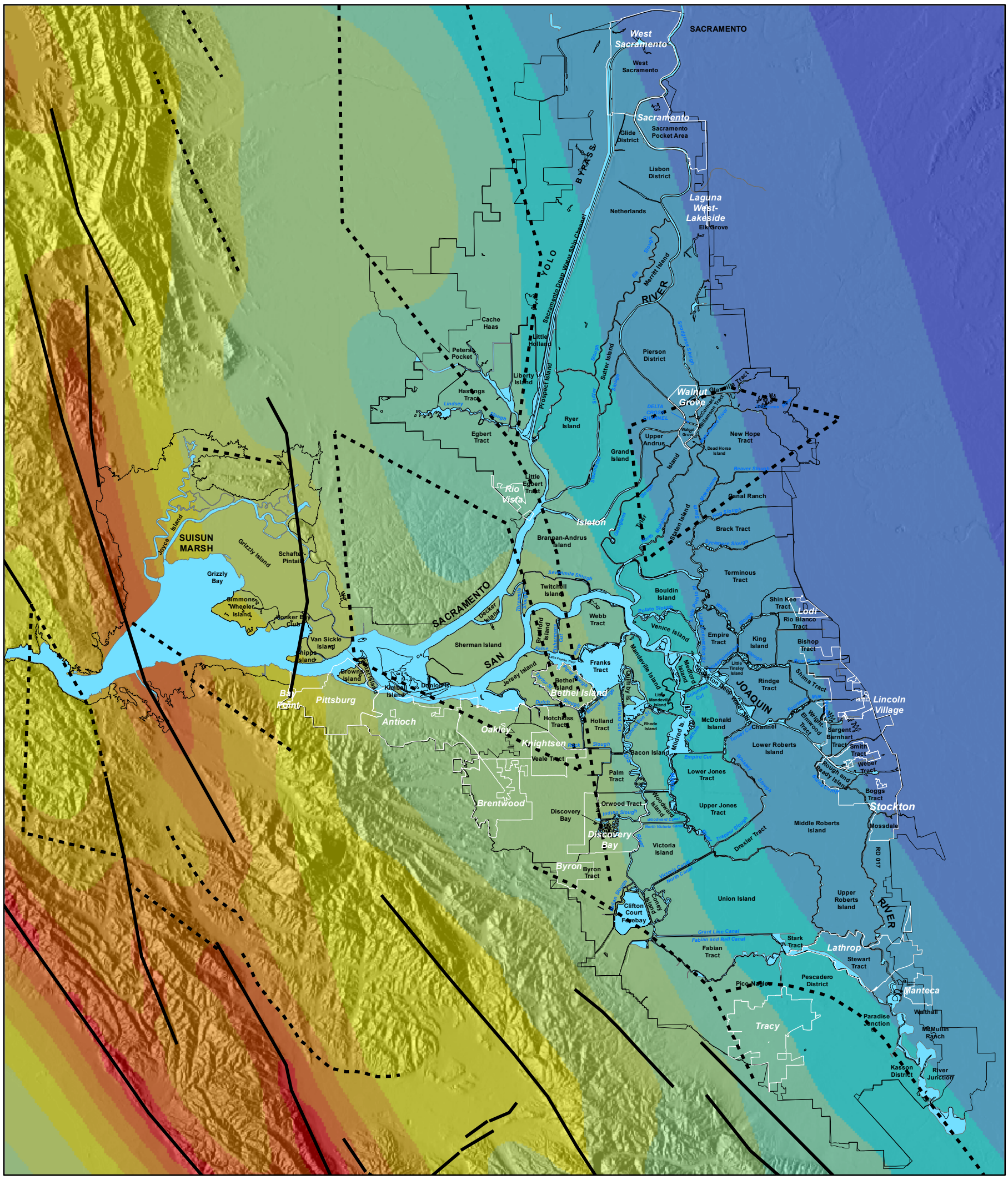


Legend

Mapped Faults

Surficial faults used in the hazard analysis

Blind Faults

Blind faults used in the hazard analysis

Legal Delta and Suisun Marsh Boundary

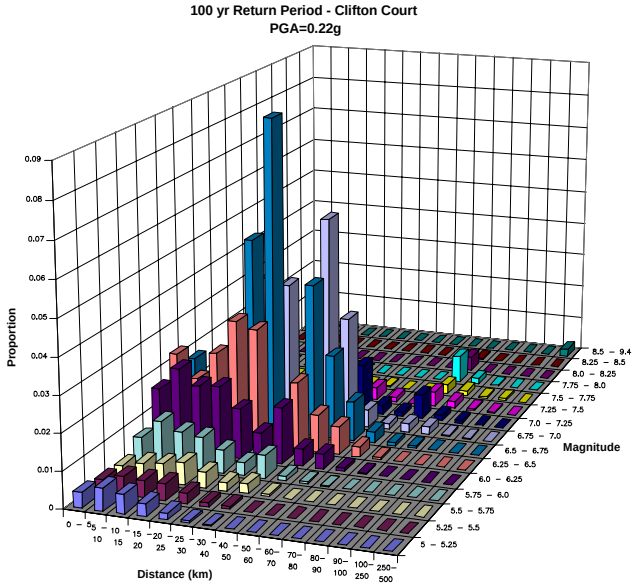
PGA, 500 Year Return Period

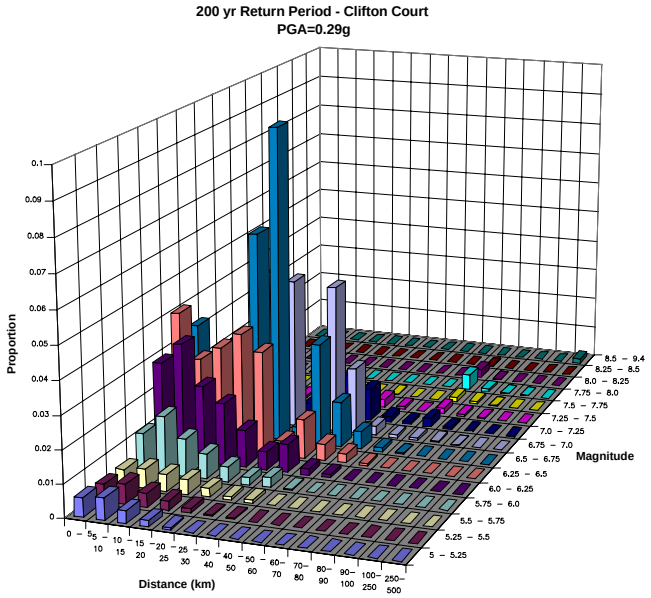
0.00 - 0.10	0.36 - 0.40
0.11 - 0.15	0.41 - 0.45
0.16 - 0.20	0.46 - 0.50
0.21 - 0.25	0.51 - 0.55
0.26 - 0.30	0.56 - 0.60
0.31 - 0.35	0.61 - 0.65
	0.66 - 0.70

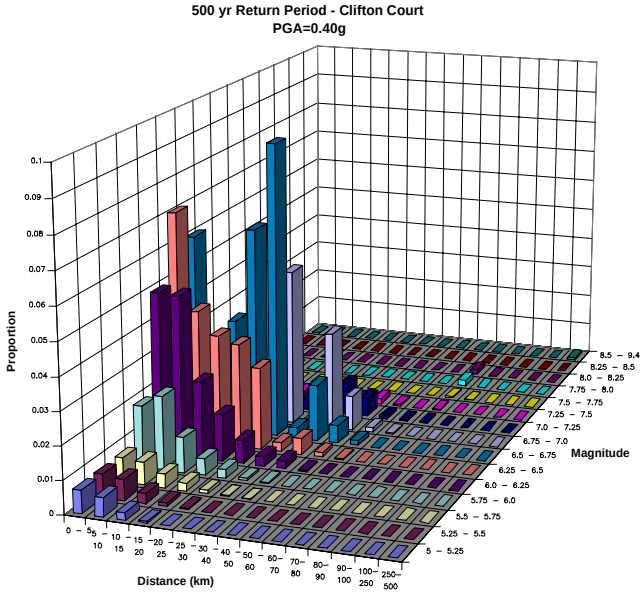
0 5 10 Miles

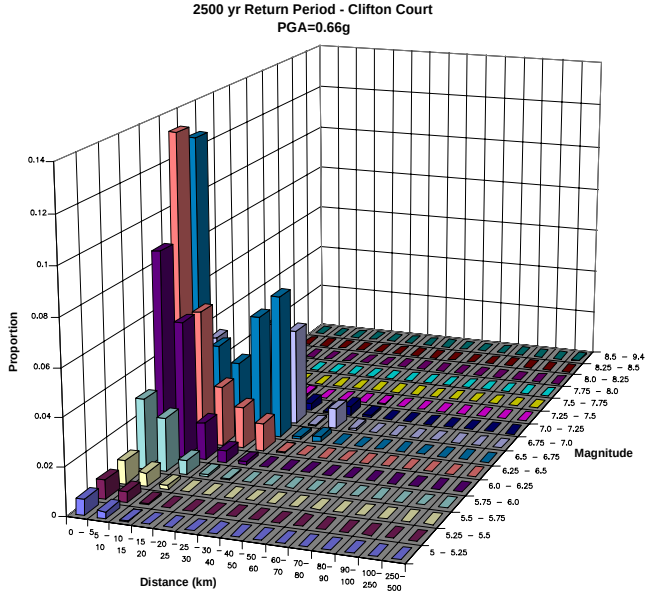
URS	DRMS 26815431	PGA Hazard for a 500-Year Return Period	FIGURE 6-20

URS Corporation, Oakland, CA, dhwrigh0 P:\GIS\GIS_Phase_II_Project_Files\MXD\Current Working Documents\Seismic_Motions\Seismic Motion Template.mxd - 6/23/2007 @ 12:26:23 PM

