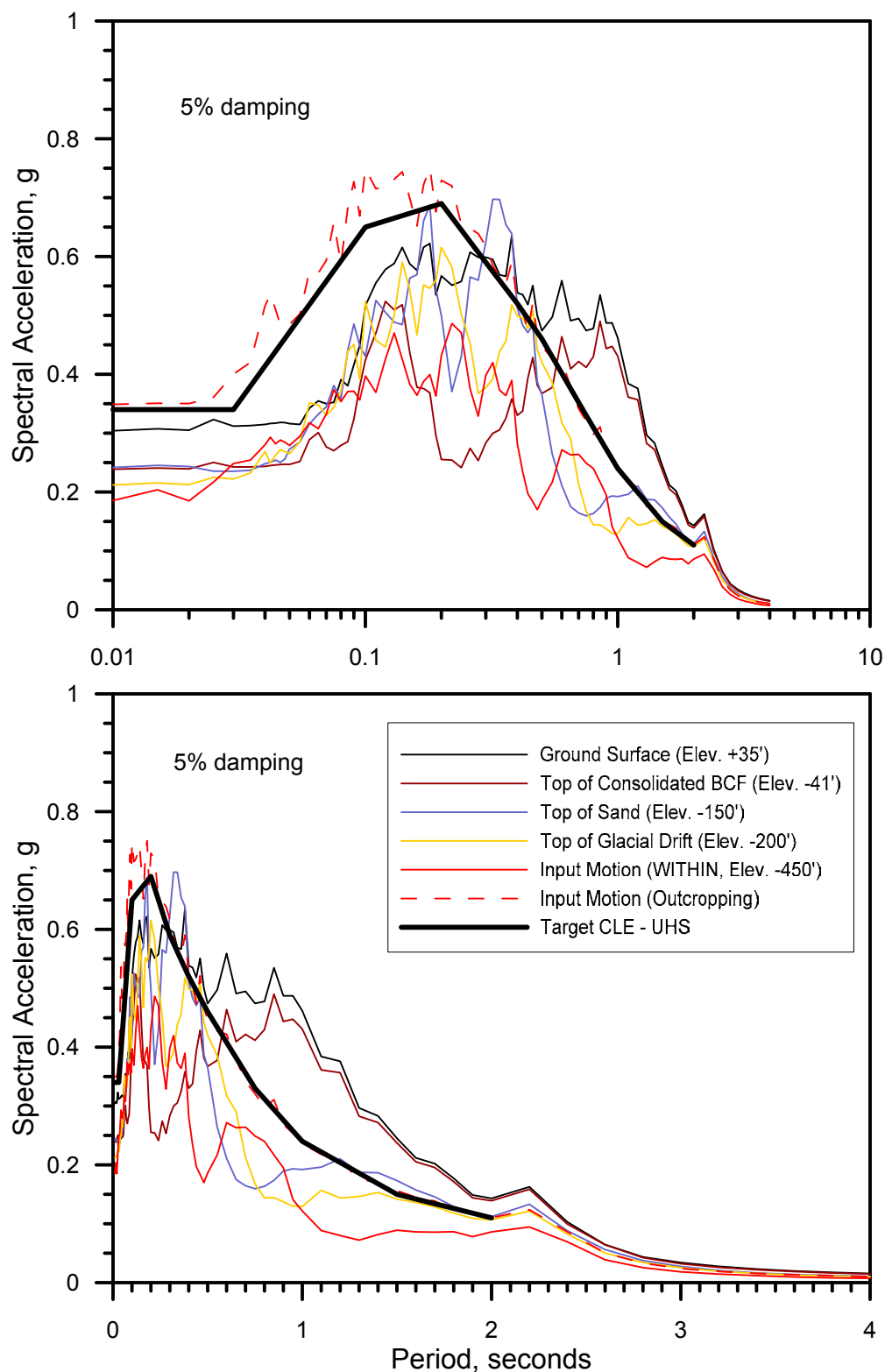


FIGURE C-40  
 Calculated Response Spectra - CLE  
 1949 Western WA Earthquake at Olympia Station, 356 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

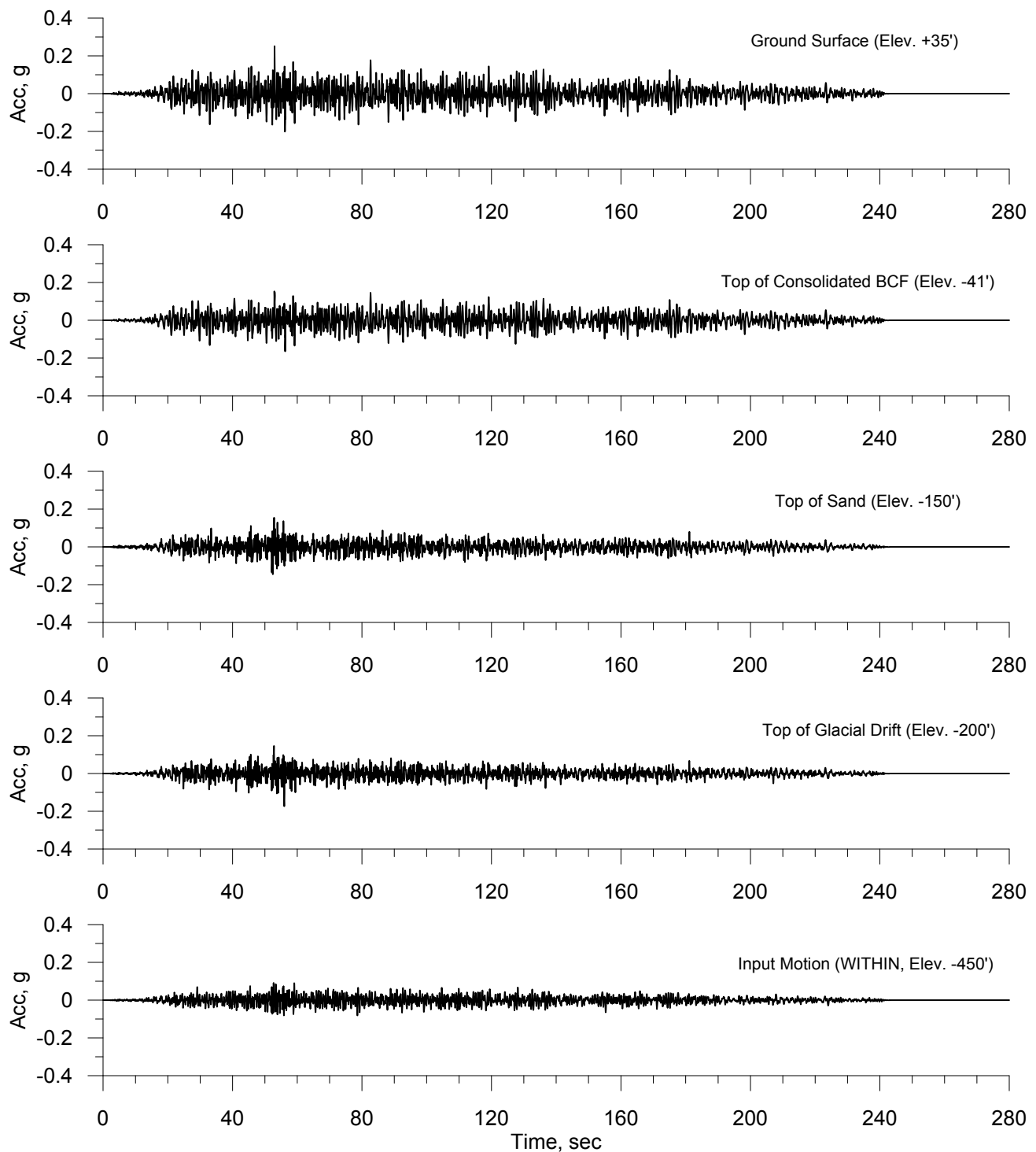


FIGURE C-41  
Calculated Time Histories - CLE  
Cascadia Megathrust Synthetic Earthquake, AAL005  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

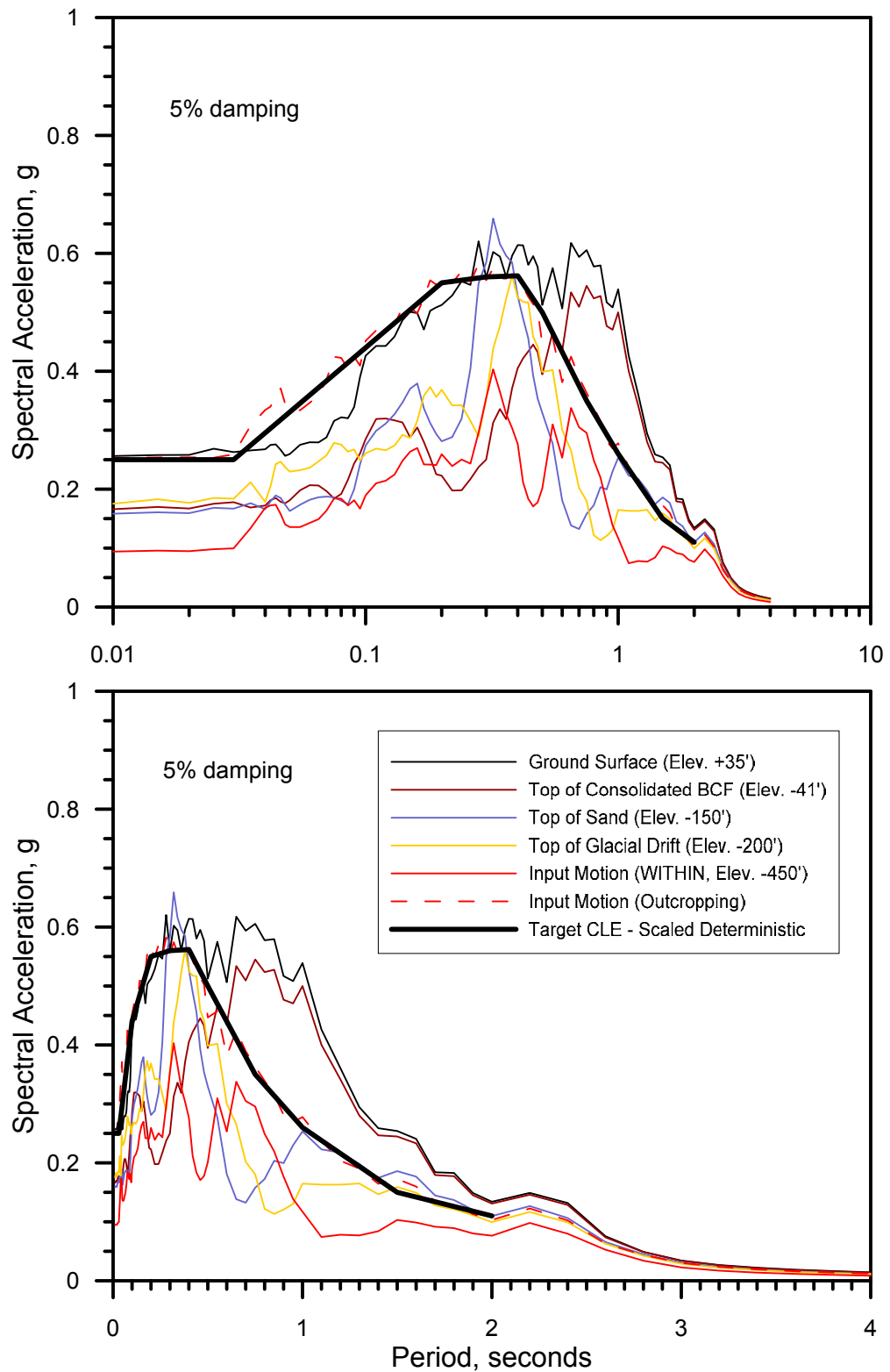


FIGURE C-42  
 Calculated Response Spectra - CLE  
 Cascadia Megathrust Synthetic Earthquake, ALL005  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

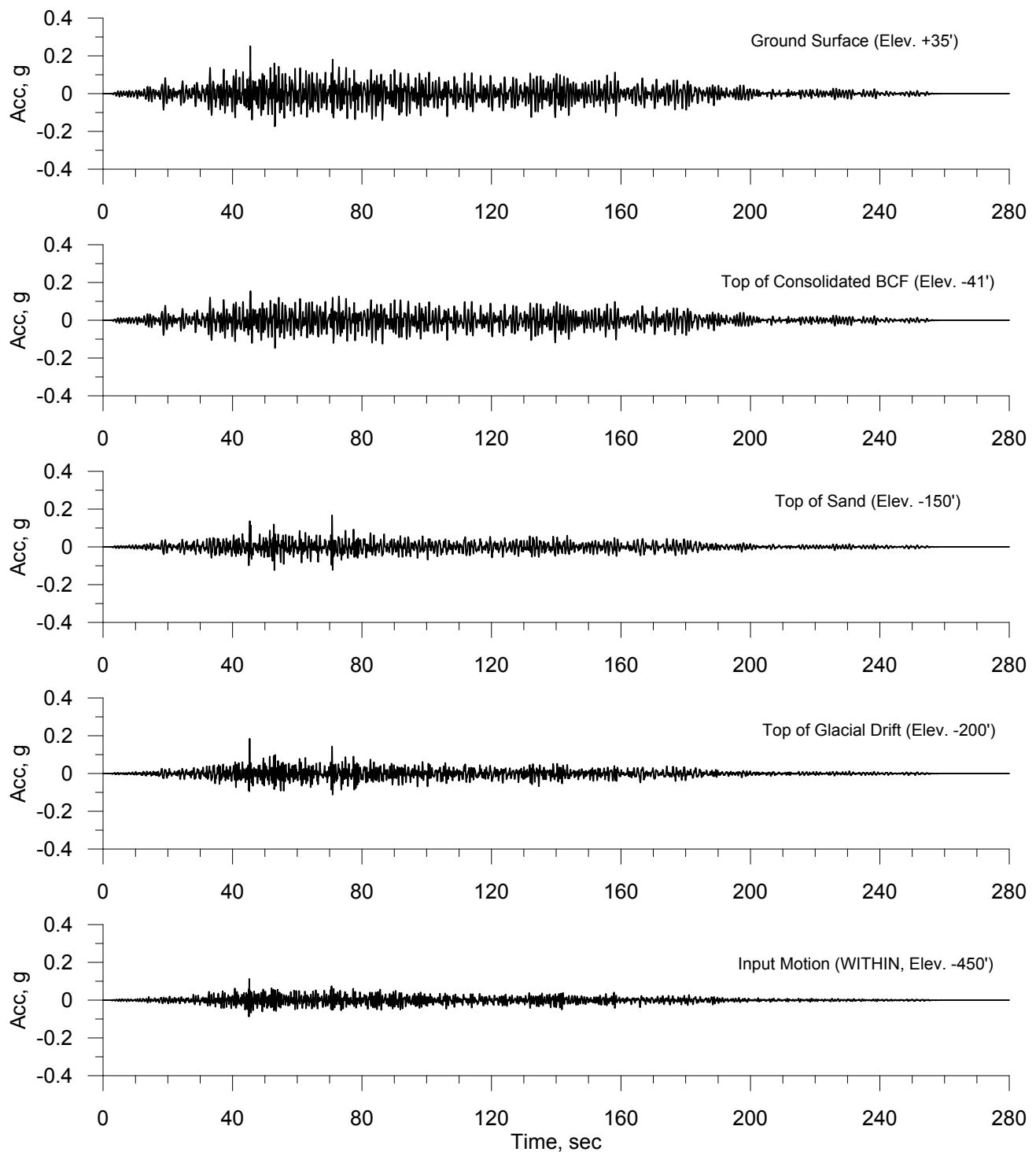


FIGURE C-43  
Calculated Time Histories - CLE  
Cascadia Megathrust Synthetic Earthquake, AAL009  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

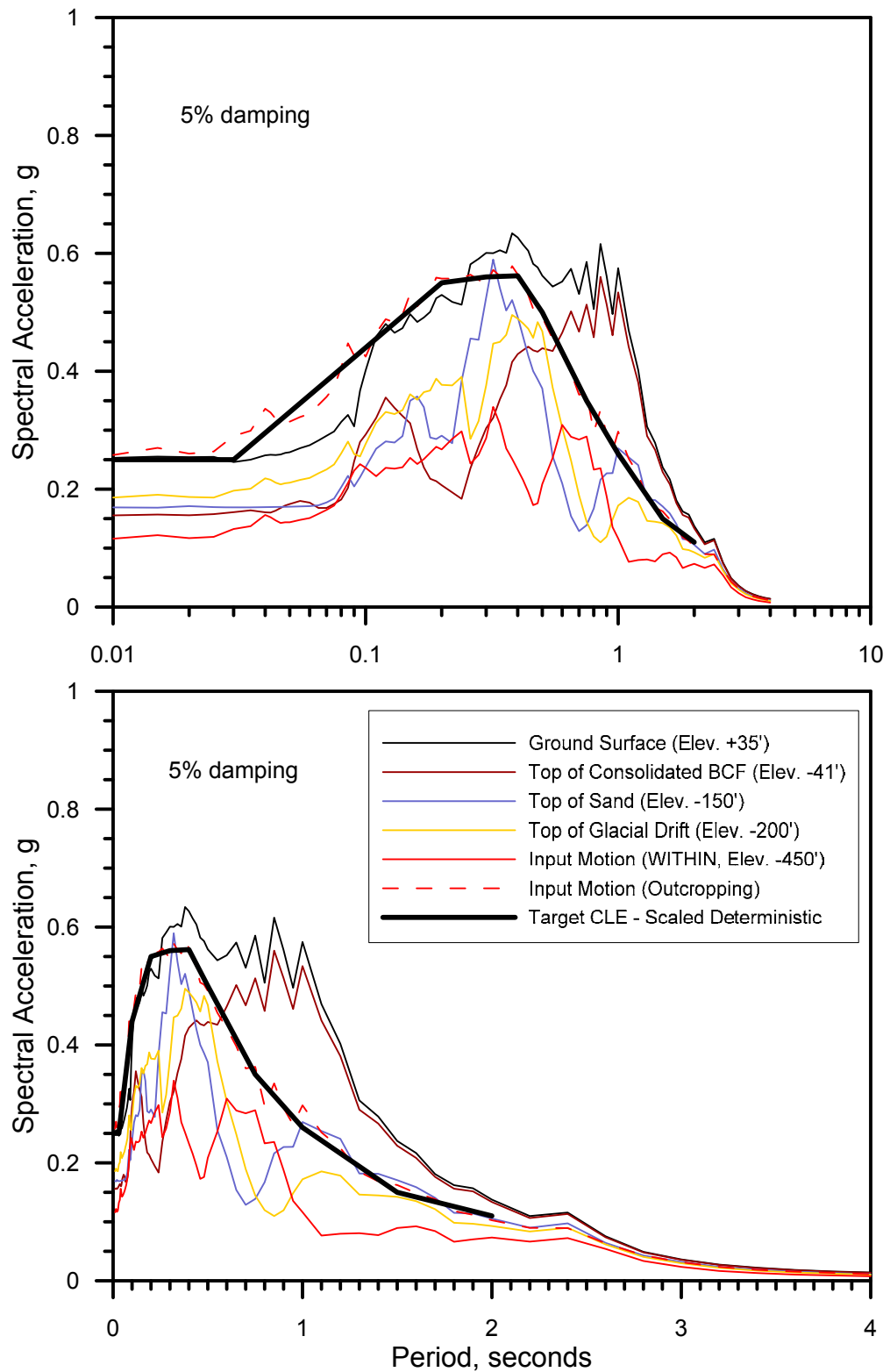


FIGURE C-44  
 Calculated Response Spectra - CLE  
 Cascadia Megathrust Synthetic Earthquake, ALL009  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

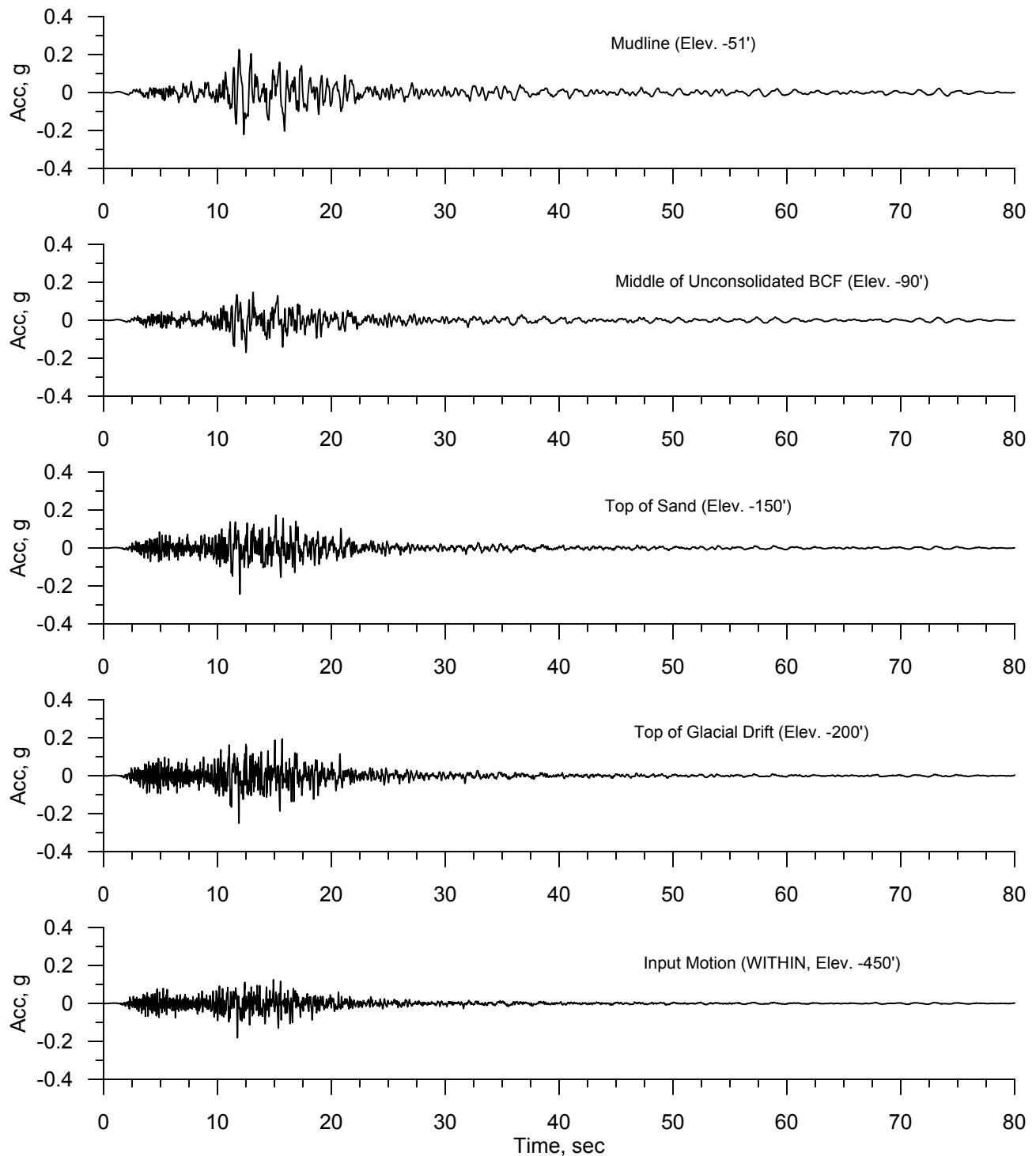


FIGURE C-45  
Calculated Time Histories - CLE  
2001 Nisqually Earthquake at PCEP Station, 0 deg component  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

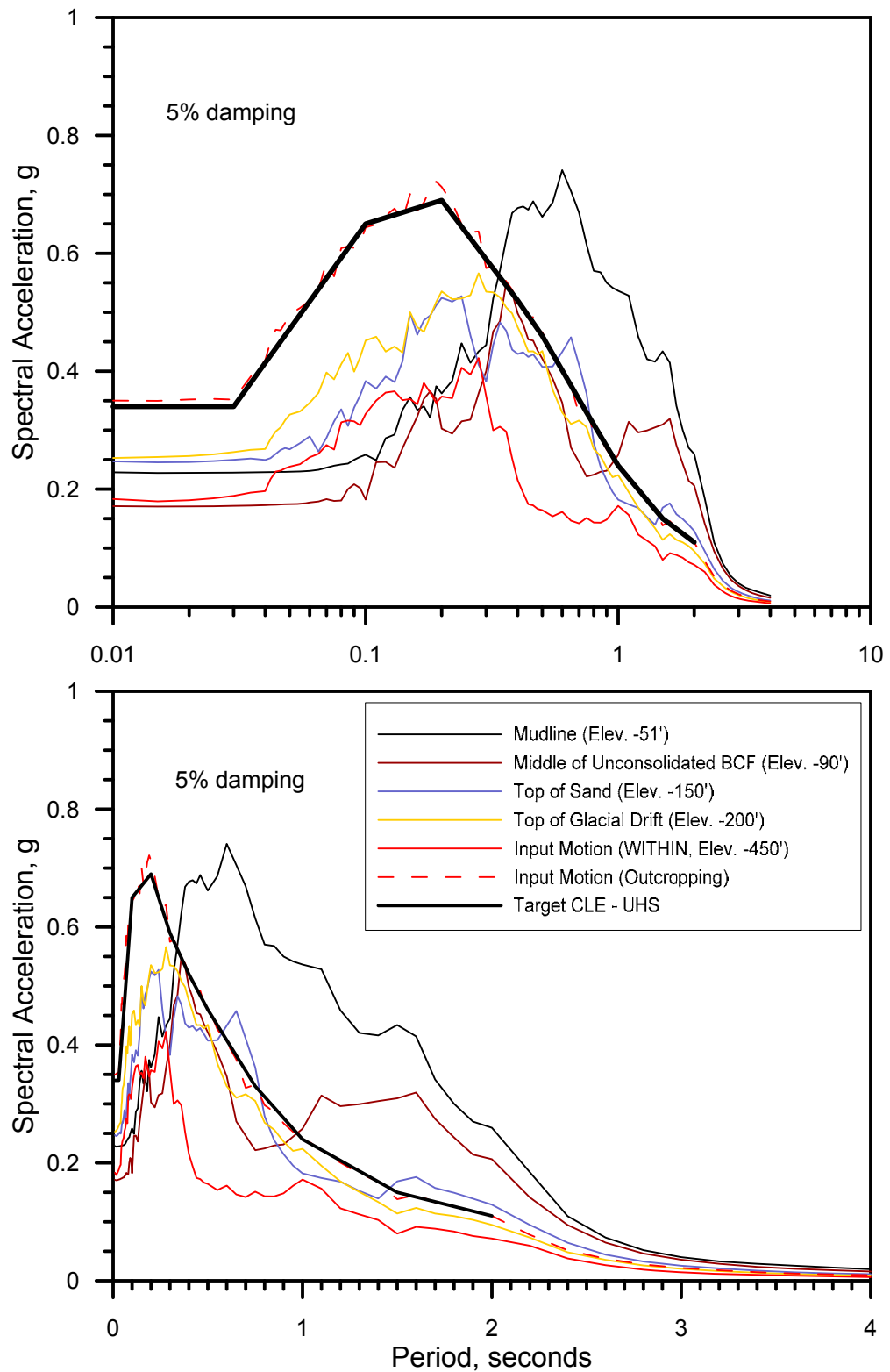


FIGURE C-46  
 Calculated Response Spectra - CLE  
 2001 Nisqually Earthquake at PCEP Station, 0 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



