

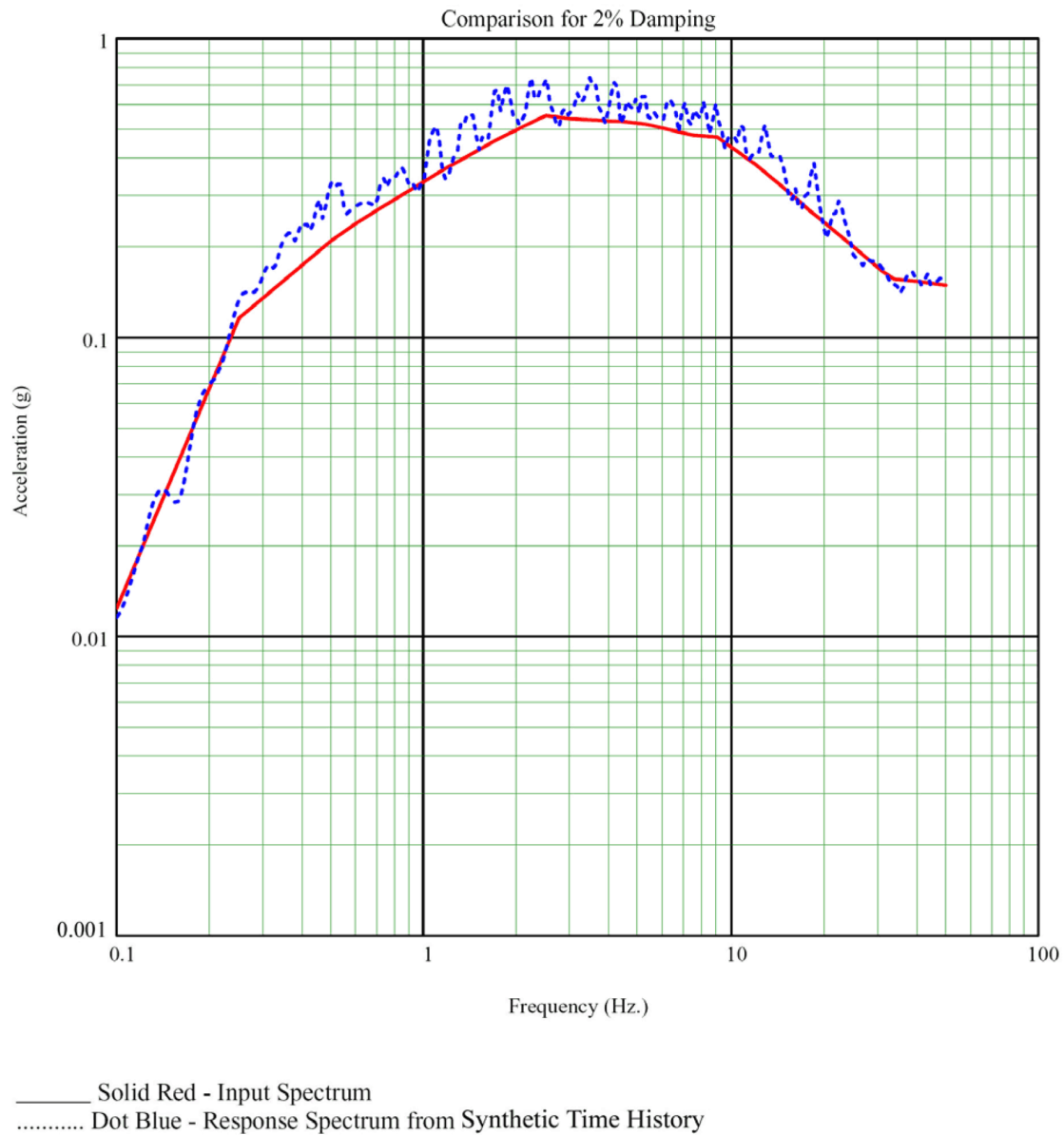


Figure 3H.6-12a Comparison of Input Spectrum and Spectrum from Synthetic Time History, Horizontal (E-W) – 2% Damping

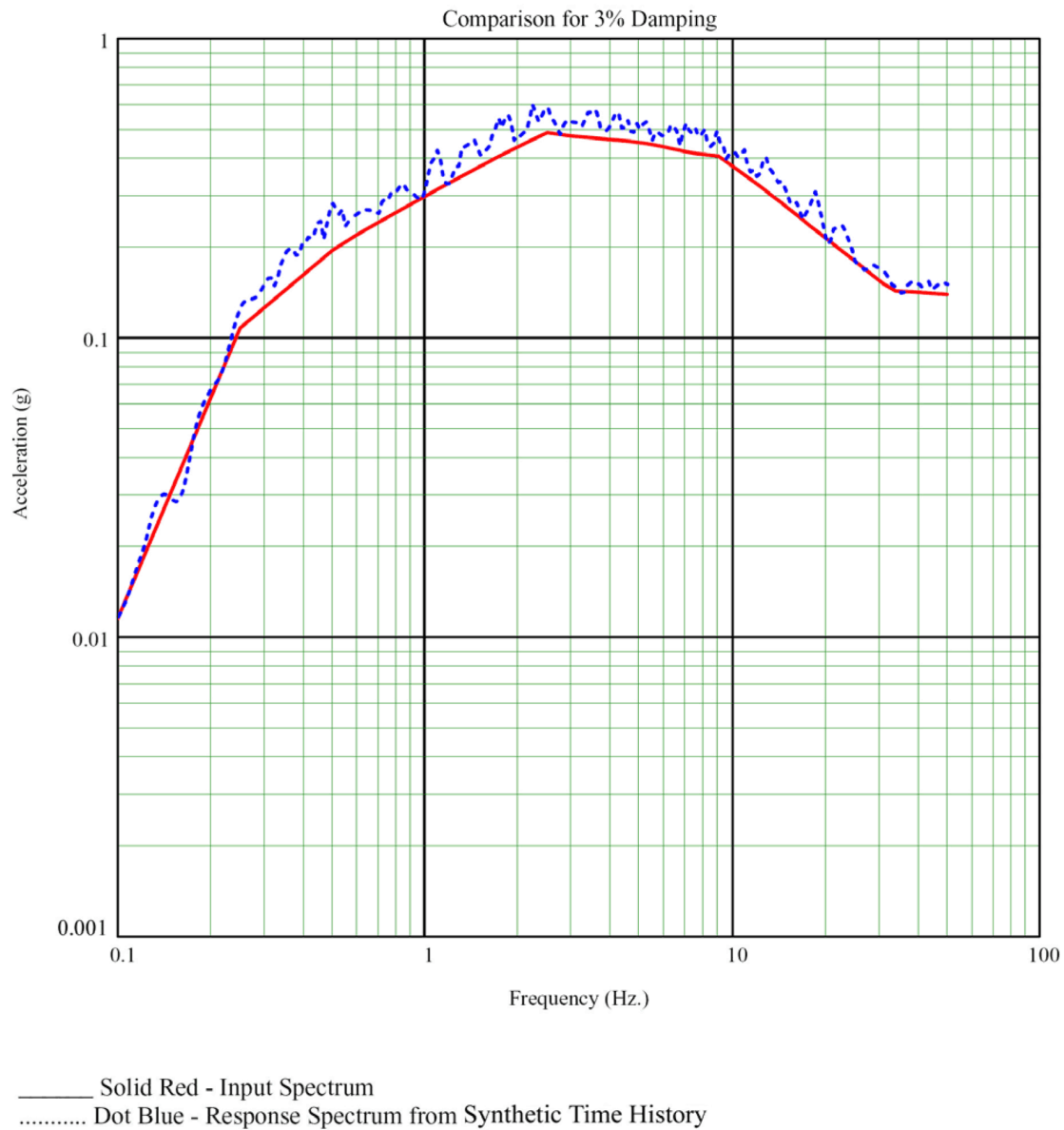


Figure 3H.6-12b Comparison of Input Spectrum and Spectrum from Synthetic Time History, Horizontal (E-W) – 3% Damping

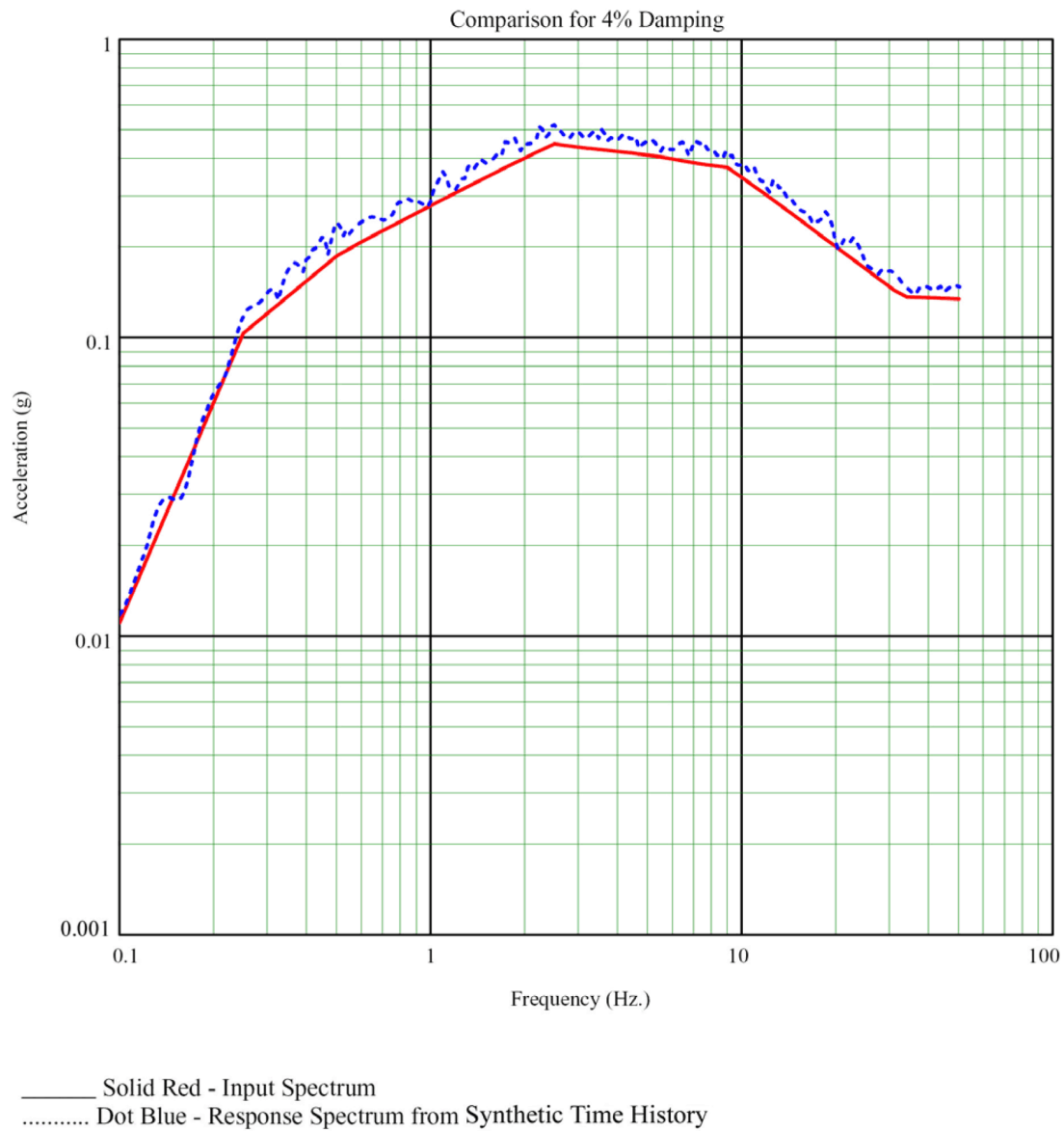


Figure 3H.6-12c Comparison of Input Spectrum and Spectrum from Synthetic Time History, Horizontal (E-W) – 4% Damping

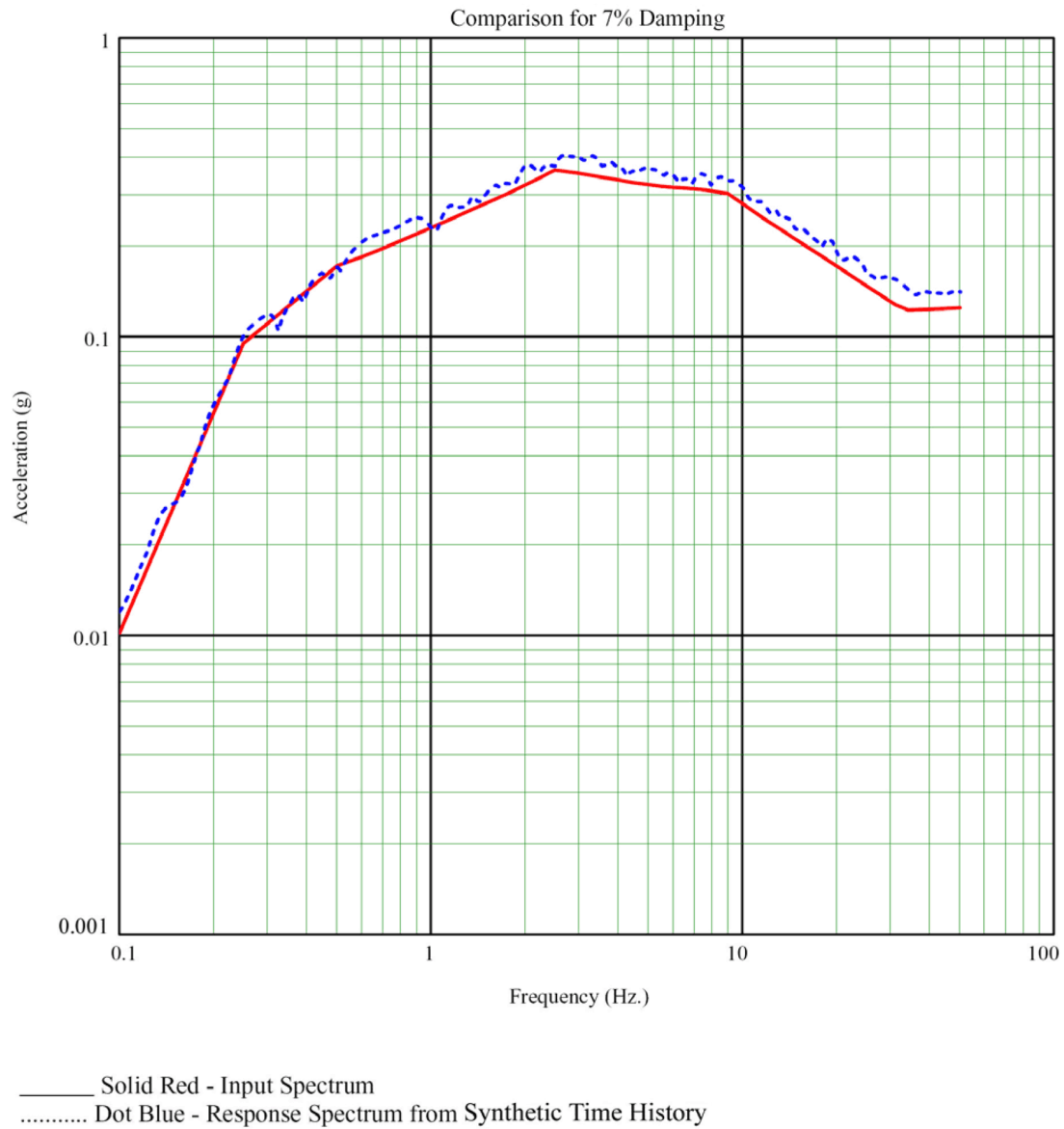


Figure 3H.6-12d Comparison of Input Spectrum and Spectrum from Synthetic Time History, Horizontal (E-W) – 7% Damping