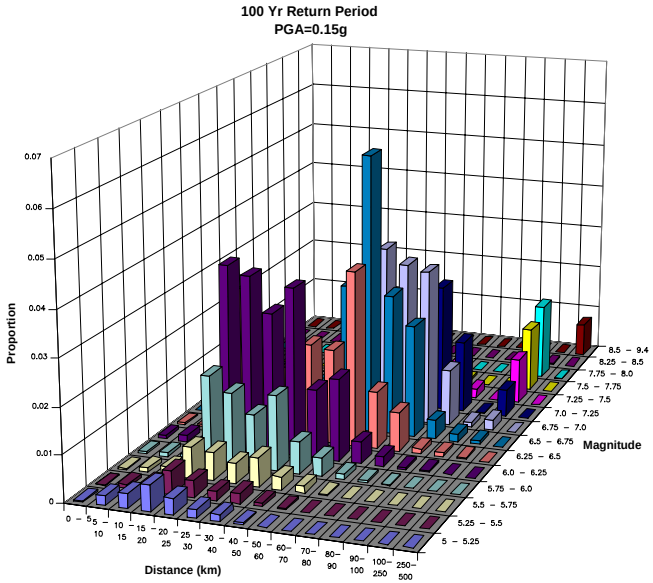


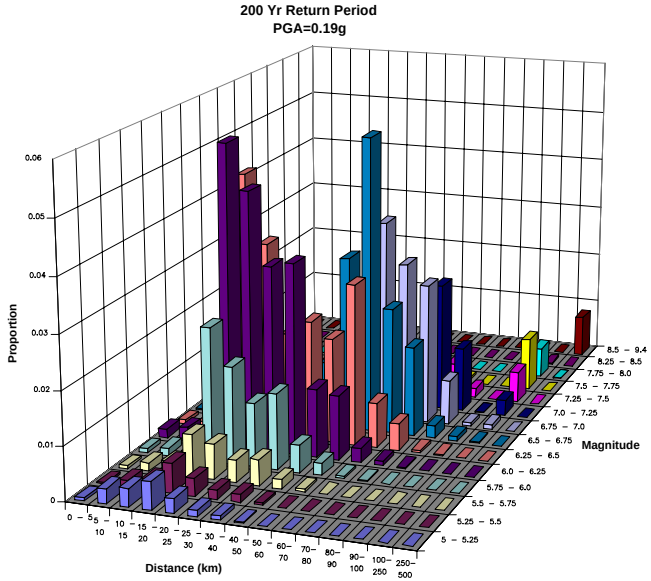


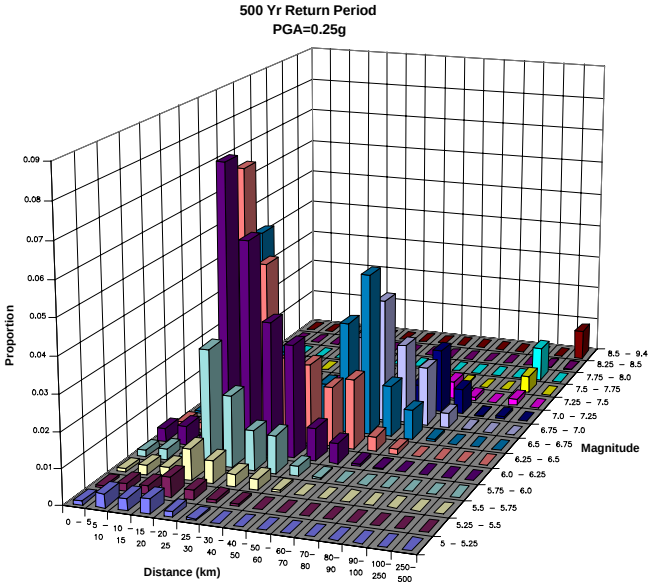


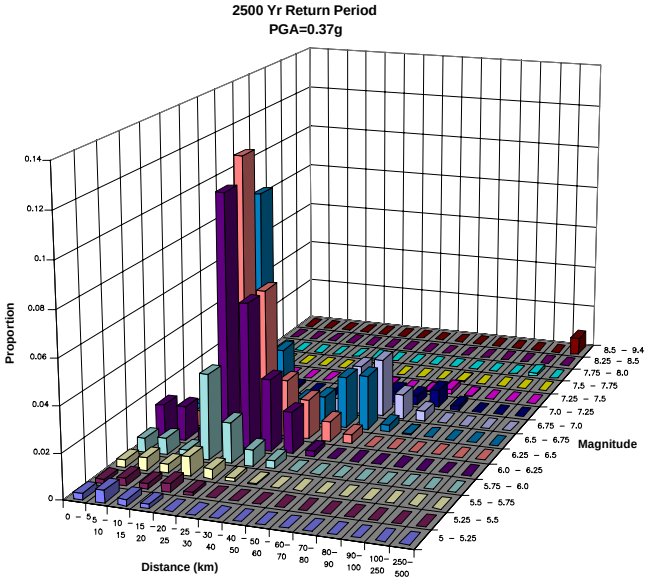


URS **DELTA RISK MANAGEMENT STRATEGY CALIFORNIA** PROJECT No. 26815621	MAGNITUDE AND DISTANCE CONTRIBUTIONS TO THE MEAN PEAK HORIZONTAL ACCELERATION HAZARD FOR CLIFTON COURT FOR 2005	**Figure 6-21**

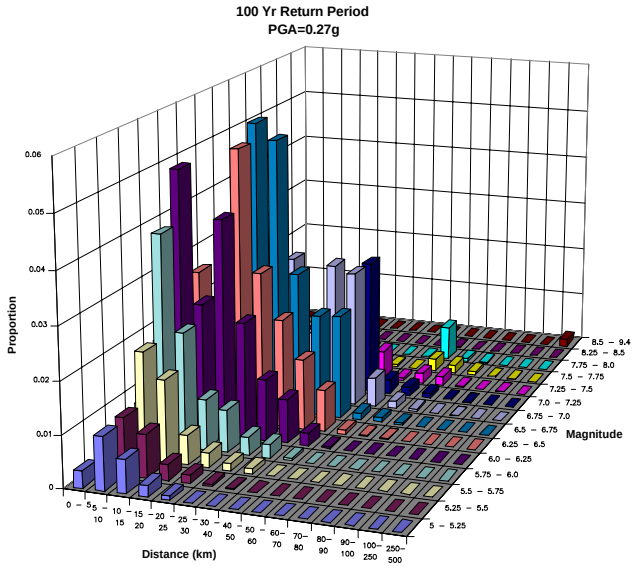


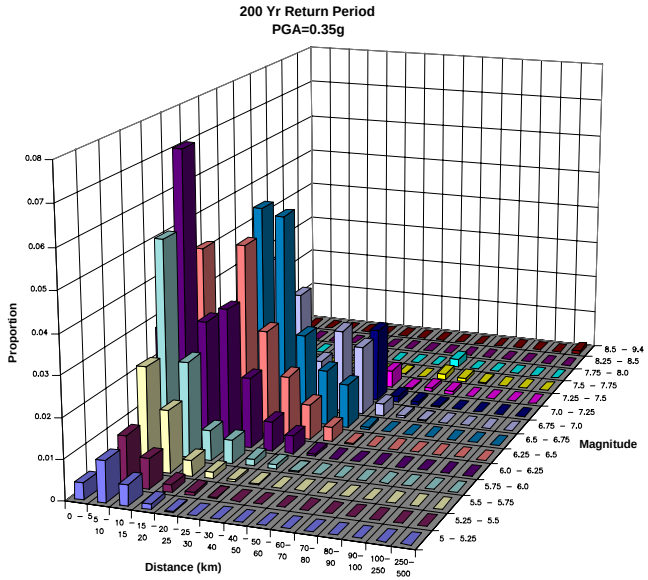


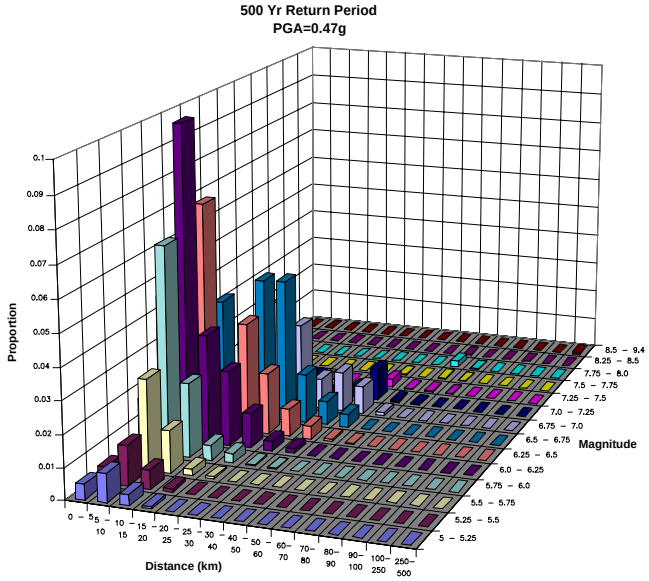


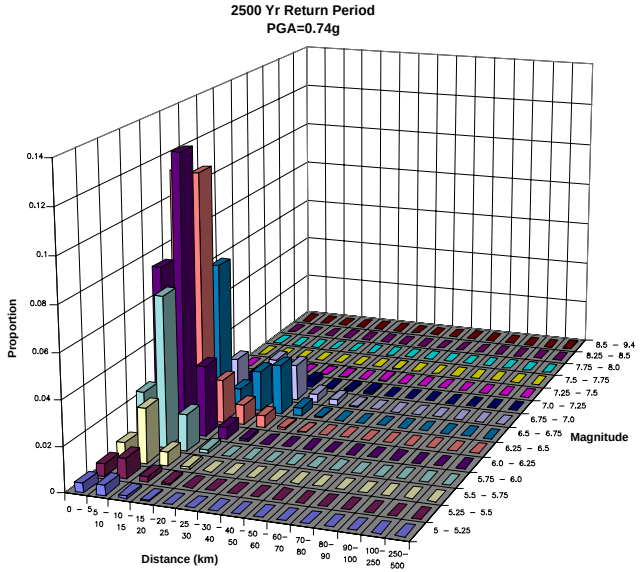


URS DELTA RISK MANAGEMENT STRATEGY CALIFORNIA PROJECT No. 26815621	MAGNITUDE AND DISTANCE CONTRIBUTIONS TO THE MEAN PEAK HORIZONTAL ACCELERATION HAZARD FOR DELTA CROSS CHANNEL FOR 2005	**Figure 6-22**

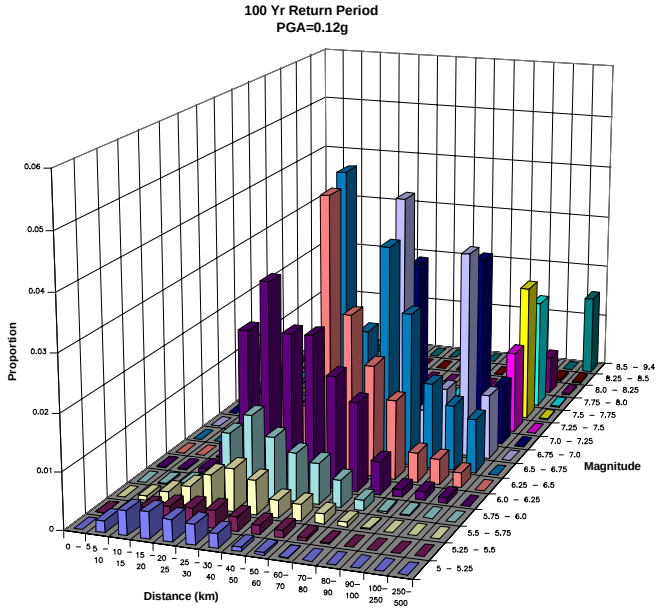


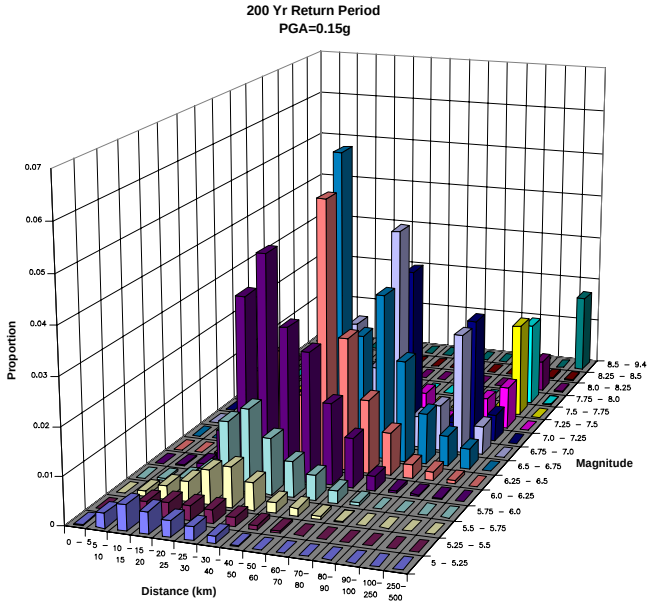


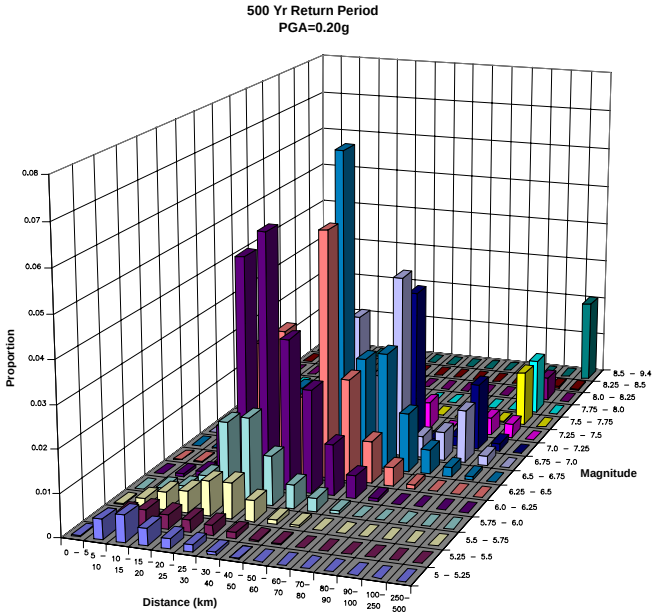


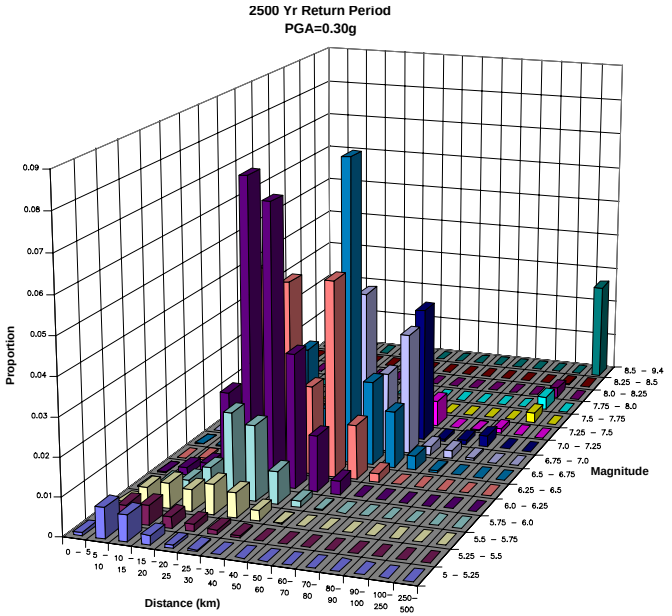


URS **DELTA RISK MANAGEMENT STRATEGY CALIFORNIA**	MAGNITUDE AND DISTANCE CONTRIBUTIONS TO THE MEAN PEAK HORIZONTAL ACCELERATION HAZARD FOR MONTEZUMA SLOUGH FOR 2005	**Figure 6-23**
PROJECT No. 26815621		