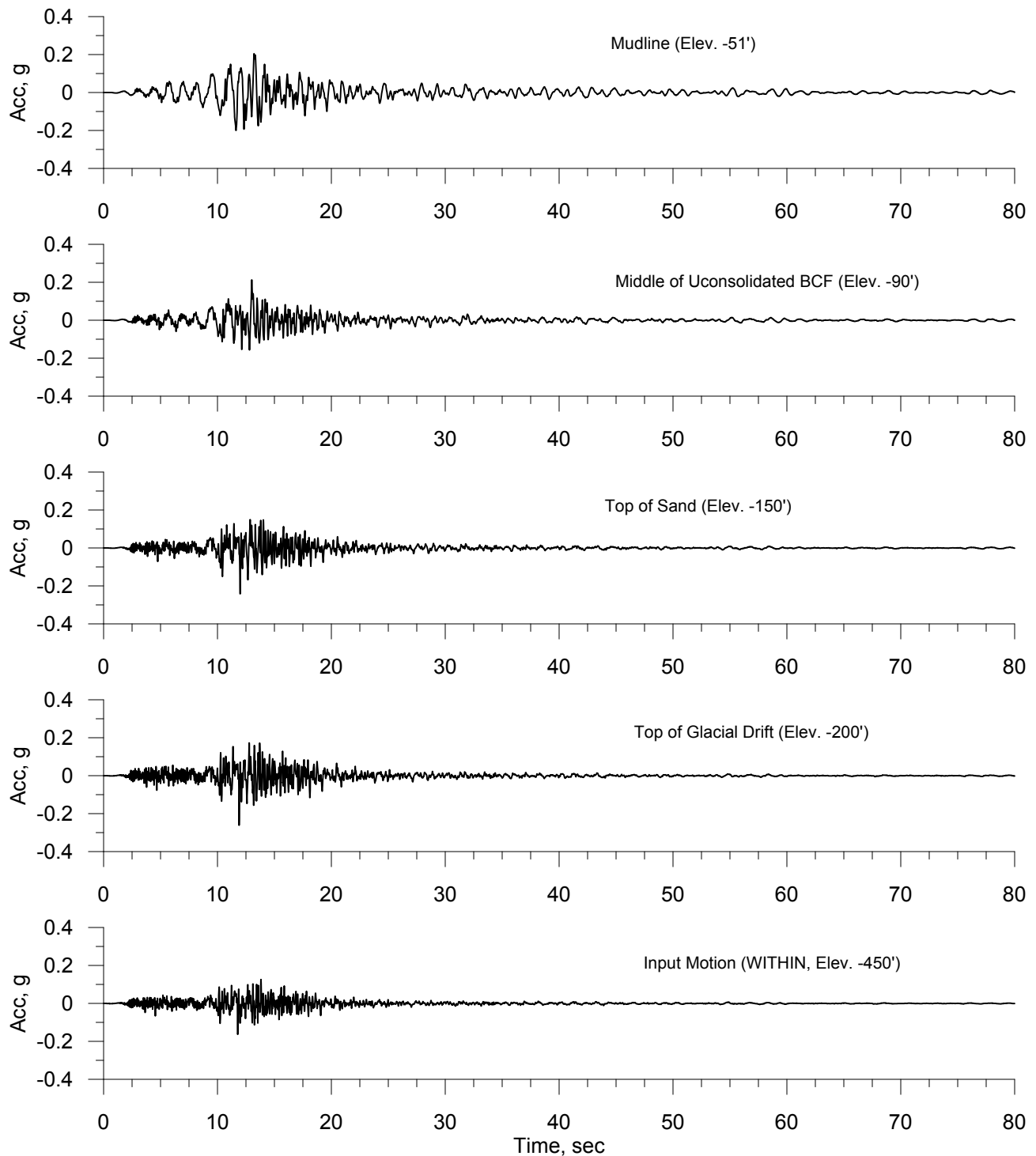


FIGURE C-47  
Calculated Time Histories - CLE  
2001 Nisqually Earthquake at PCEP Station, 90 deg component  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

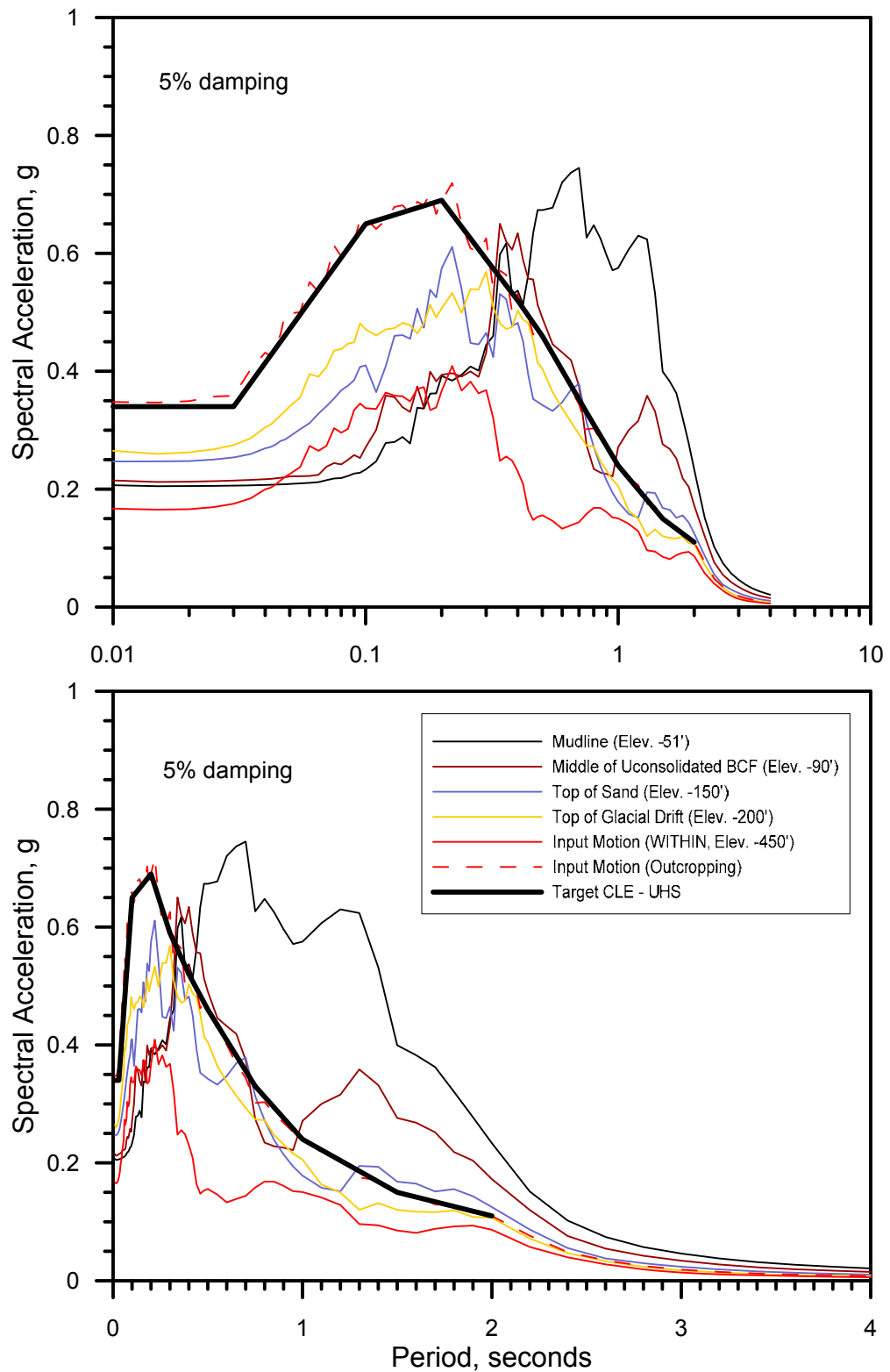


FIGURE C-48  
 Calculated Response Spectra - CLE  
 2001 Nisqually Earthquake at PCEP Station, 90 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

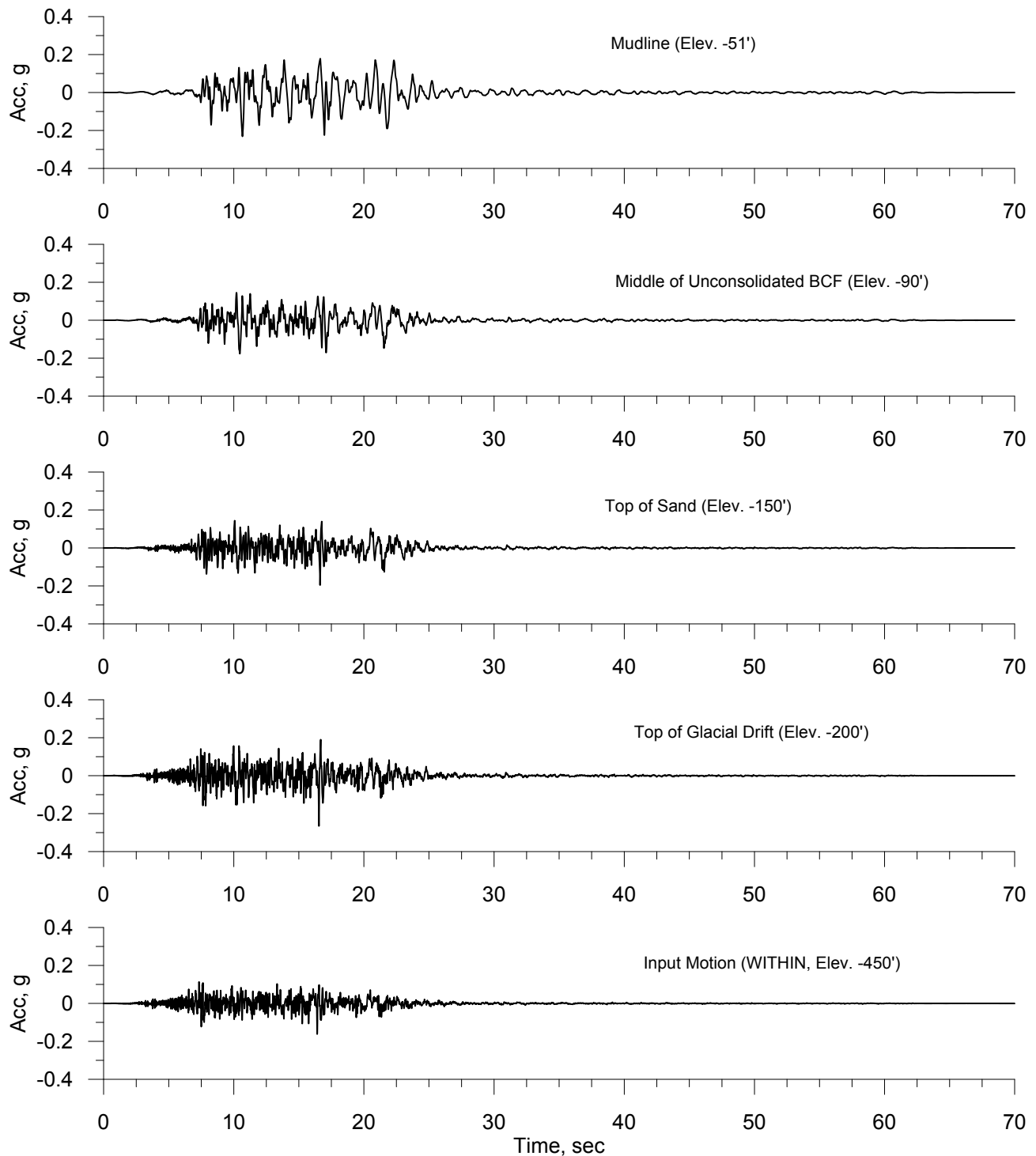


FIGURE C-49  
Calculated Time Histories - CLE  
1997 Michoacan Earthquake at CALE Station, 180 deg component  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

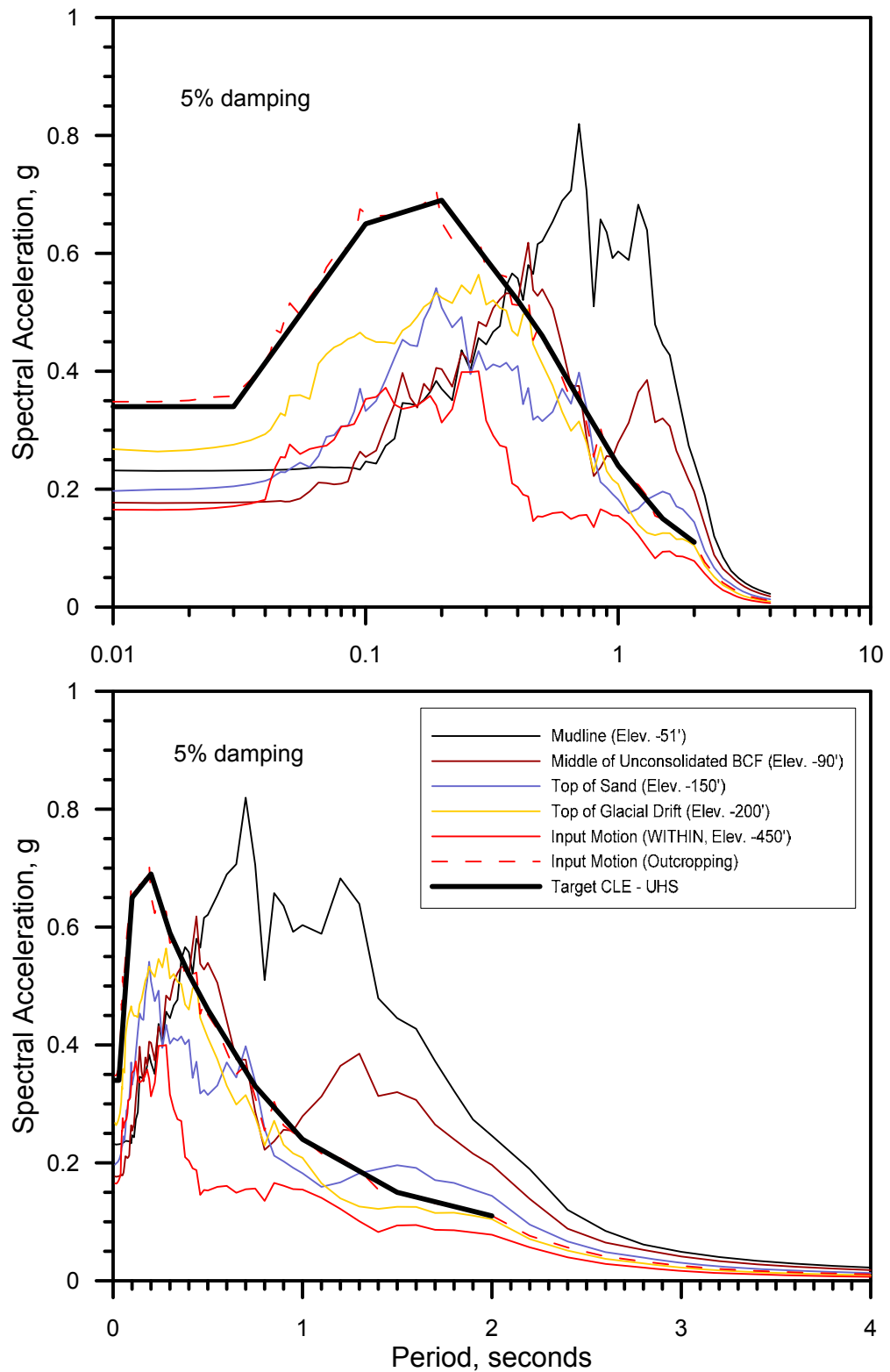


FIGURE C-50  
 Calculated Response Spectra - CLE  
 1997 Michoacan Earthquake at CALE Station, 180 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

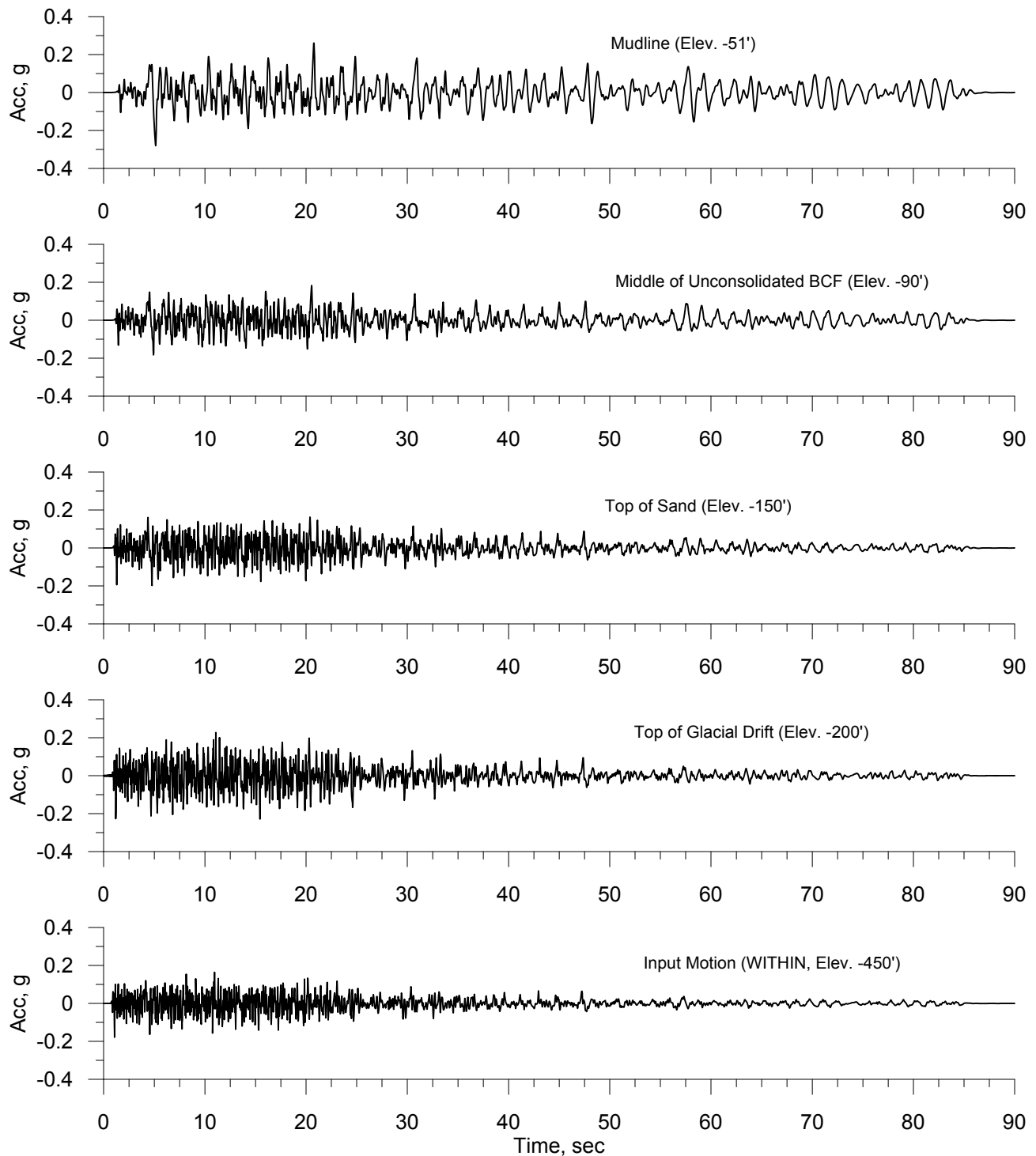


FIGURE C-51  
Calculated Time Histories - CLE  
1949 Western WA Earthquake at Olympia Station, 356 deg component  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

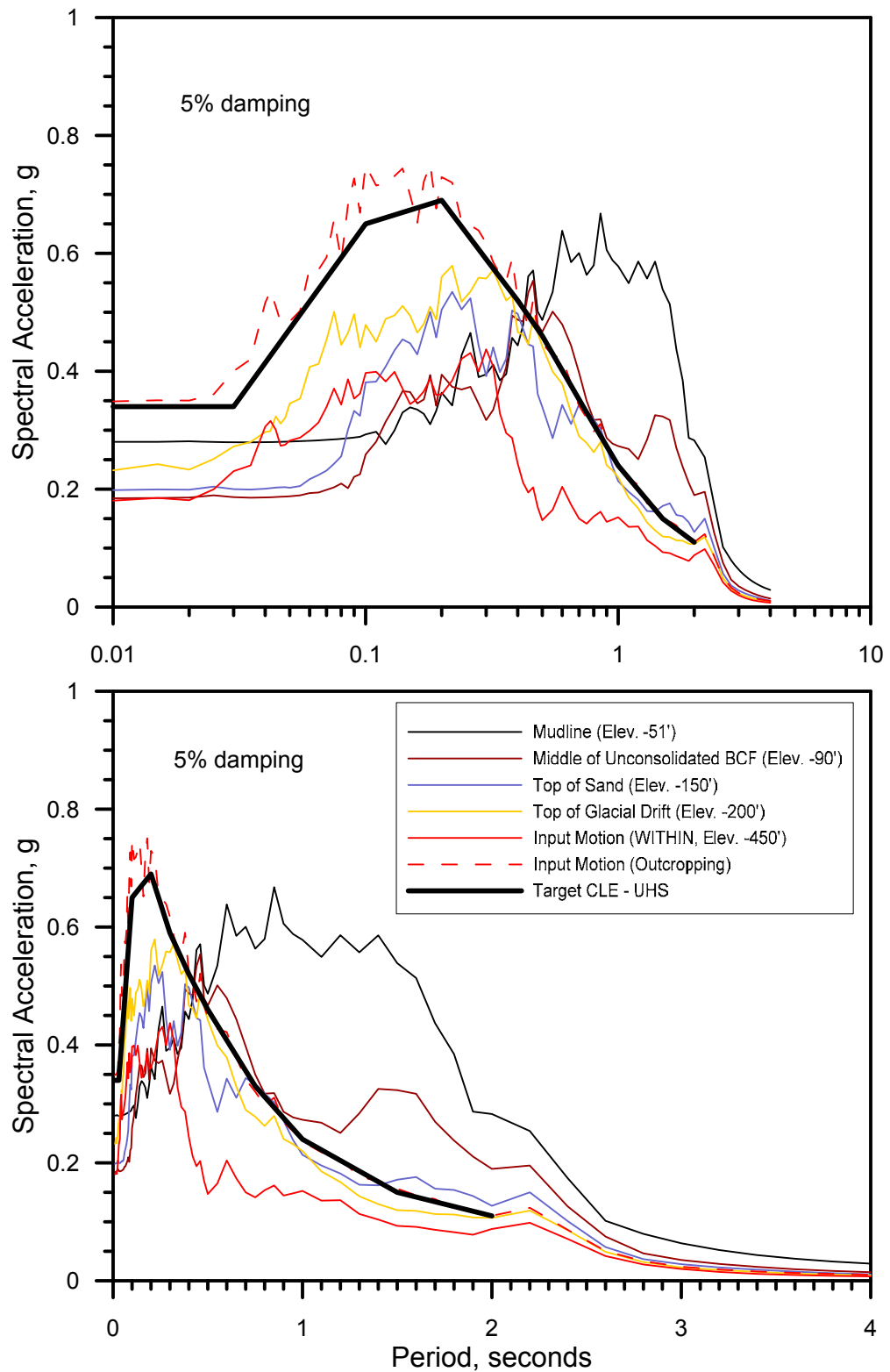


FIGURE C-52  
 Calculated Response Spectra - CLE  
 1949 Western WA Earthquake at Olympia Station, 356 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

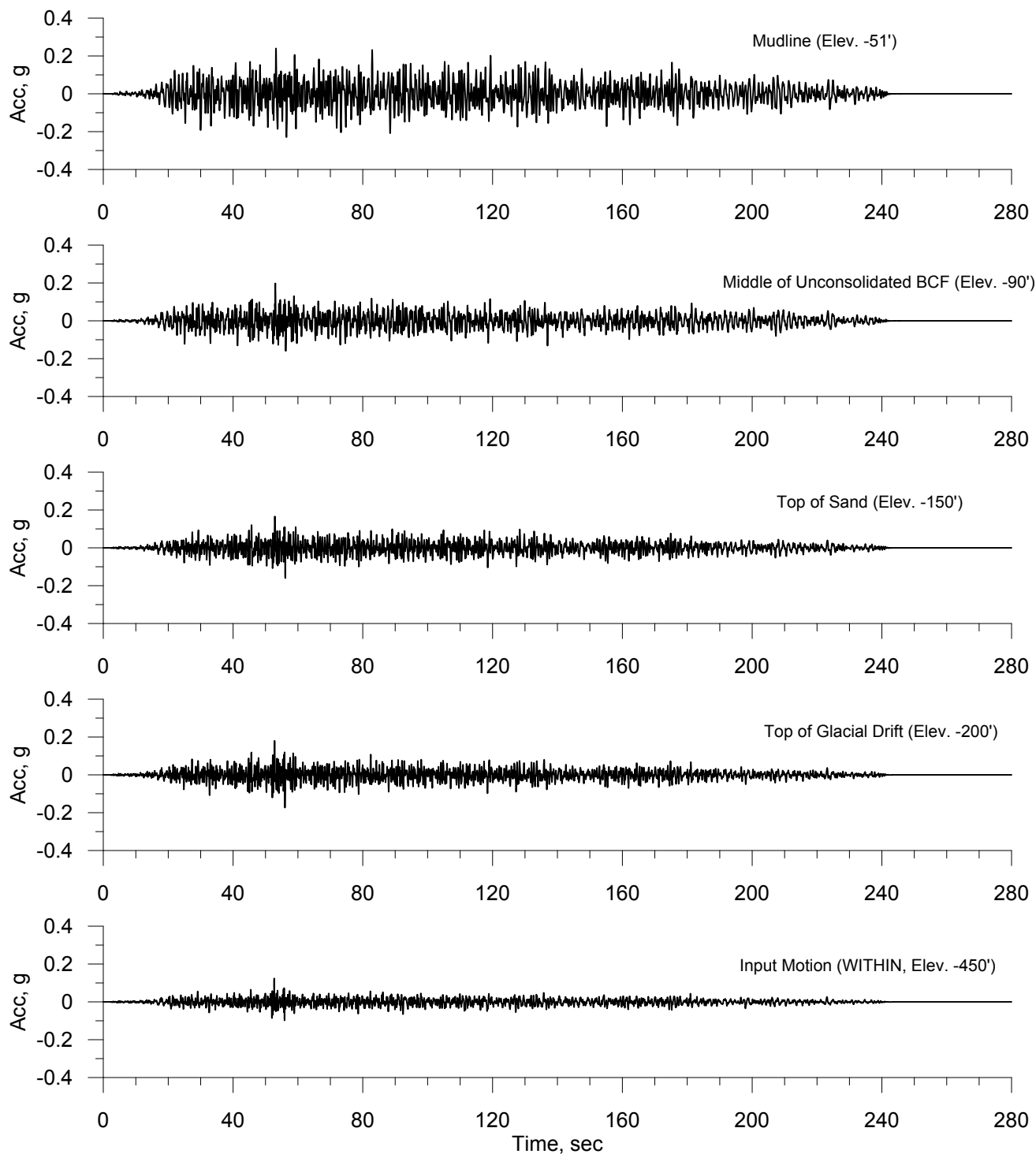


FIGURE C-53  
 Calculated Time Histories - CLE  
 Cascadia Megathrust Synthetic Earthquake, AAL005  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

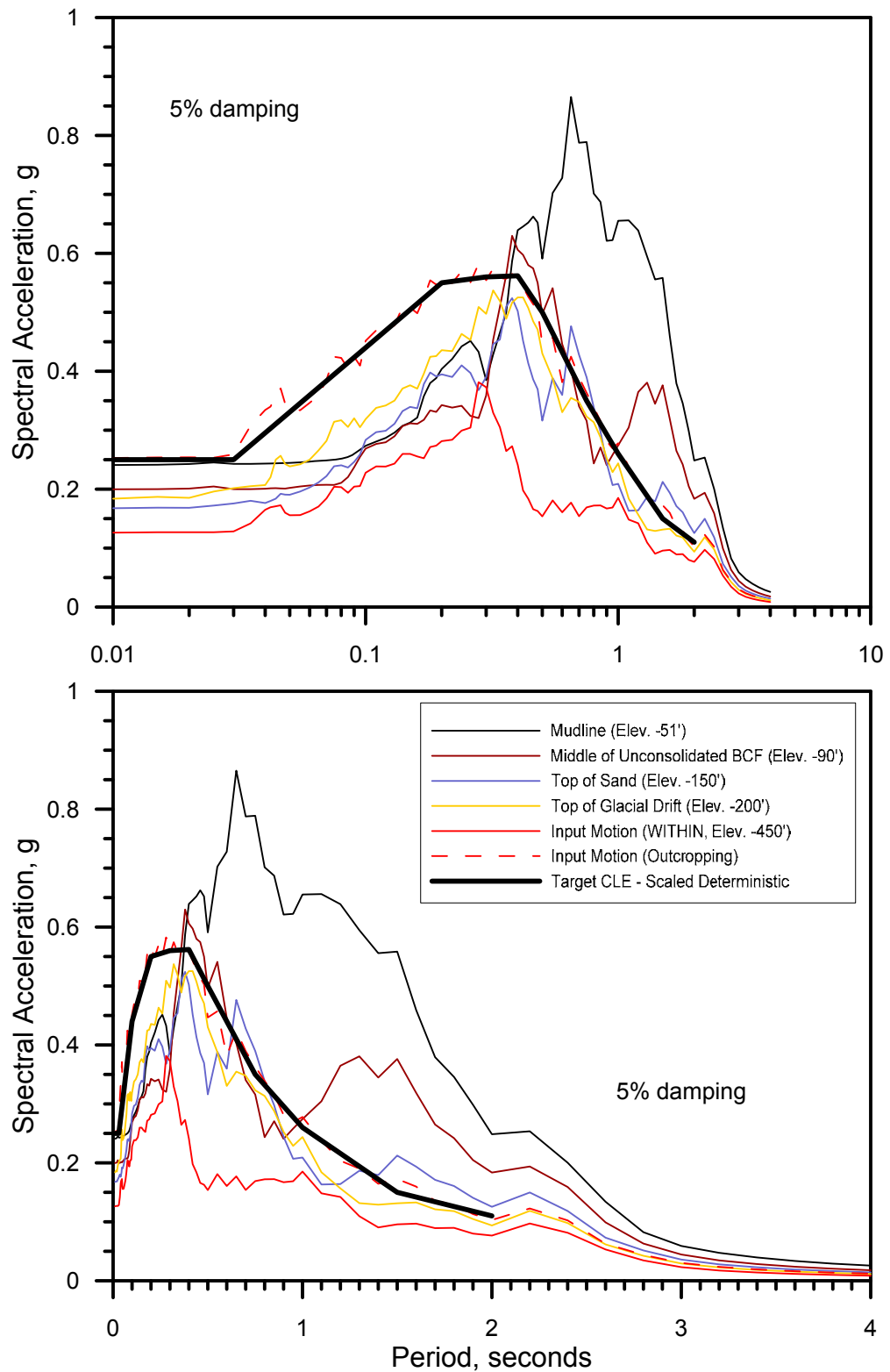


FIGURE C-54  
 Calculated Response Spectra - CLE  
 Cascadia Megathrust Synthetic Earthquake, ALL005  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