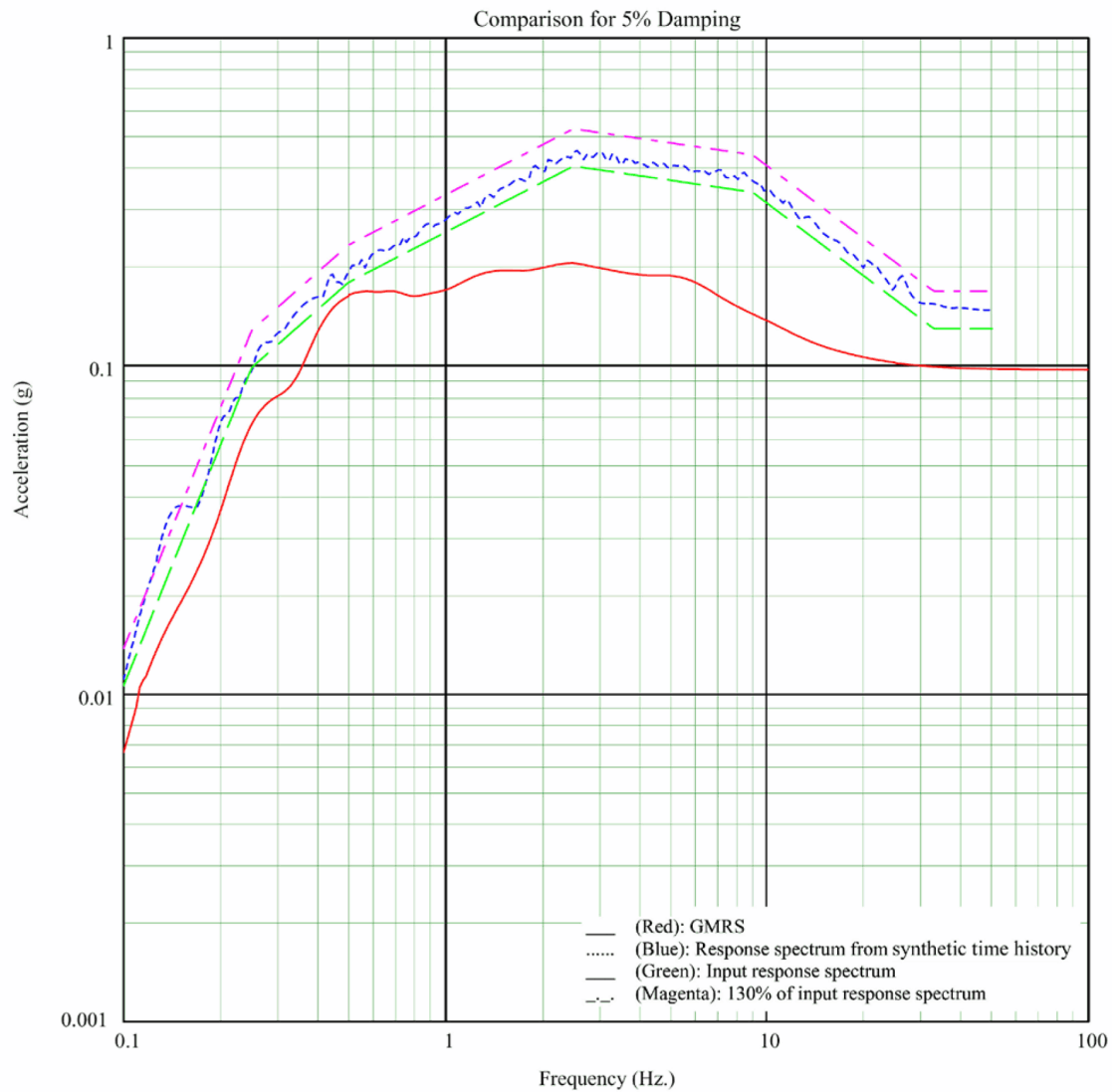


Figure 3H.6-13 Comparison of Spectrum from Synthetic Time History, Input Spectrum, 130% of Input Spectrum, and GMRS (N-S Direction)

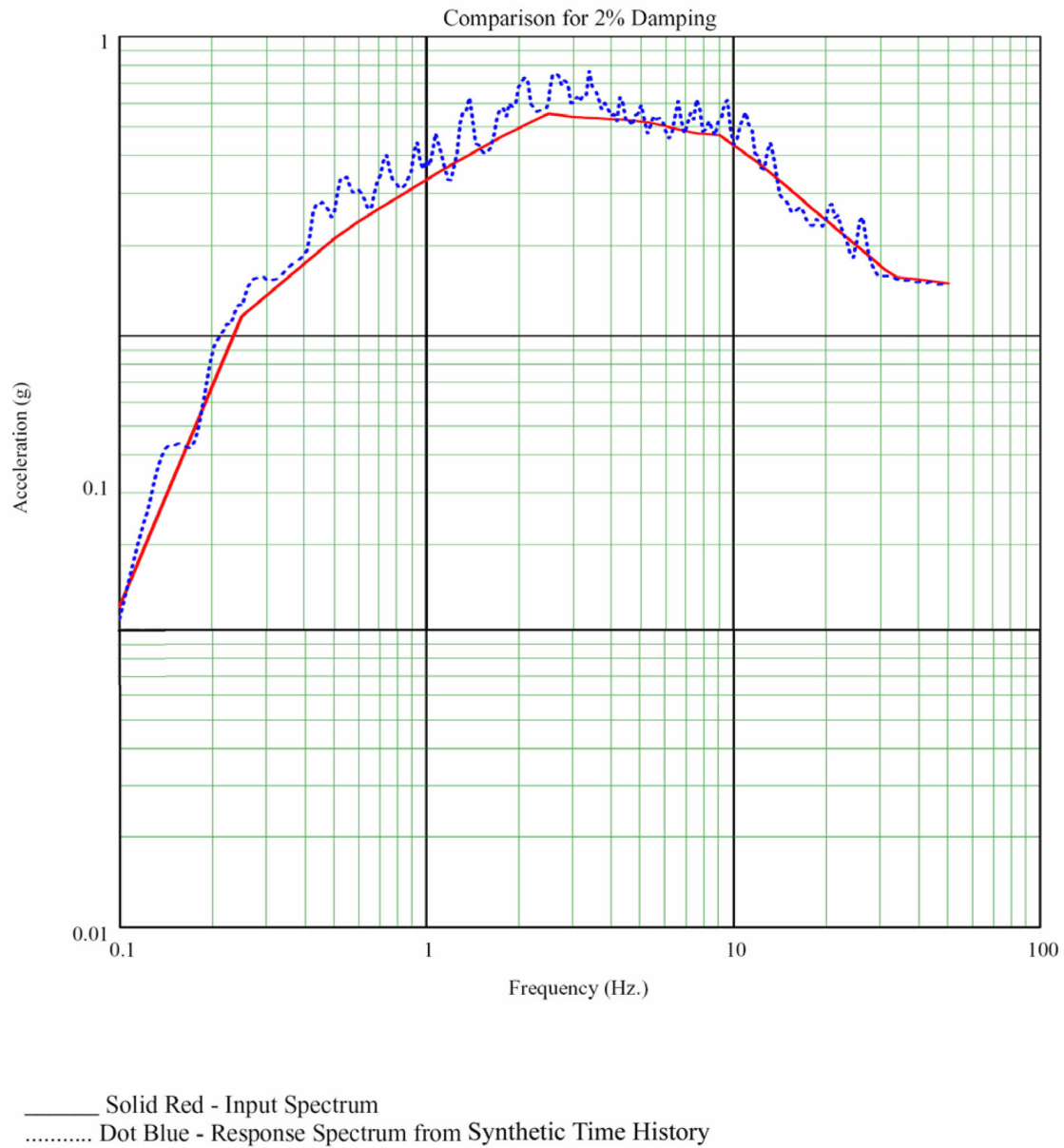


Figure 3H.6-13a Comparison of Input Spectrum and Spectrum from Synthetic Time History, Horizontal (N-S) – 2% Damping

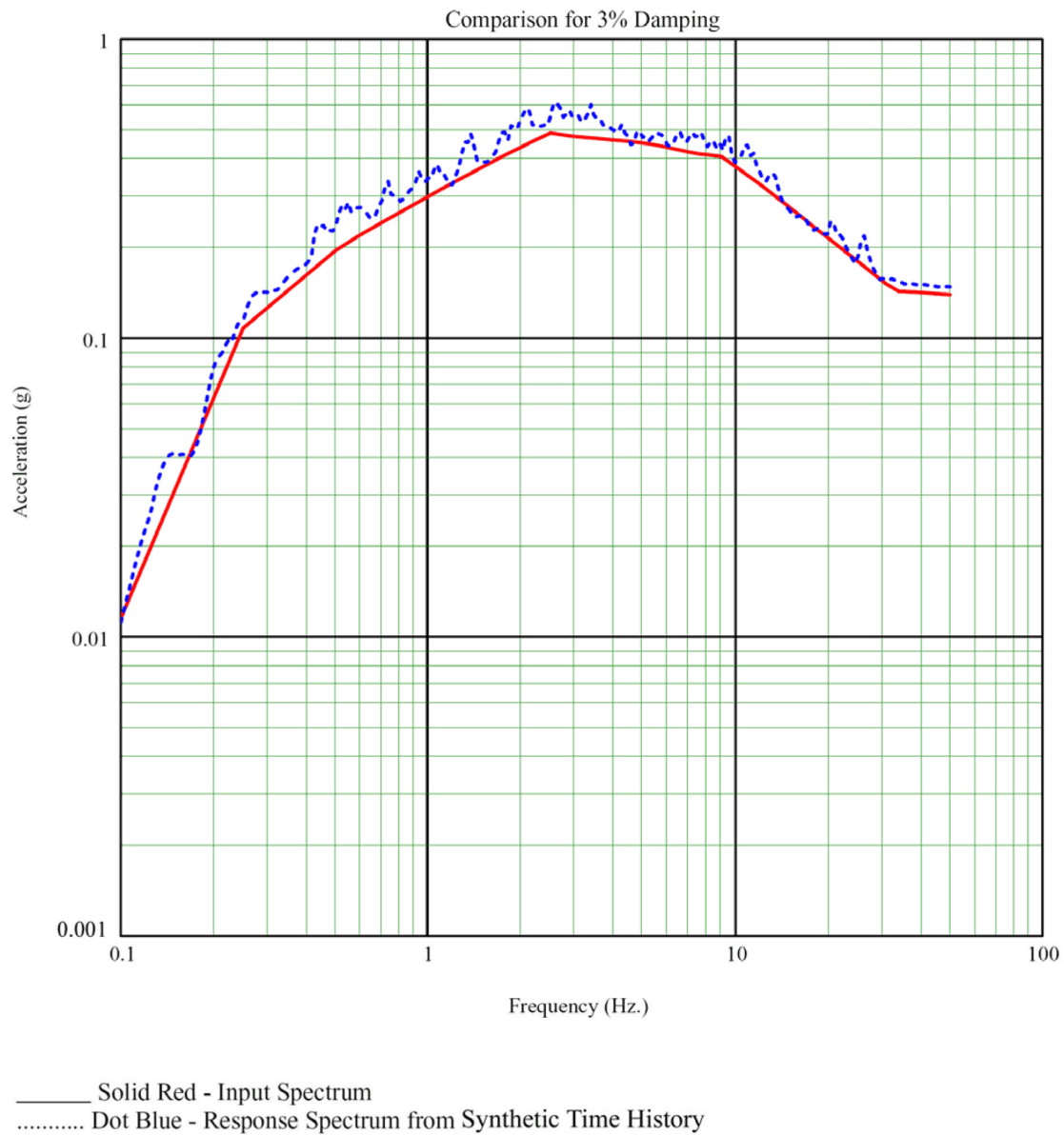


Figure 3H.6-13b Comparison of Input Spectrum and Spectrum from Synthetic Time History, Horizontal (N-S) – 3% Damping