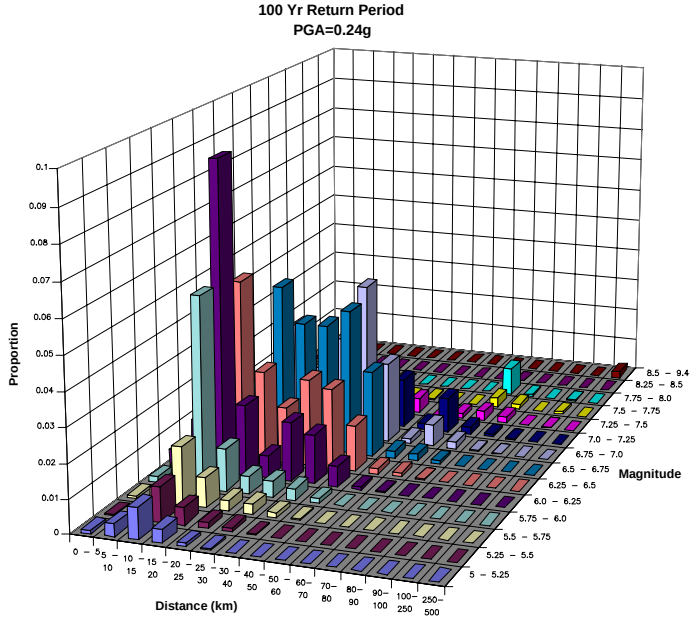


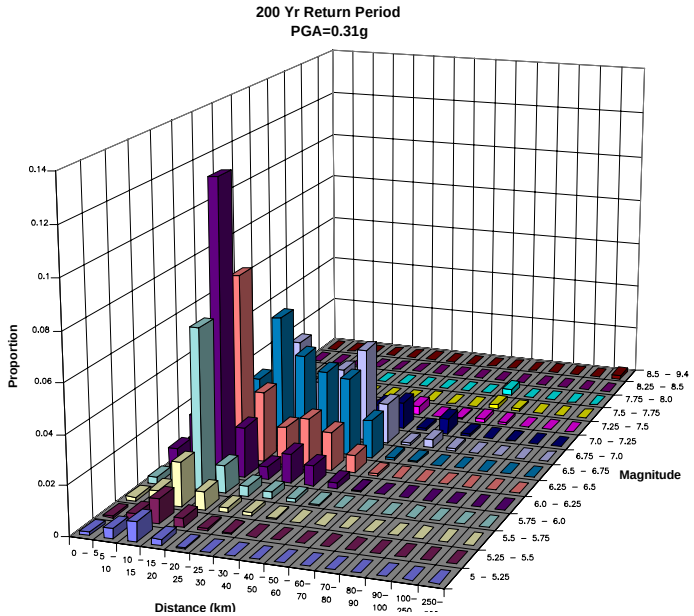


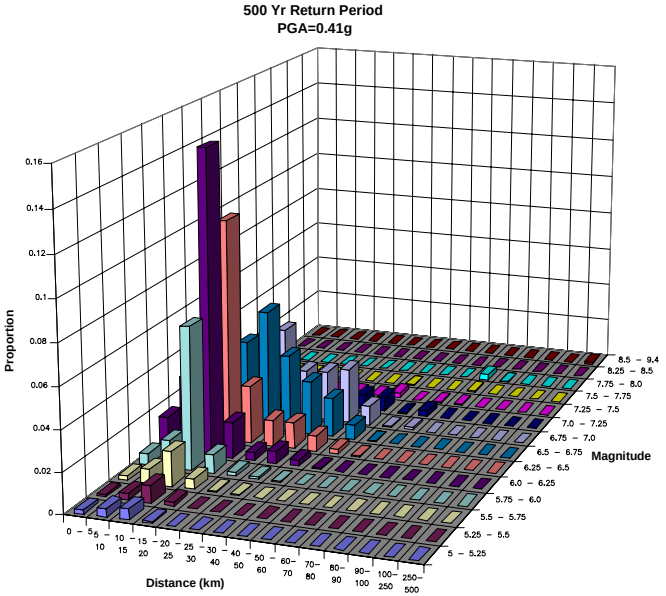


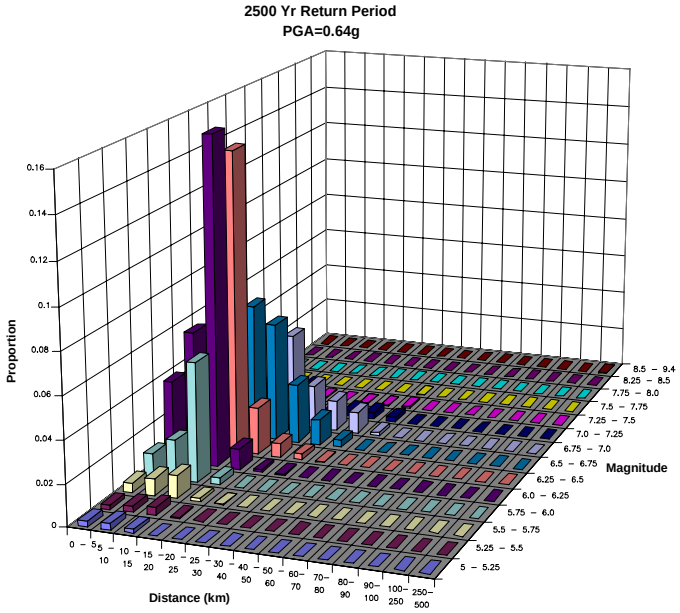


URS DELTA RISK MANAGEMENT STRATEGY CALIFORNIA PROJECT No. 26815621	MAGNITUDE AND DISTANCE CONTRIBUTIONS TO THE MEAN PEAK HORIZONTAL ACCELERATION HAZARD FOR SACRAMENTO FOR 2005	**Figure 6-24**

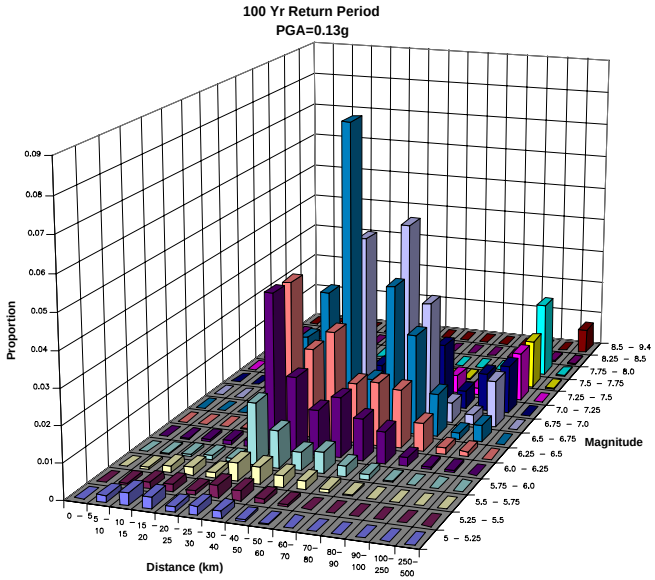


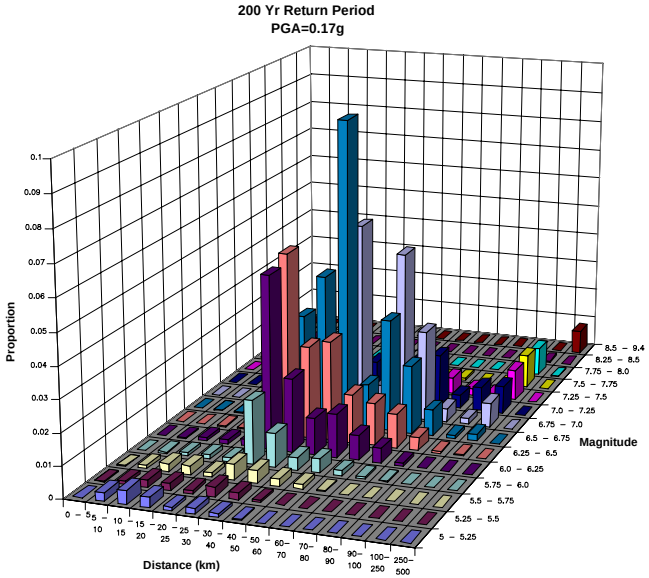


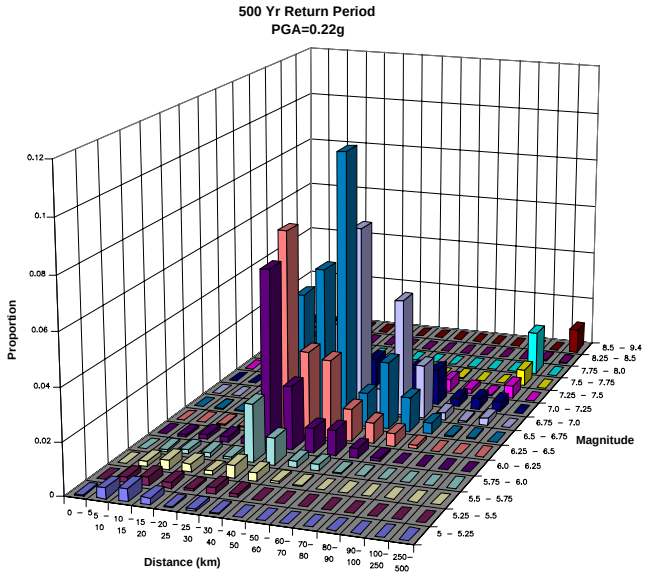


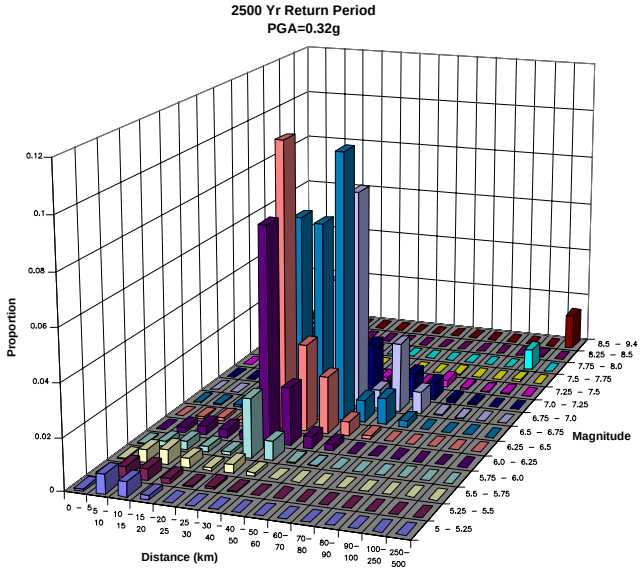


URS DELTA RISK MANAGEMENT STRATEGY CALIFORNIA PROJECT No. 26815621	MAGNITUDE AND DISTANCE CONTRIBUTIONS TO THE MEAN PEAK HORIZONTAL ACCELERATION HAZARD FOR SHERMAN ISLAND FOR 2005	**Figure 6-25**