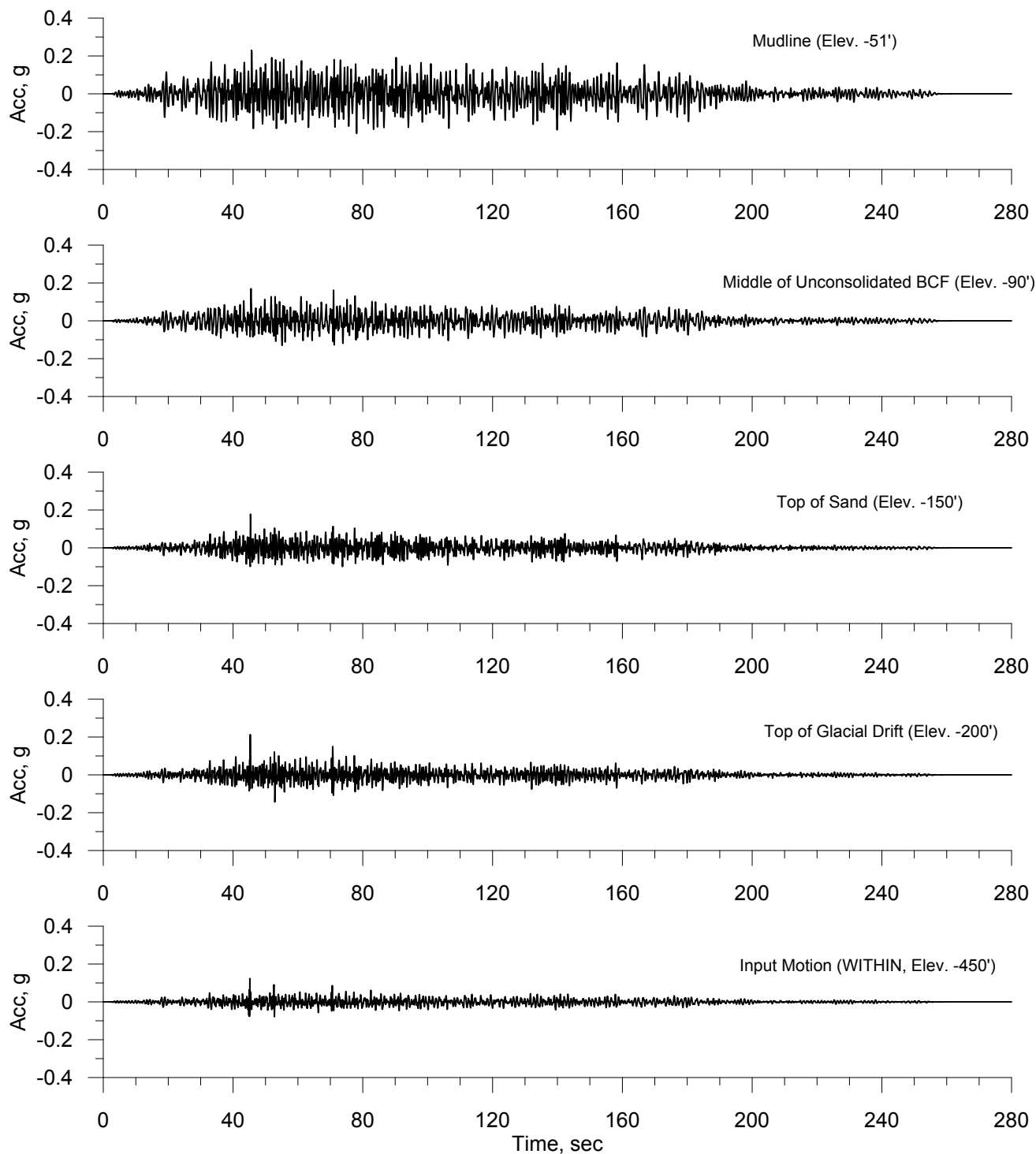


FIGURE C-55  
Calculated Time Histories - CLE  
Cascadia Megathrust Synthetic Earthquake, AAL009  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

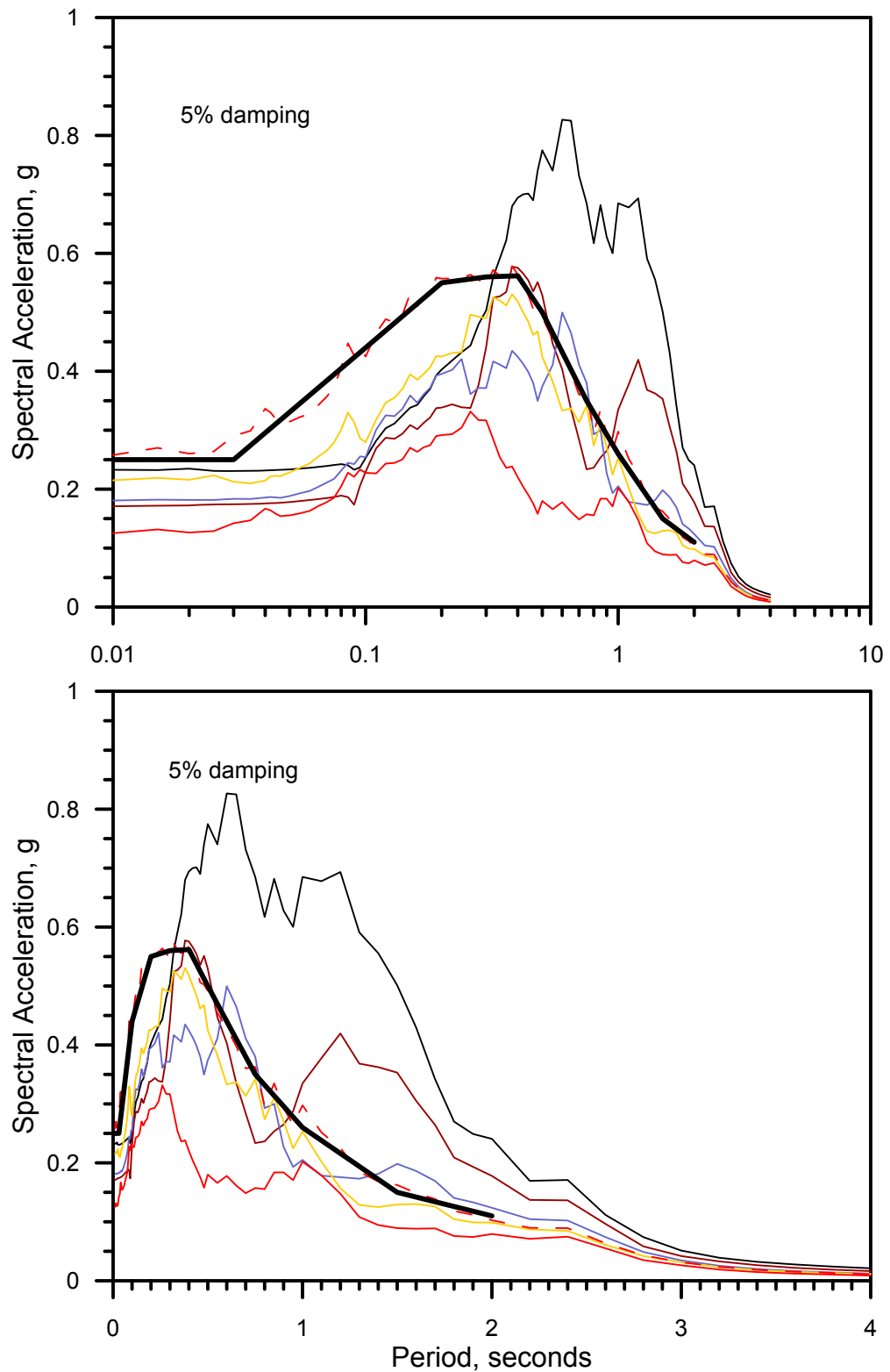


FIGURE C-56  
 Calculated Response Spectra - CLE  
 Cascadia Megathrust Synthetic Earthquake, ALL009  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

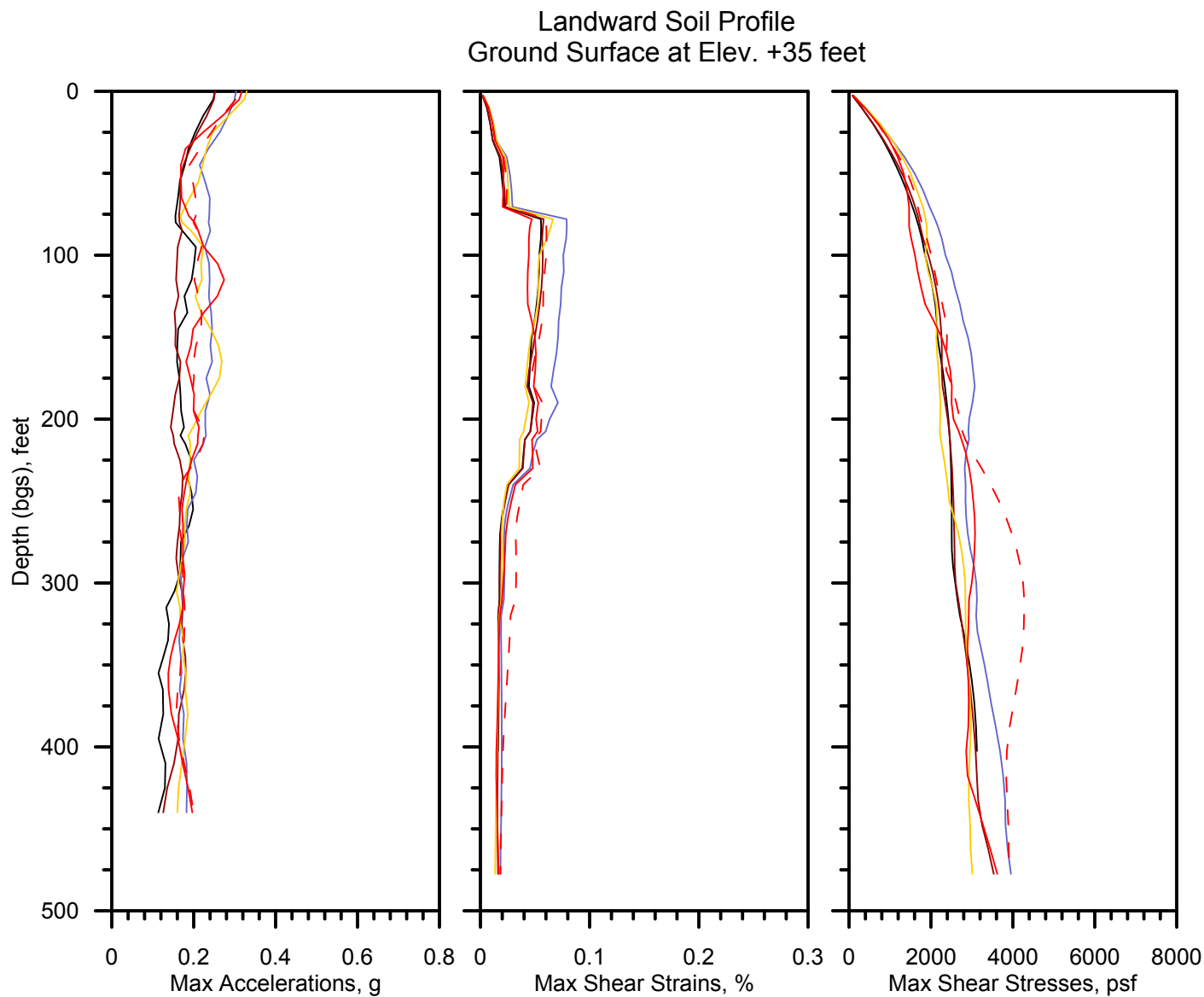


FIGURE C-57  
Calculated Maximum Accelerations, Shear Strains and Shear Stresses vs. Depth  
Landward Soil Profile, CLE  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

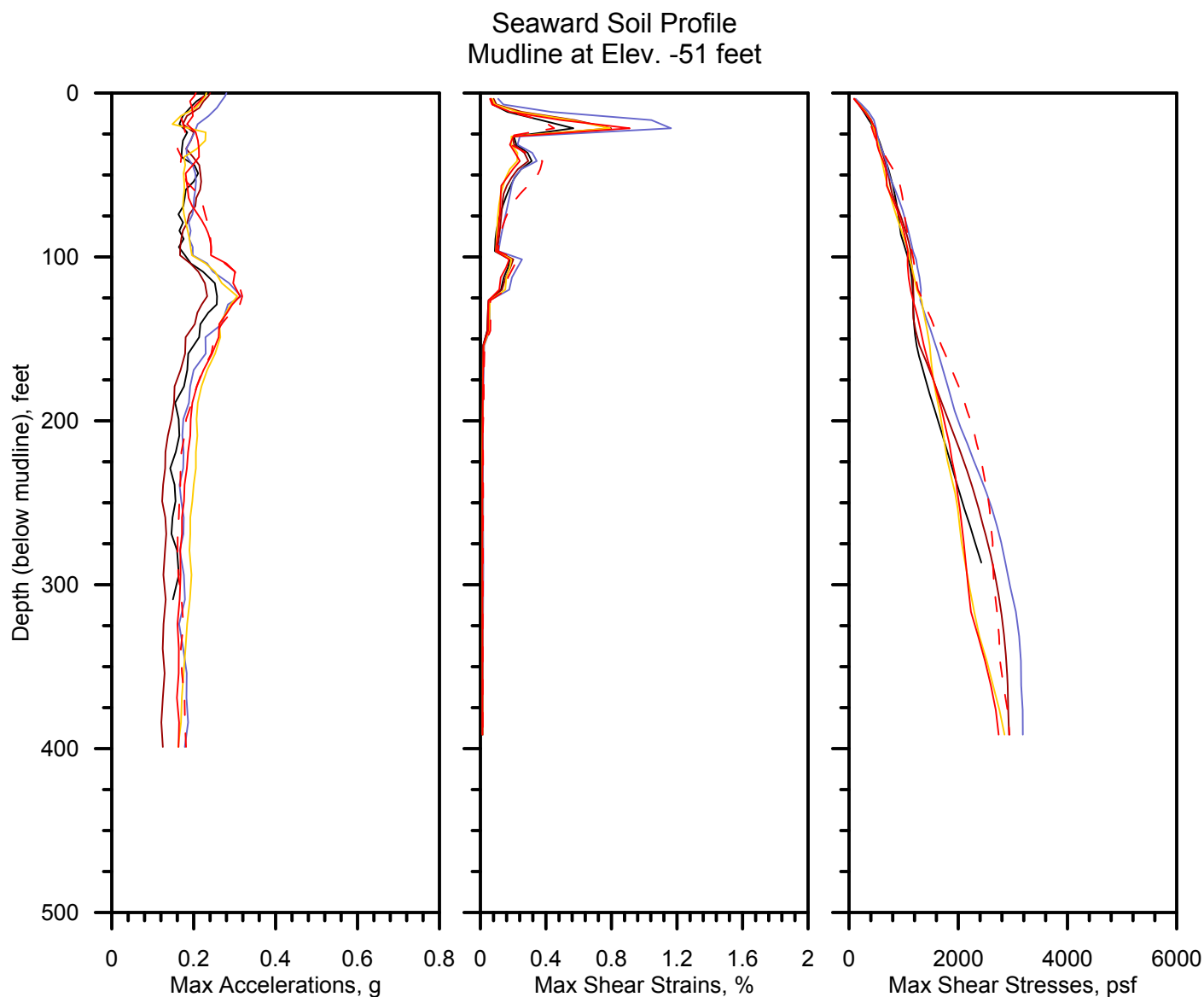


FIGURE C-58  
Calculated Maximum Accelerations, Shear Strains and Shear Stresses vs. Depth  
Seaward Soil Profile, CLE  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

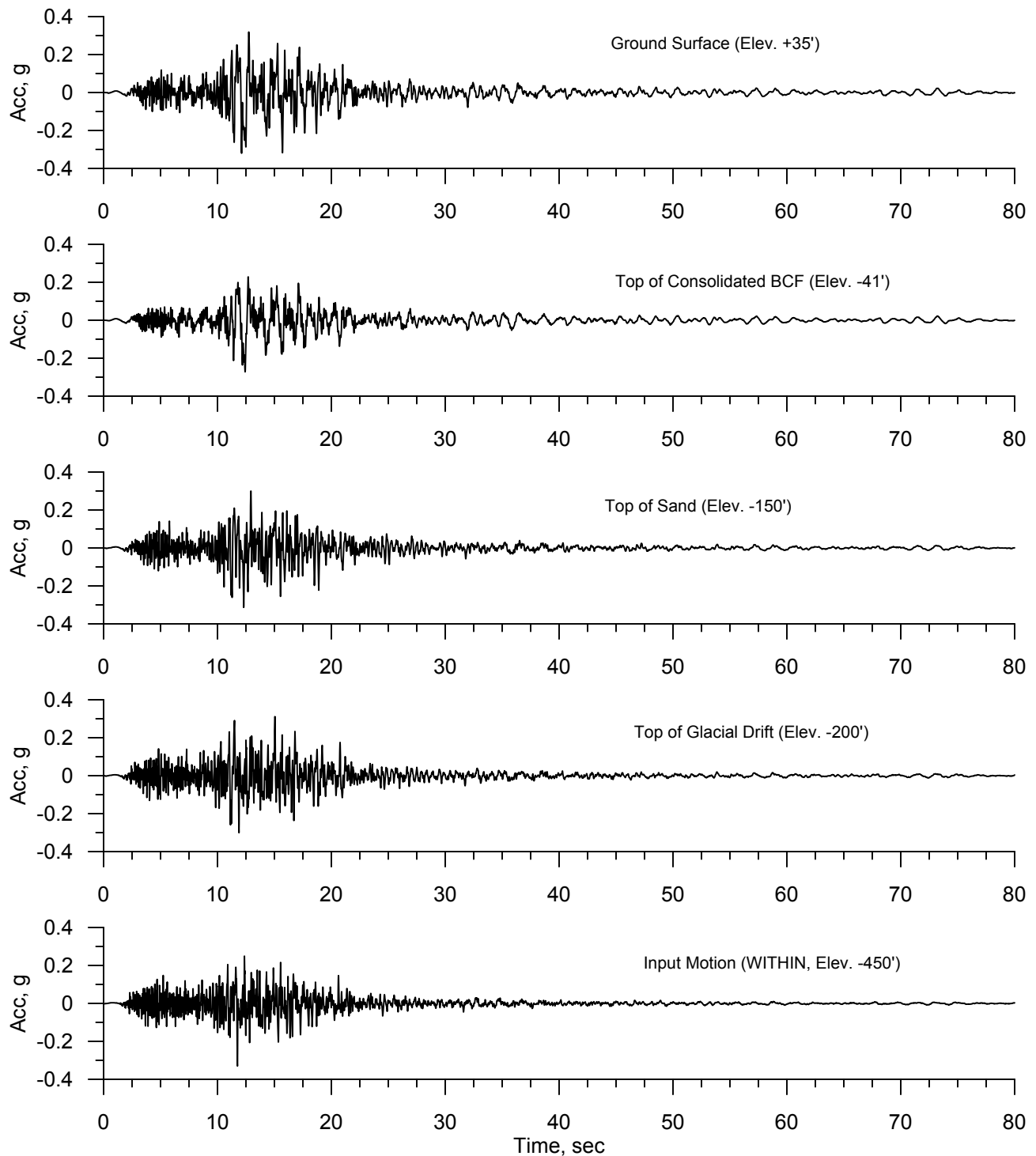


FIGURE C-59  
Calculated Time Histories - MCE  
2001 Nisqually Earthquake at PCEP Station, 0 deg component  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

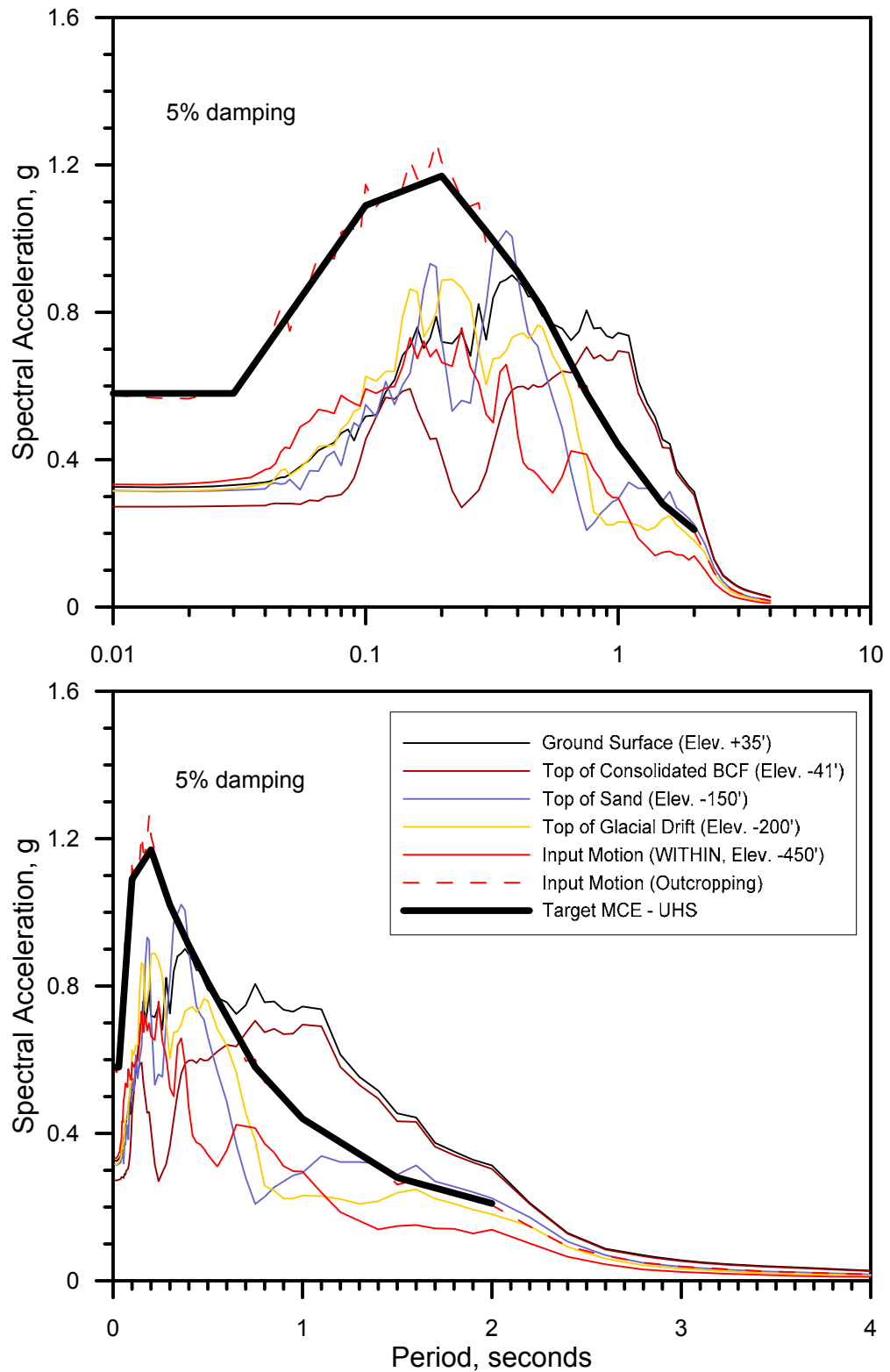


FIGURE C-60  
 Calculated Response Spectra - MCE  
 2001 Nisqually Earthquake at PCEP Station, 0 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

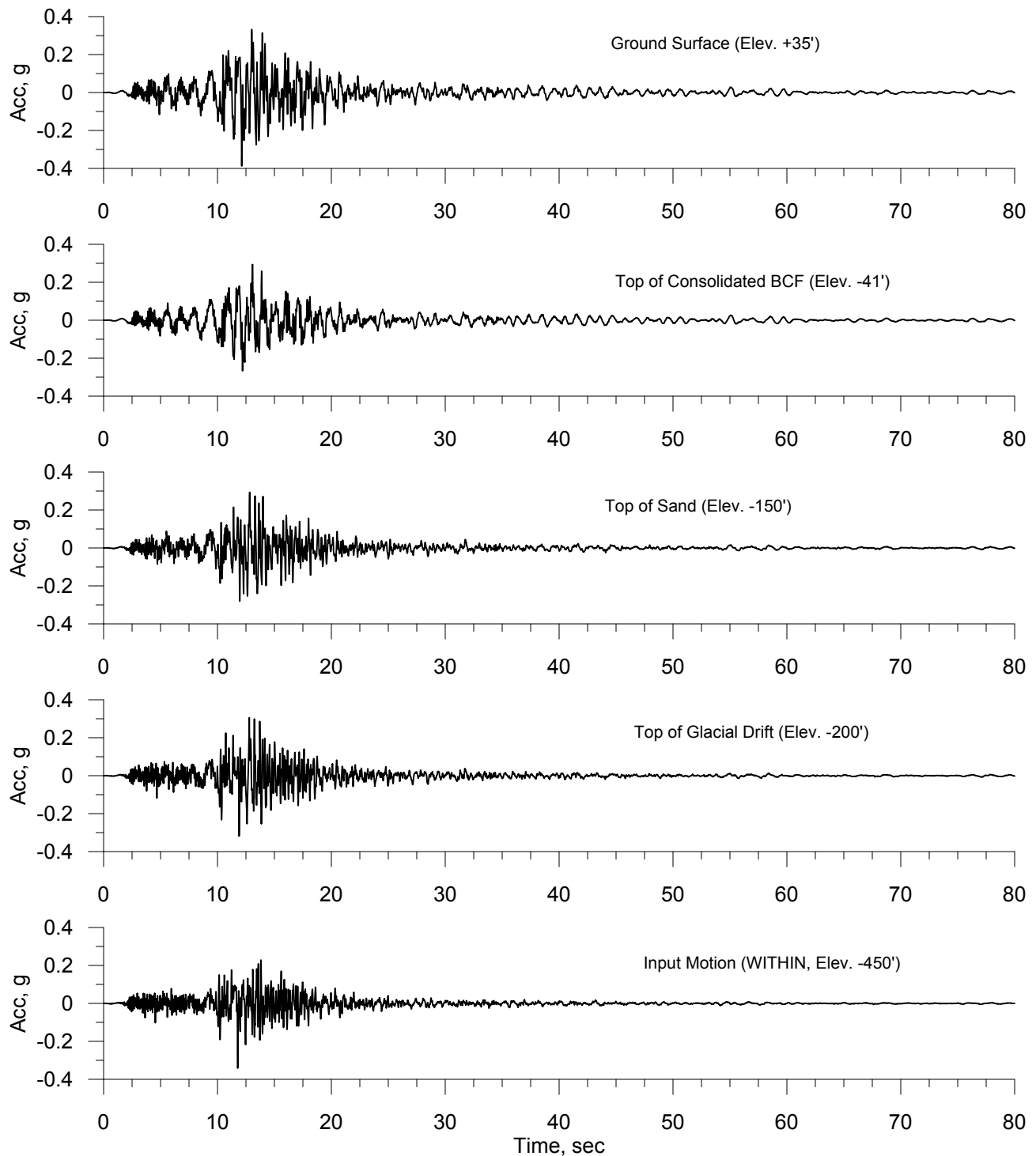


FIGURE C-61  
Calculated Time Histories - MCE  
2001 Nisqually Earthquake at PCEP Station, 90 deg component  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