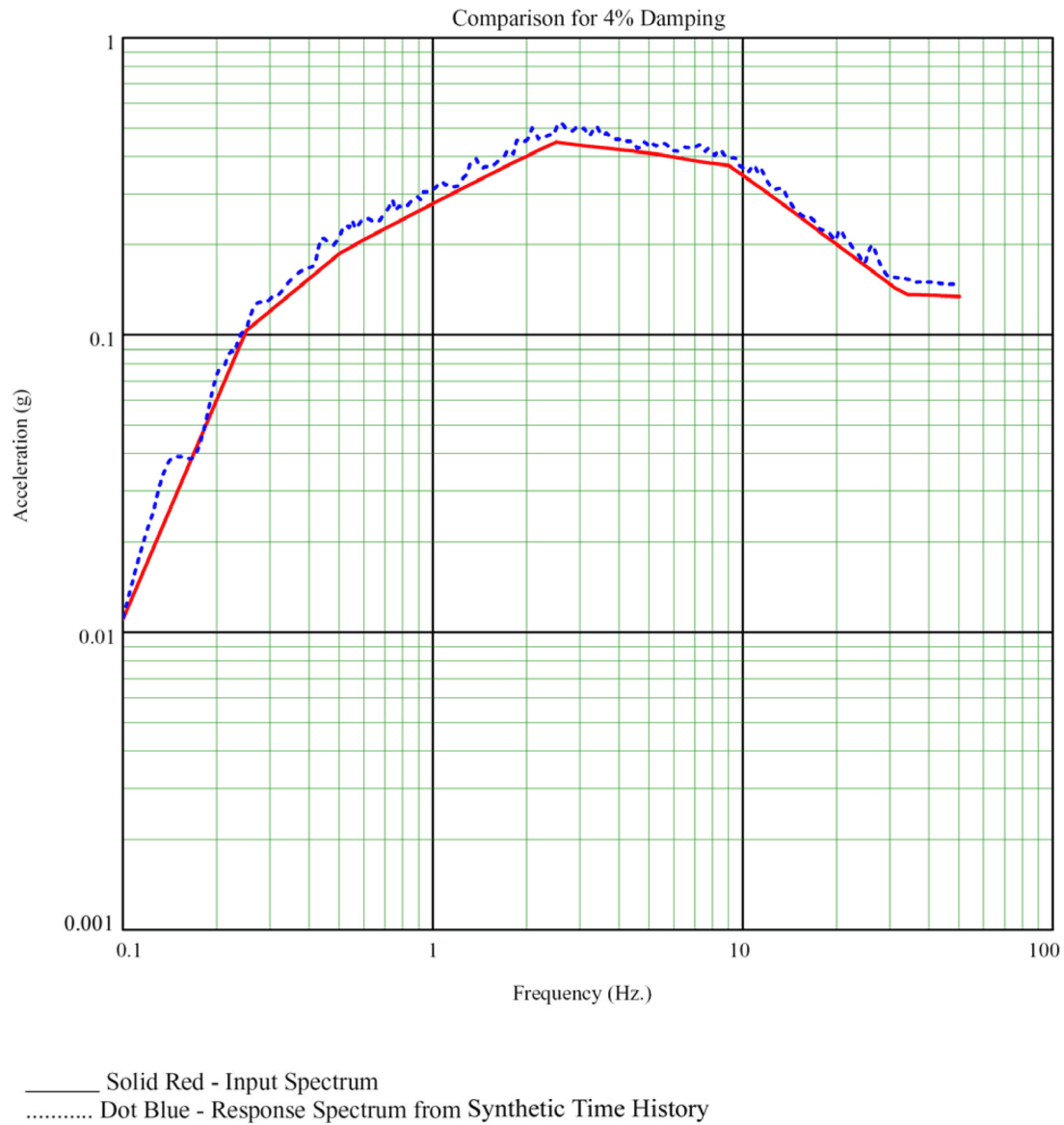


Figure 3H.6-13c Comparison of Input Spectrum and Spectrum from Synthetic Time History, Horizontal (N-S) – 4% Damping

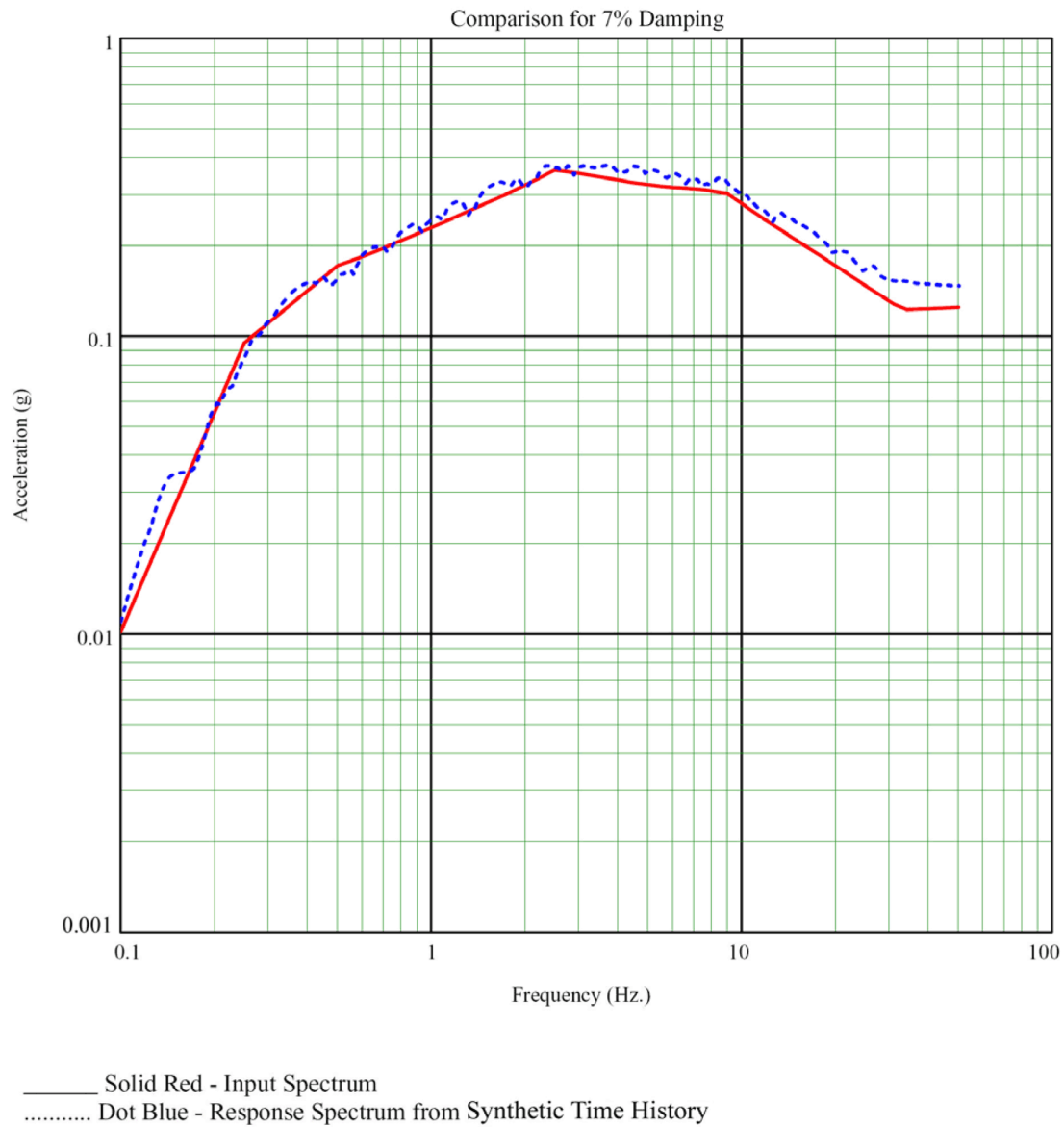


Figure 3H.6-13d Comparison of Input Spectrum and Spectrum from Synthetic Time History, Horizontal (N-S) – 7% Damping

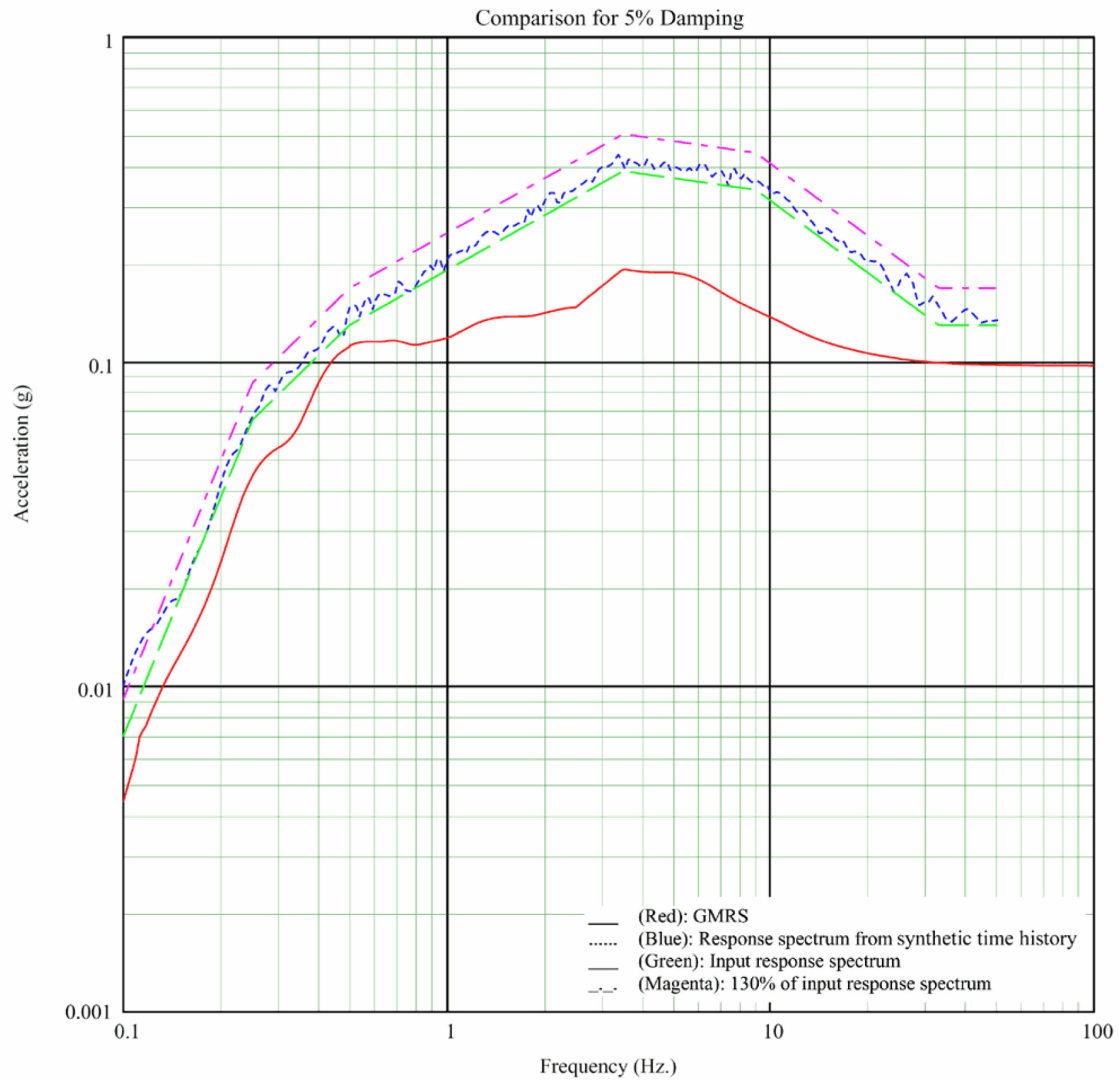


Figure 3H.6-14 Comparison of Spectrum from Artificial Time History, Input Spectrum, 130% of Input Spectrum, and GMRS (Vertical Direction)

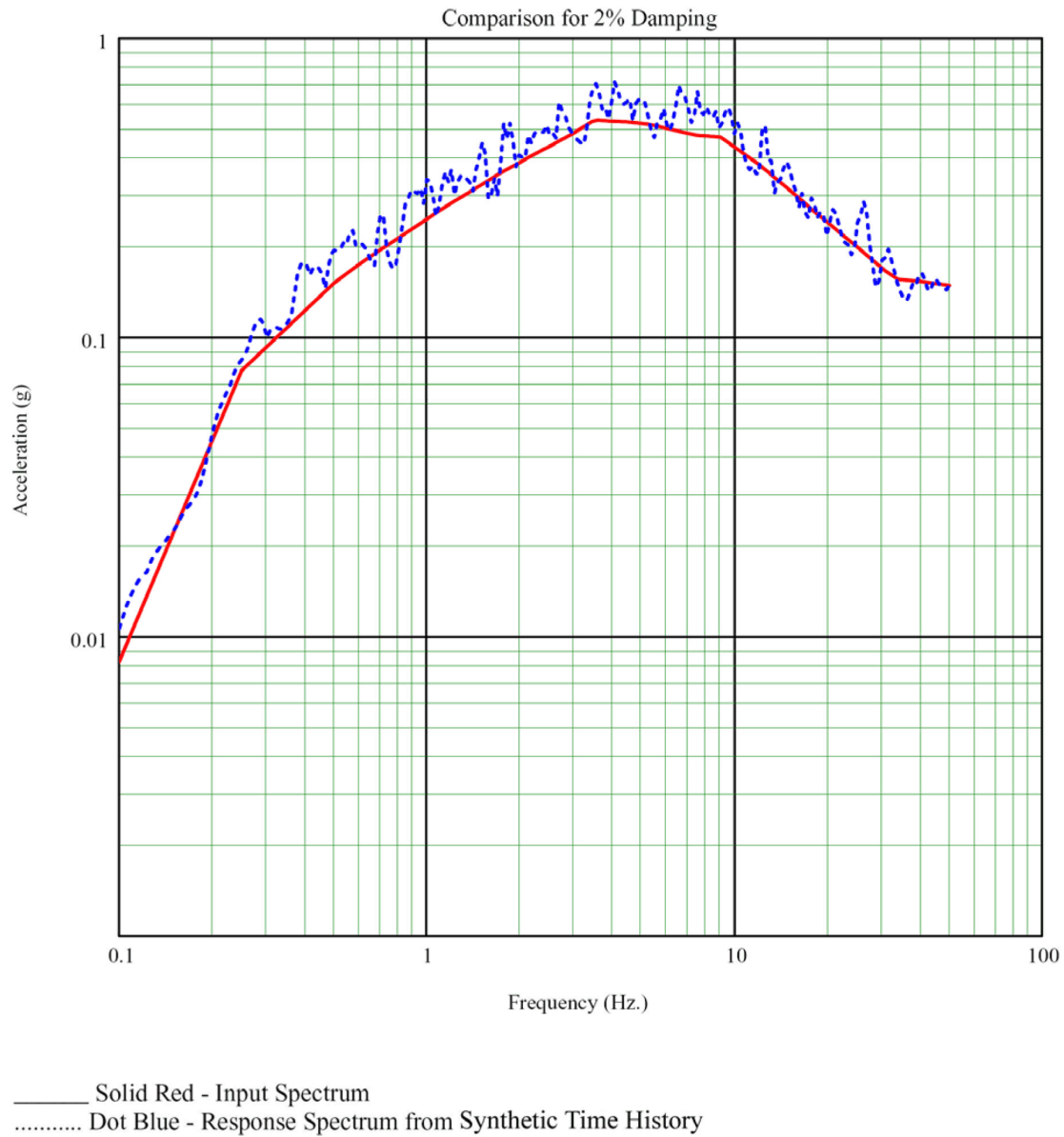


Figure 3H.6-14a Comparison of Input Spectrum and Spectrum from Synthetic Time History, Vertical – 2% Damping