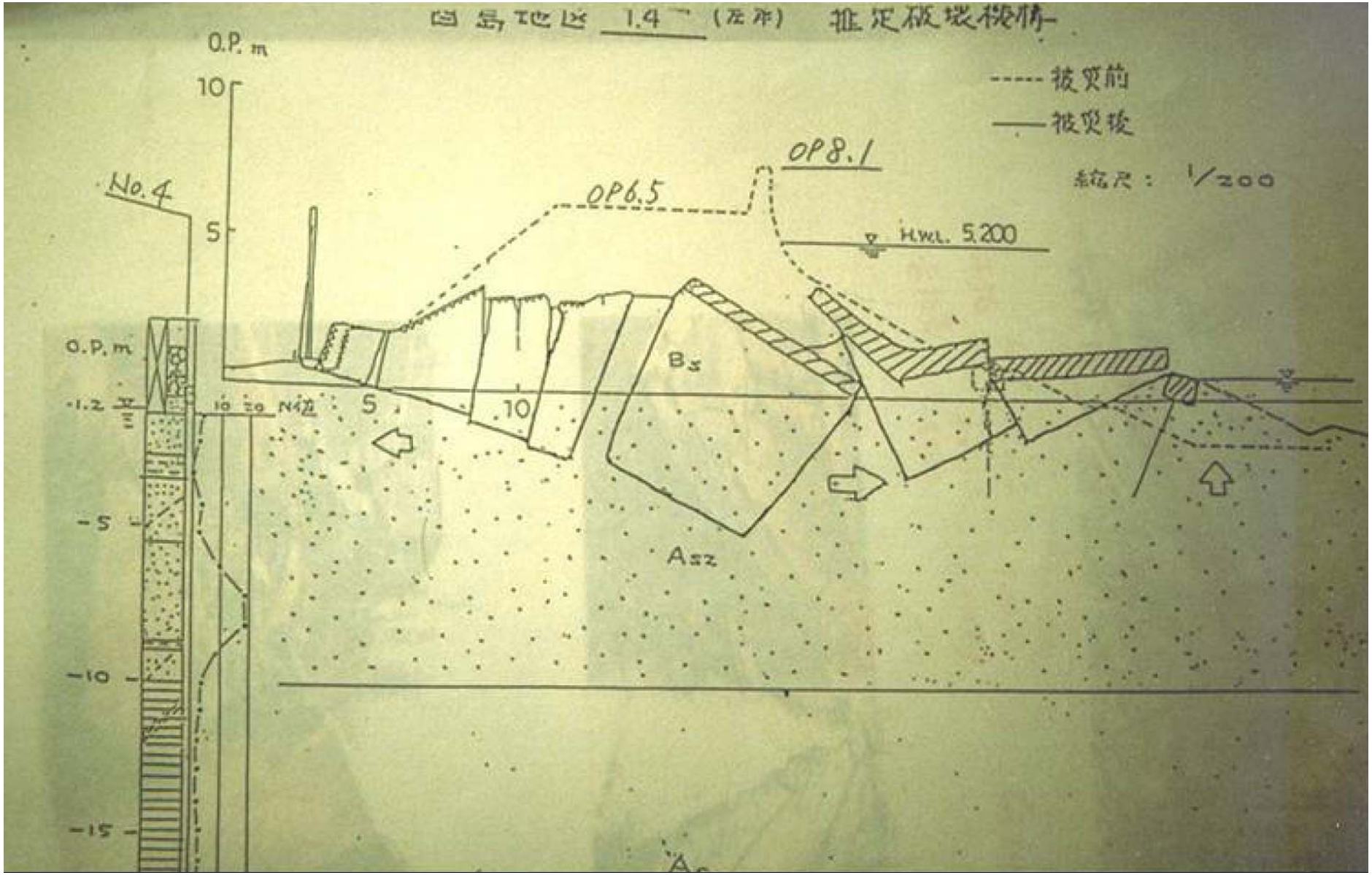






URS **DELTA RISK MANAGEMENT STRATEGY CALIFORNIA**	MAGNITUDE AND DISTANCE CONTRIBUTIONS TO THE MEAN PEAK HORIZONTAL ACCELERATION HAZARD FOR STOCKTON FOR 2005	**Figure 6-26**
PROJECT No. 26815621		

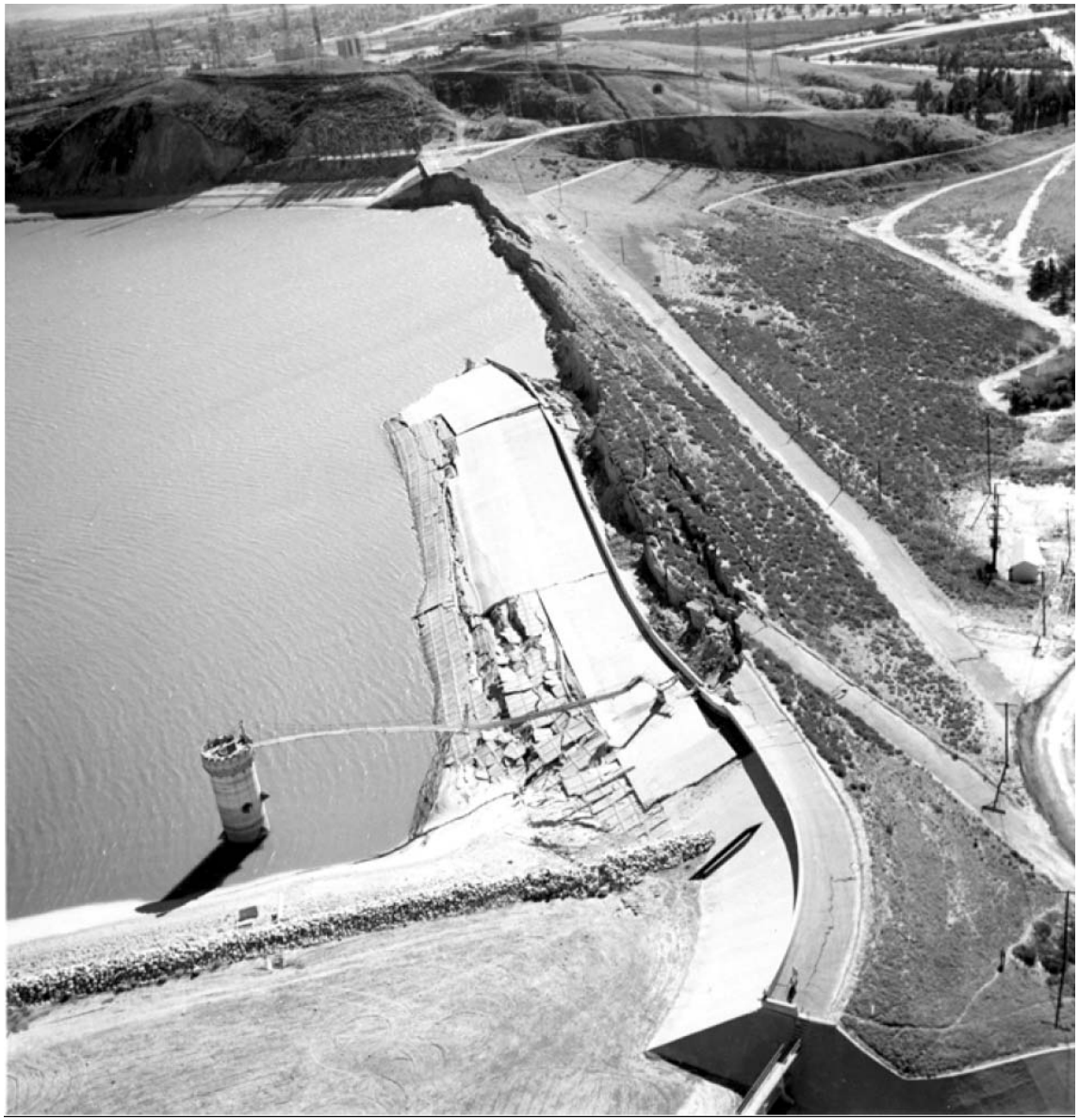
Delta Risk Management Strategy (DRMS) Levee Fragility		Levee Slumping Histories Earthquake Damage During Jan 17, 1995 Kobe Earthquake at Kobe, Japan	Figure 6-27
URS	Project No. 26815621		



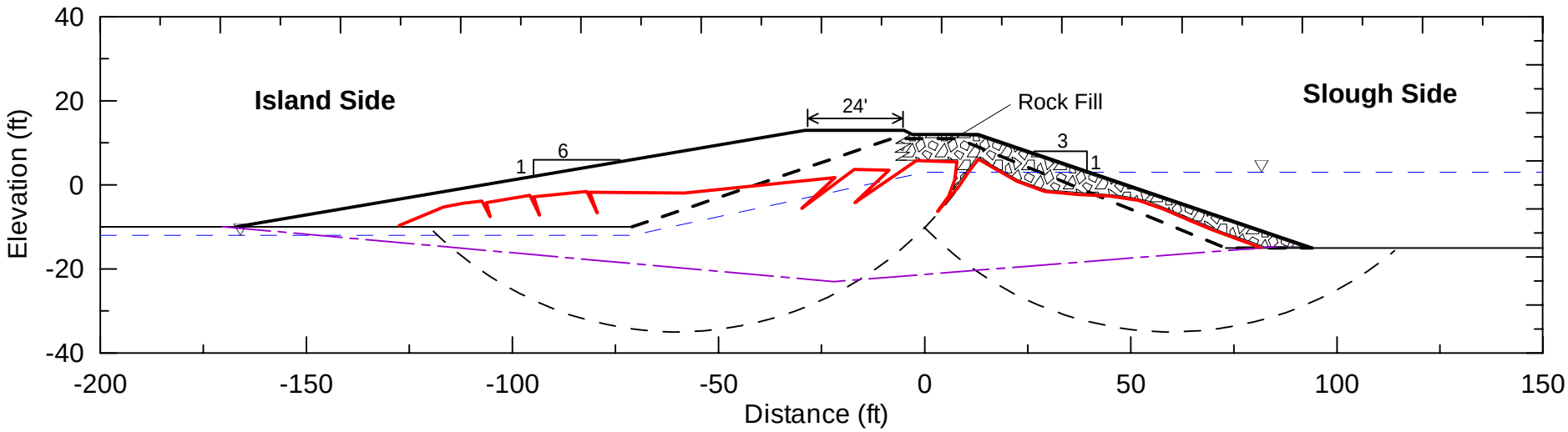
Delta Risk Management Strategy (DRMS) Levee Fragility		Levee Slumping Histories Schematic Diagram of Levee Failure During Jan 17, 1995 Kobe Earthquake at Kobe, Japan	Figure 6-28
URS	Project No. 26815621		

Delta Risk Management Strategy (DRMS) Levee Fragility		Levee Slumping Histories Earthquake Damage During May 18, 1940 Imperial Earthquake	Figure 6-29
URS	Project No. 26815621		

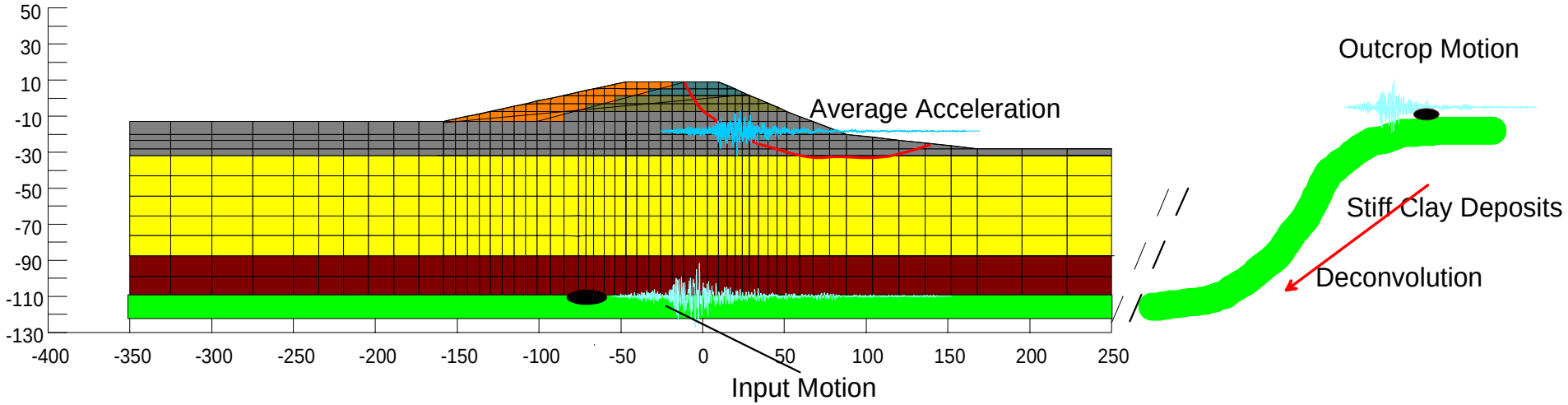
Delta Risk Management Strategy (DRMS) Levee Fragility		Levee Slumping Histories Earthquake Damage During October 18, 1989 Loma Prieta Earthquake (Moss Landing)	Figure 6-30
URS	Project No. 26815621		