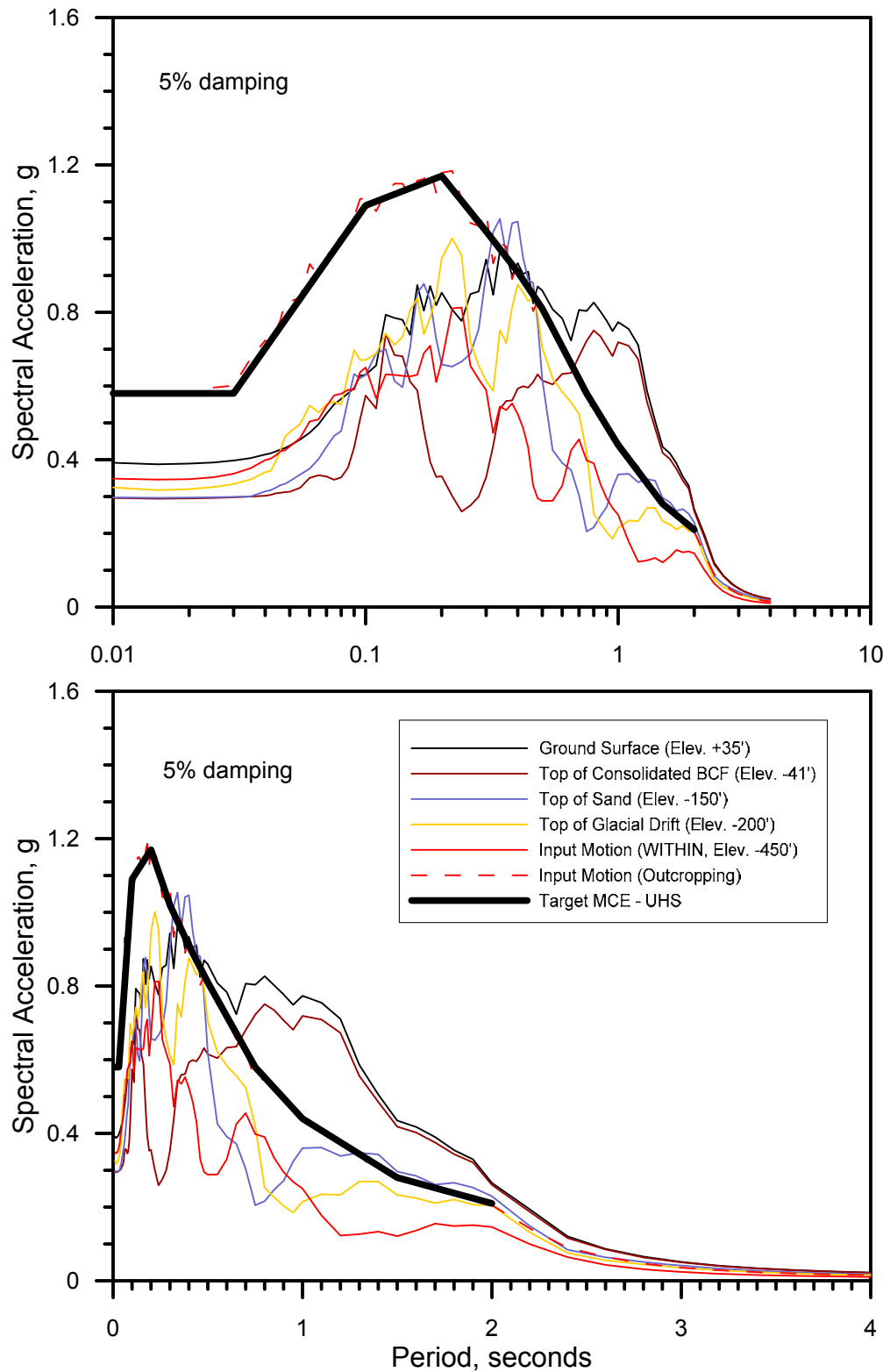


FIGURE C-62  
 Calculated Response Spectra - MCE  
 2001 Nisqually Earthquake at PCEP Station, 90 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



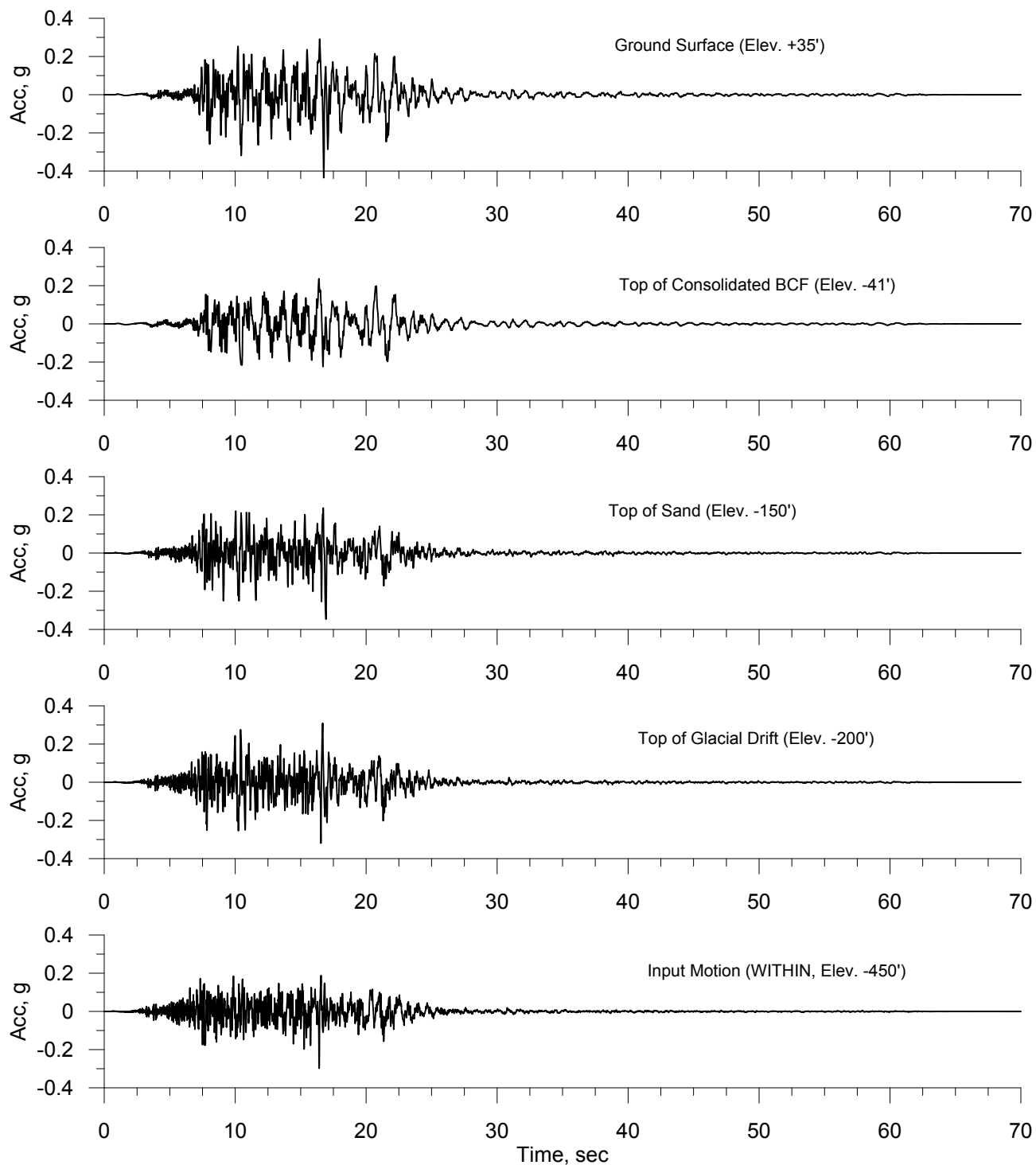


FIGURE C-63  
 Calculated Time Histories - MCE  
 1997 Michoacan Earthquake at CALE Station, 180 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

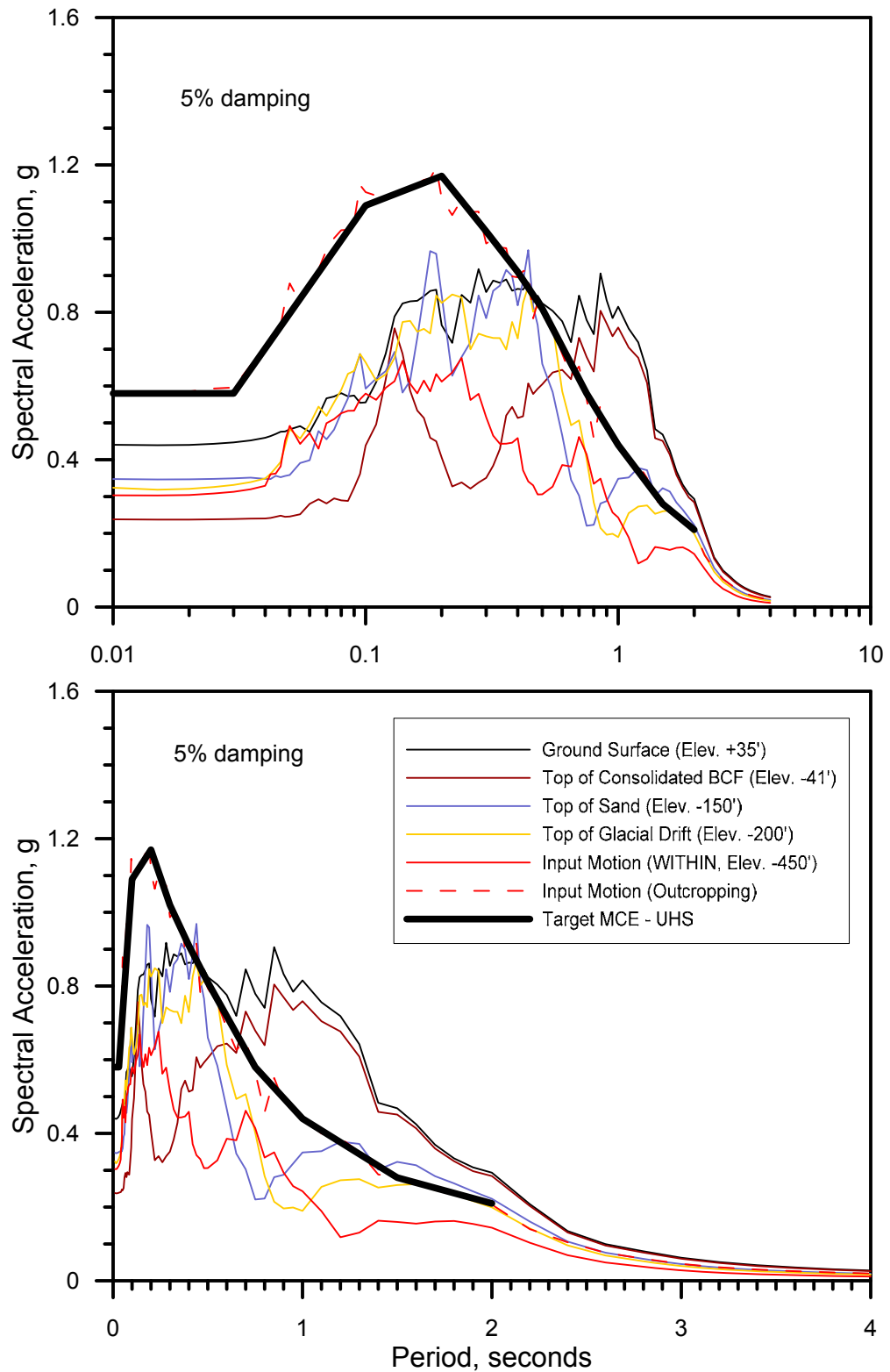


FIGURE C-64  
 Calculated Response Spectra - MCE  
 1997 Michoacan Earthquake at CALE Station, 180 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

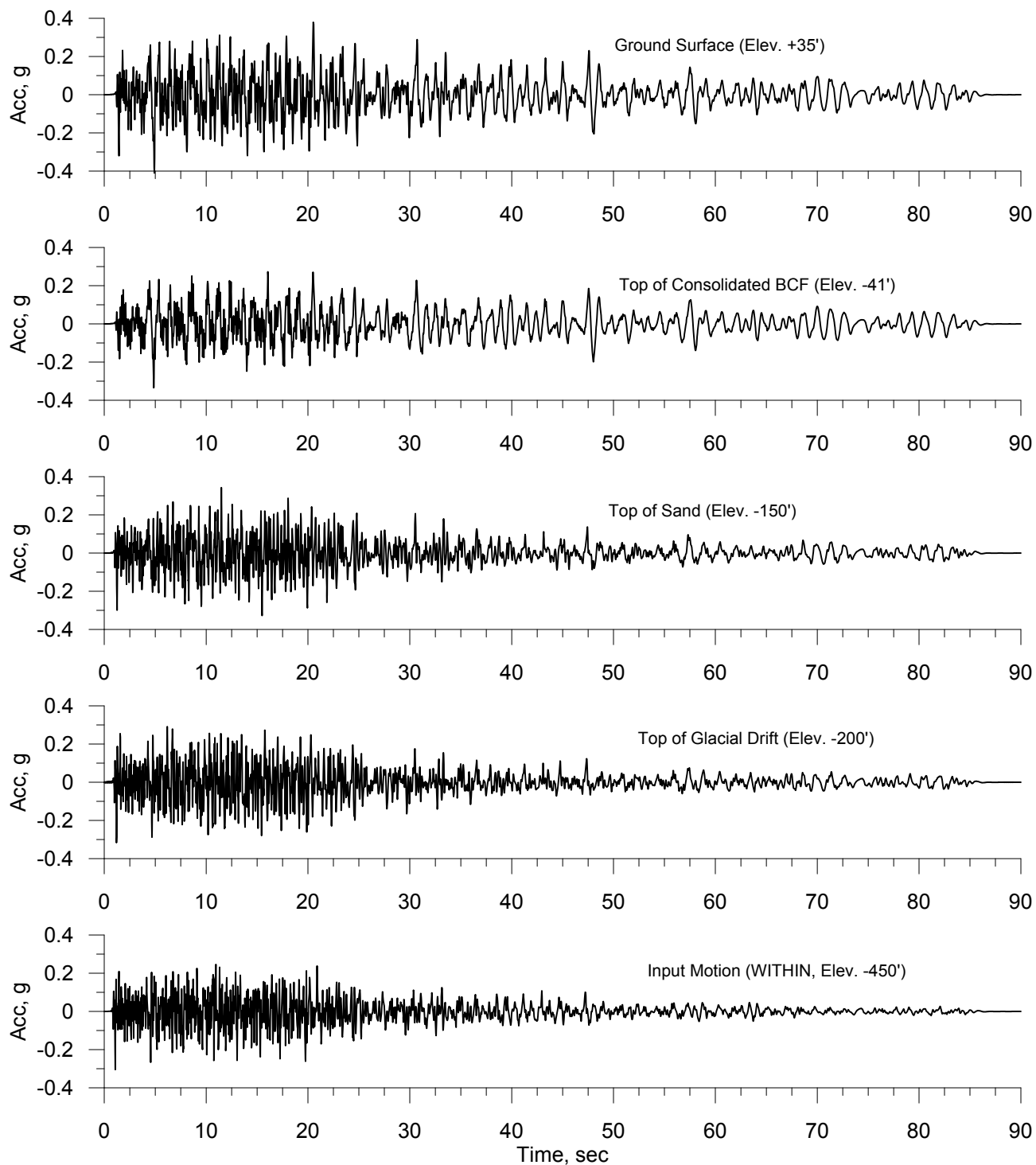


FIGURE C-65  
 Calculated Time Histories - MCE  
 1949 Western WA Earthquake at Olympia Station, 356 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

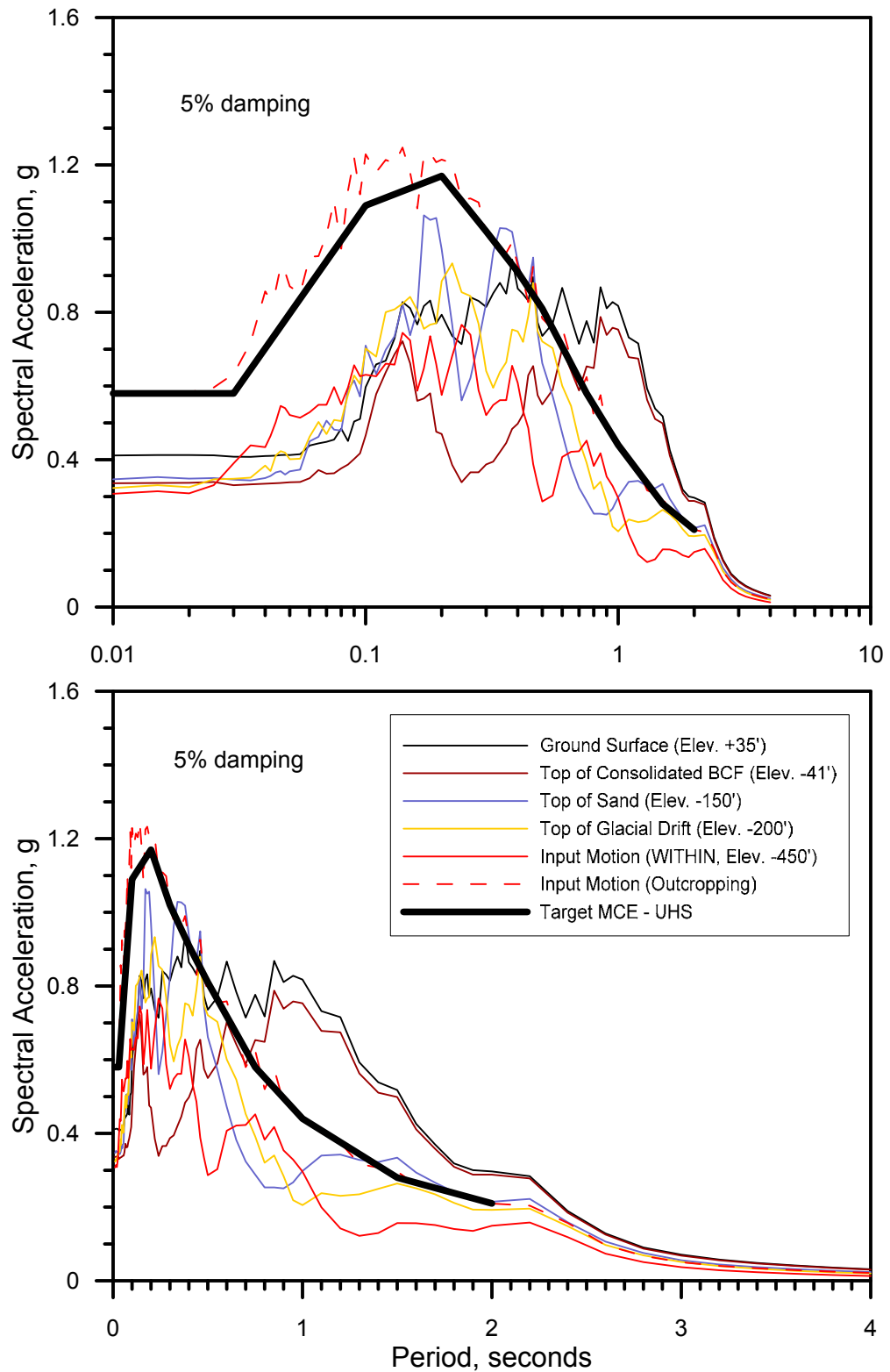


FIGURE C-66  
 Calculated Response Spectra - MCE  
 1949 Western WA Earthquake at Olympia Station, 356 deg component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

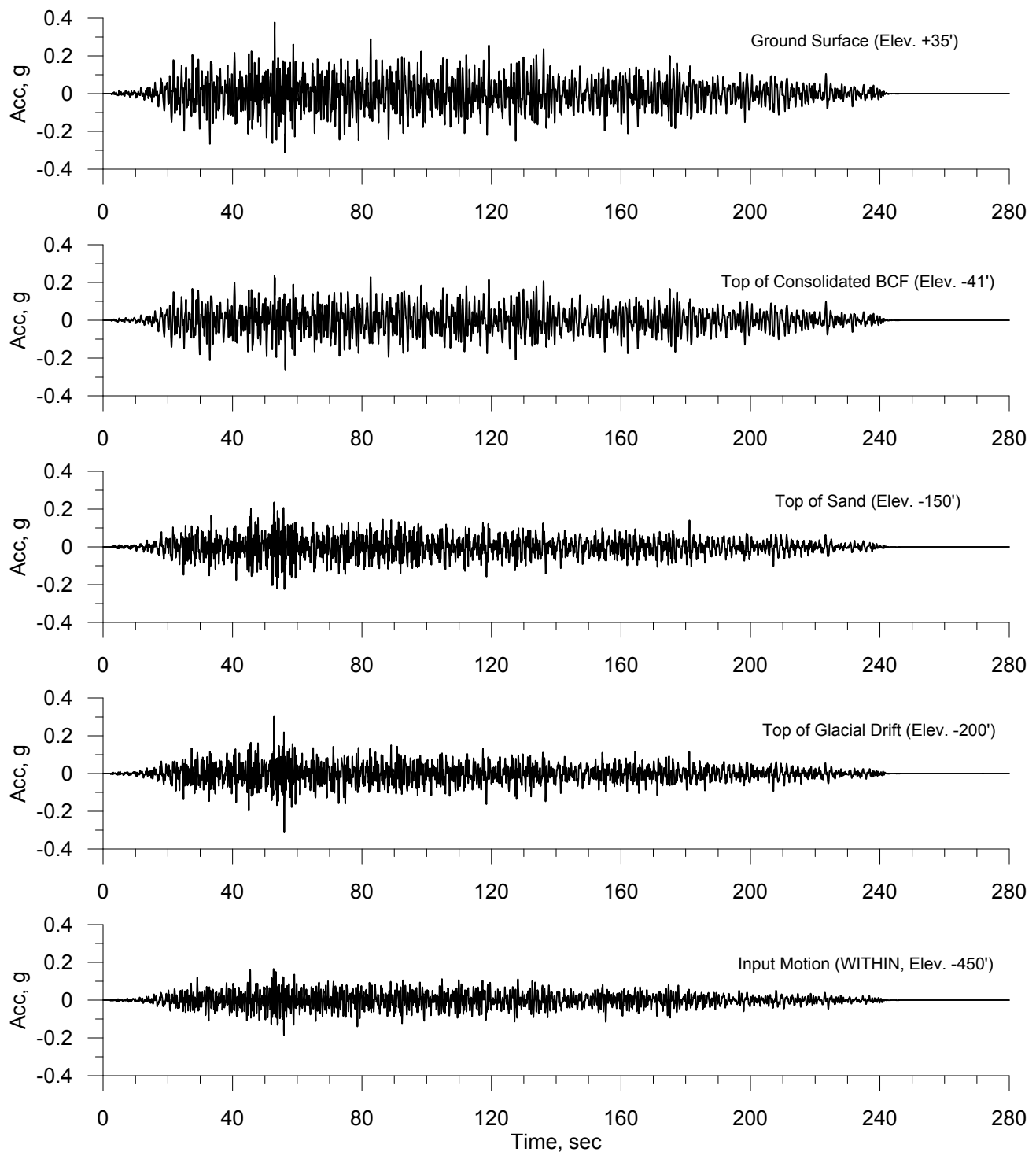


FIGURE C-67  
Calculated Time Histories - MCE  
Cascadia Megathrust Synthetic Earthquake, AAL005  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

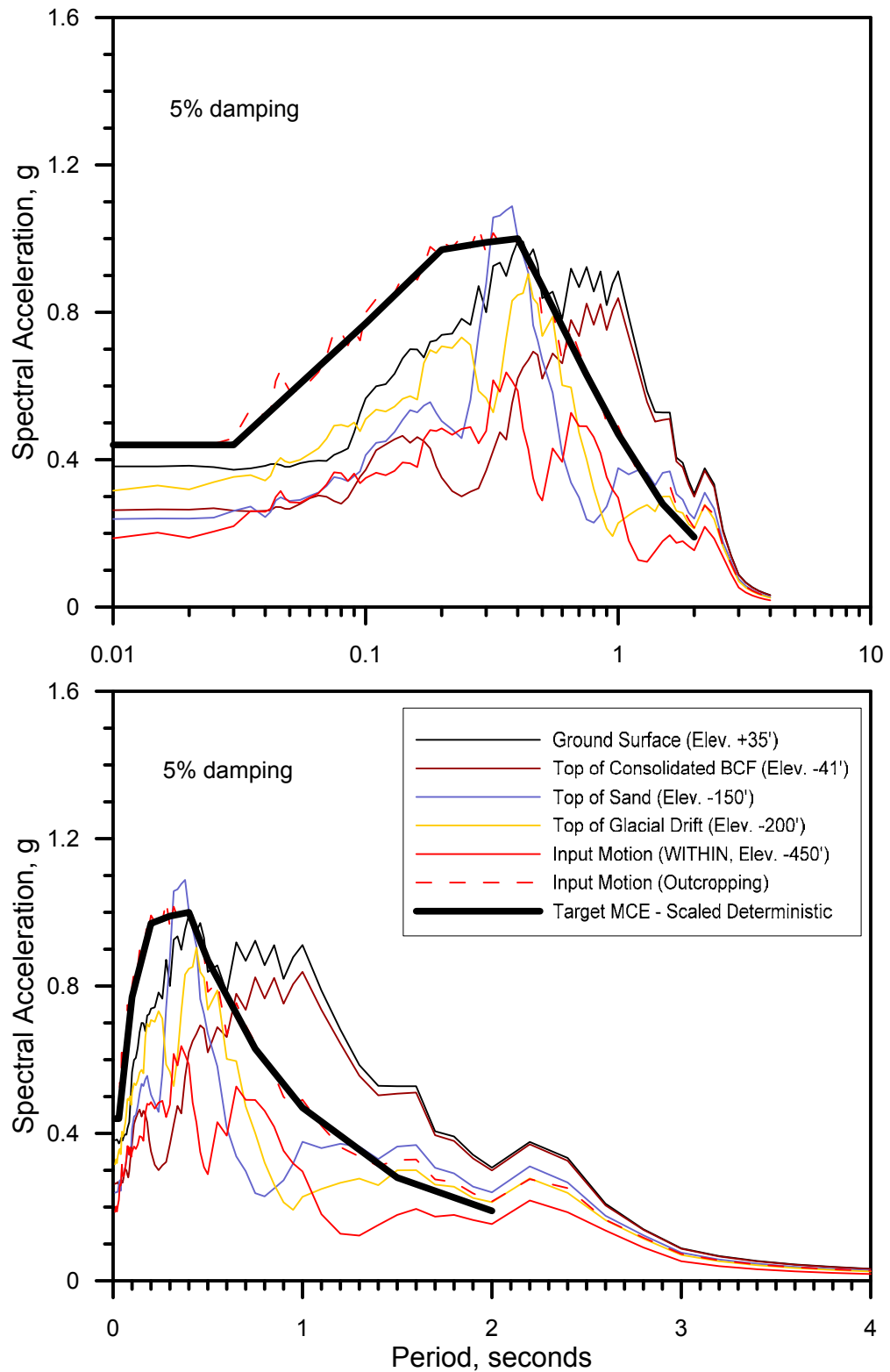


FIGURE C-68  
 Calculated Response Spectra - CLE  
 Cascadia Megathrust Synthetic Earthquake, ALL005  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

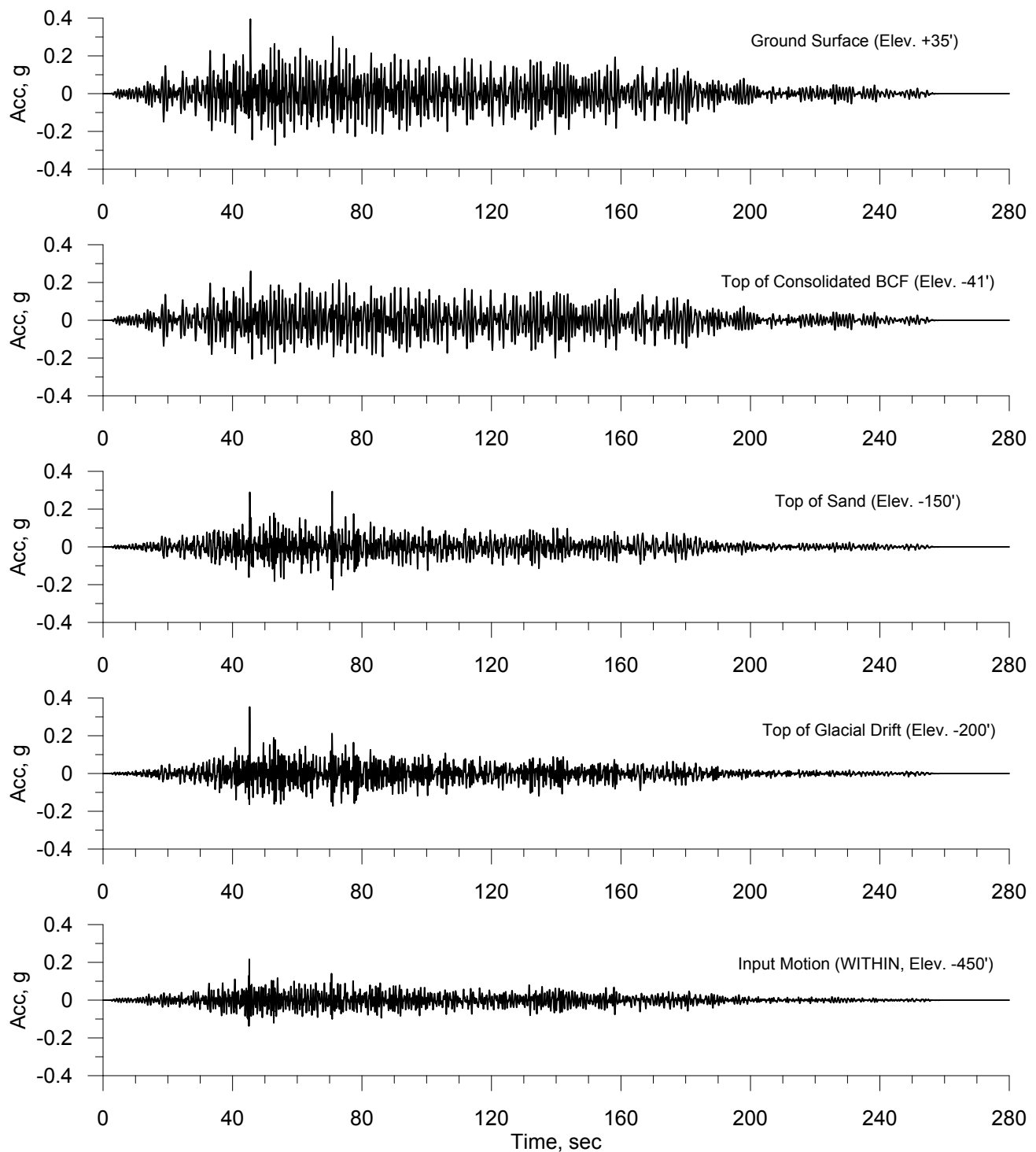


FIGURE C-69  
Calculated Time Histories - MCE  
Cascadia Megathrust Synthetic Earthquake, AAL009  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