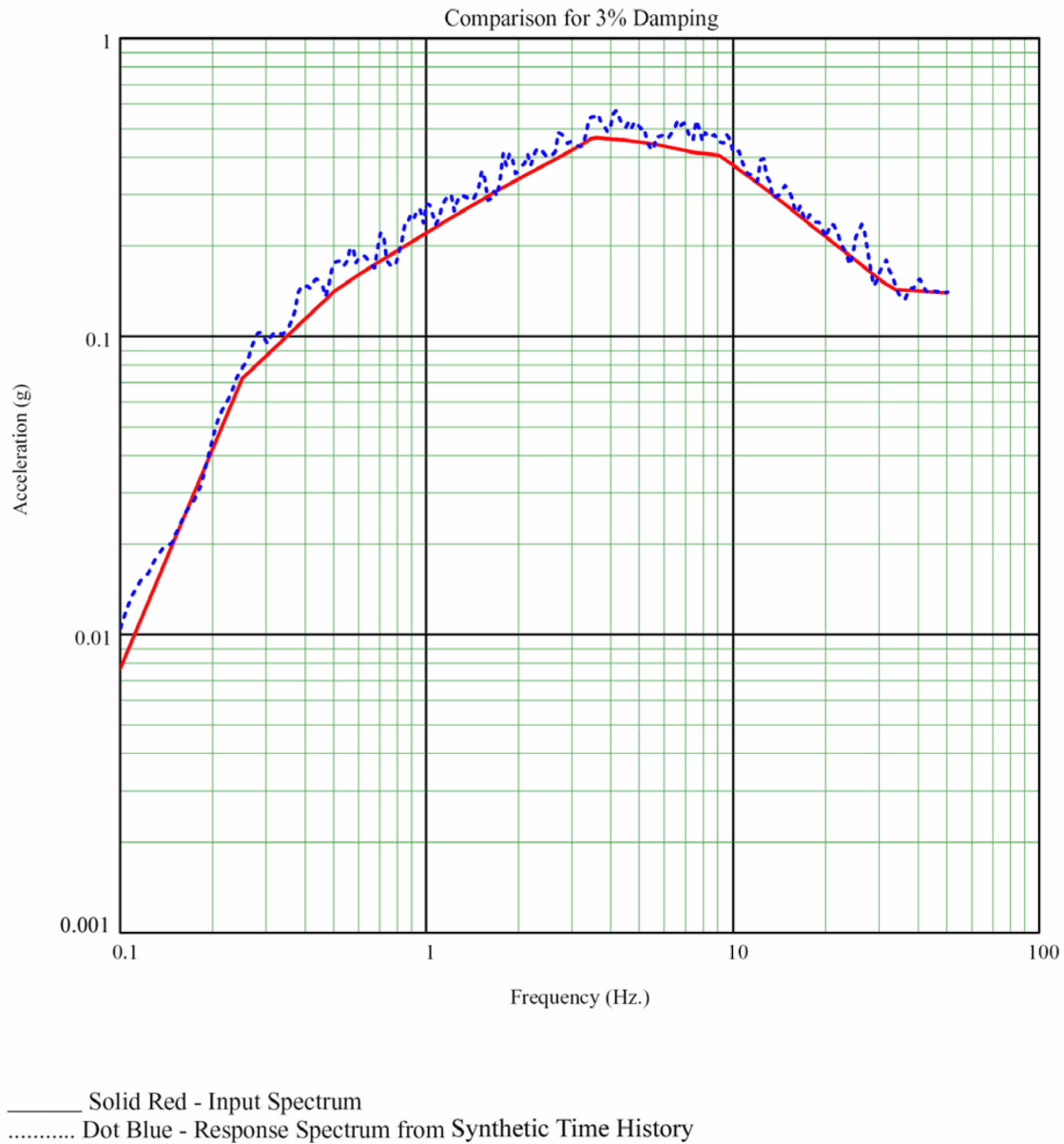


Figure 3H.6-14b Comparison of Input Spectrum and Spectrum from Synthetic Time History, Vertical – 3% Damping

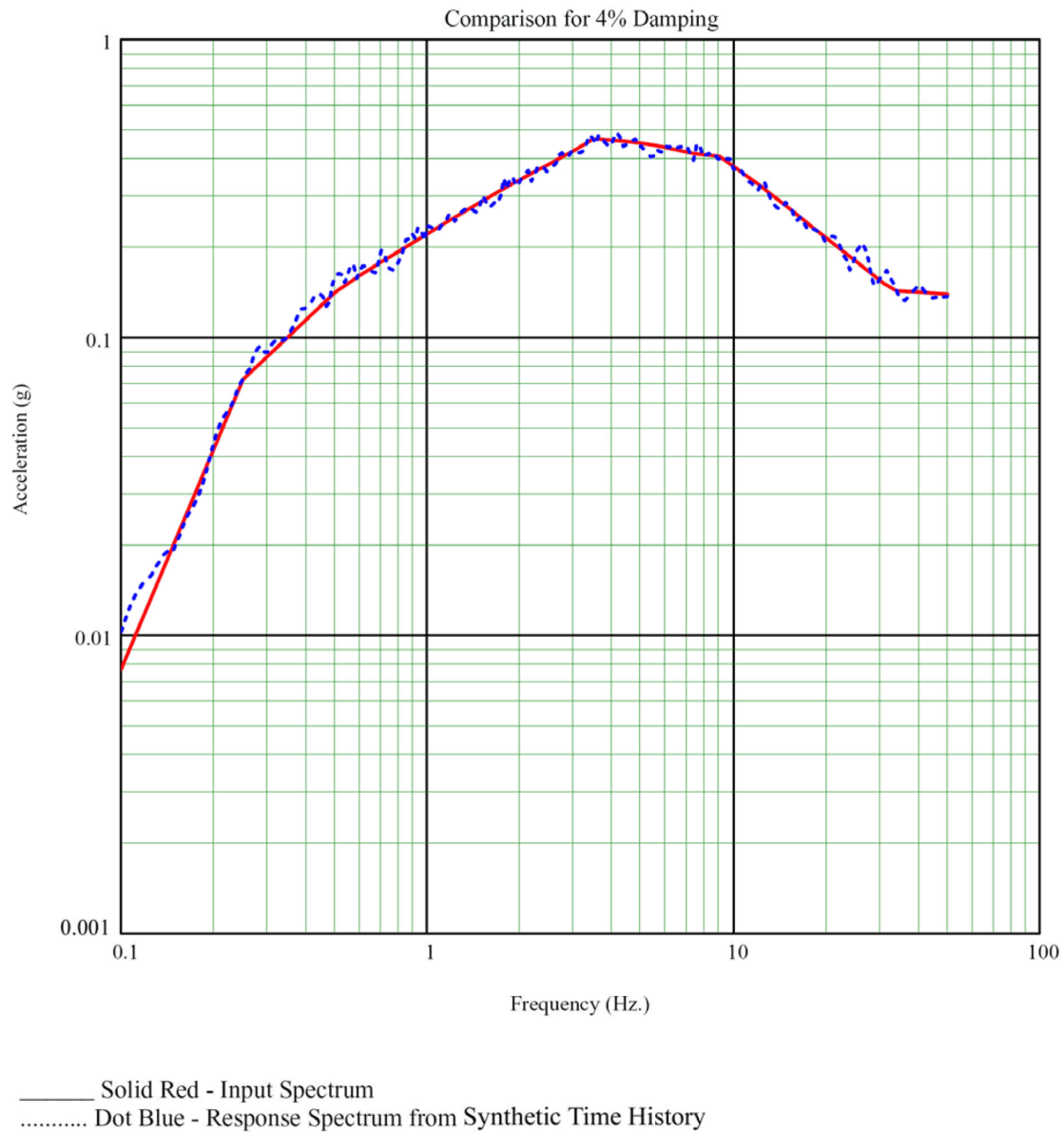


Figure 3H.6-14c Comparison of Input Spectrum and Spectrum from Synthetic Time History, Vertical – 4% Damping

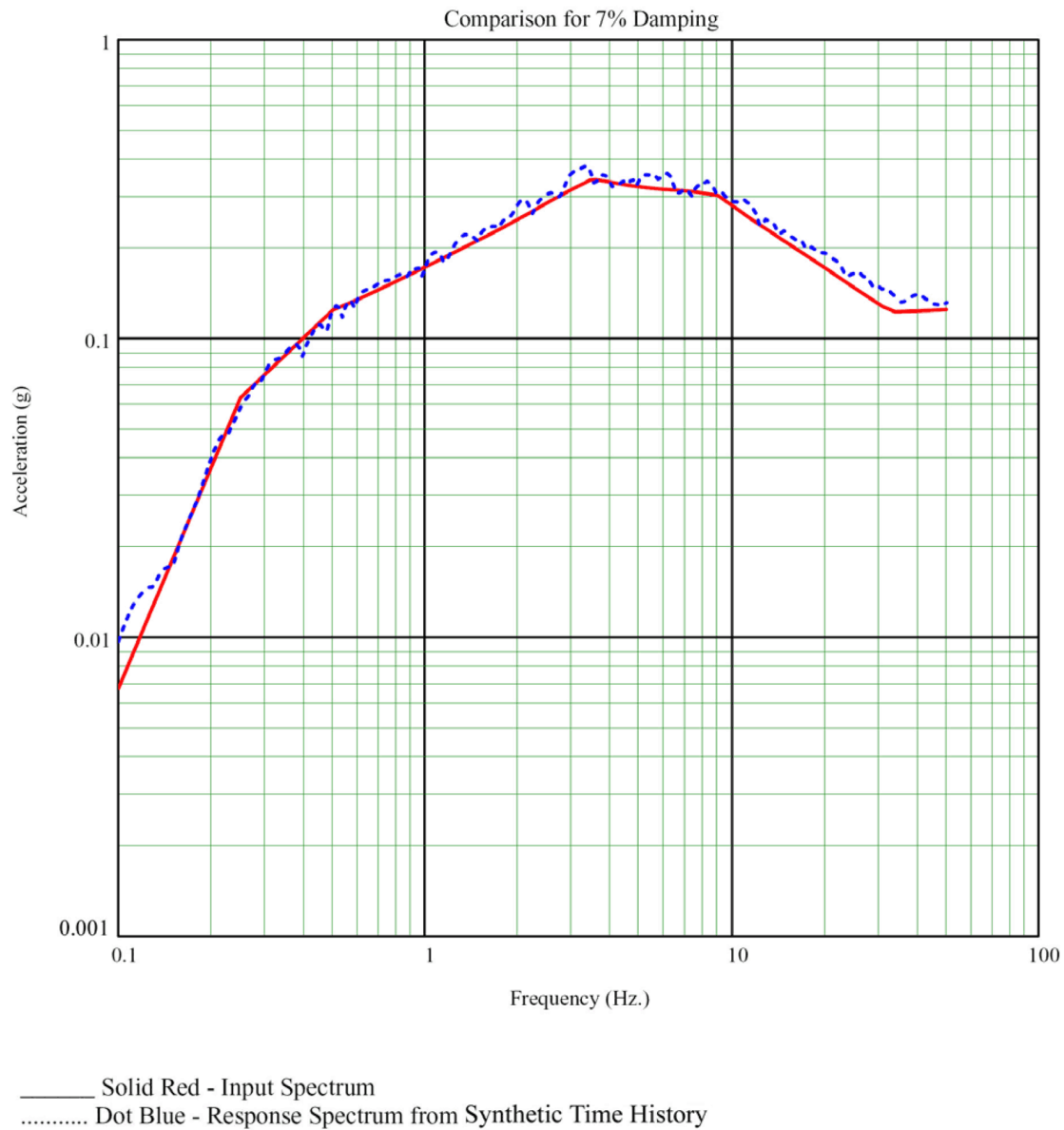


Figure 3H.6-14d Comparison of Input Spectrum and Spectrum from Synthetic Time History, Vertical – 7% Damping