Delta Risk Management Strategy (DRMS) Levee Fragility		Dam Slumping Histories Earthquake Damage During February 11, 1971 San Fernando Earthquake (Van Norman Dam)	Figure 6-31
URS	Project No. 26815621		

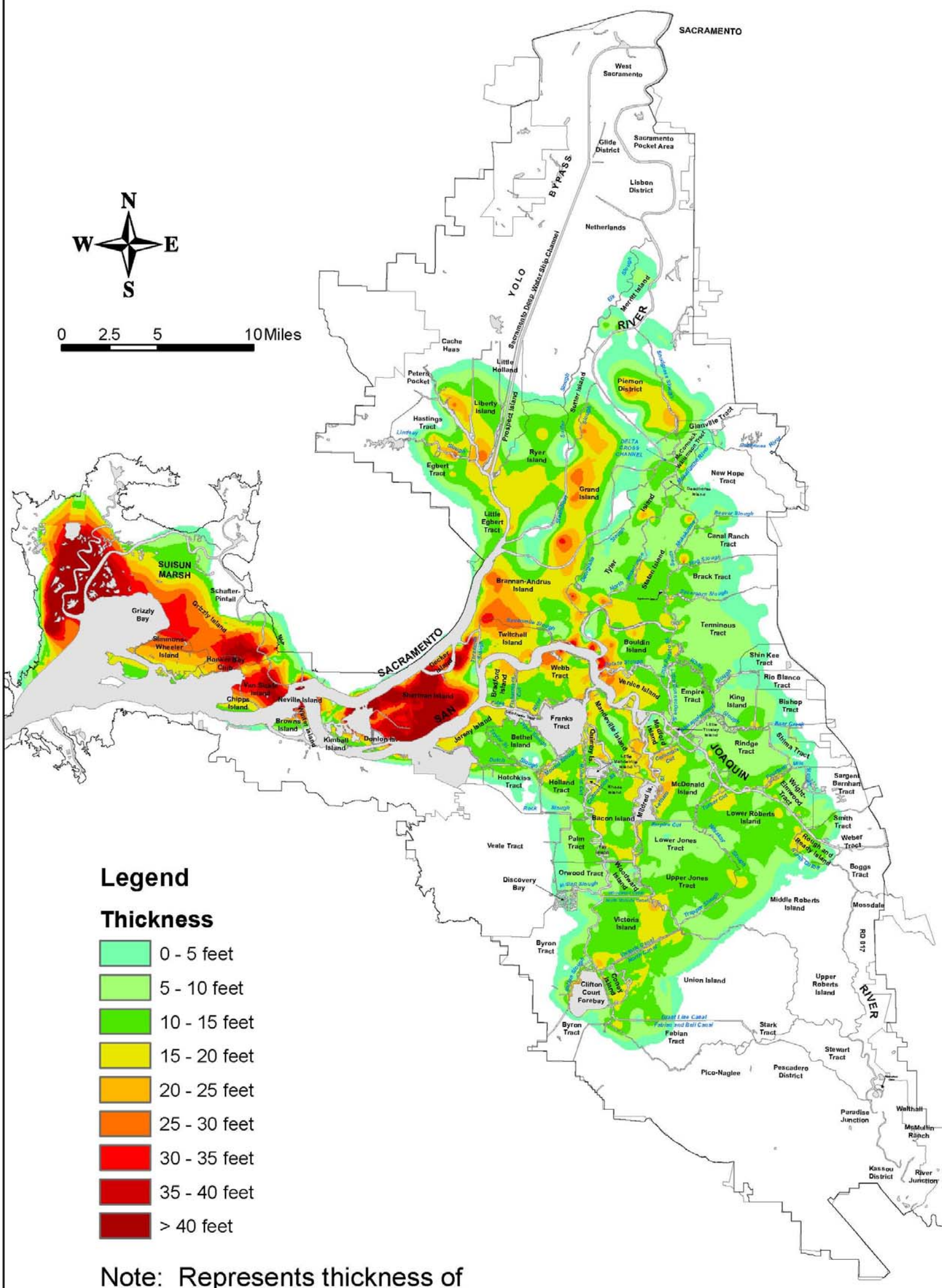


Delta Risk Management Strategy (DRMS) Levee Fragility		Schematic Diagram of Levee Slumping and Proposed Emergency Repair Method	Figure 6-32
URS	Project No. 26815621		



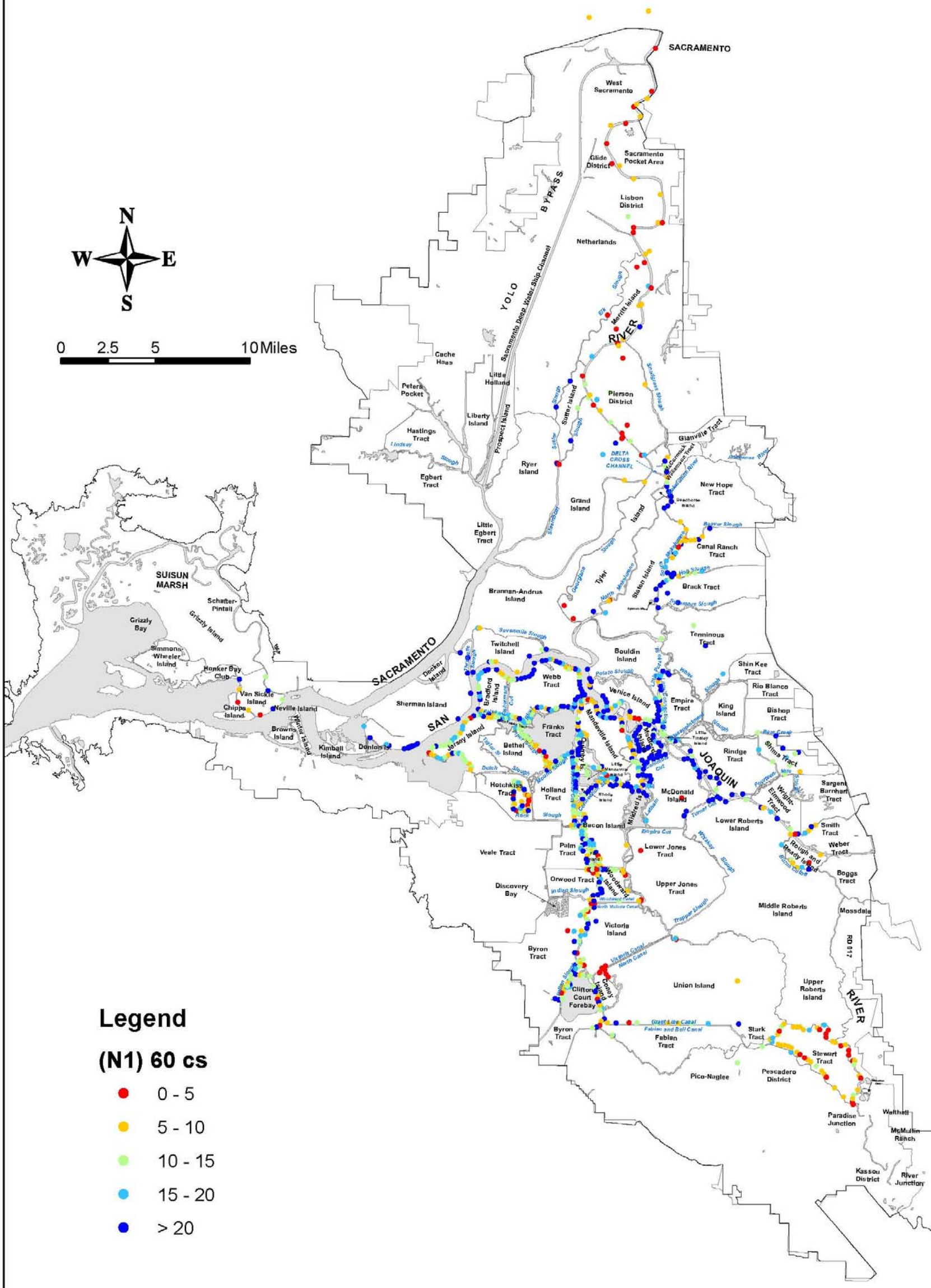
Delta Risk Management Strategy (DRMS) Levee Fragility		Typical QUAD4M Model and Schematic Illustration of Deconvolution Procedure	Figure 6-33
URS	Project No. 26815621		

DRAFT



Delta Risk Management Strategy (DRMS) Levee Fragility		Thickness of Organic Materials	Figure 6-34
URS	Project No. 26815621		