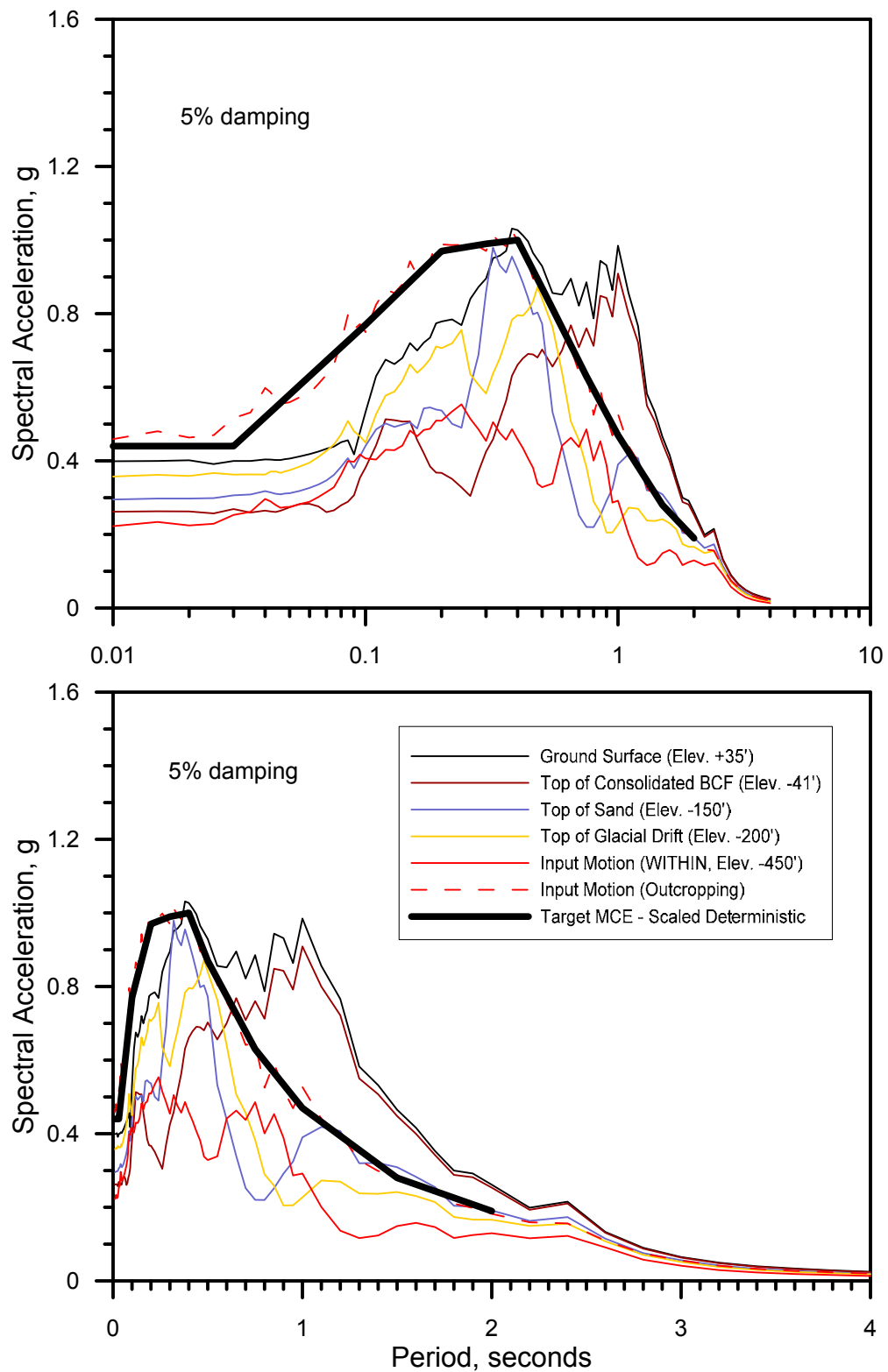


FIGURE C-70  
 Calculated Response Spectra - MCE  
 Cascadia Megathrust Synthetic Earthquake, ALL009  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



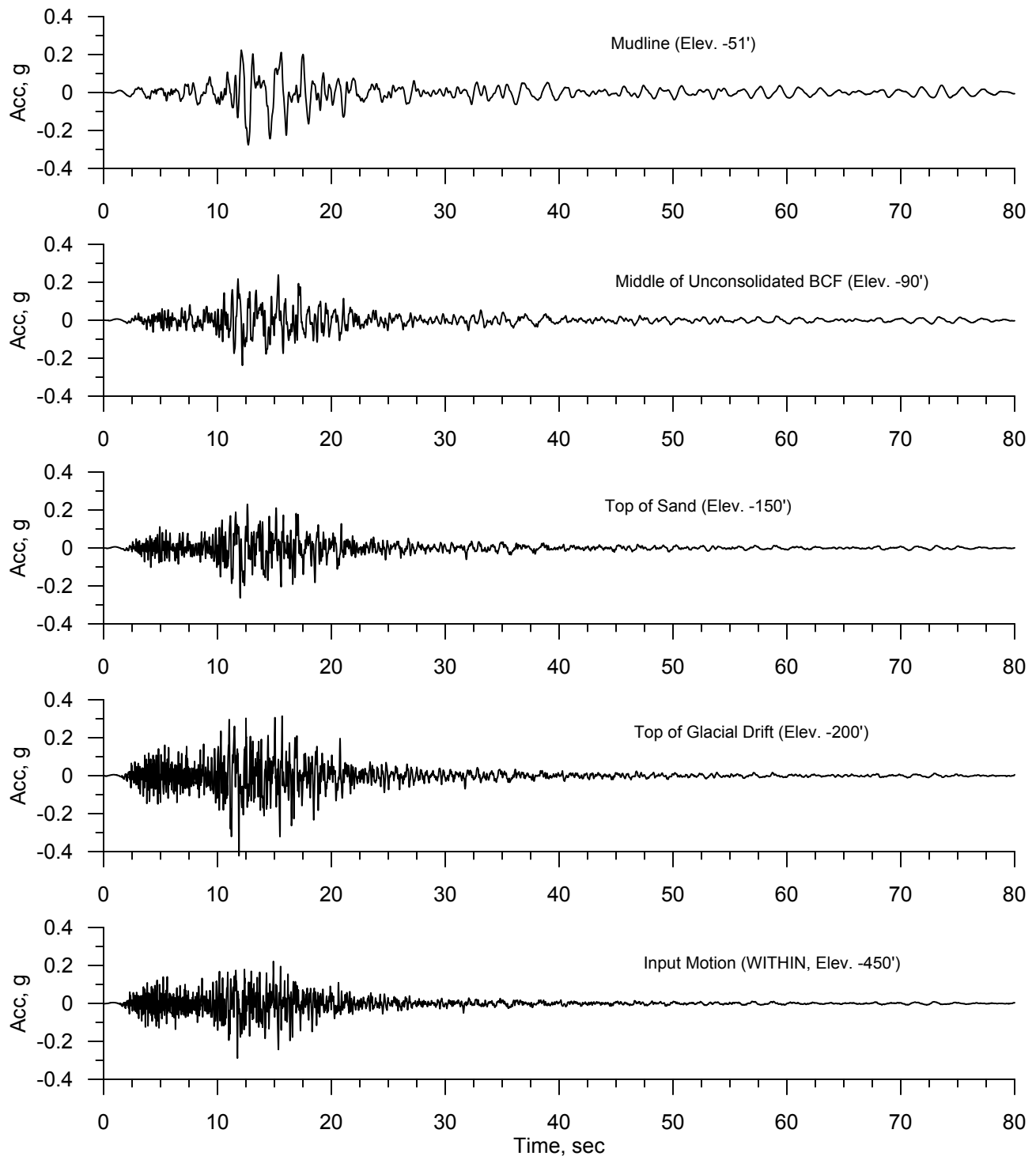


FIGURE C-71  
Calculated Time Histories - MCE  
2001 Nisqually Earthquake at PCEP Station, 0 deg component  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

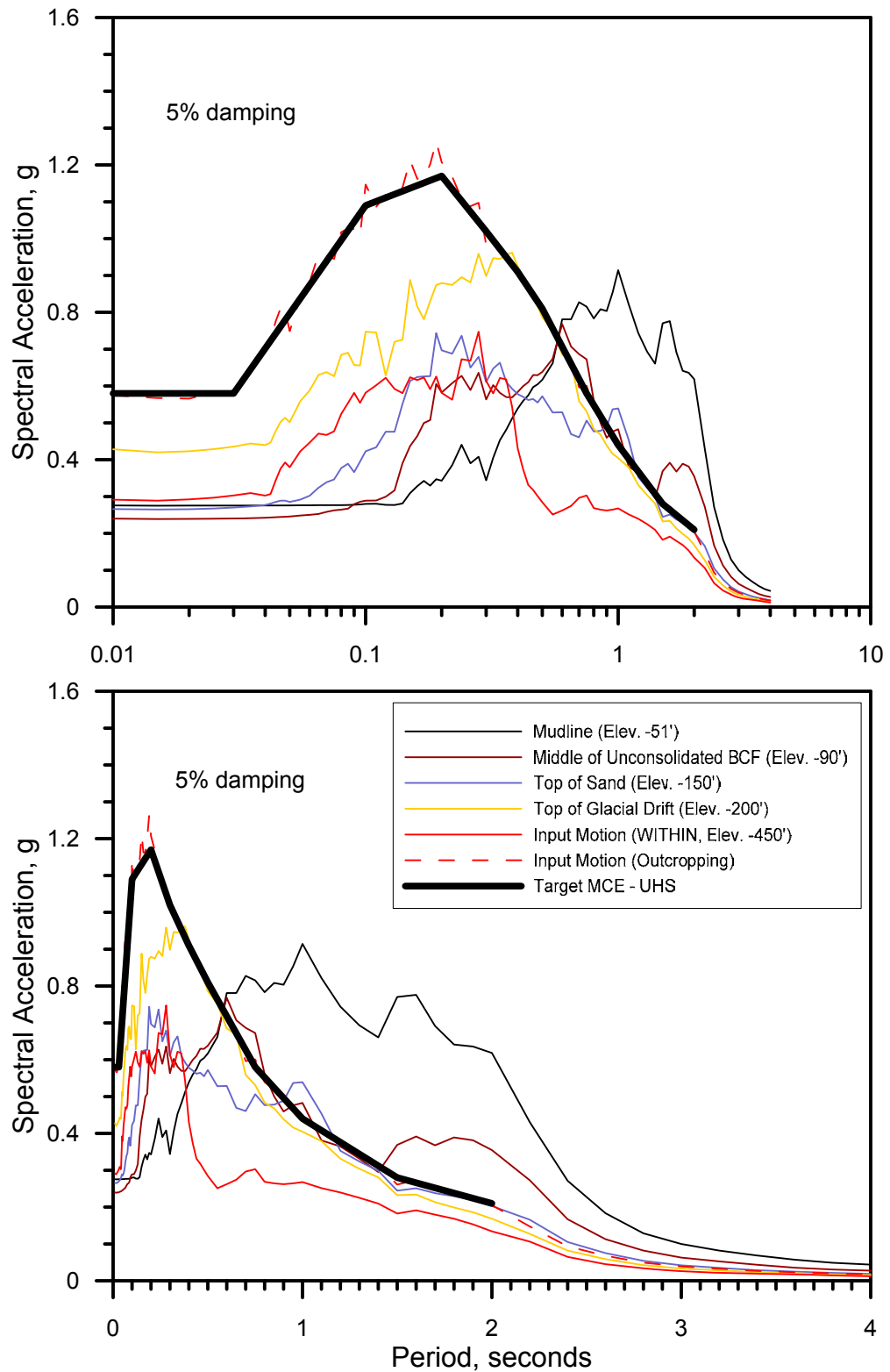


FIGURE C-72  
 Calculated Response Spectra - MCE  
 2001 Nisqually Earthquake at PCEP Station, 0 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

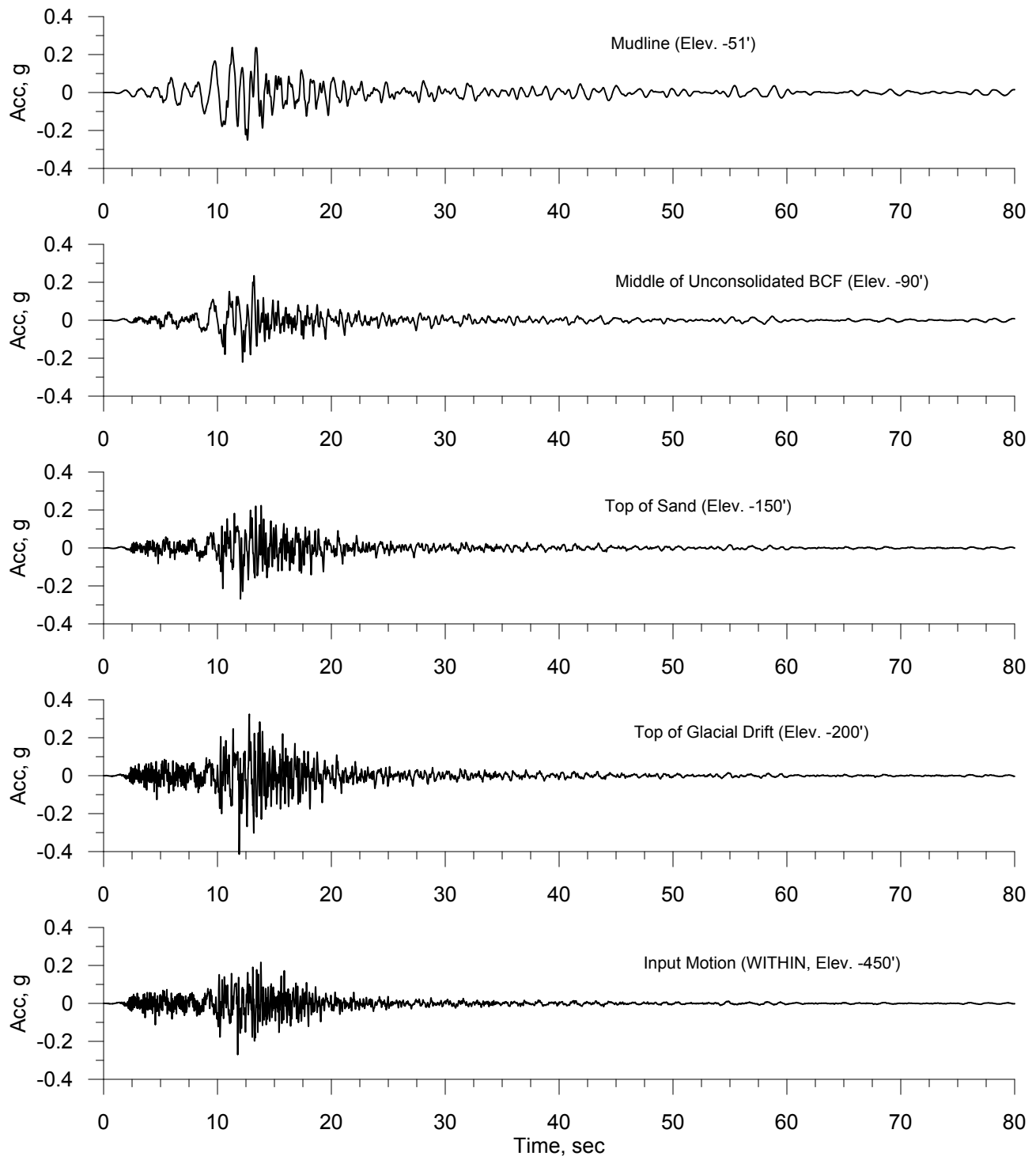


FIGURE C-73  
Calculated Time Histories - MCE  
2001 Nisqually Earthquake at PCEP Station, 90 deg component  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

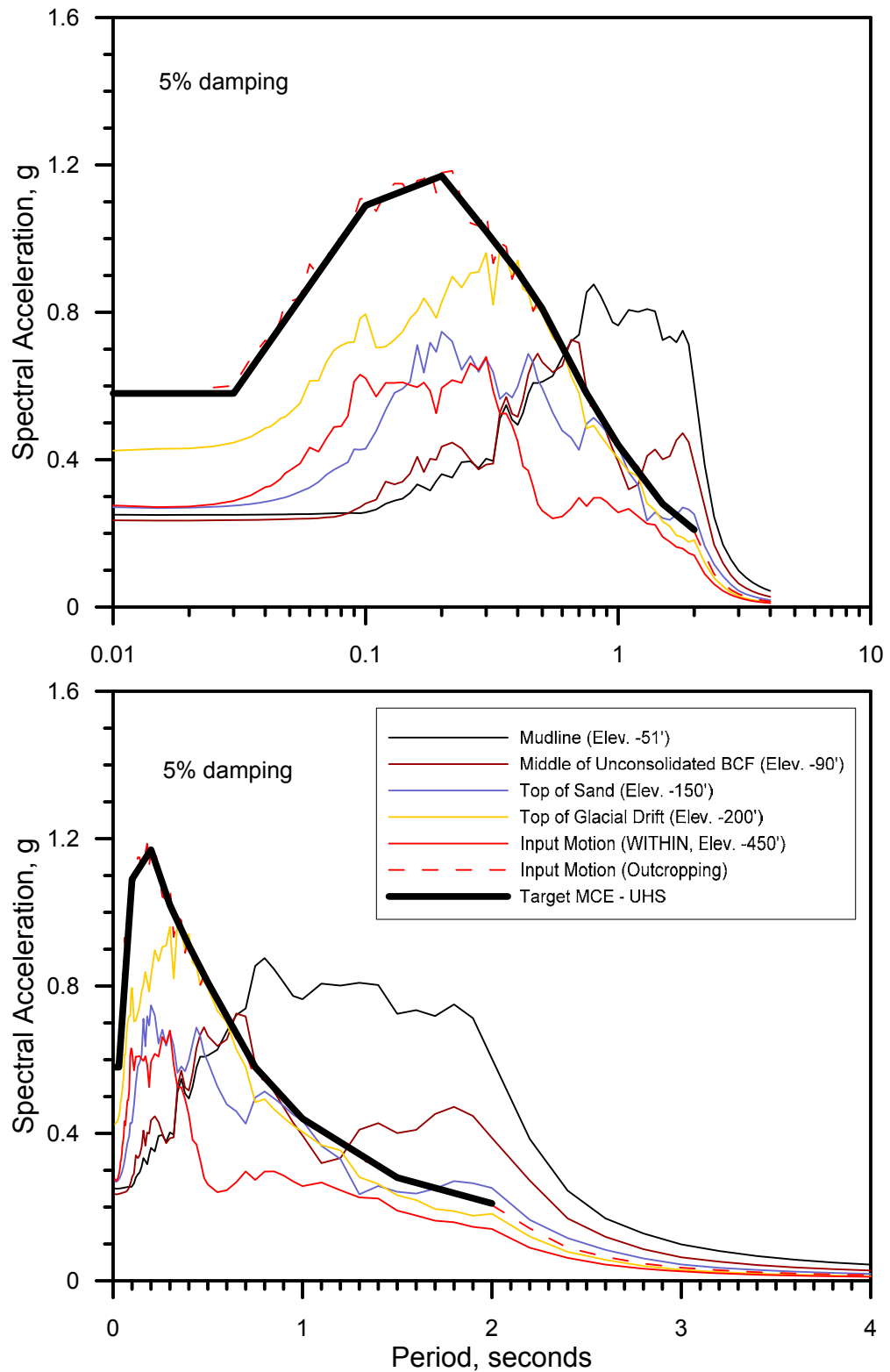


FIGURE C-74  
 Calculated Response Spectra - MCE  
 2001 Nisqually Earthquake at PCEP Station, 90 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

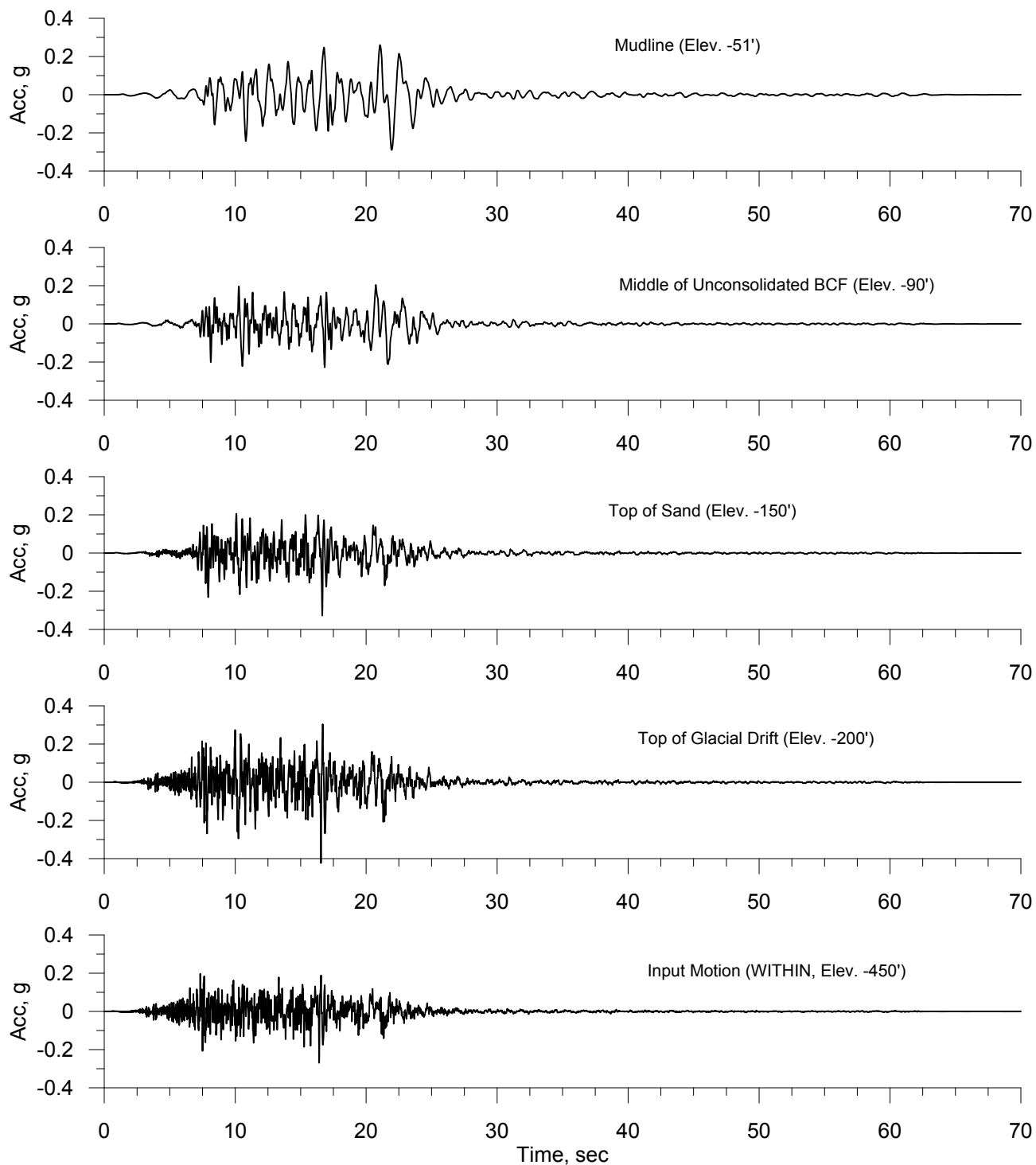


FIGURE C-75  
 Calculated Time Histories - MCE  
 1997 Michoacan Earthquake at CALE Station, 180 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

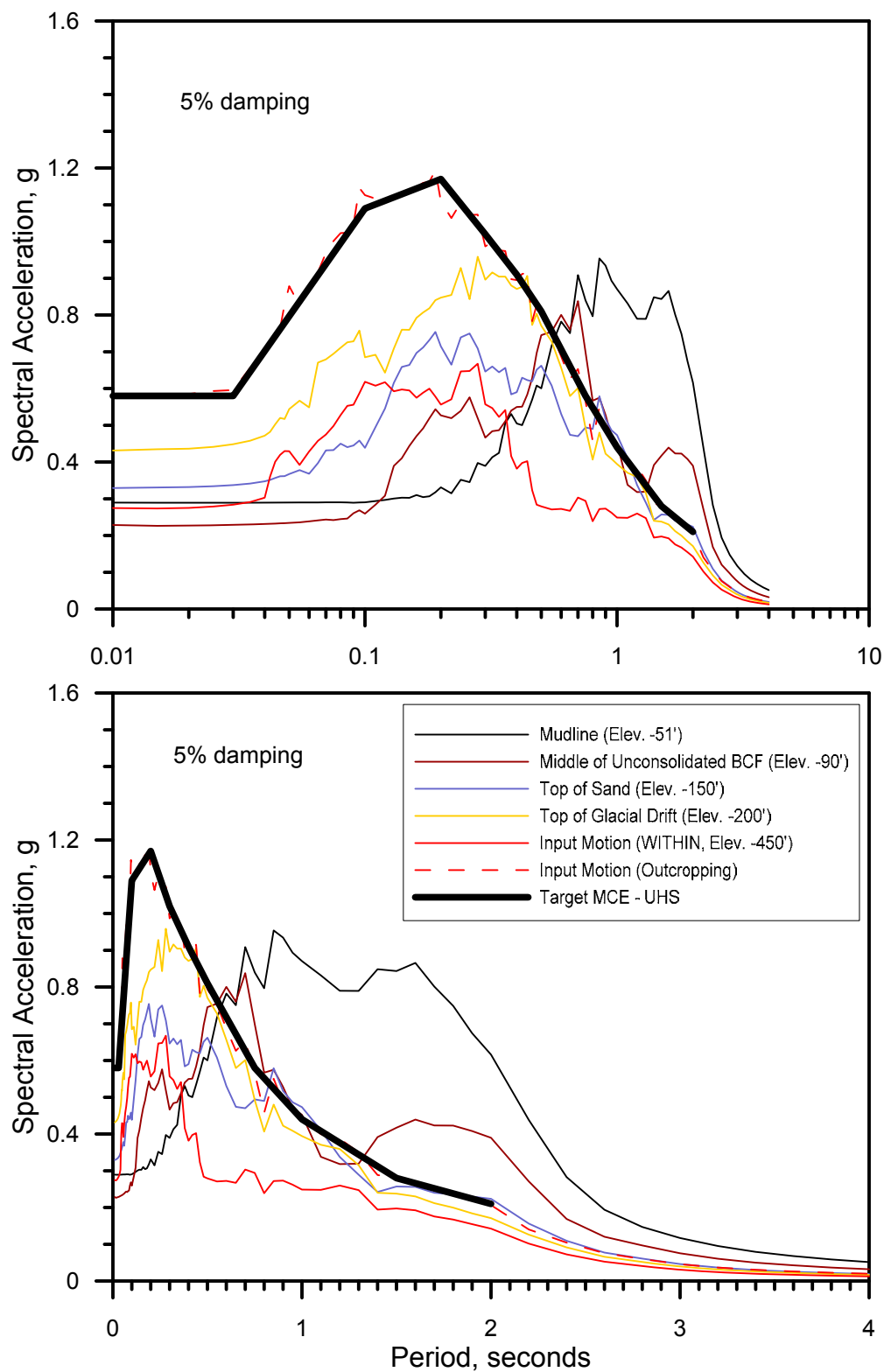


FIGURE C-76  
 Calculated Response Spectra - MCE  
 1997 Michoacan Earthquake at CALE Station, 180 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