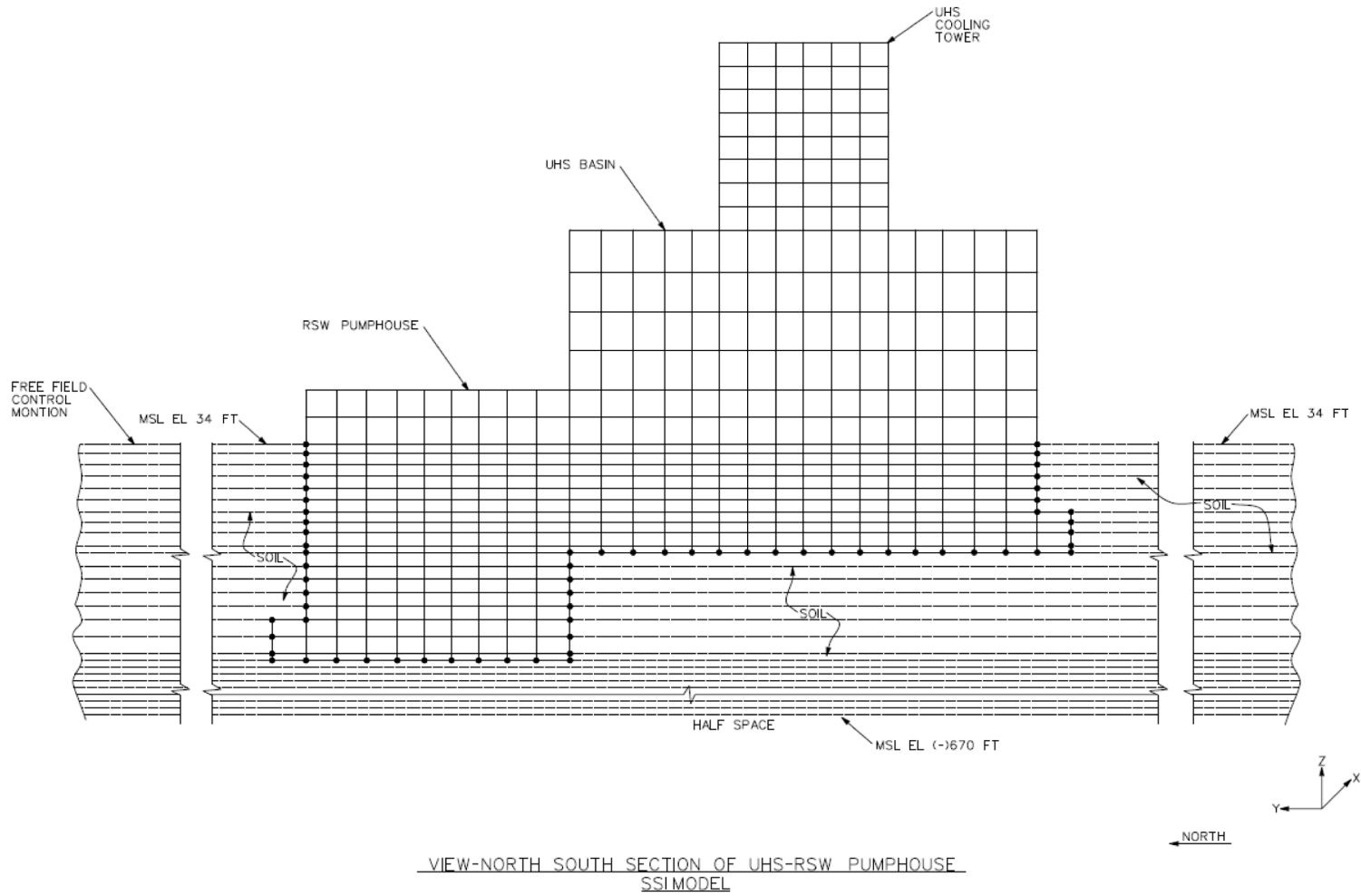


Figure 3H.6-15 SASSI2000 Model of UHS and RSW Pump House

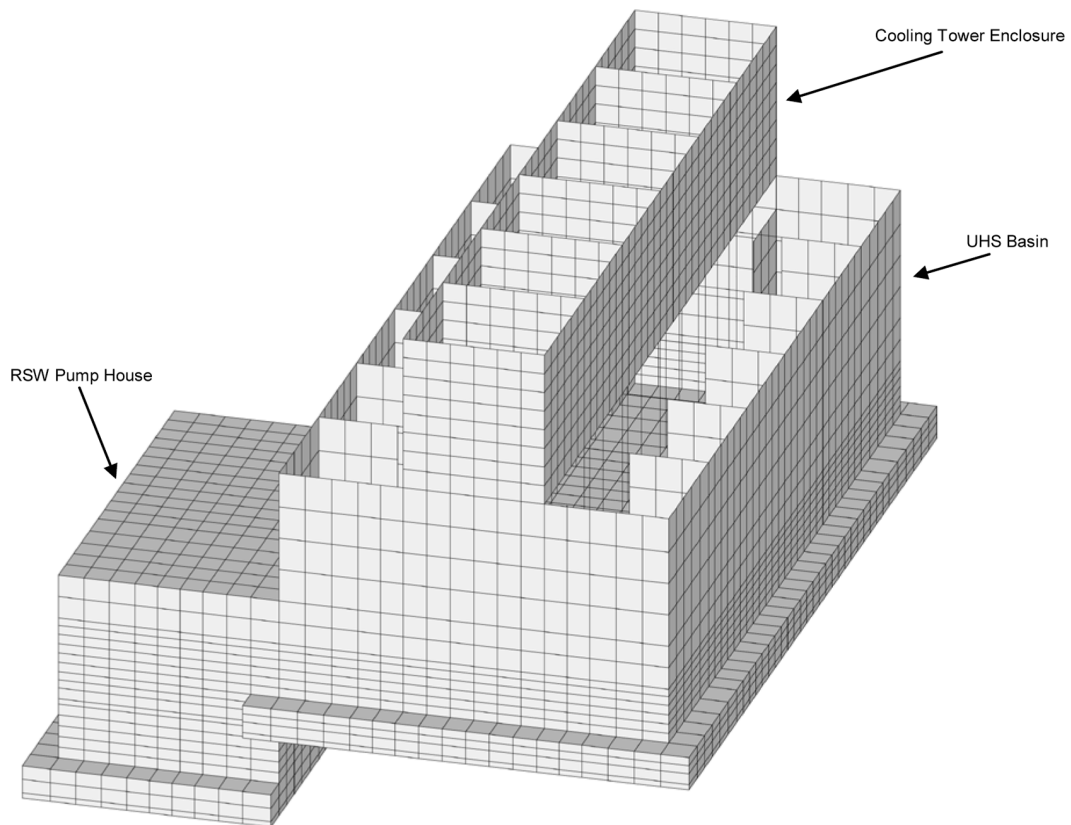
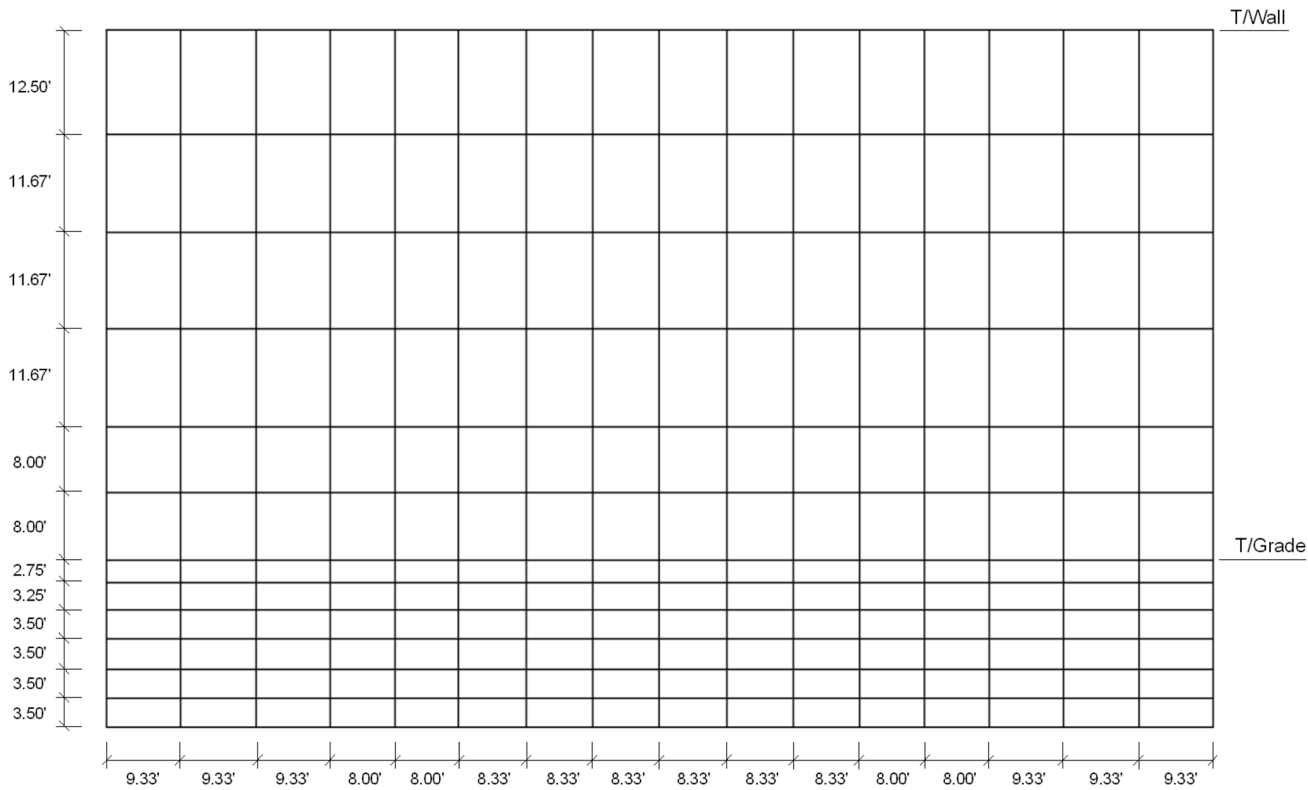


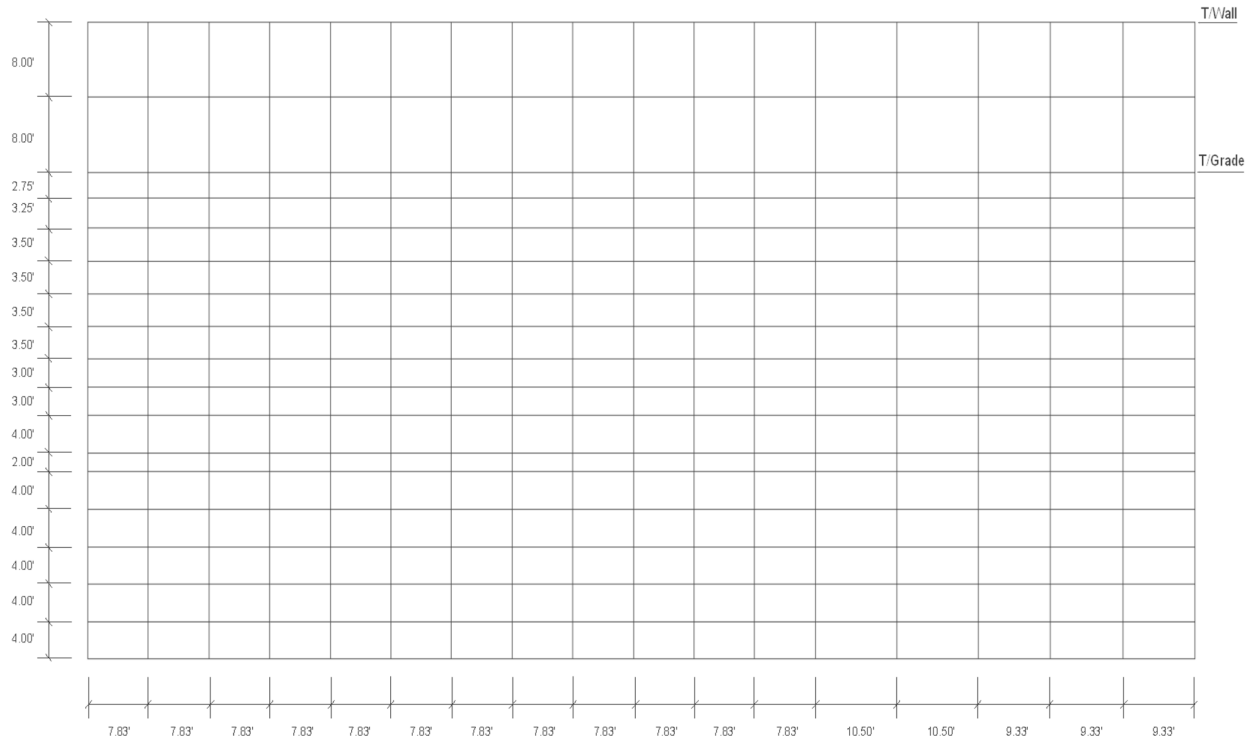
Figure 3H.6-15a SSI Model (structure only)



Note: Basin East and West Walls have the same mesh. The mesh is symmetrical about the vertical axis such that the view is the same whether looking at the wall from the inside or outside of the basin.

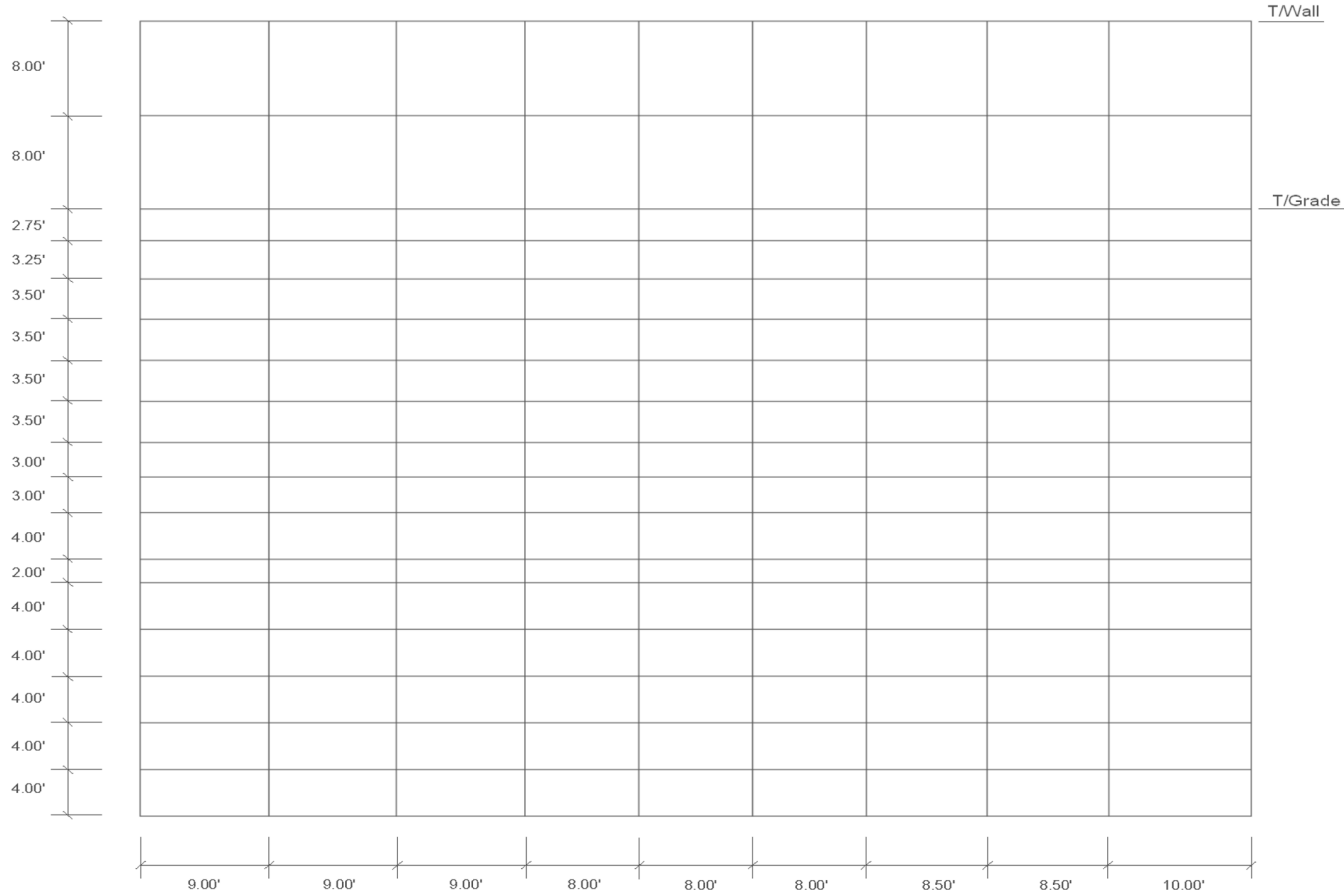
Figure 3H.6-15b UHS Basin East and West Wall – SSI Model

Figure 3H.6-15c UHS Basin North and South Wall – SSI Model



Note: The view is looking south at the outside face of the RSW pump house north wall.