DRAFT

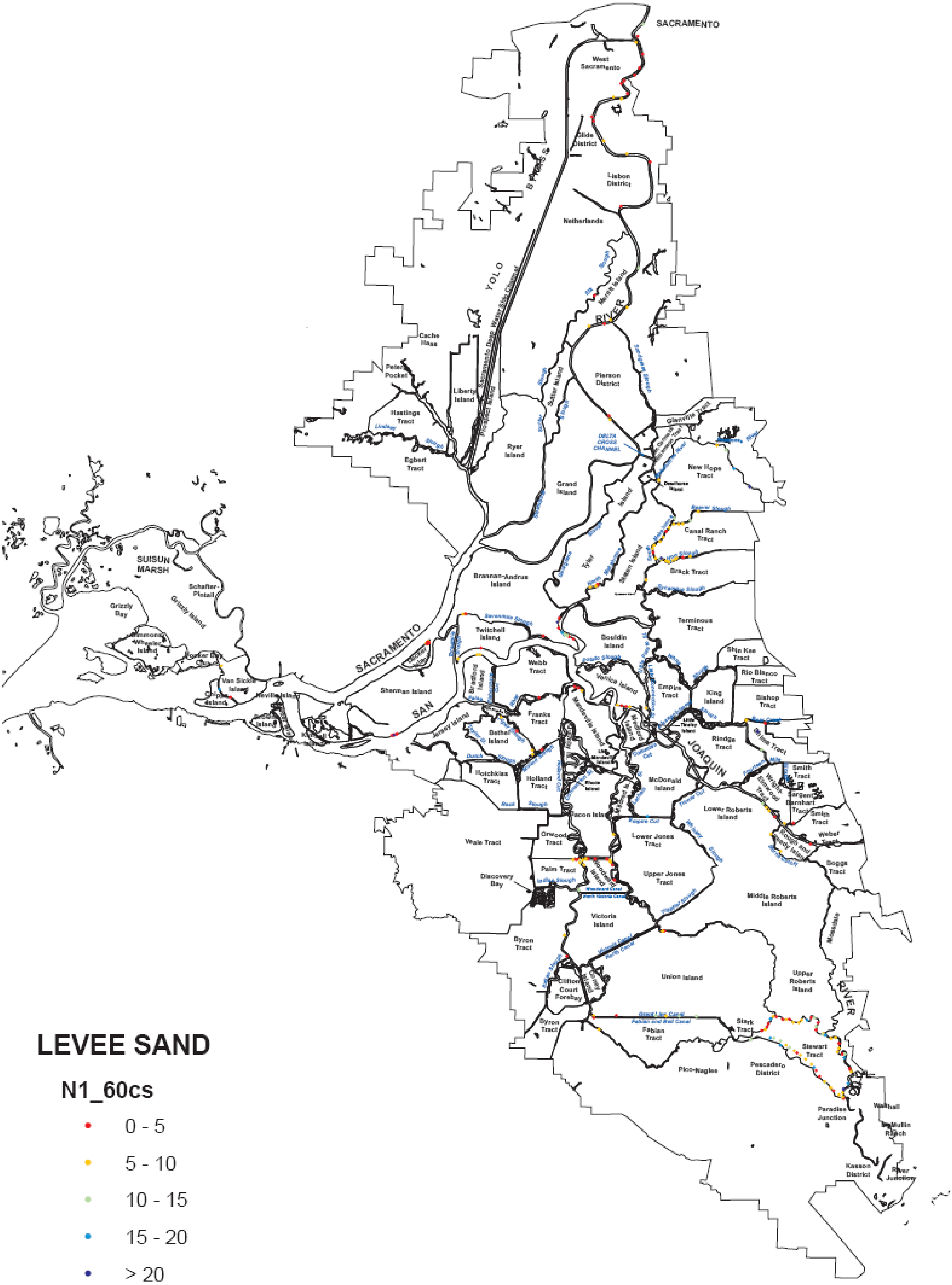


Legend

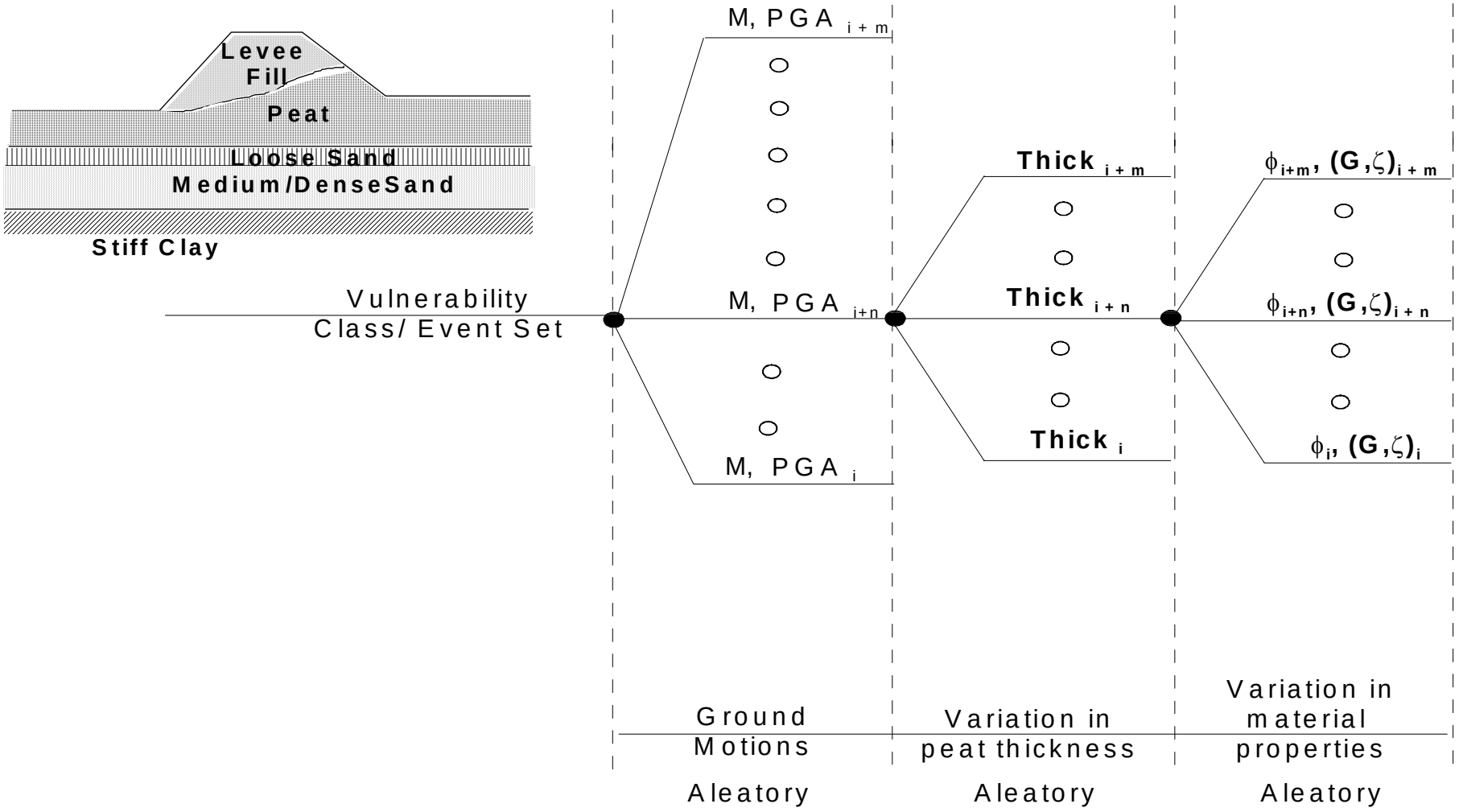
(N1) 60 cs

- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- > 20

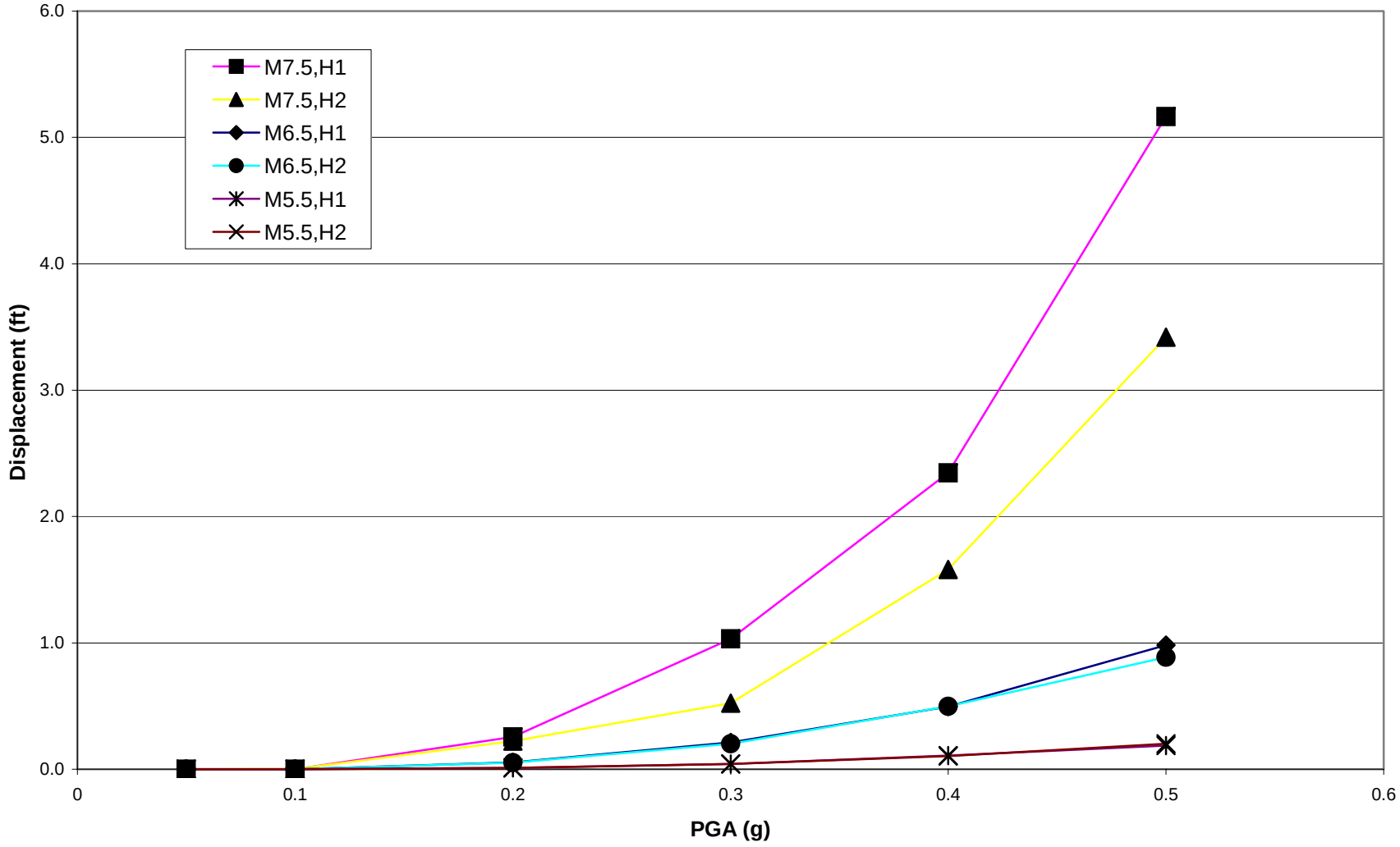
Delta Risk Management Strategy (DRMS) Levee Fragility		Corrected Blow Count, $(N1)_{60\text{-}cs}$ Distribution for Foundation Sand	Figure 6-35
URS	Project No. 26815621		



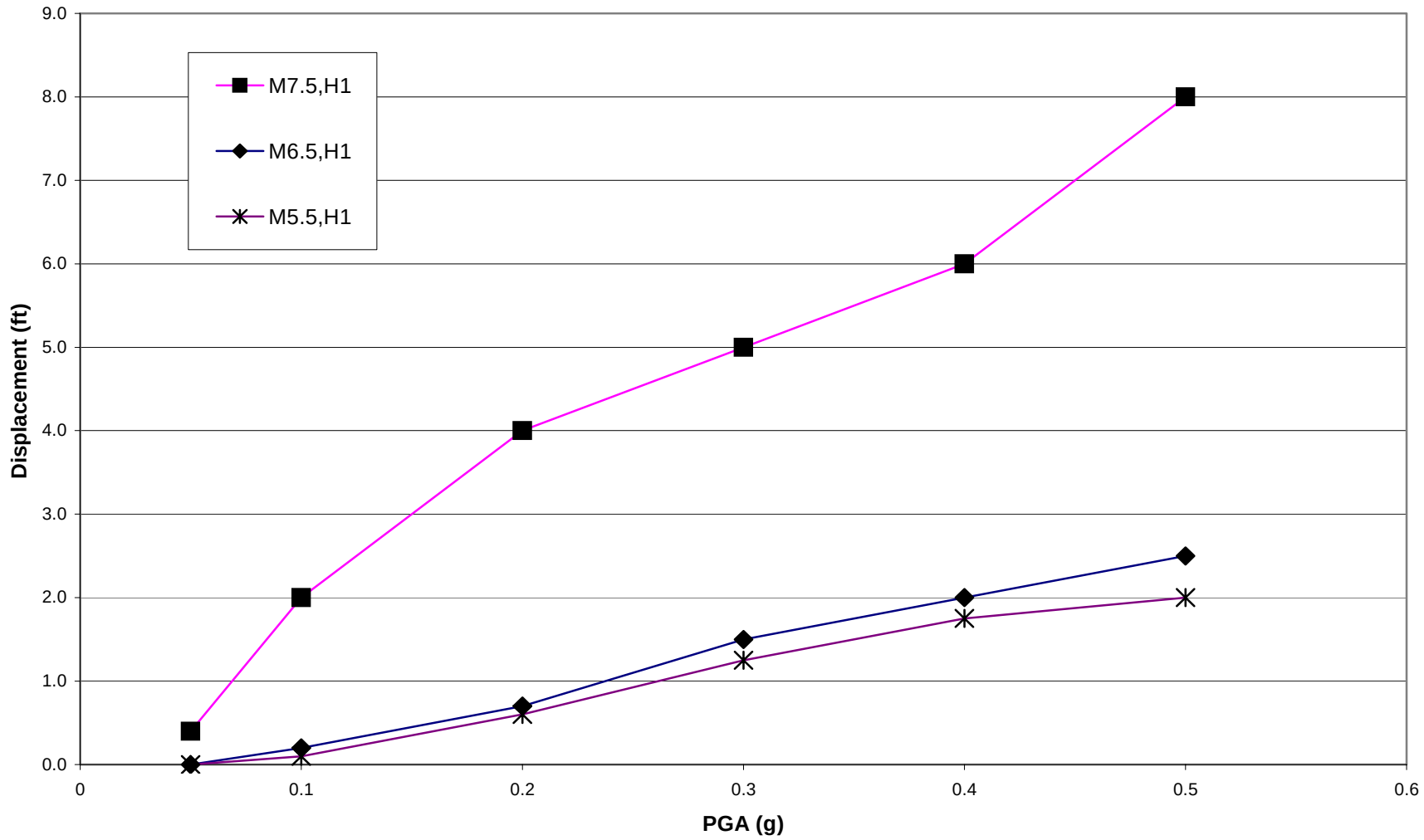
Delta Risk Management Strategy (DRMS) Levee Fragility		Corrected Blow Count, $(N1)_{60\text{-}cs}$ Distribution for Levee Sand	Figure 6-36
URS	Project No. 26815621		