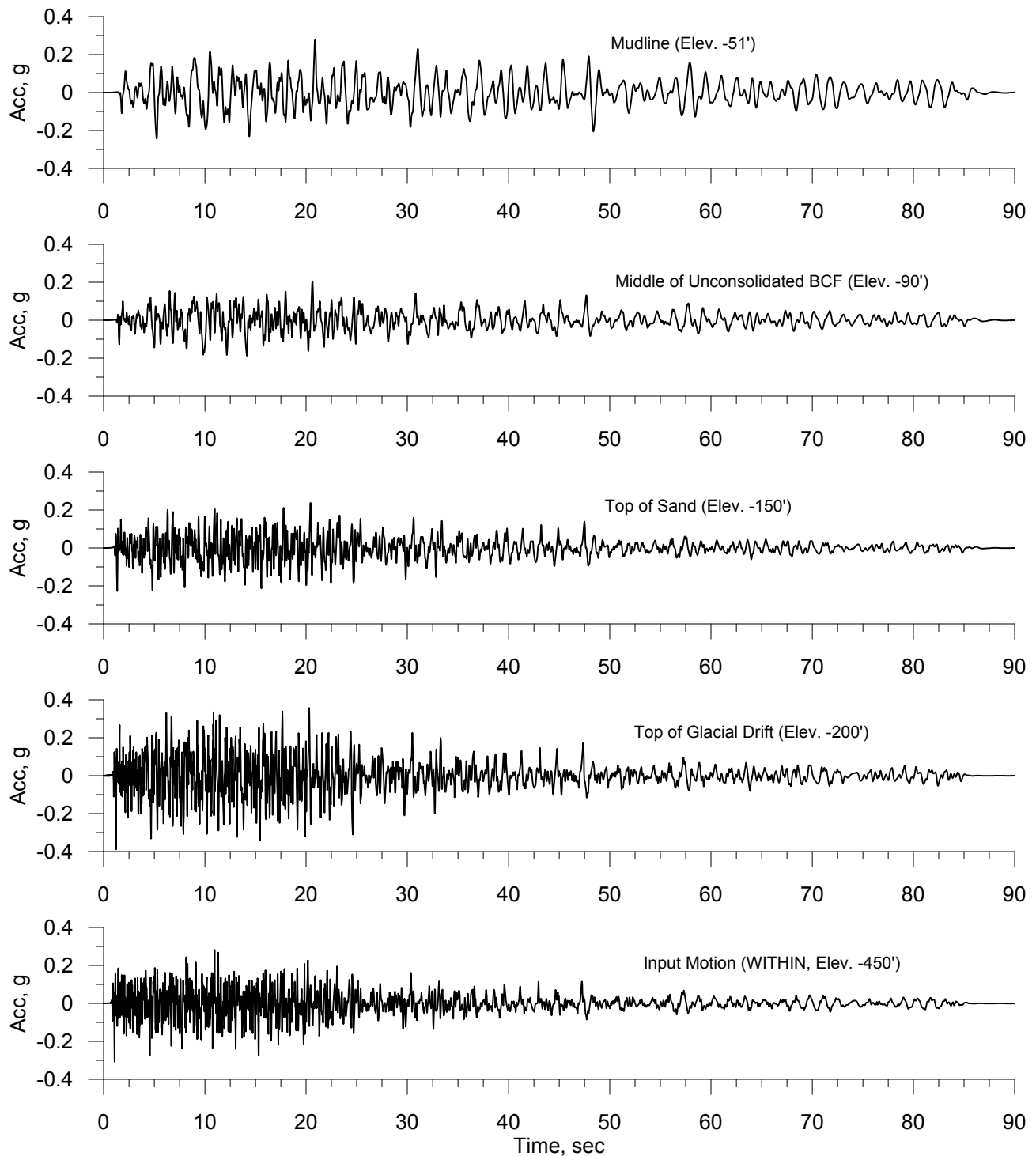


FIGURE C-77  
 Calculated Time Histories - MCE  
 1949 Western WA Earthquake at Olympia Station, 356 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

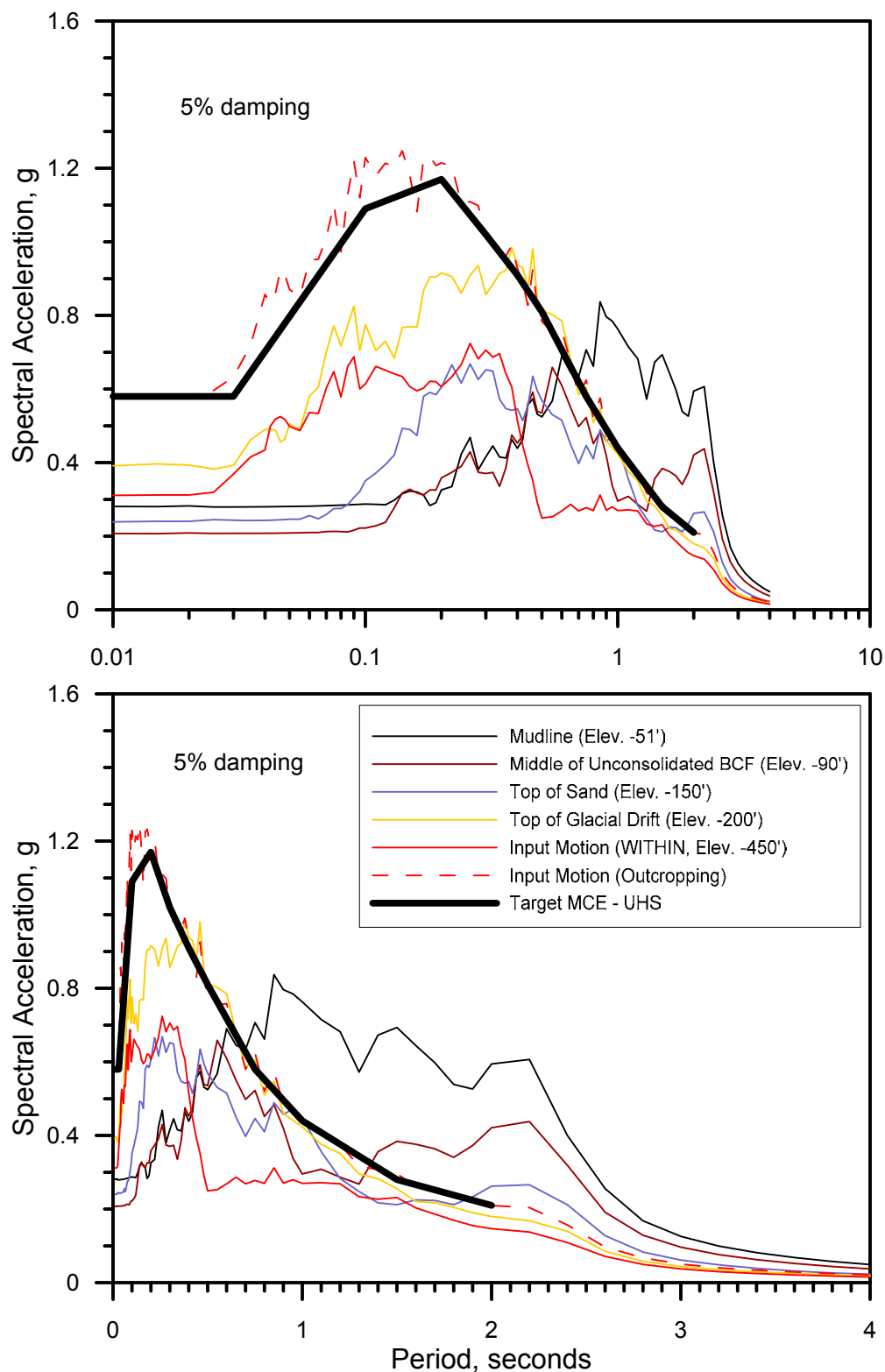


FIGURE C-78  
 Calculated Response Spectra - MCE  
 1949 Western WA Earthquake at Olympia Station, 356 deg component  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



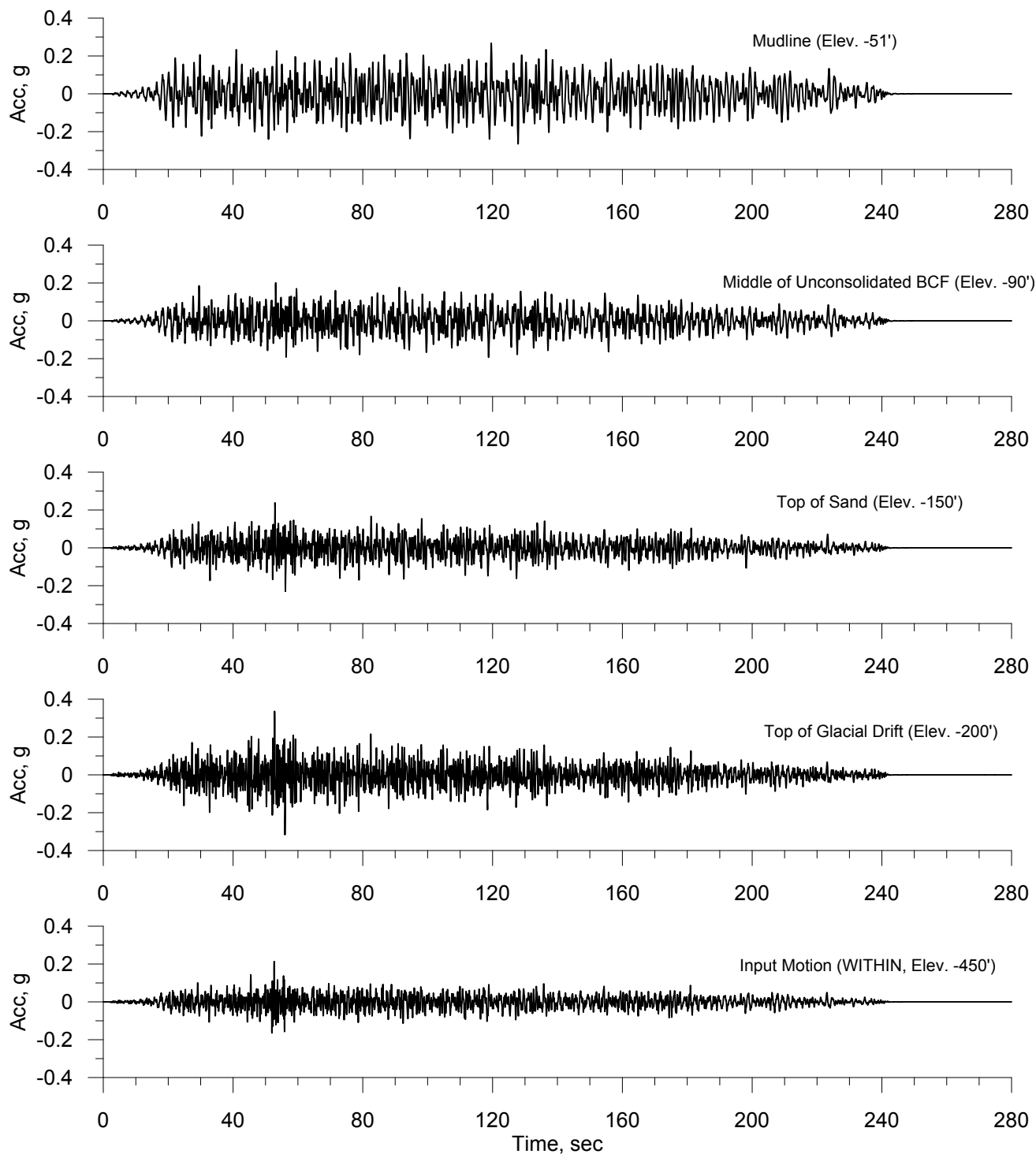


FIGURE C-79  
Calculated Time Histories - MCE  
Cascadia Megathrust Synthetic Earthquake, AAL005  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

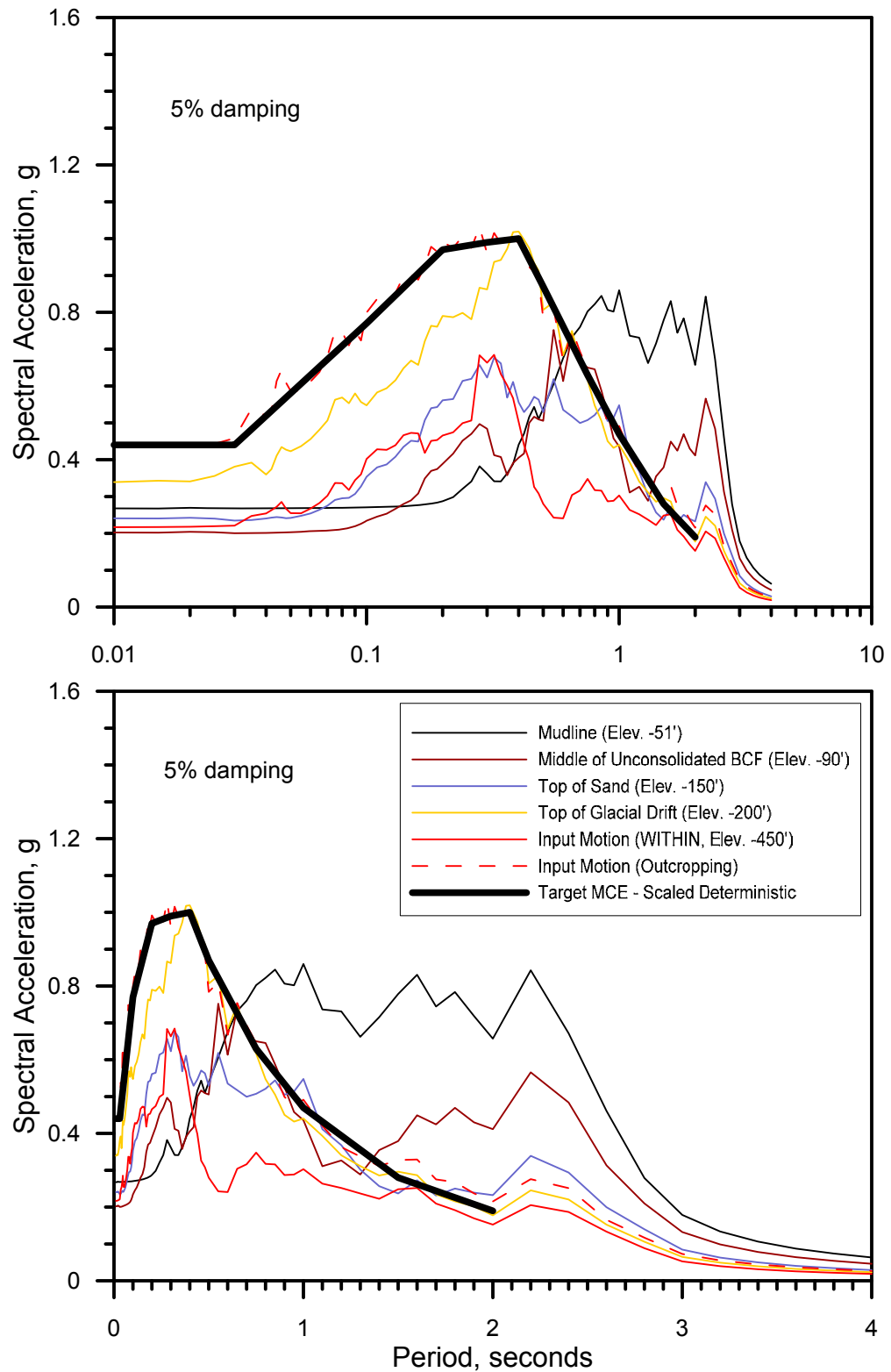


FIGURE C-80  
 Calculated Response Spectra - CLE  
 Cascadia Megathrust Synthetic Earthquake, ALL005  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

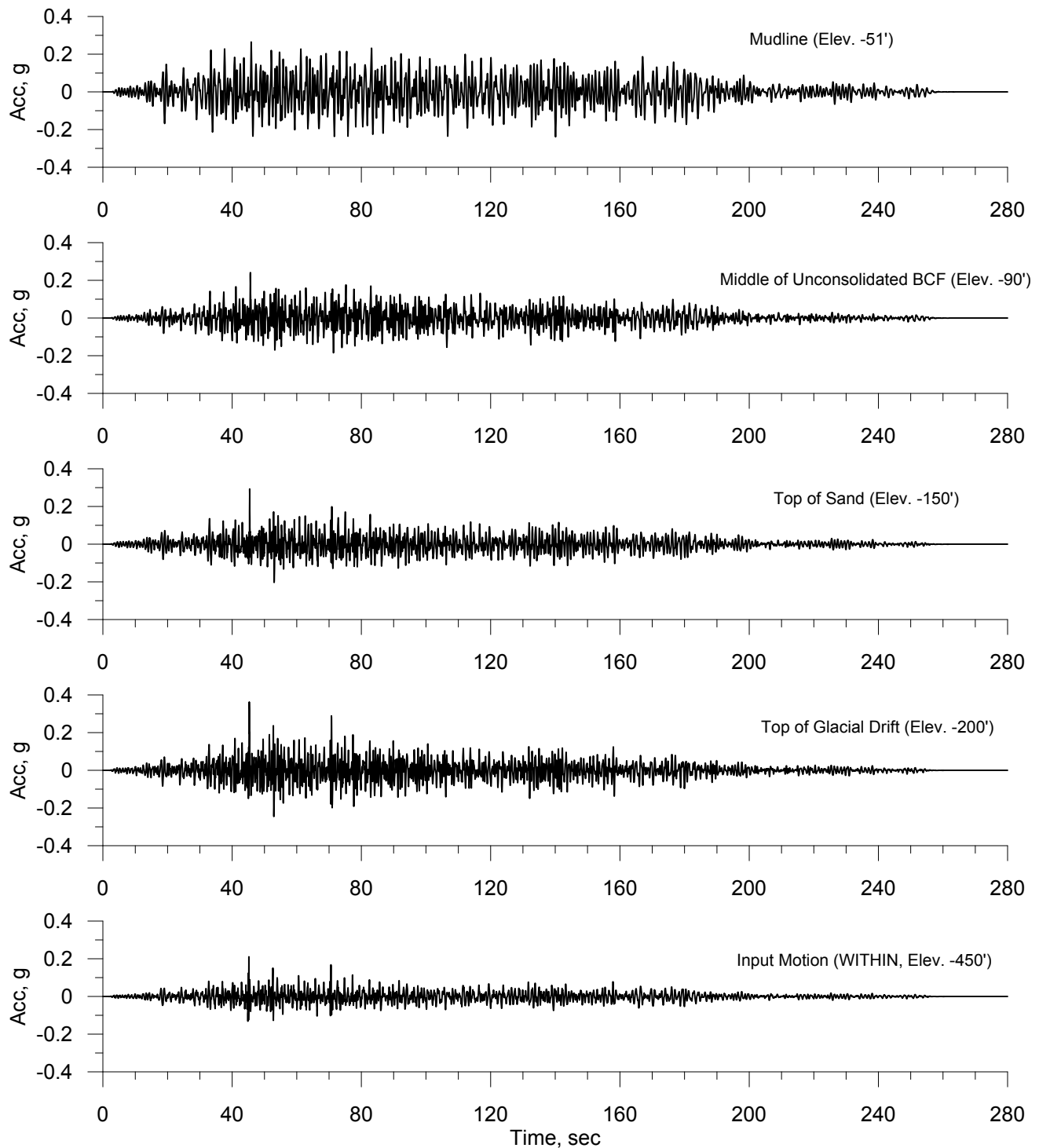


FIGURE C-81  
Calculated Time Histories - MCE  
Cascadia Megathrust Synthetic Earthquake, AAL009  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

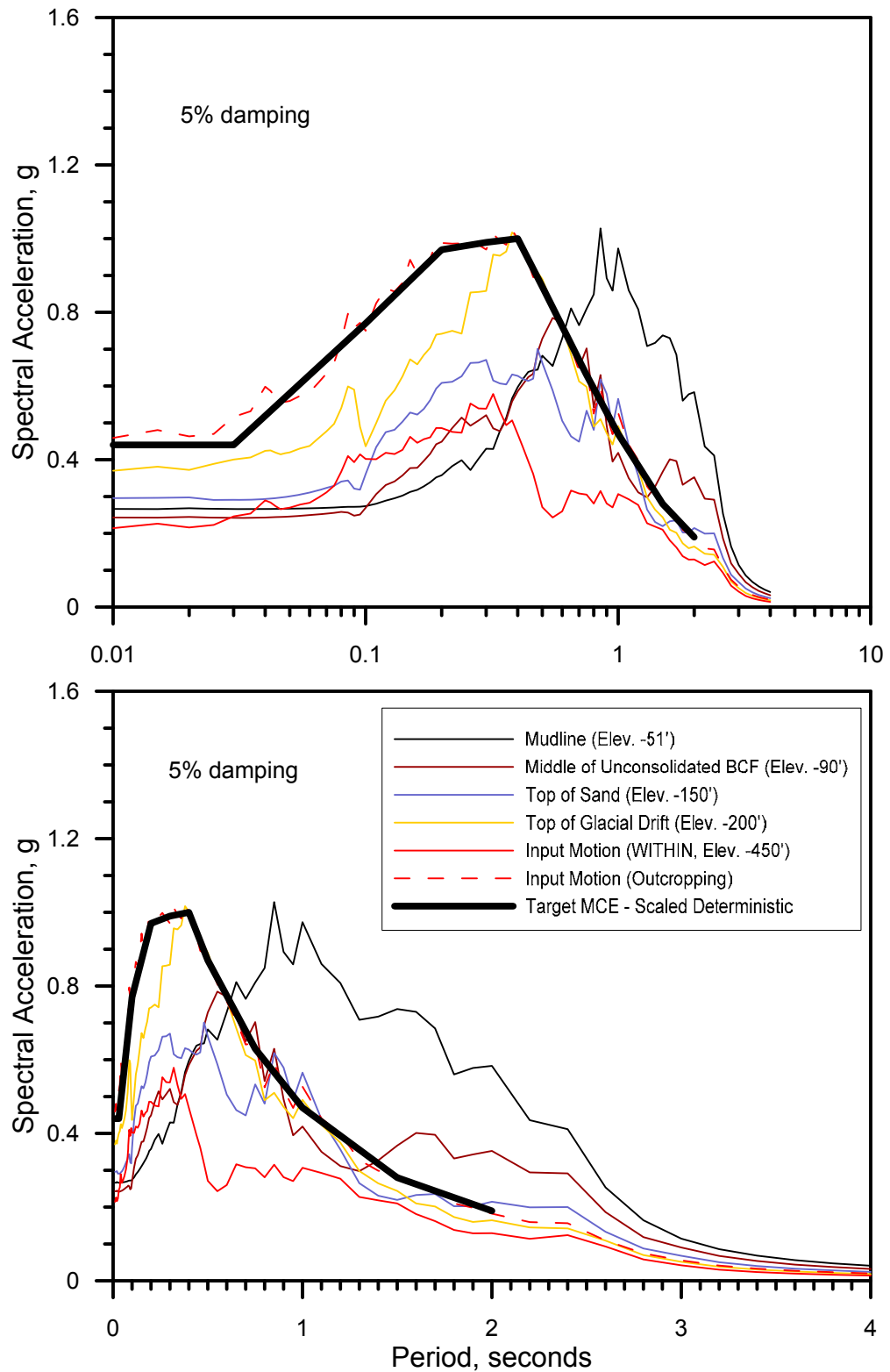


FIGURE C-82  
 Calculated Response Spectra - MCE  
 Cascadia Megathrust Synthetic Earthquake, ALL009  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

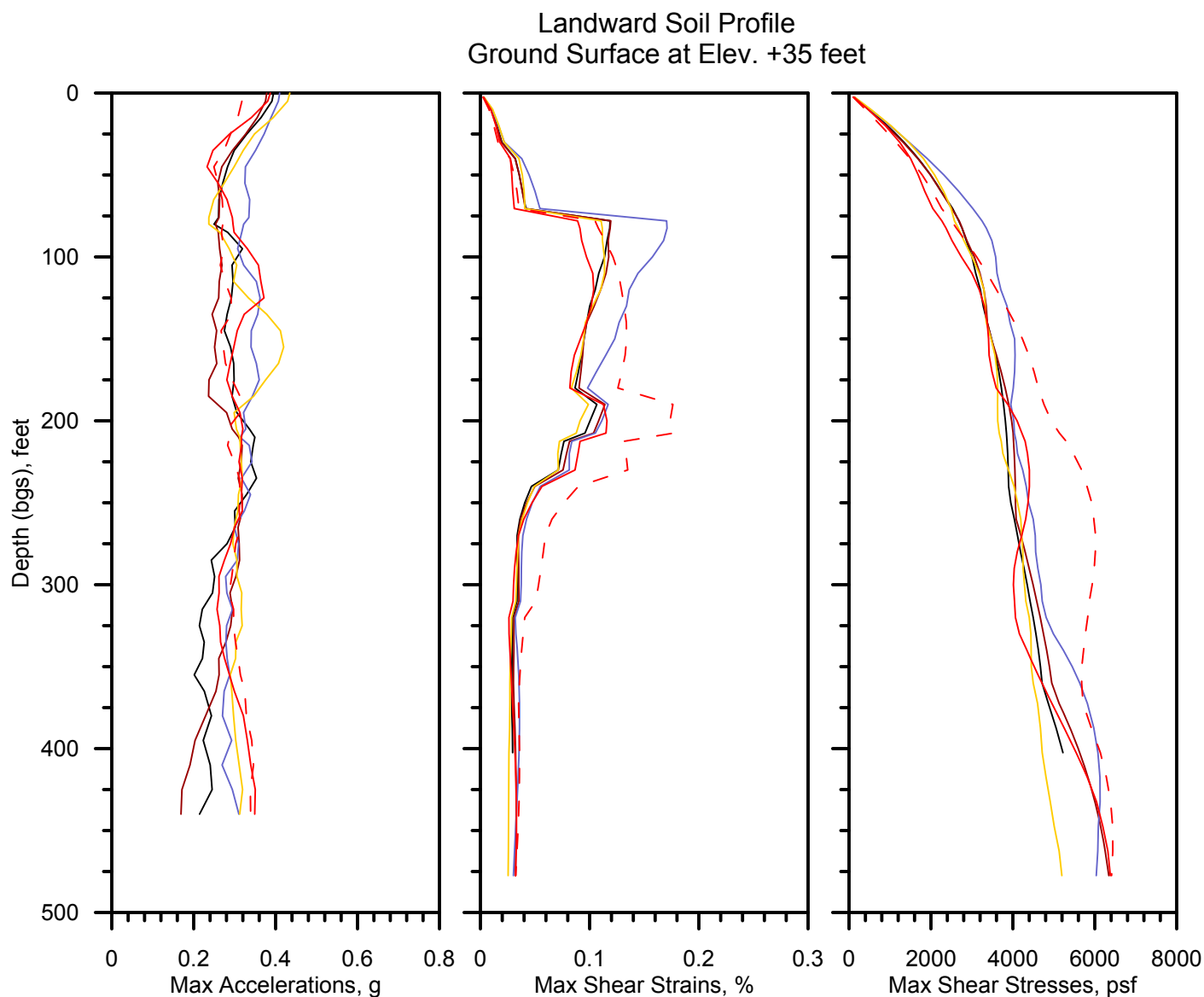


FIGURE C-83  
Calculated Maximum Accelerations, Shear Strains and Shear Stresses vs. Depth  
Landward Soil Profile, MCE  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

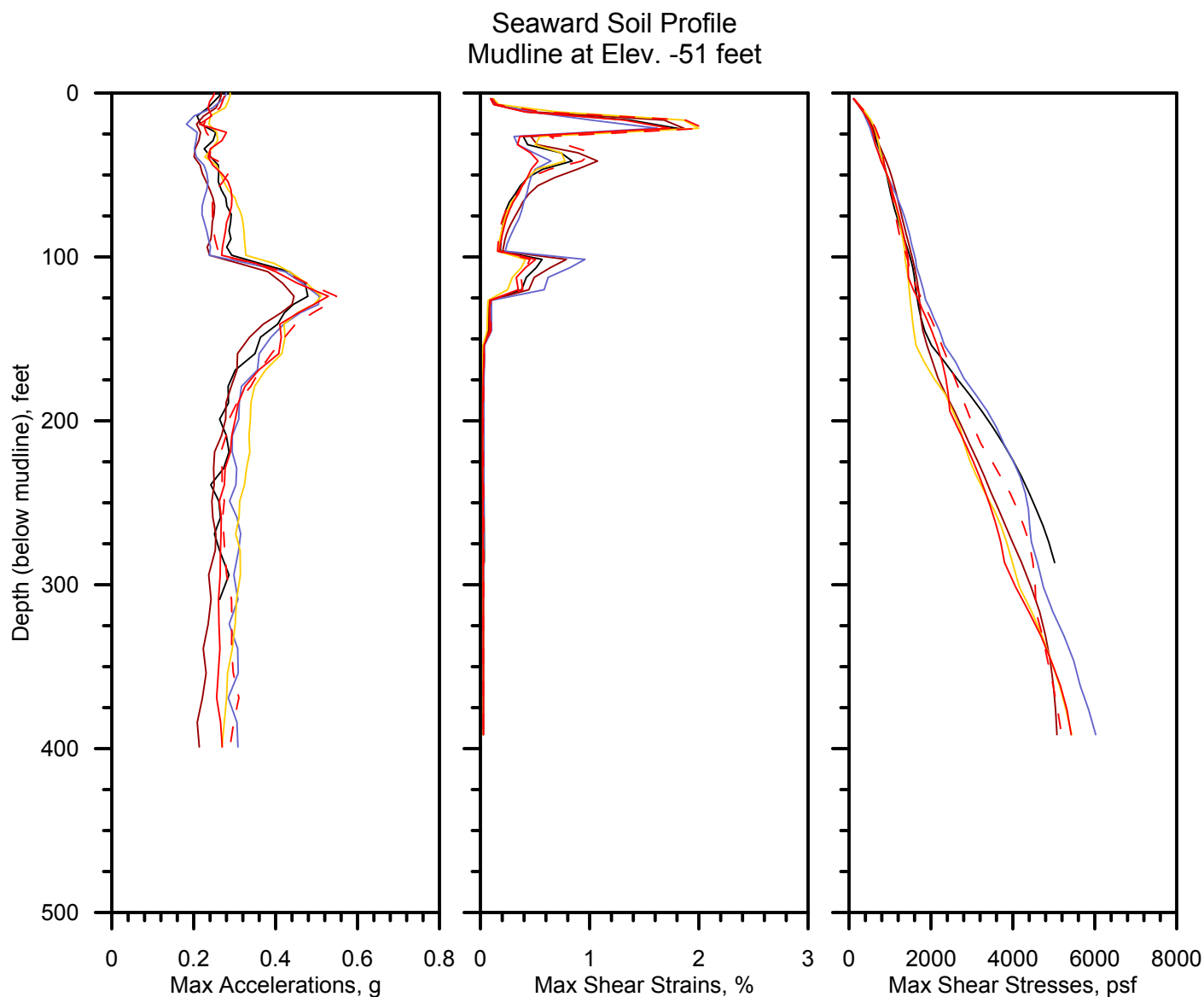


FIGURE C-84  
Calculated Maximum Accelerations, Shear Strains and Shear Stresses vs. Depth  
Seaward Soil Profile, MCE  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