Figure 3H.6-15d RSW Pump House North Wall – SSI Model



Note: The view above is looking east at the outside face of the RSW pump house west wall. The RSW pump house east wall mesh is the mirror image of the RSW pump house west wall mesh with the same dimensions

Figure 3H.6-15e RSW Pump House East and West Wall – SSI Model

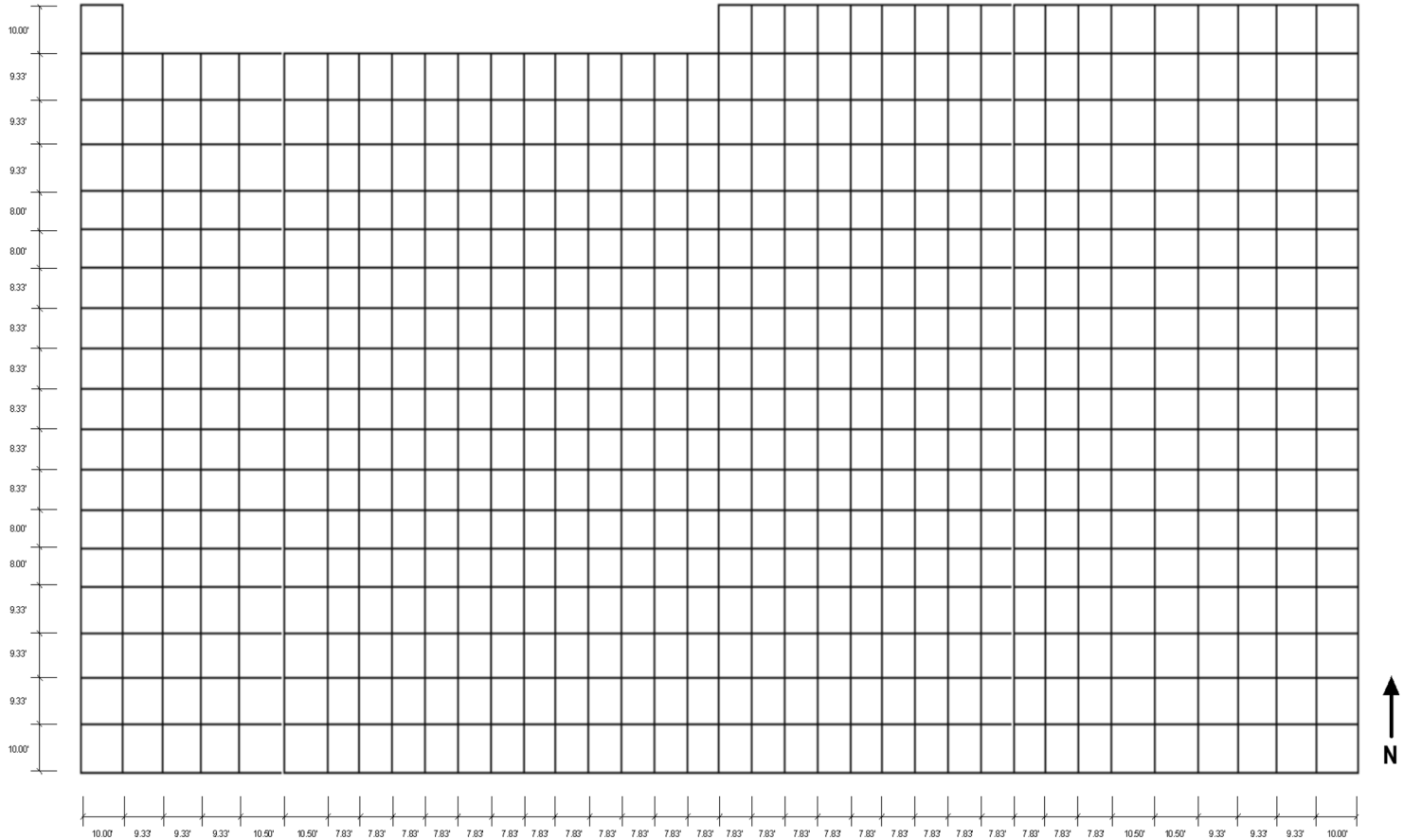


Figure 3H.6-15f UHS Basin Basemat – SSI Model

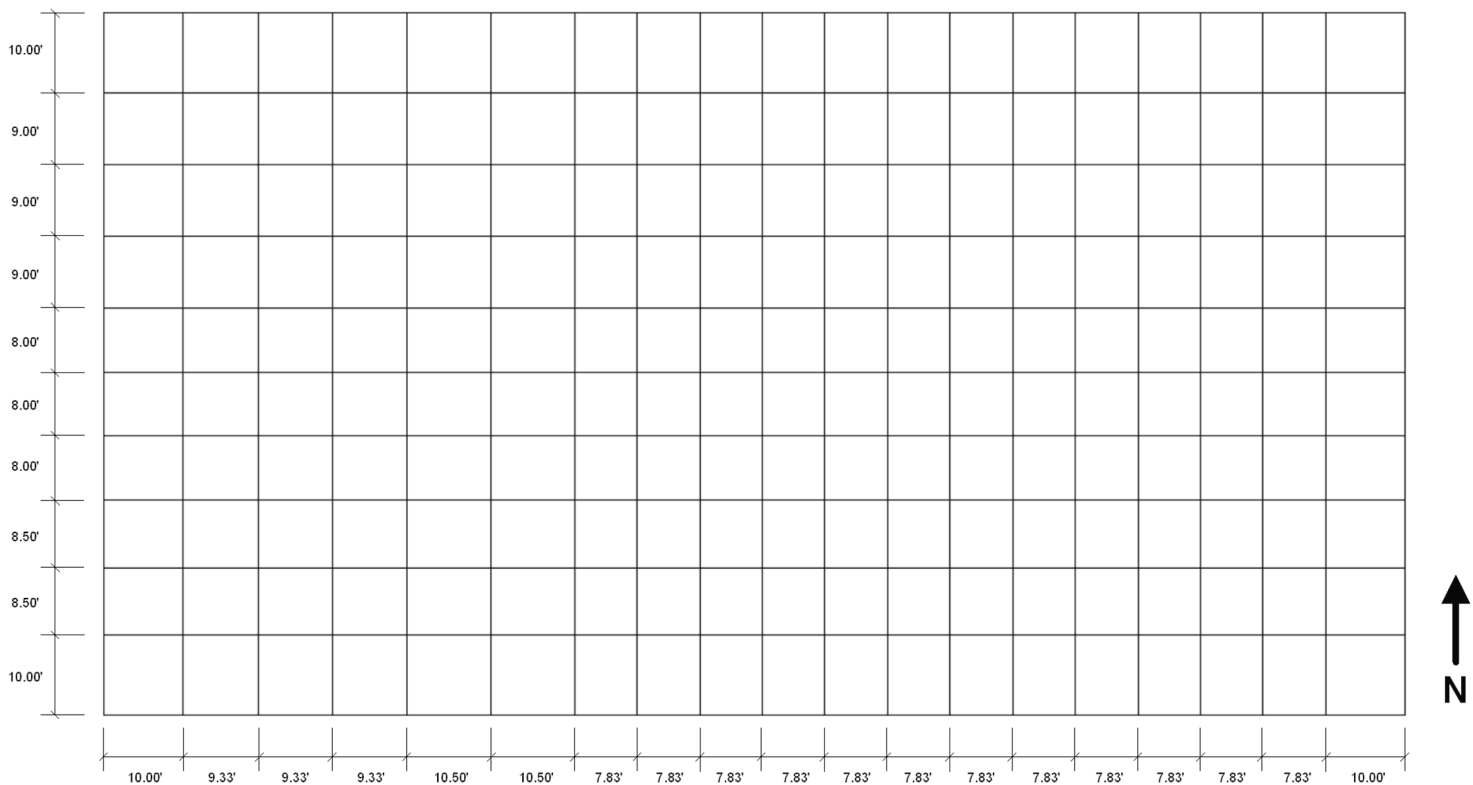


Figure 3H.6-15g RSW Pump House Basemat – SSI Model

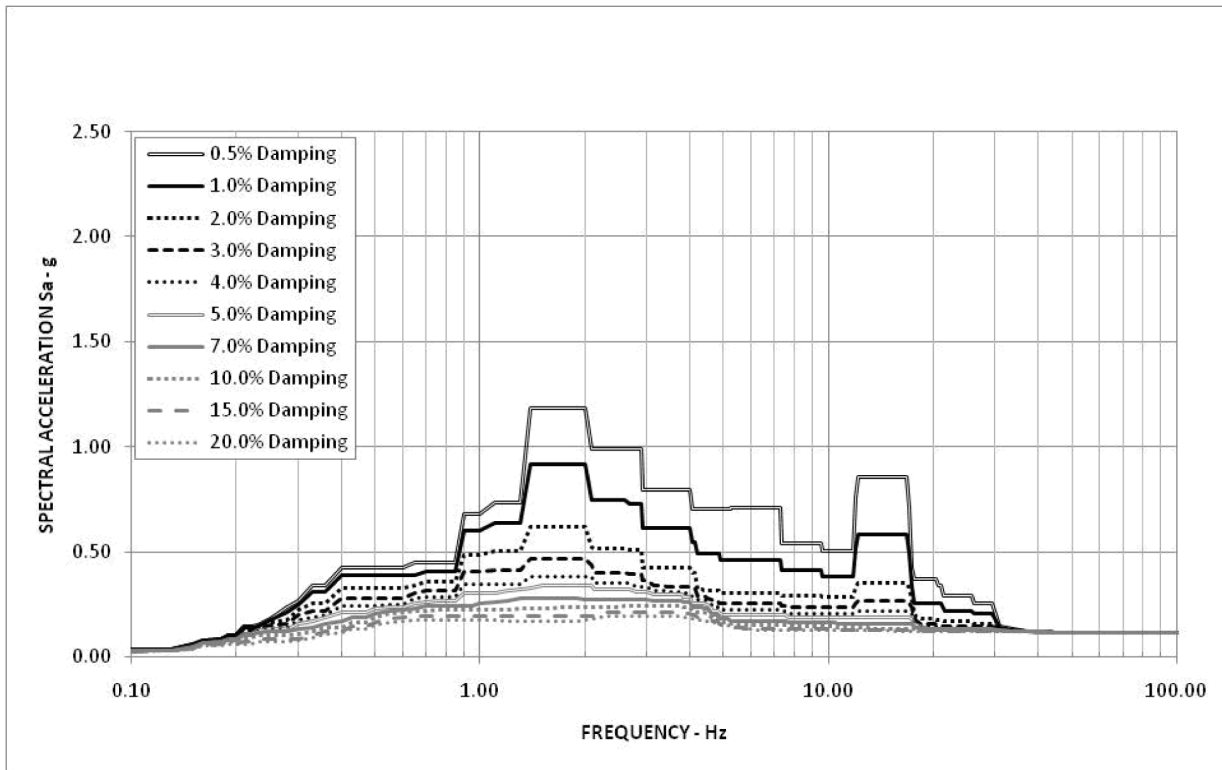


Figure 3H.6-16 Broadened FRS in E-W (X) Direction at the Top of RSW Pump House Mat (Elevation -18 ft MSL)