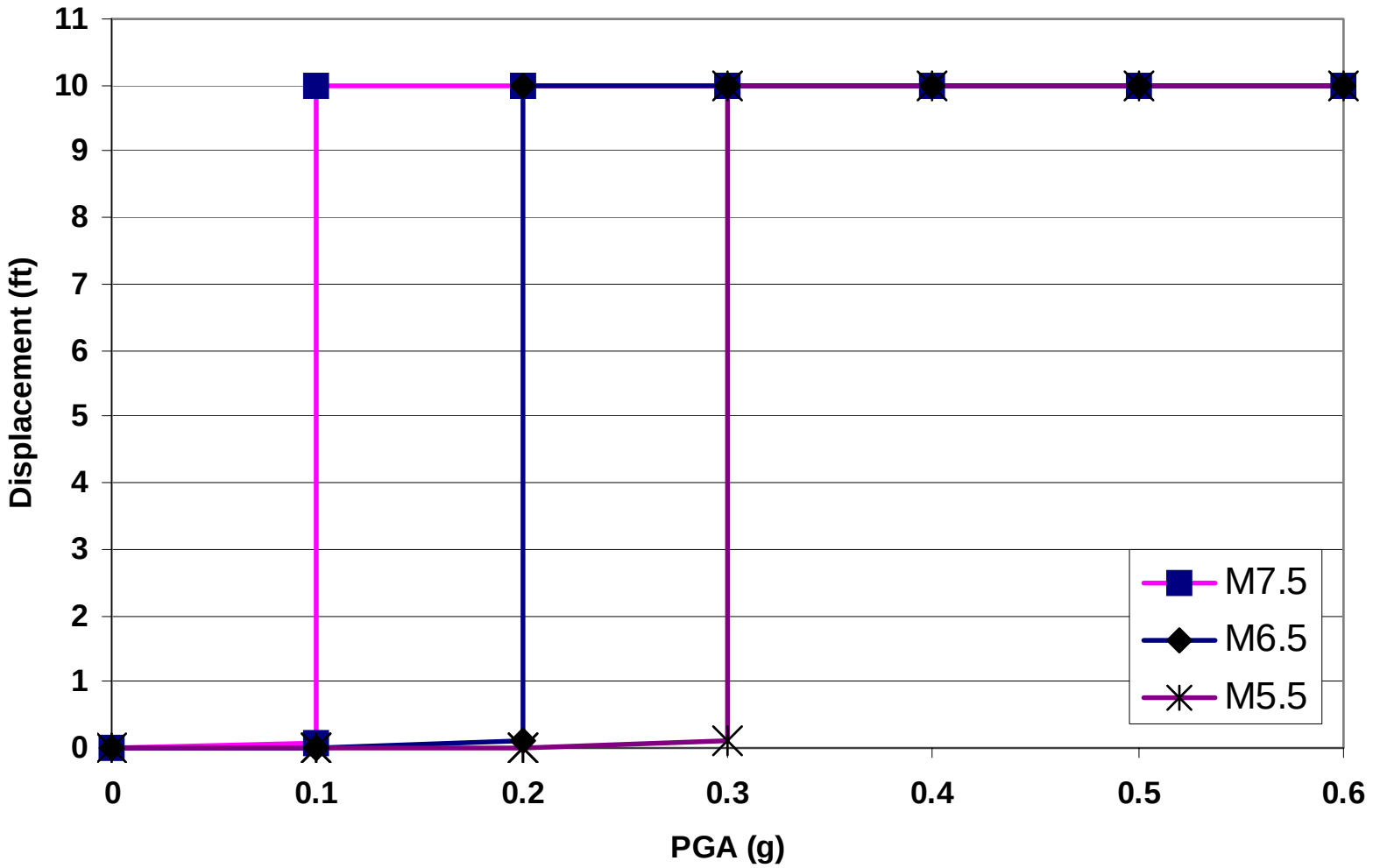
Delta Risk Management Strategy (DRMS) Levee Fragility		LogicTree Approach to Estimate Deformation under Seismic Loading	Figure 6-37
URS	Project No. 26815621		



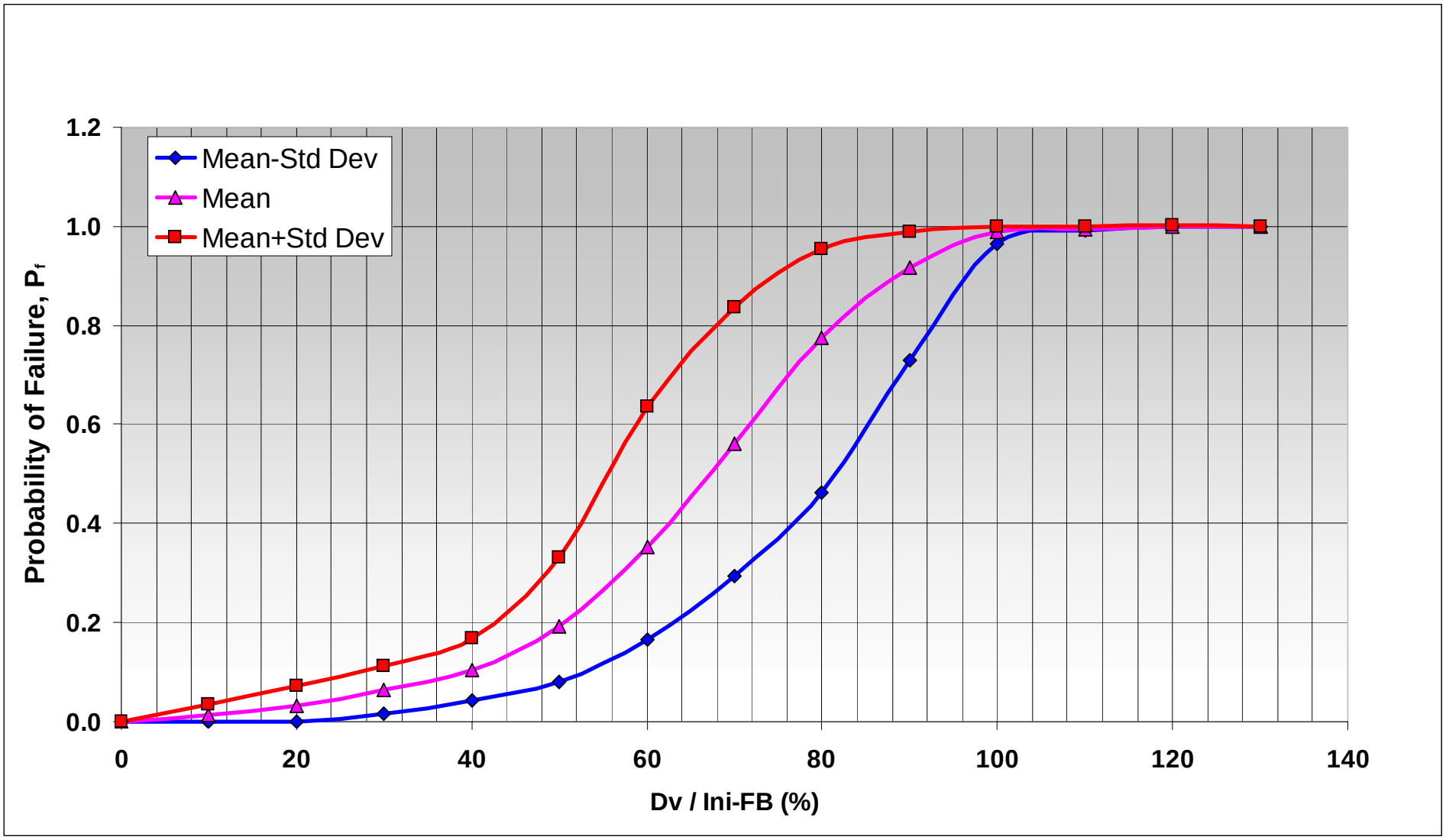
Delta Risk Management Strategy (DRMS) Levee Fragility		Calculated Newmark Displacements Idealized Section 15 Feet of Peat	Figure 6-38
URS	Project No. 26815621		



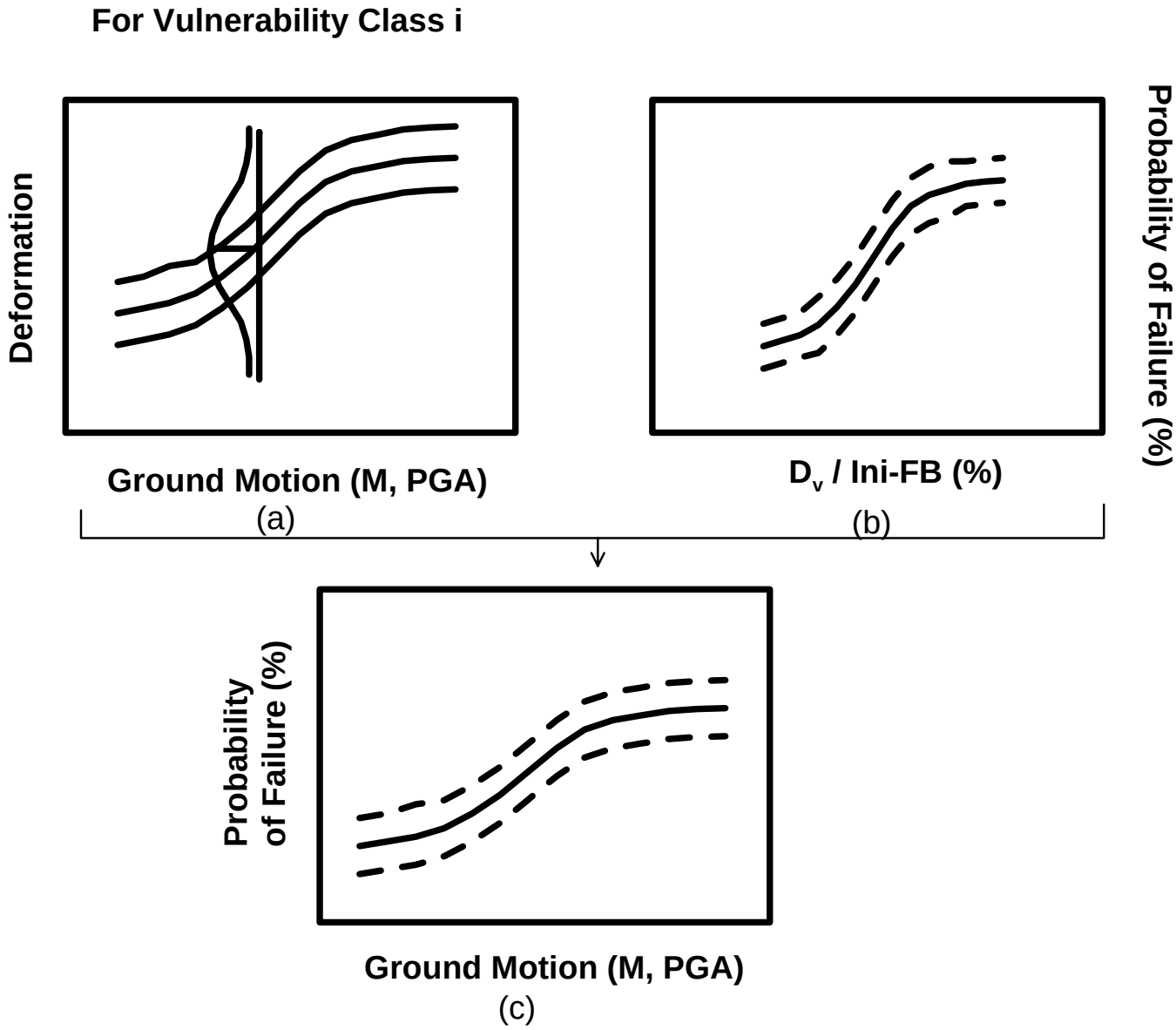
Delta Risk Management Strategy (DRMS) Levee Fragility		Calculated FLAC Displacements Idealized Section with Liquefiable Foundation Sand Layer 15 Feet of Peat	Figure 6-39
URS	Project No. 26815621		