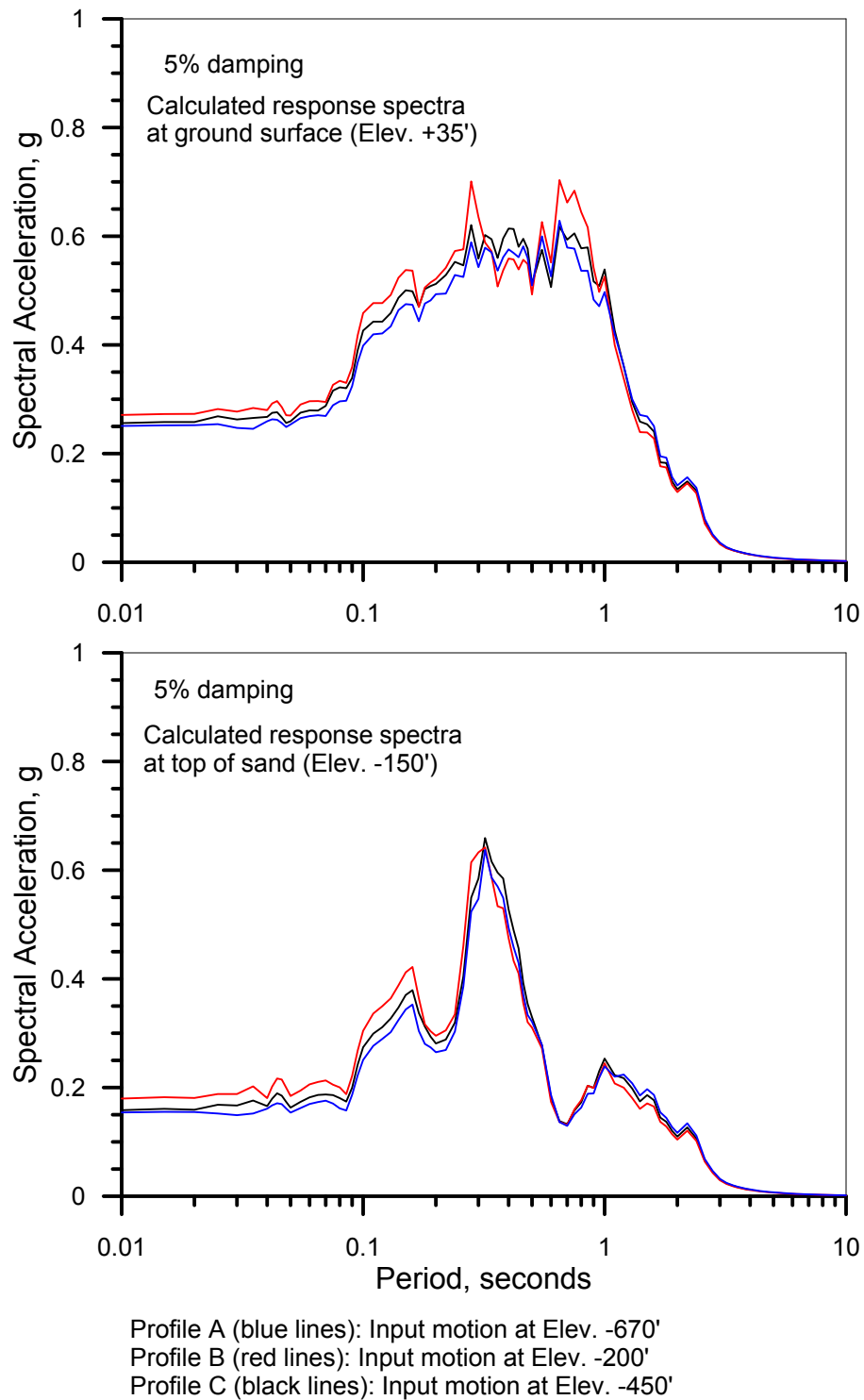
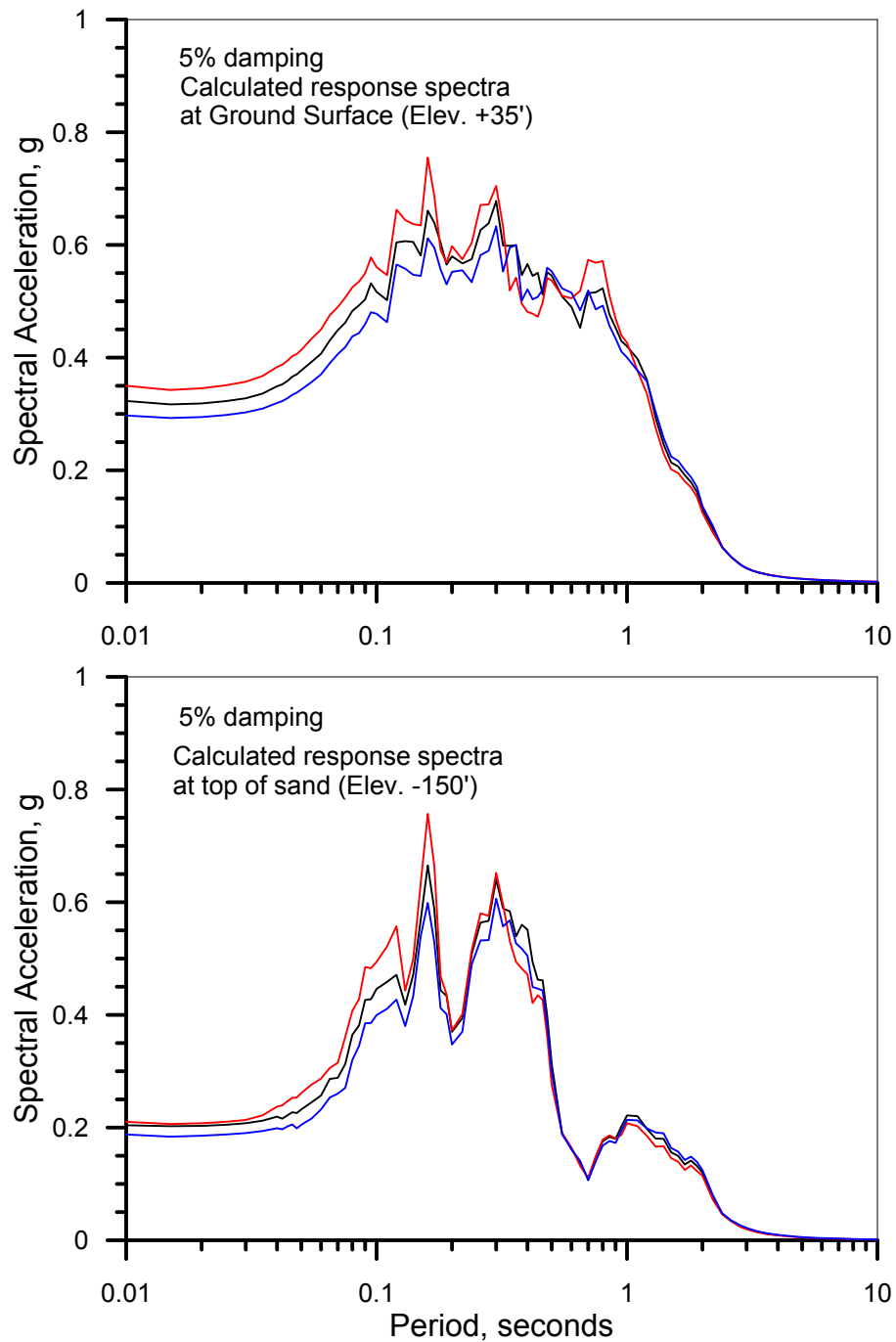


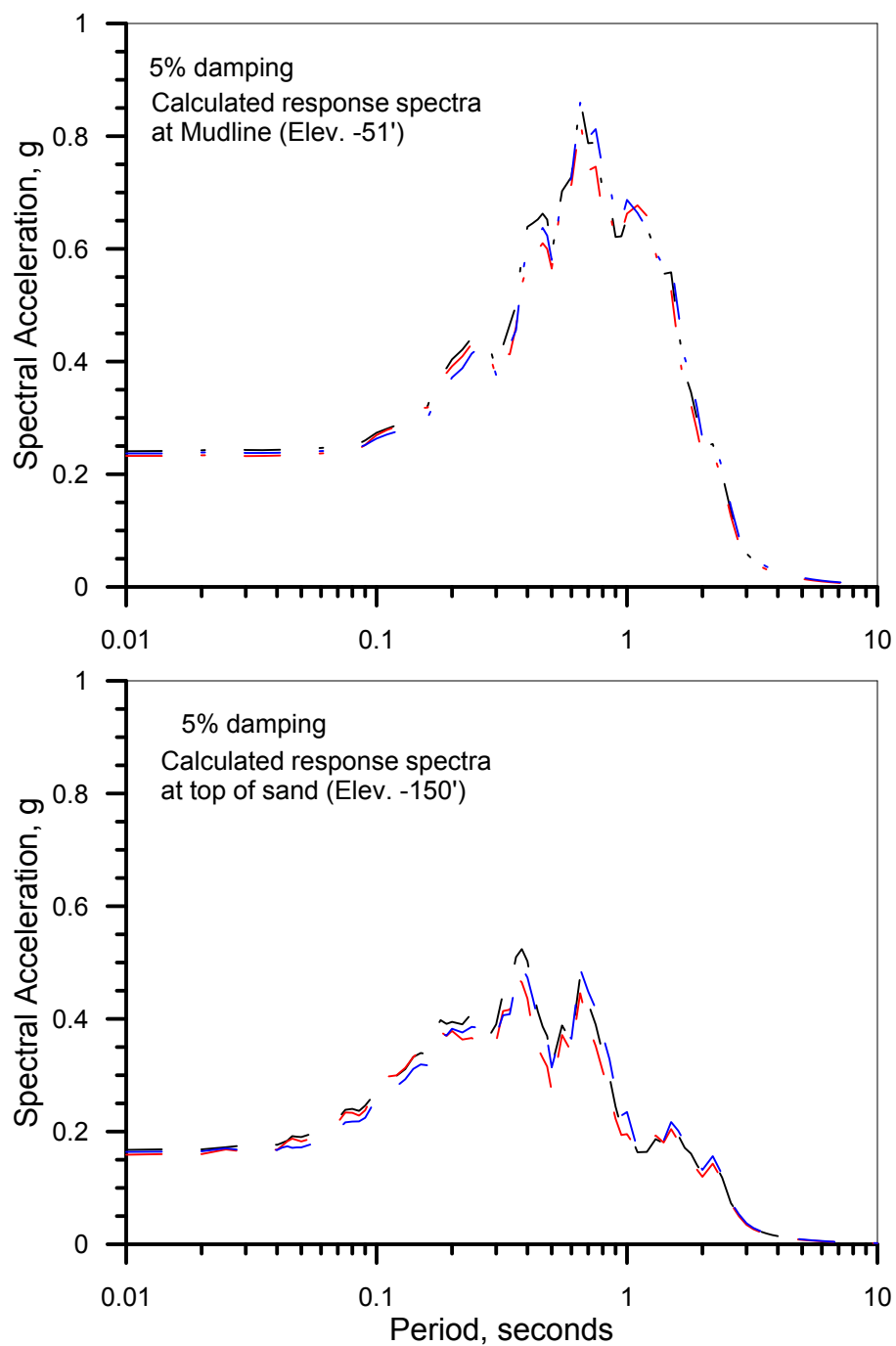
FIGURE C-85  
Sensitivity to Depth of Input Motions  
Cascadia Megathrust Synthetic Earthquake - ALL005 (CLE)  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska



Profile A (blue lines): Input motion at Elev. -670'  
 Profile B (red lines): Input motion at Elev. -200'  
 Profile C (black lines): Input motion at Elev. -450'

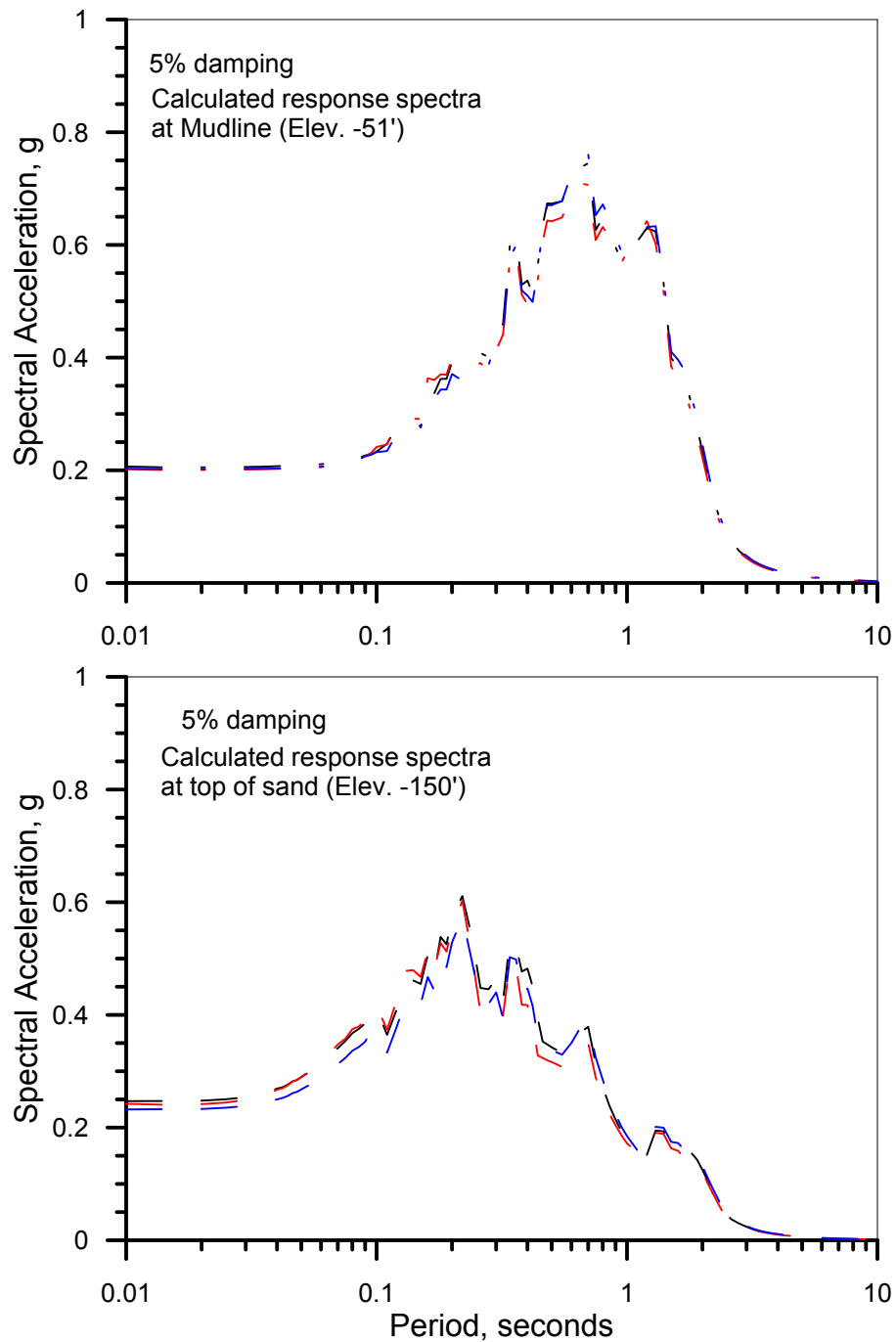
FIGURE C-86  
 Sensitivity to Depth of Input Motions  
 2001 Nisqually Earthquake at PCEP Station, 90 deg Component (CLE)  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska





Profile A (blue lines): Input motion at Elev. -670'  
 Profile B (red lines): Input motion at Elev. -200'  
 Profile C (black lines): Input motion at Elev. -450'

FIGURE C-87  
 Sensitivity to Depth of Input Motions  
 Cascadia Megathrust Synthetic Earthquake - ALL005 (CLE)  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



Profile A (blue lines): Input motion at Elev. -670'  
 Profile B (red lines): Input motion at Elev. -200'  
 Profile C (black lines): Input motion at Elev. -450'

FIGURE C-88  
 Sensitivity to Depth of Input Motions  
 2001 Nisqually Earthquake at PCEP Station, 90 deg Component (CLE)  
 Seaward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

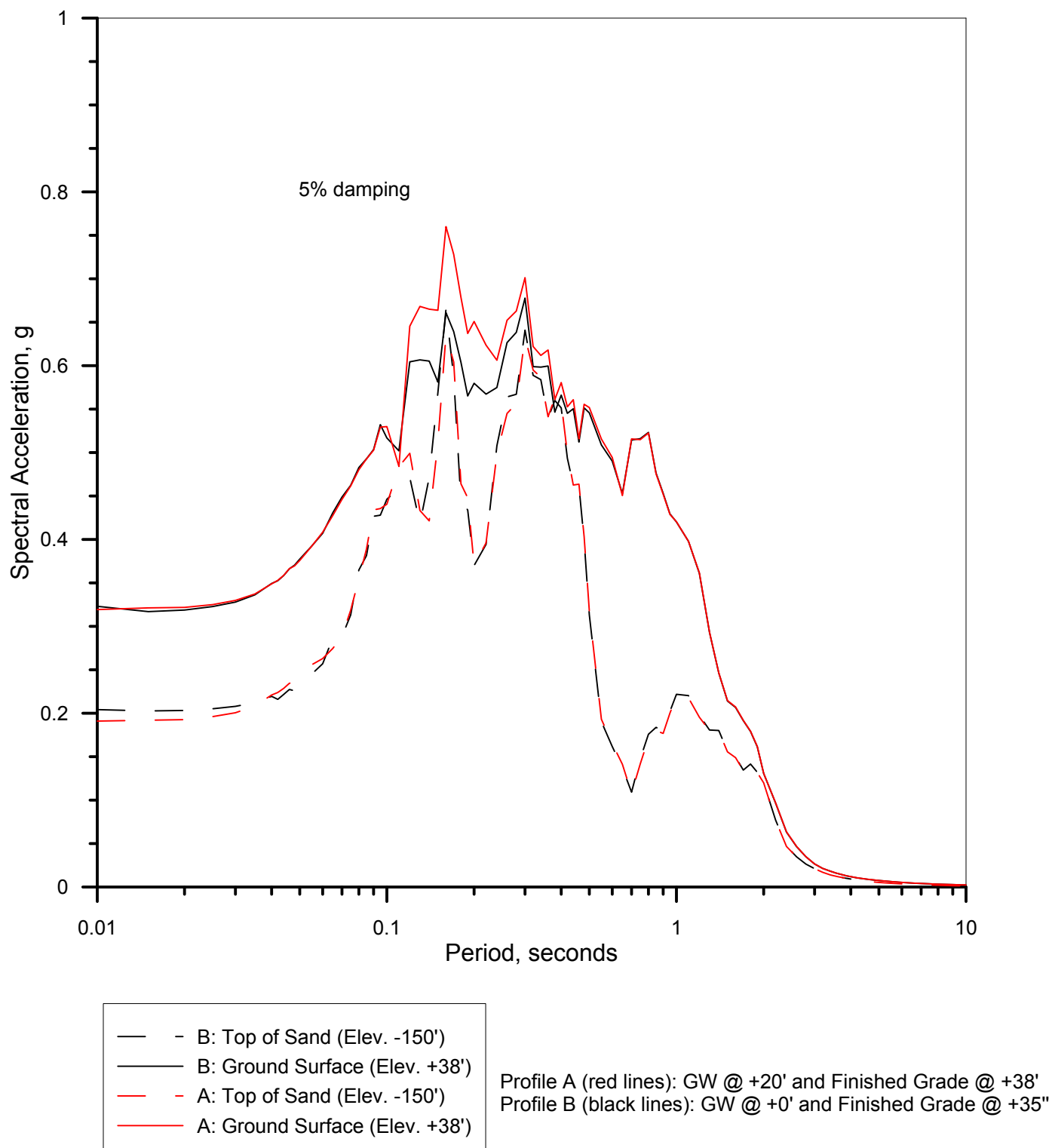
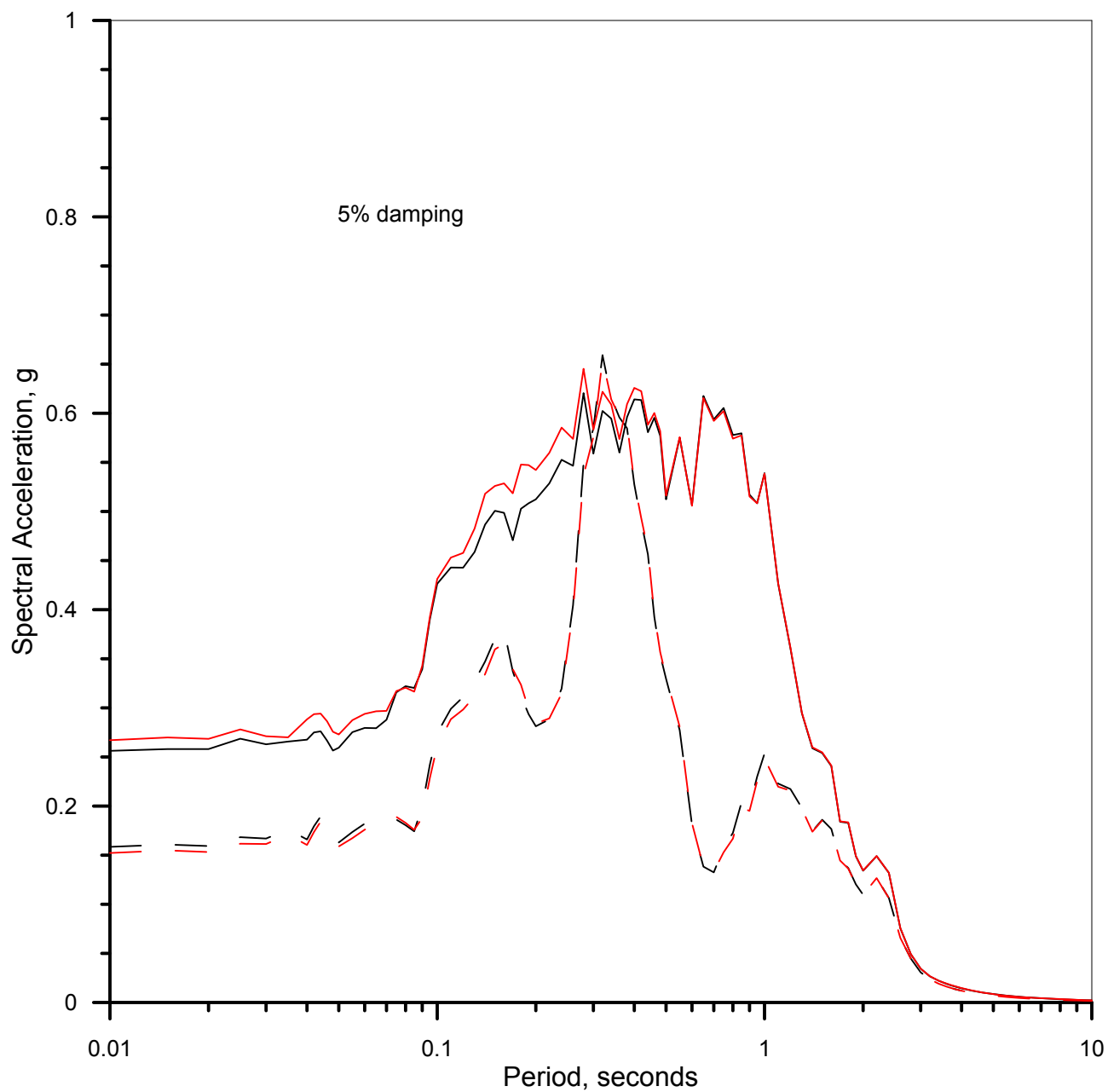


FIGURE C-89  
Sensitivity to Groundwater Depth and Finished Grade  
2001 Nisqually Earthquake at PCEP Station, 90 deg Component (CLE)  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska



— - B: Top of Sand (Elev. -150')  
 — B: Ground Surface (Elev. +38')  
 - - A: Top of Sand (Elev. -150')  
 — A: Ground Surface (Elev. +38')

Profile A (red lines): GW @ +20' and Finished Grade @ +38'  
 Profile B (black lines): GW @ +0' and Finished Grade @ +35"

FIGURE C-90  
 Sensitivity to Groundwater Depth and Finished Grade  
 Cascadia Megathrust Synthetic Earthquake, ALL005 (CLE)  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska

# Landward Soil Profile, Ground Surface/Outcropping Motions

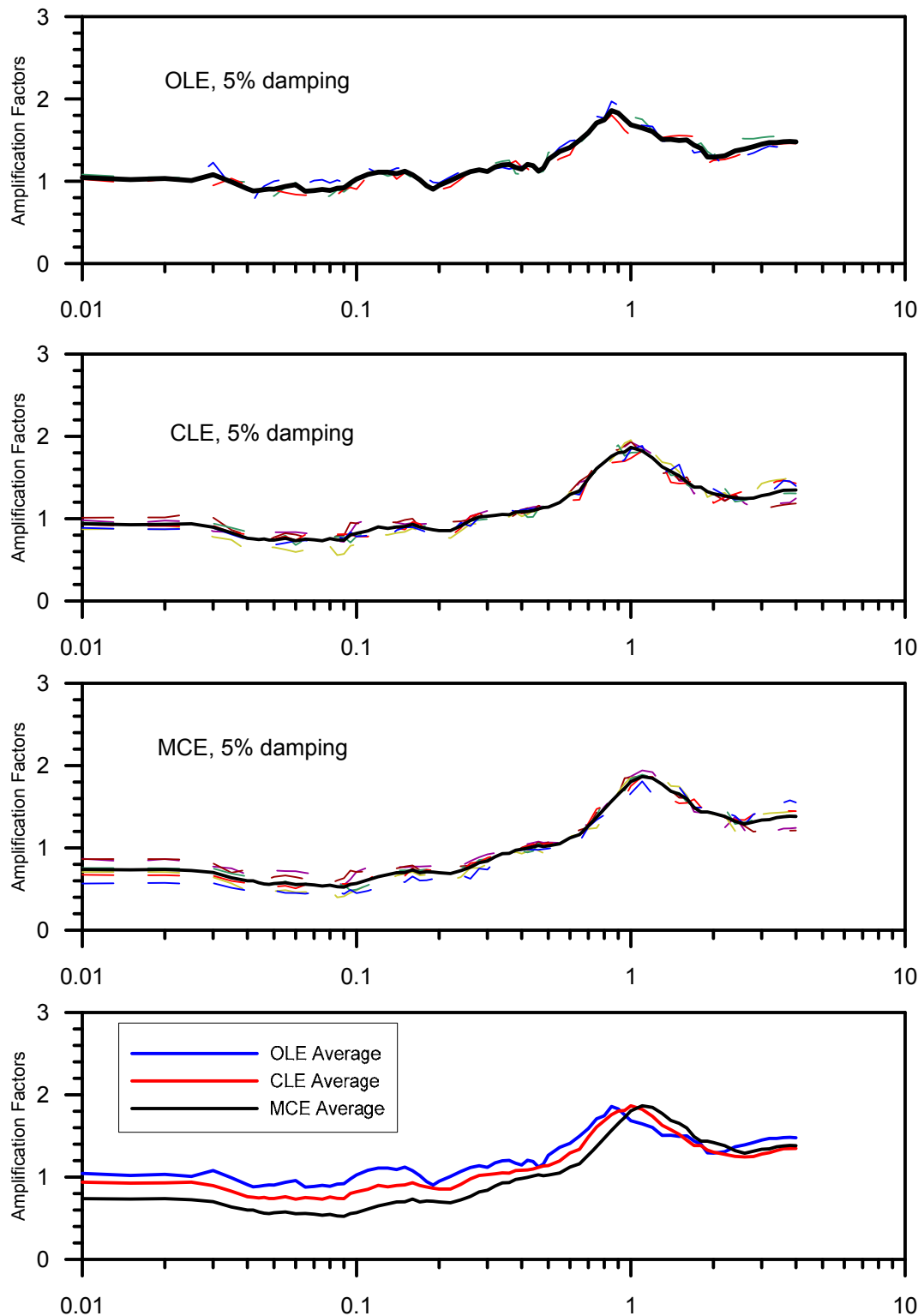


FIGURE C-91  
Spectral Amplification Factors  
Ground Surface over Outcropping Motions  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