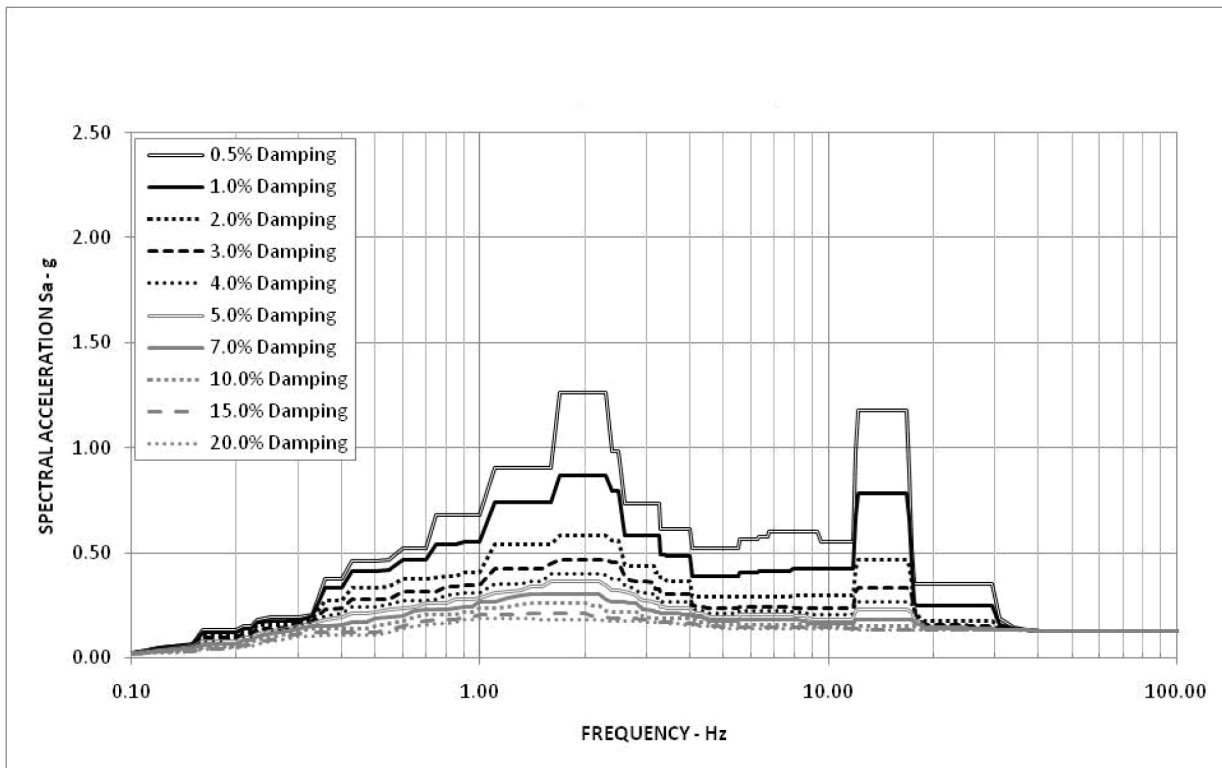


Figure 3H.6-17 Broadened FRS in N-S (Y) Direction at the Top of RSW Pump House Mat (Elevation -18 ft MSL)

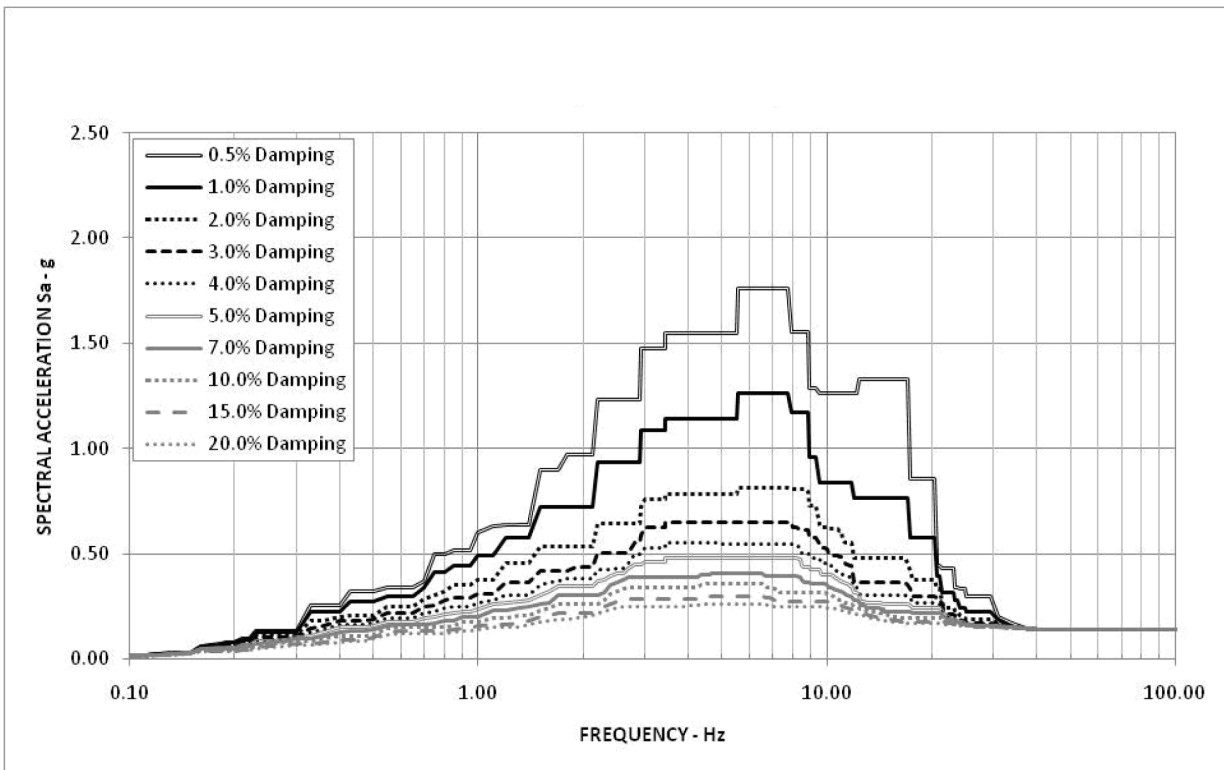


Figure 3H.6-18 Broadened FRS in Vertical (Z) Direction at the Top of RSW Pump House Mat (Elevation -18 ft MSL)

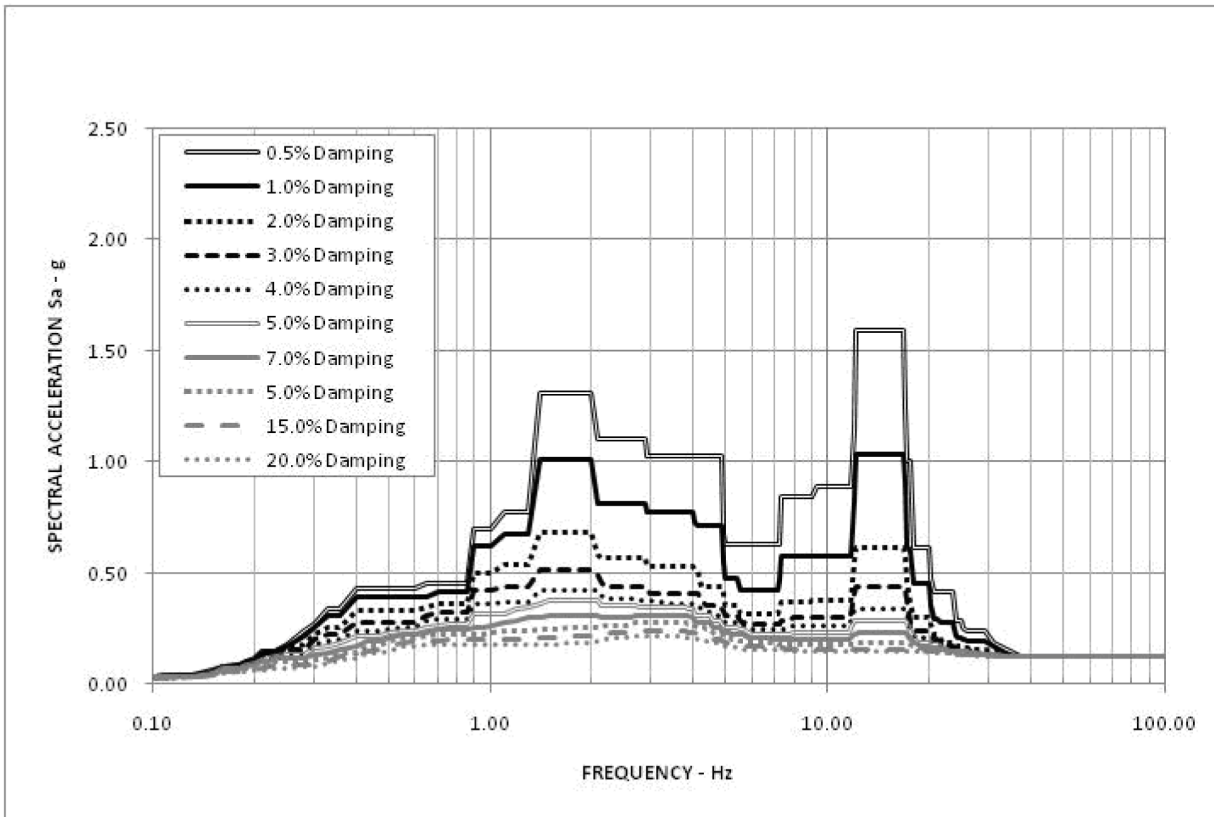


Figure 3H.6-19 Broadened FRS in E-W (X) Direction at the RSW Pump House Operating Floor (Elevation 14 ft MSL)

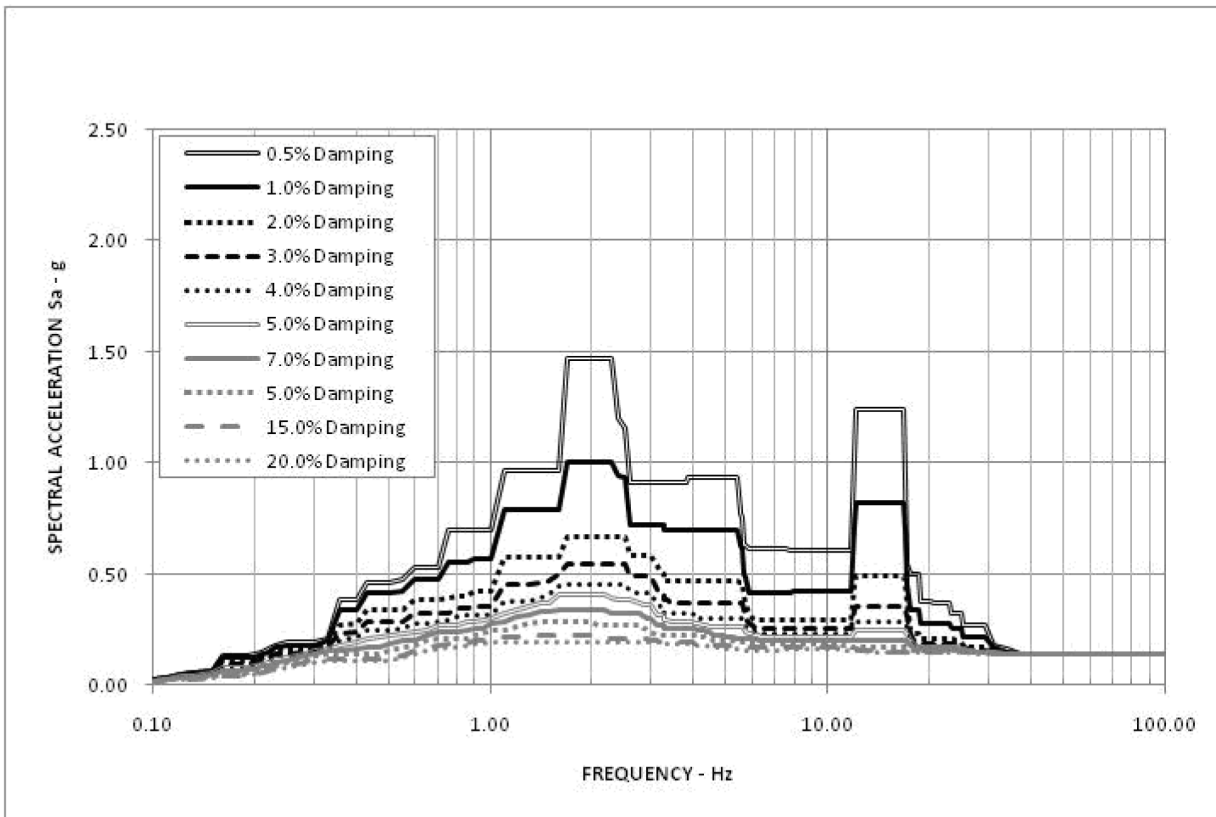


Figure 3H.6-20 Broadened FRS in N-S (Y) Direction at the RSW Pump House Operating Floor (Elevation 14 ft MSL)

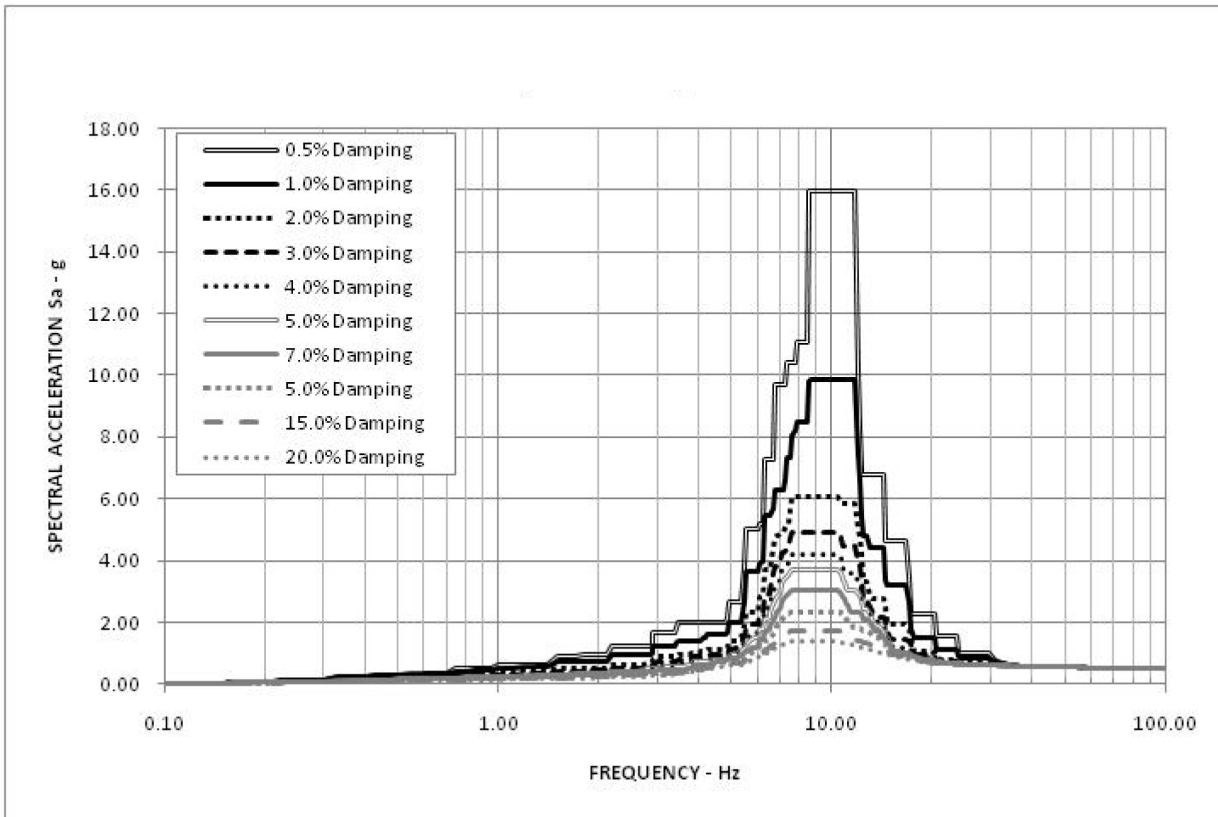


Figure 3H.6-21 Broadened FRS in Vertical (Z) Direction at the RSW Pump House Operating Floor (Elevation 14 ft MSL)