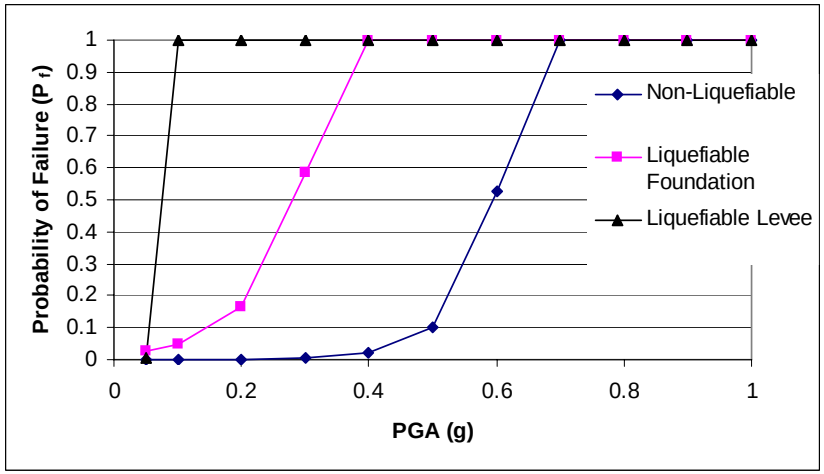
Delta Risk Management Strategy (DRMS) Levee Fragility		Calculated FLAC Displacements Idealized Section with Liquefiable Levee Sand 15 Feet of Peat	Figure 6-40
URS	Project No. 26815621		



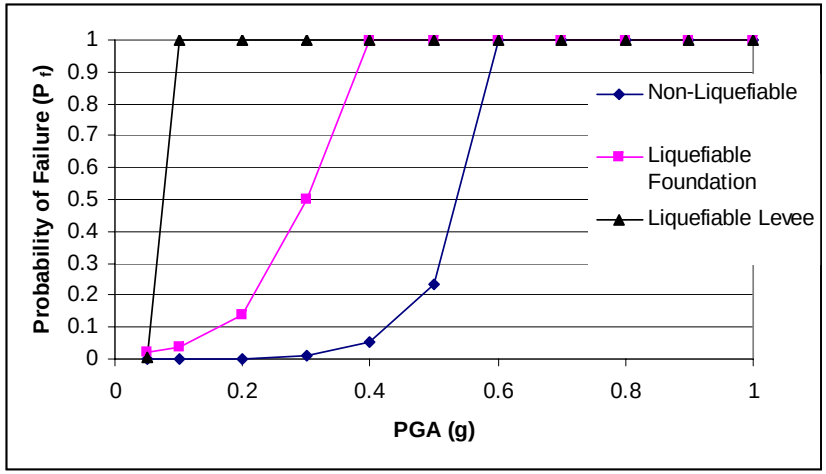
Delta Risk Management Strategy (DRMS) Levee Fragility		Probability of Failure vs D_v / Ini-FB (Vertical Displacement / Initial Free Board)	Figure 6-41
URS	Project No. 26815621		



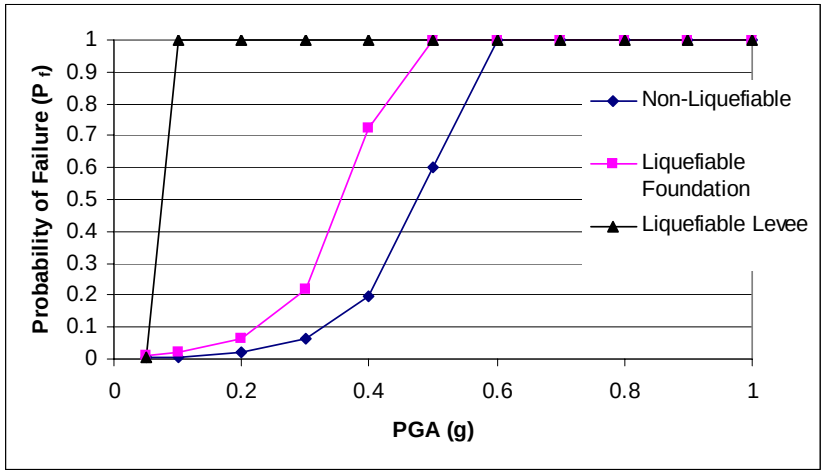
Delta Risk Management Strategy (DRMS) Levee Fragility		Development of Seismic Vulnerability Curve	Figure 6-42
URS	Project No. 26815621		



(a) 5 feet Peat Foundation

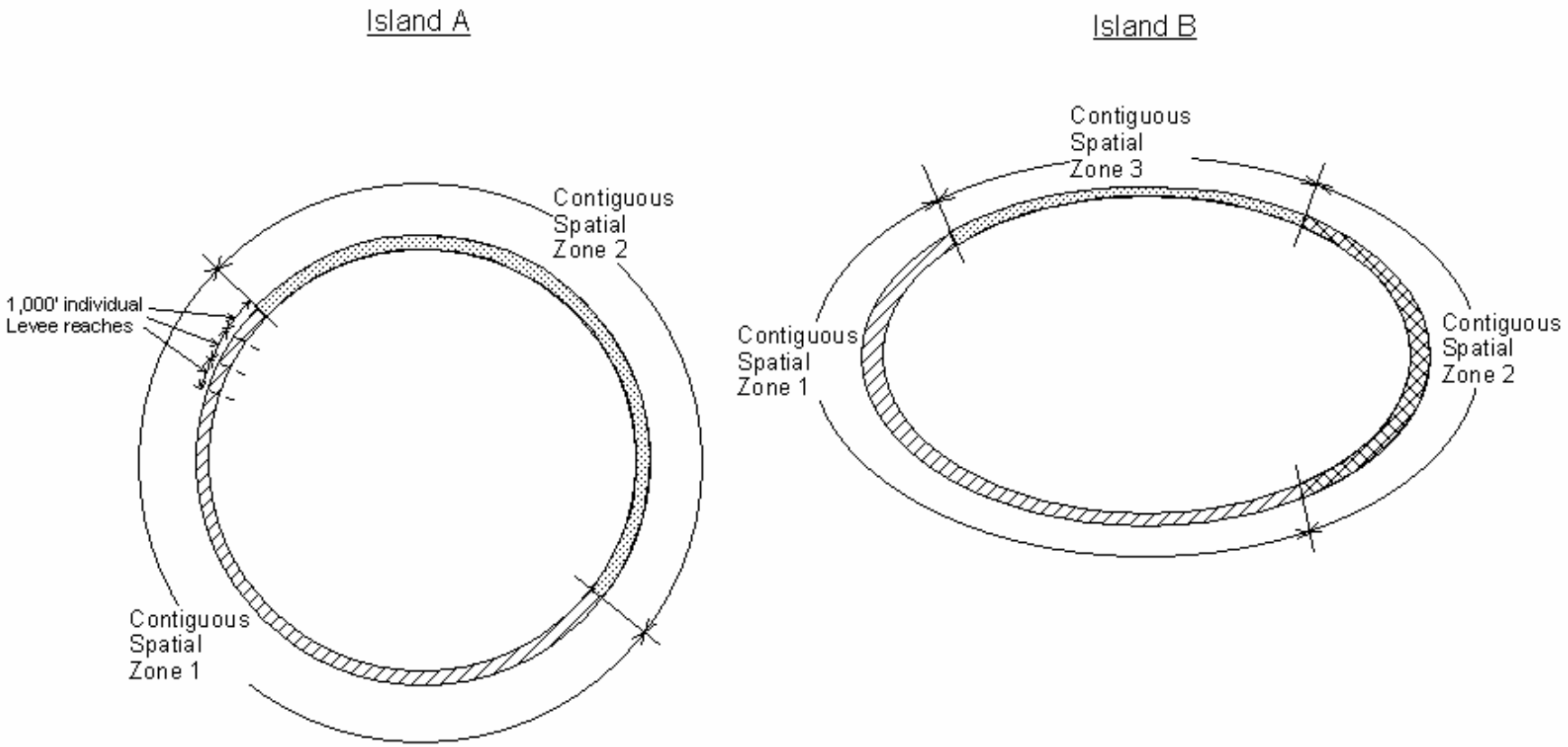


(a) 15 feet Peat Foundation

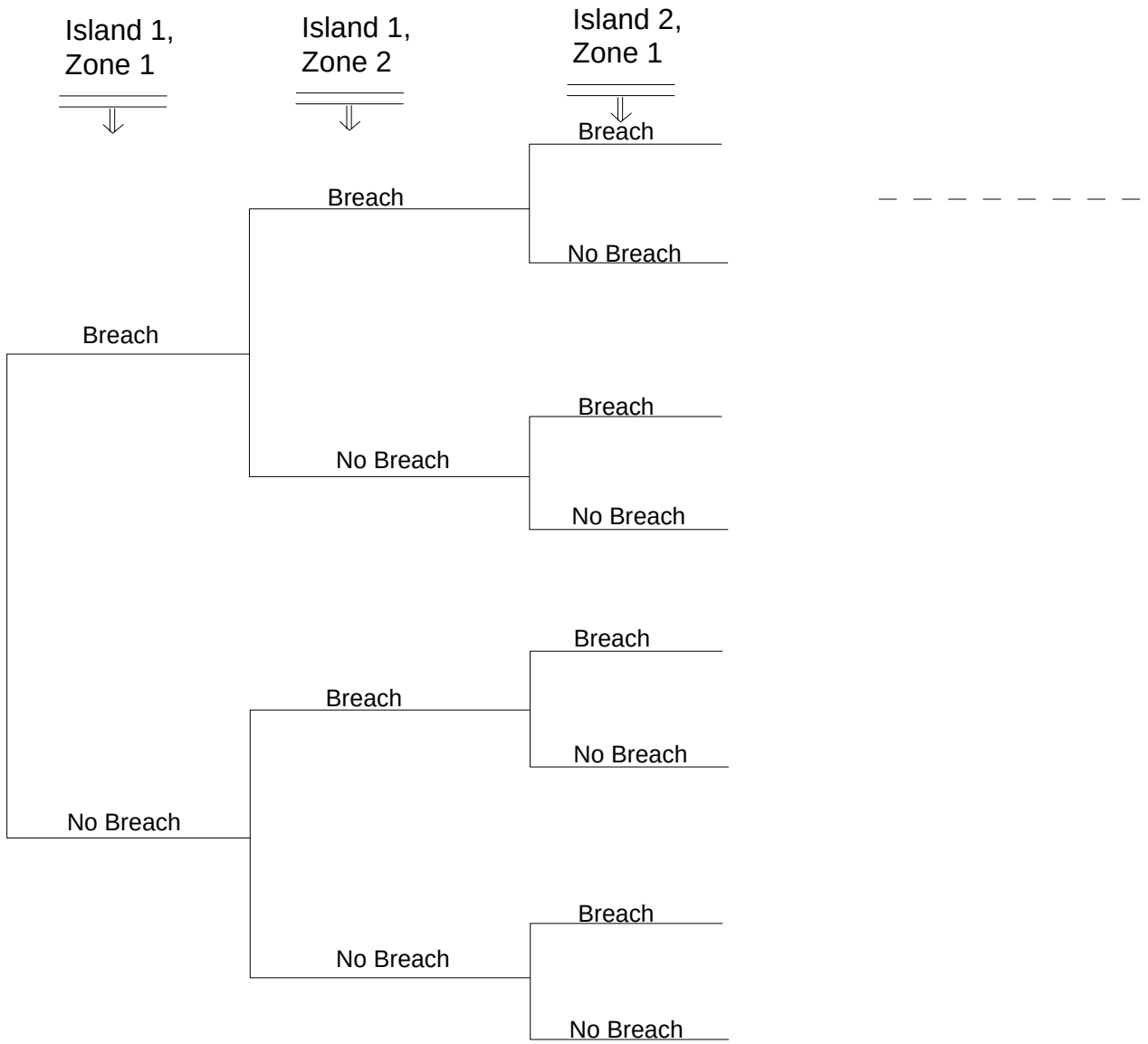


(a) 25 feet Peat Foundation

Delta Risk Management Strategy (DRMS) Levee Fragility		Probability of Failure vs PGA for M=7.5, Idealized Section with 5, 15, and 25 feet Peat Foundation	Figure 6-43
URS	Project No. 26815621		



Delta Risk Management Strategy (DRMS) Levee Fragility		Contiguous Spatial Zones on Different Islands	Figure 6-44
URS	Project No. 26815621		



Delta Risk Management Strategy (DRMS) Levee Fragility		Logic Tree for Calculating Joint Probabilities of Simultaneous Breaches	Figure 6-45
URS	Project No. 26815621		