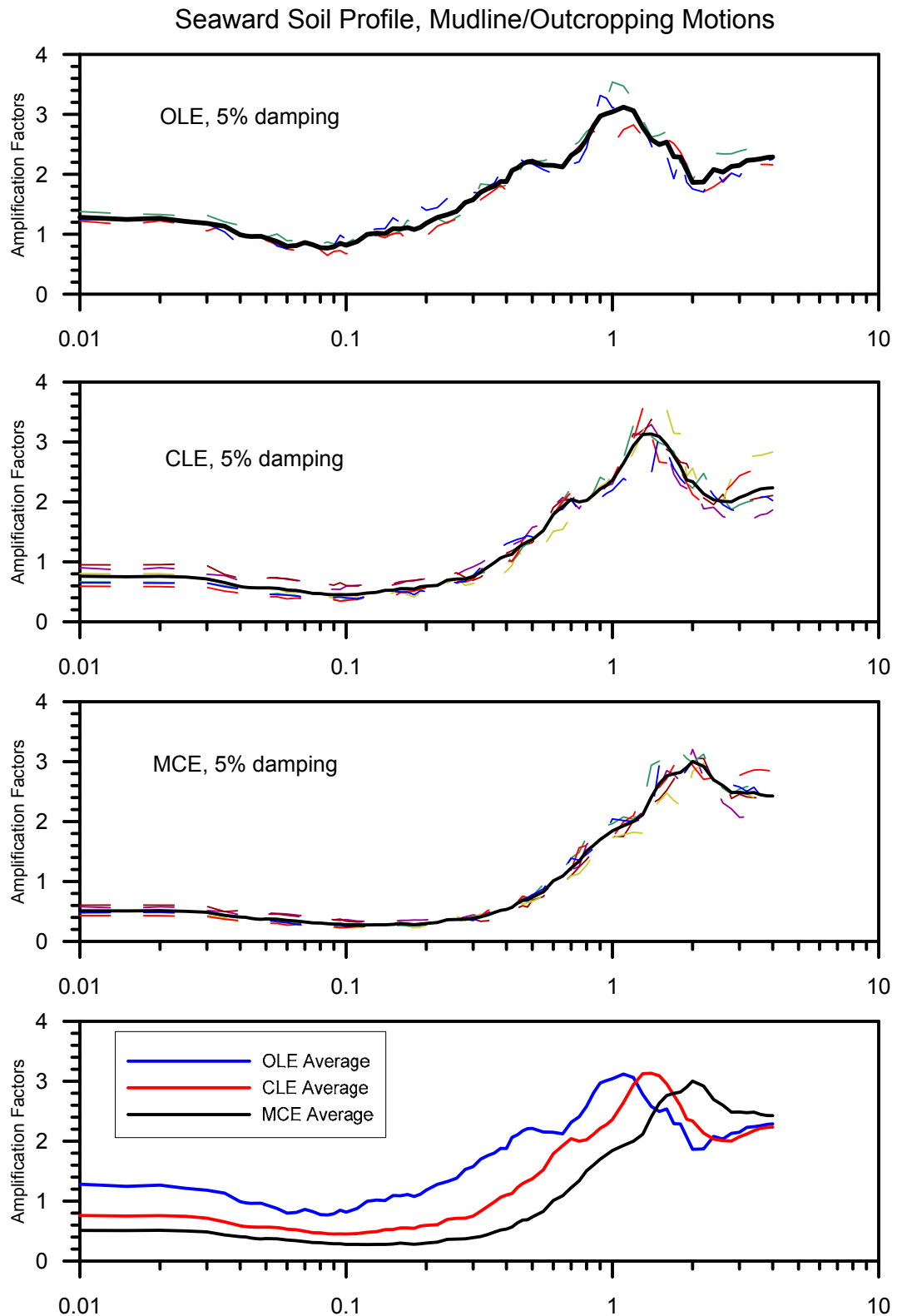


FIGURE C-92  
Spectral Amplification Factors  
Mudline over Outcropping Motions  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

# Landward Soil Profile

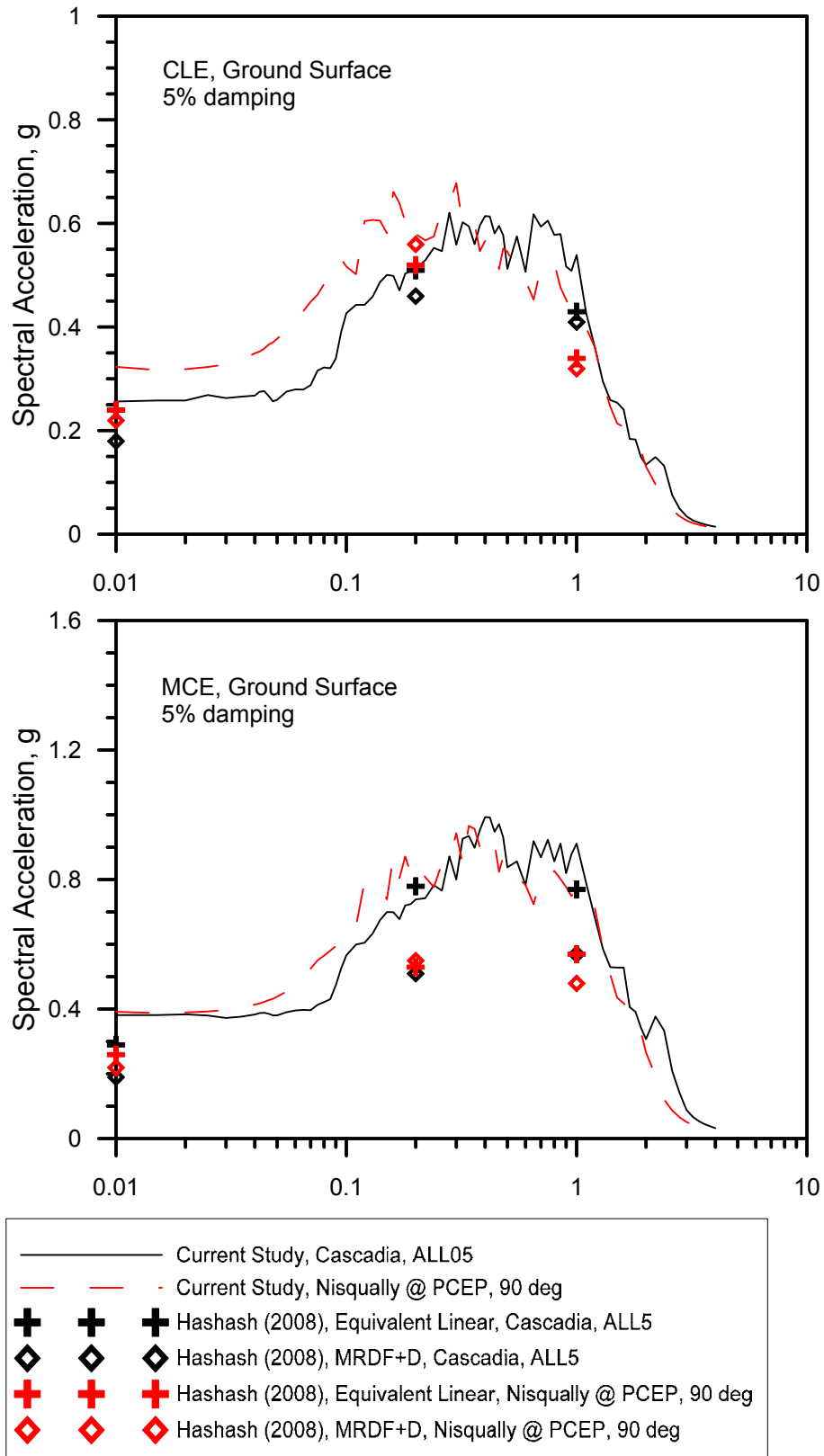


FIGURE C-93  
Comparison of Results with Previous Study  
Landward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska

# Seaward Soil Profile

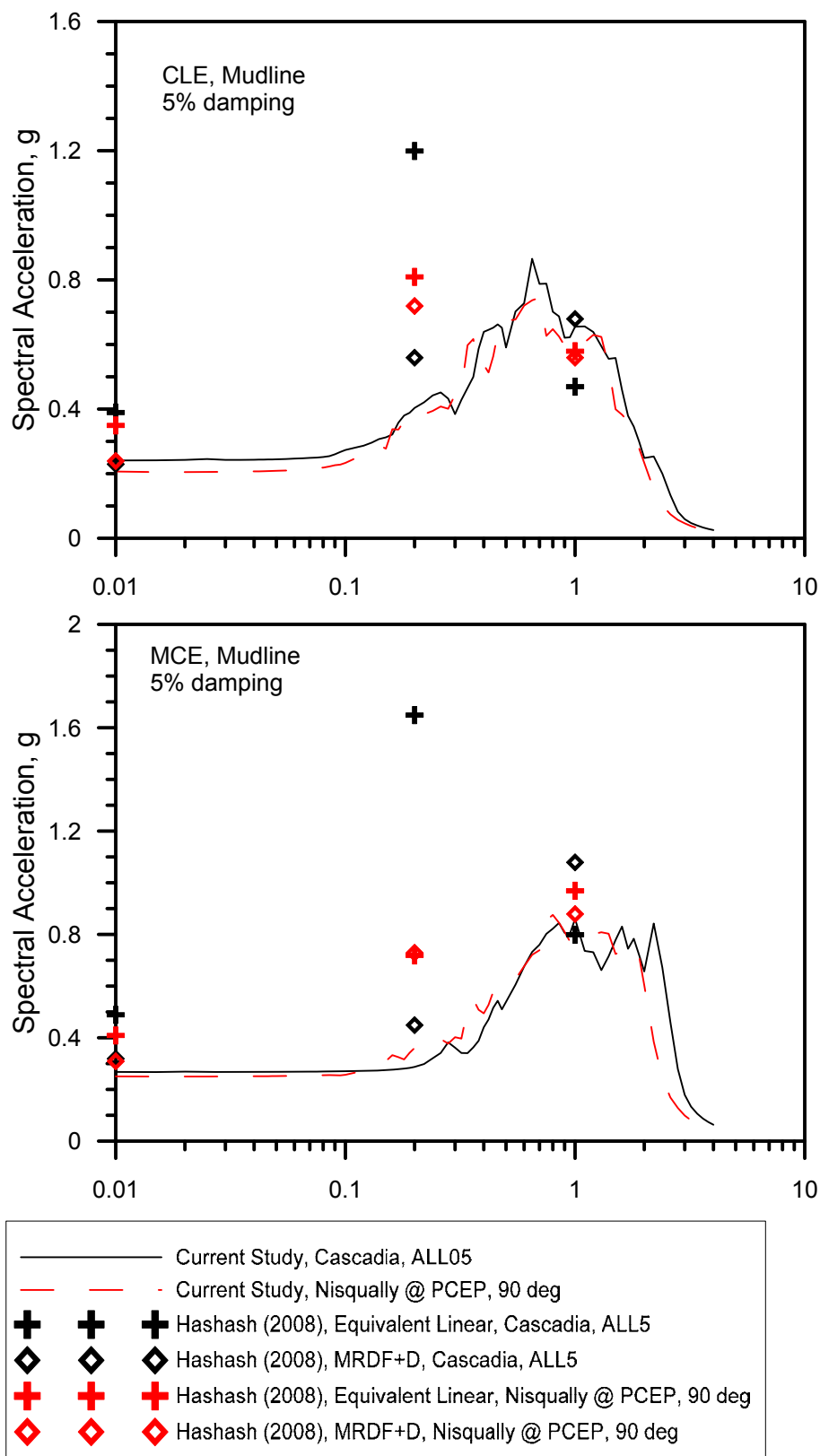
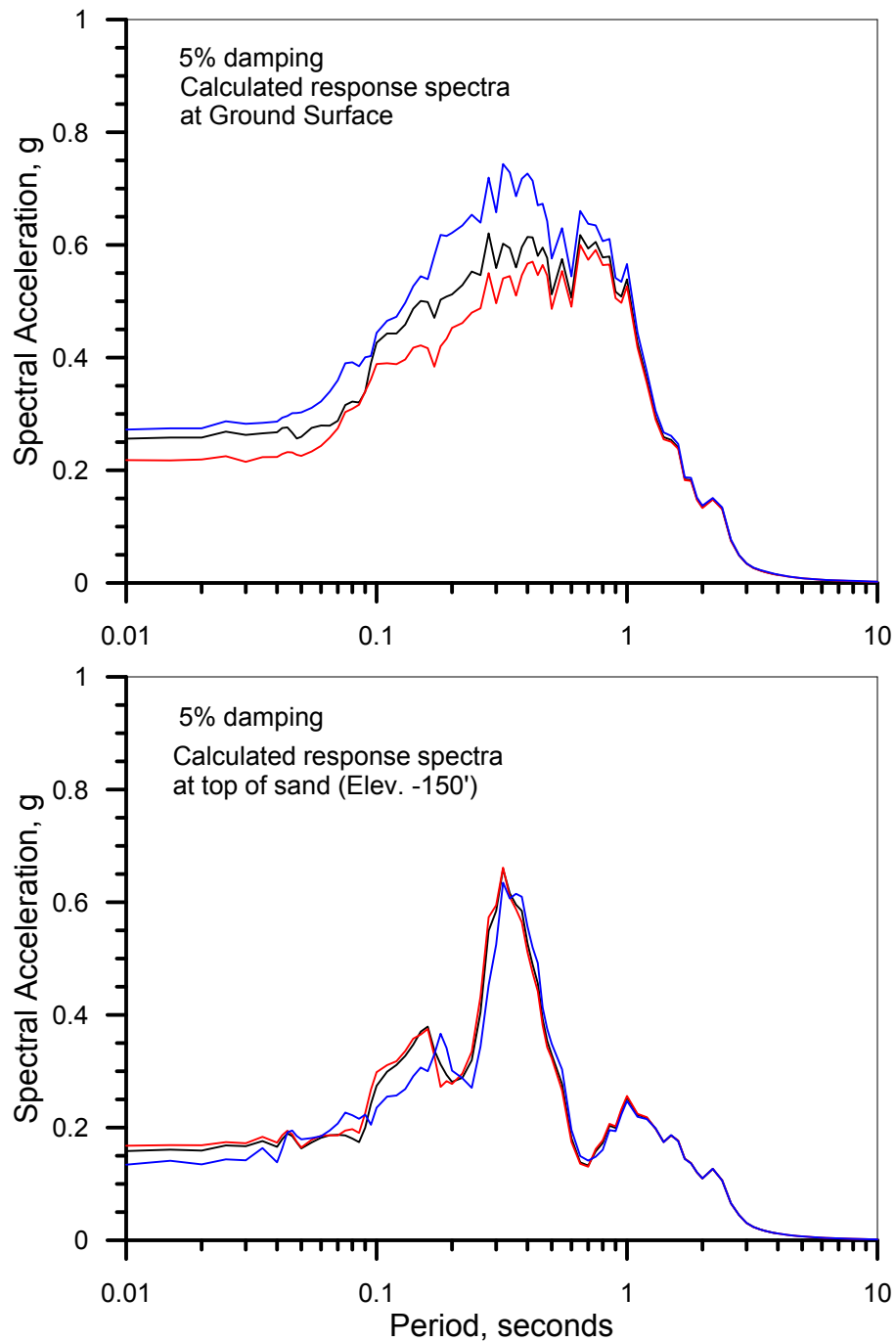


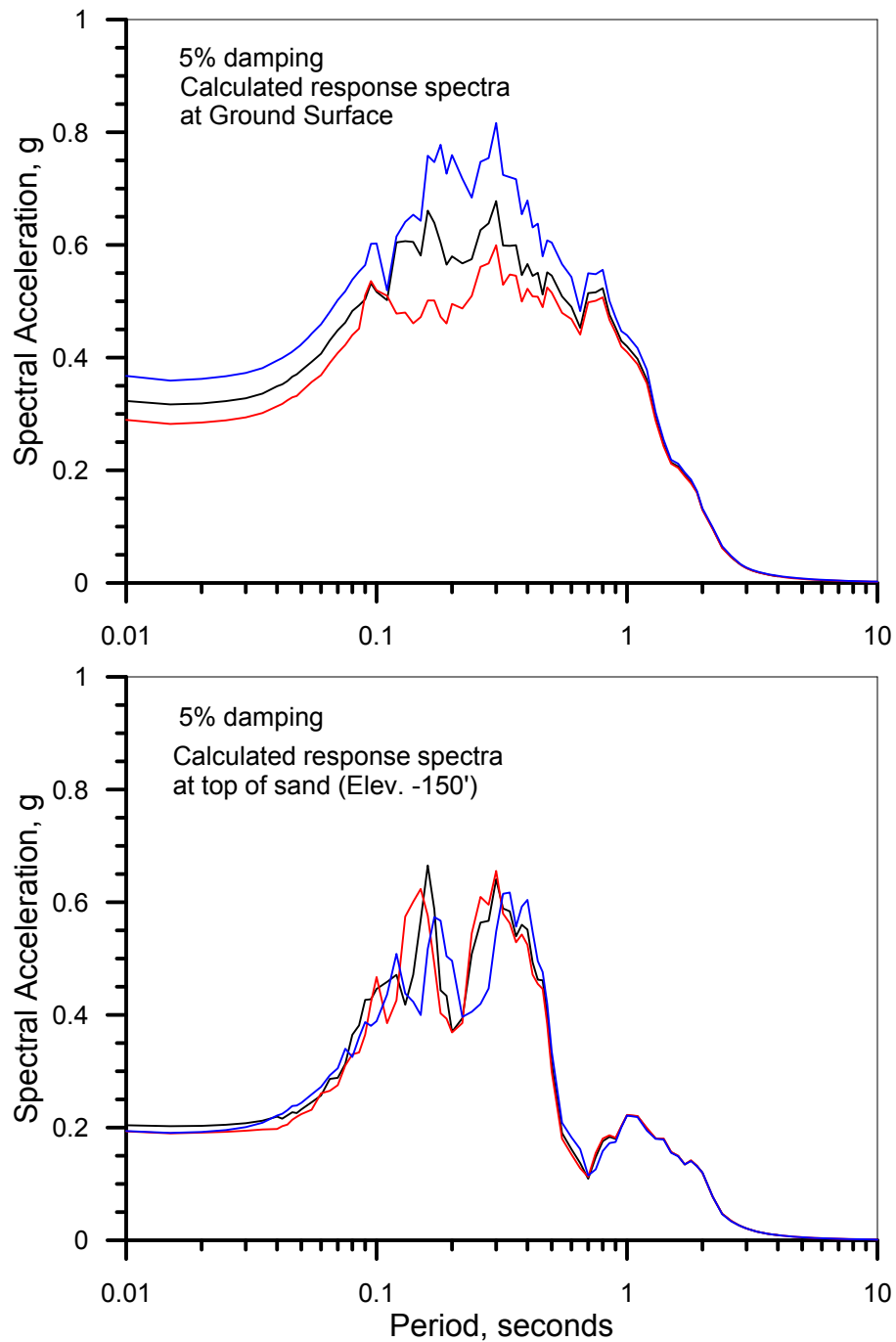
FIGURE C-94  
Comparison of Results with Previous Study  
Seaward Soil Profile  
Port of Anchorage Intermodal Expansion, Northern Expansion  
Anchorage, Alaska





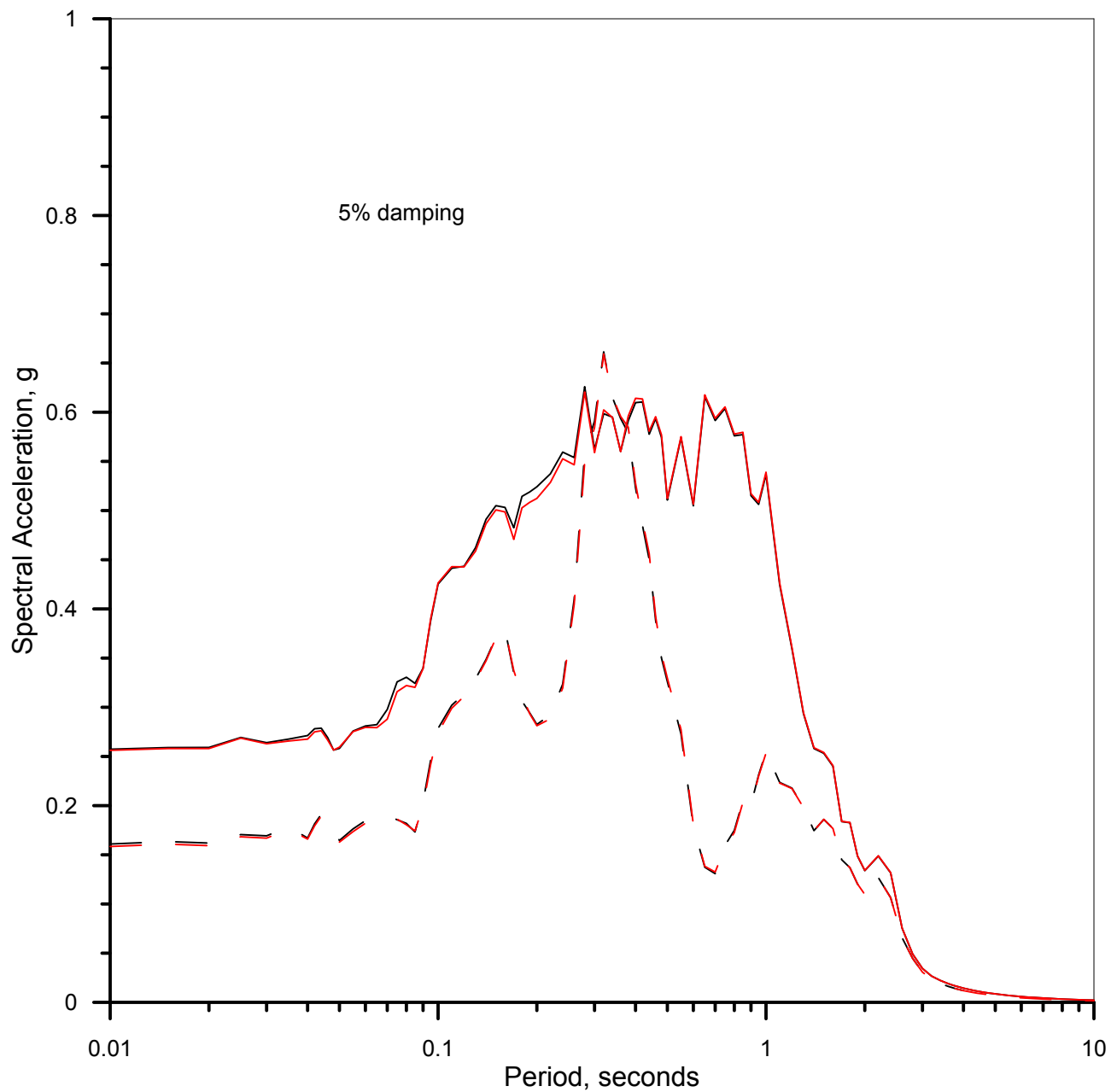
Profile A (blue lines):  $K_{2max} = 80$  (-20%)  
 Profile B (red lines):  $K_{2max} = 120$  (+20%)  
 Profile C (black lines):  $K_{2max} = 100$

FIGURE C-95  
 Sensitivity to Backfill Velocity Variation  
 Cascadia Megathrust Synthetic Earthquake, ALL005 (CLE)  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



Profile A (blue lines):  $K_{2max} = 80$  (-20%)  
 Profile B (red lines):  $K_{2max} = 120$  (+20%)  
 Profile C (black lines):  $K_{2max} = 100$

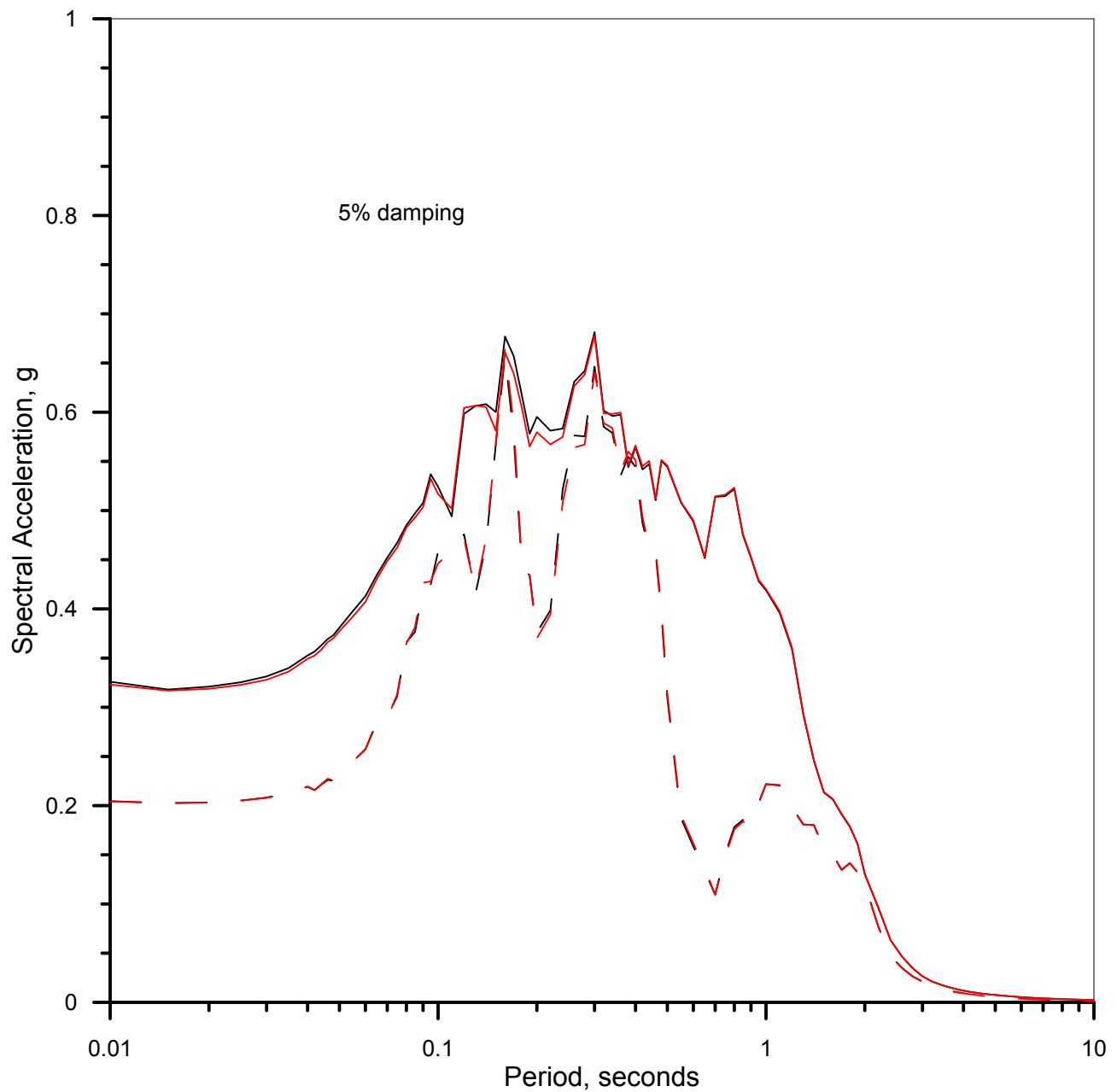
FIGURE C-96  
 Sensitivity to Backfill Velocity Variation  
 2001 Nisqually Earthquake at PCEP Station, 90 deg Component (CLE)  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



— - B: Top of Sand (Elev. -150')  
 — B: Ground Surface (Elev. +38')  
 - - A: Top of Sand (Elev. -150')  
 - A: Ground Surface (Elev. +38')

Profile A (red lines): Abrupt Velocity Contrast  
 Profile B (black lines): Smooth Velocity Contrast

FIGURE C-97  
 Sensitivity to Velocity Contrast at Backfill and BCF Interface  
 Cascadia Megathrust Synthetic Earthquake, ALL005 (CLE)  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska



— - B: Top of Sand (Elev. -150')  
 — B: Ground Surface (Elev. +38')  
 - - A: Top of Sand (Elev. -150')  
 — A: Ground Surface (Elev. +38')

Profile A (red lines): Abrupt Velocity Contrast  
 Profile B (black lines): Smooth Velocity Contrast

FIGURE C-98  
 Sensitivity to Velocity Contrast at Backfill and BCF Interface  
 2001 Nisqually Earthquake at PCEP Station, 90 deg Component  
 Landward Soil Profile  
 Port of Anchorage Intermodal Expansion, Northern Expansion  
 Anchorage, Alaska