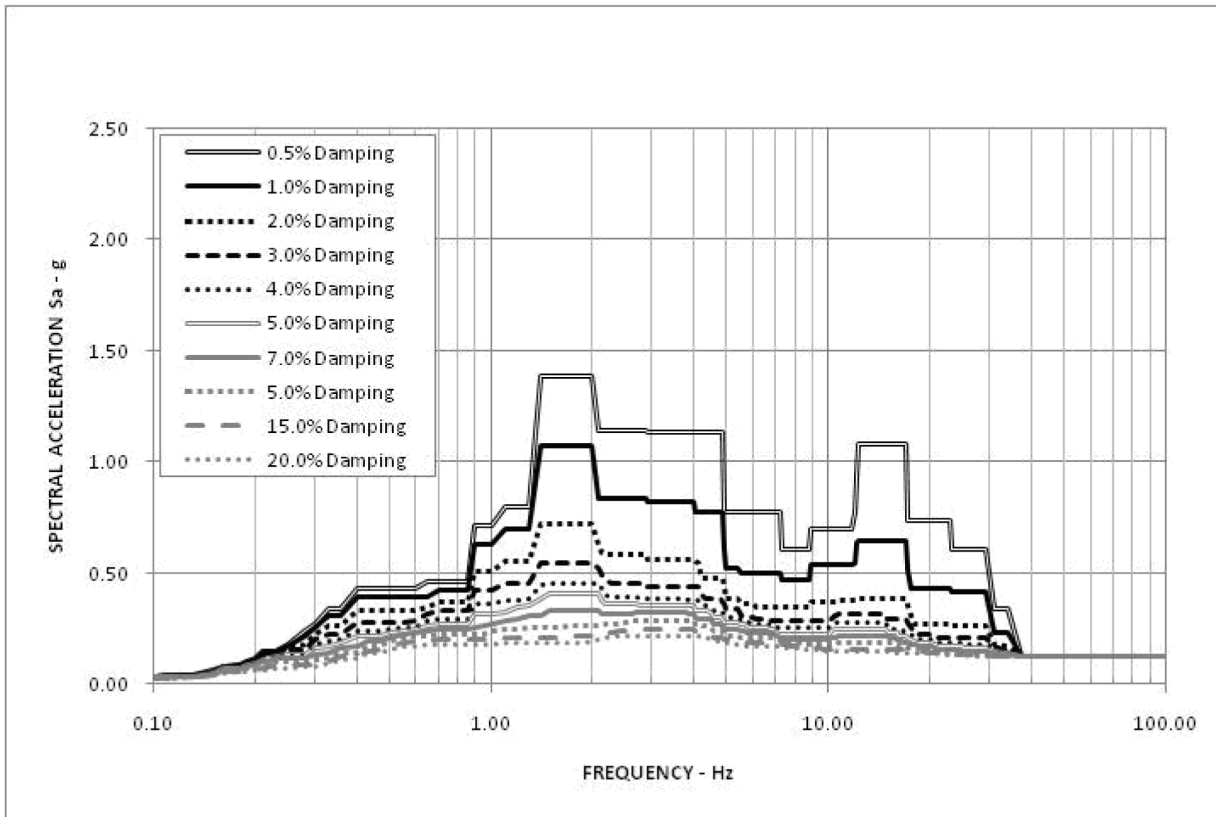


Figure 3H.6-22 Broadened FRS in E-W (X) Direction at the RSW Pump House Roof (Elevation 50 ft MSL)

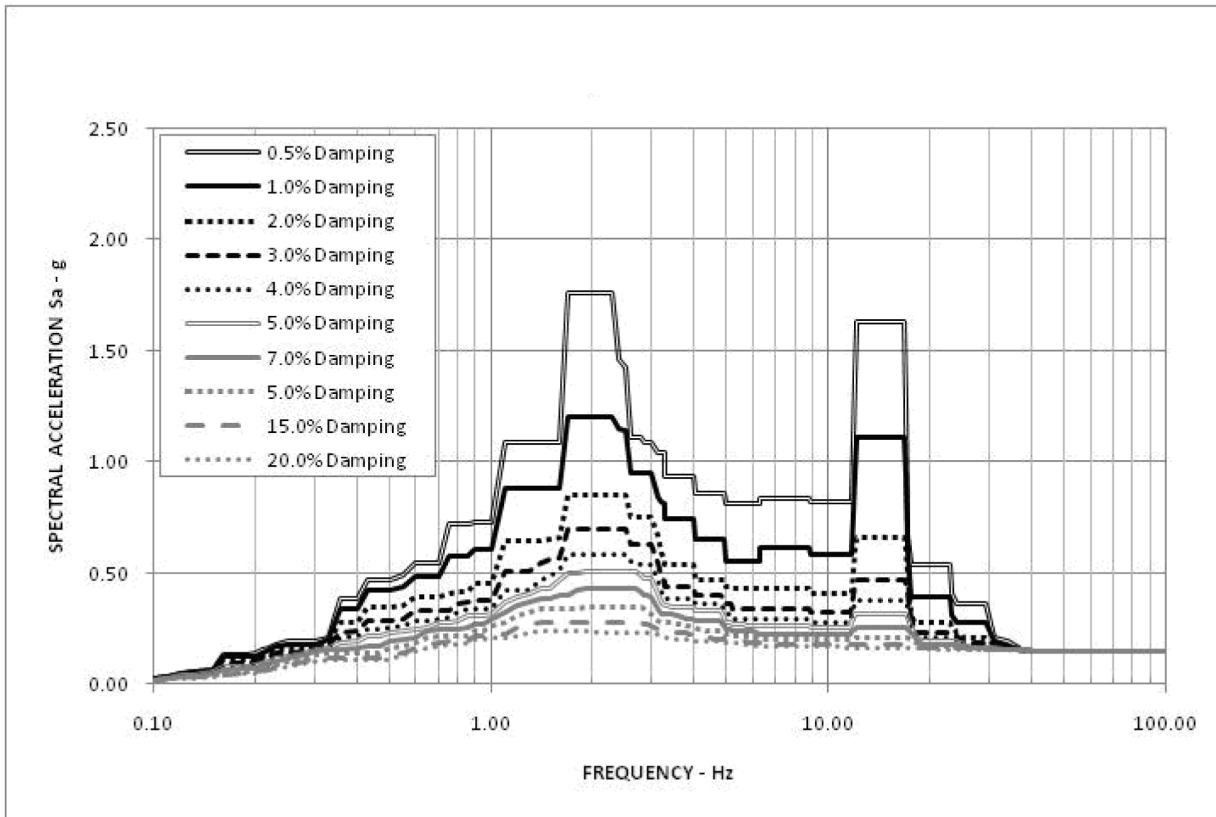


Figure 3H.6-23 Broadened FRS in N-S (Y) Direction at the RSW Pump House Roof (Elevation 50 ft MSL)

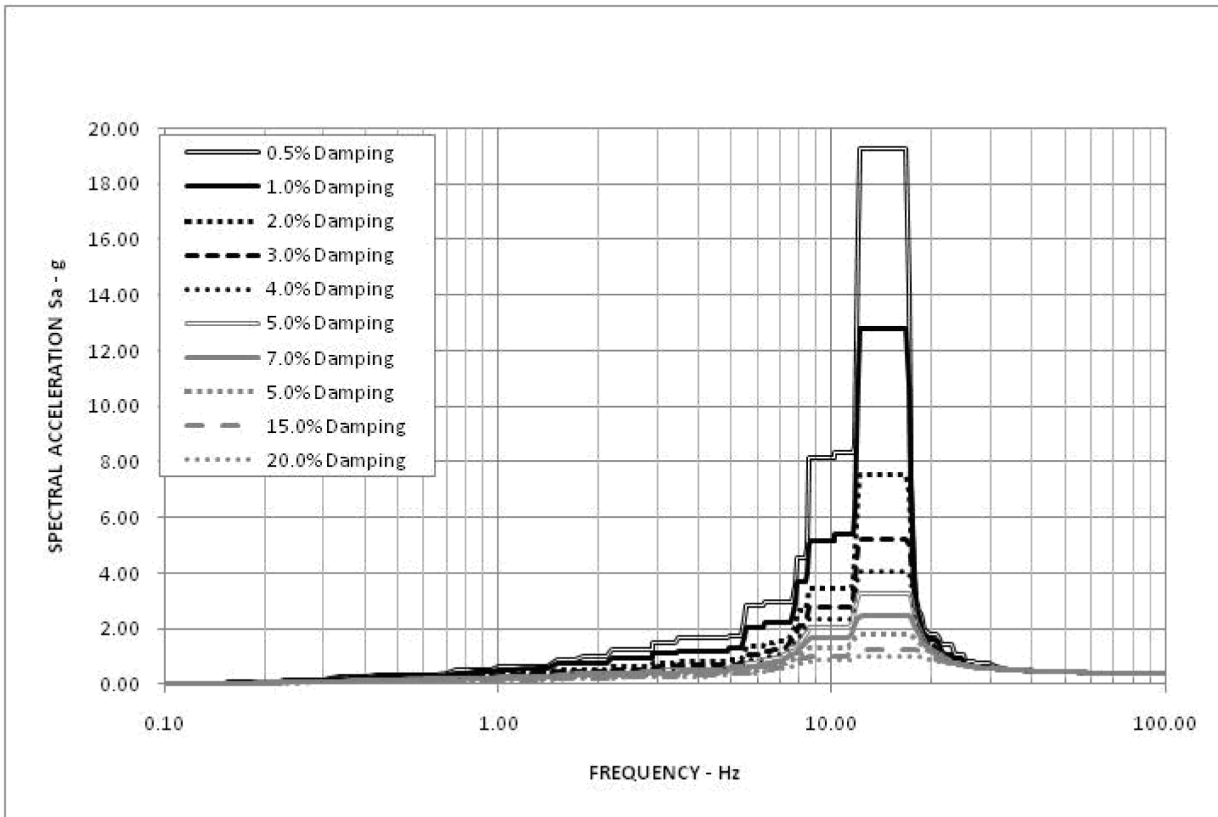


Figure 3H.6-24 Broadened FRS in Vertical (Z) Direction at the RSW Pump House Roof (Elevation 50 ft MSL)

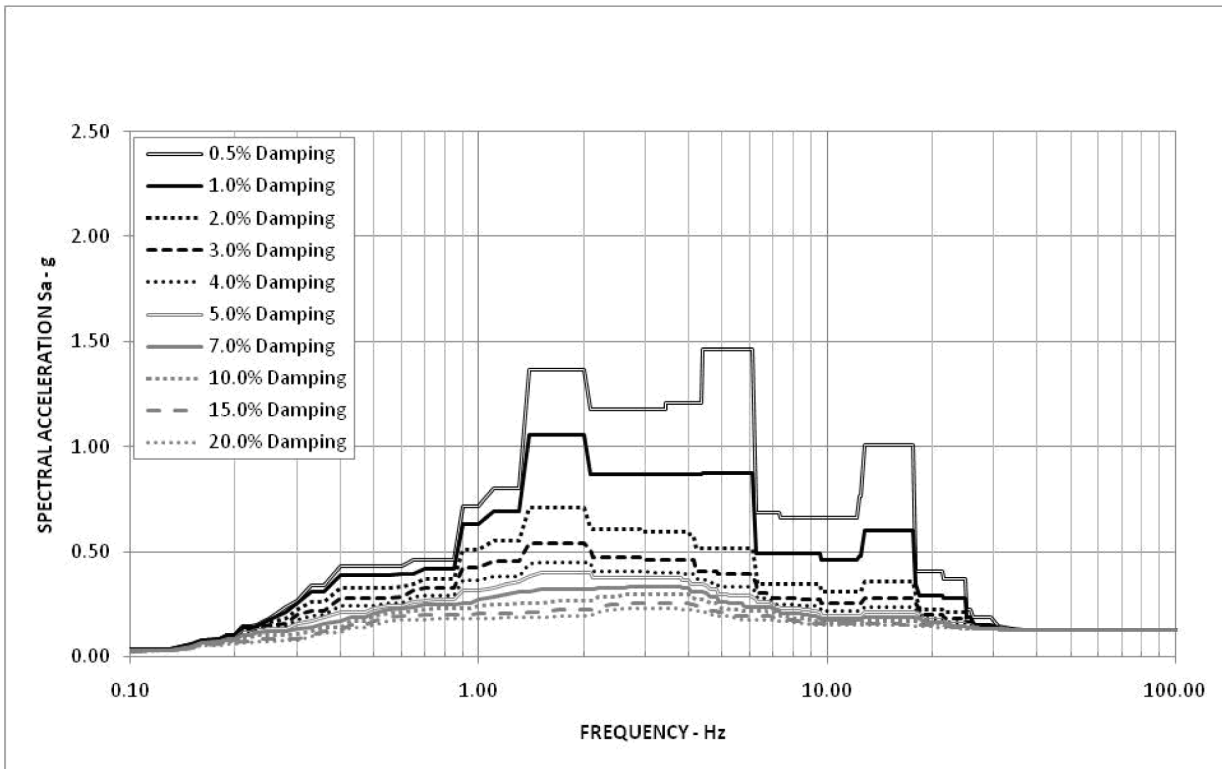


Figure 3H.6-25 Broadened FRS in E-W (X) Direction at the Top of UHS Basin Mat (Elevation 14 ft MSL)

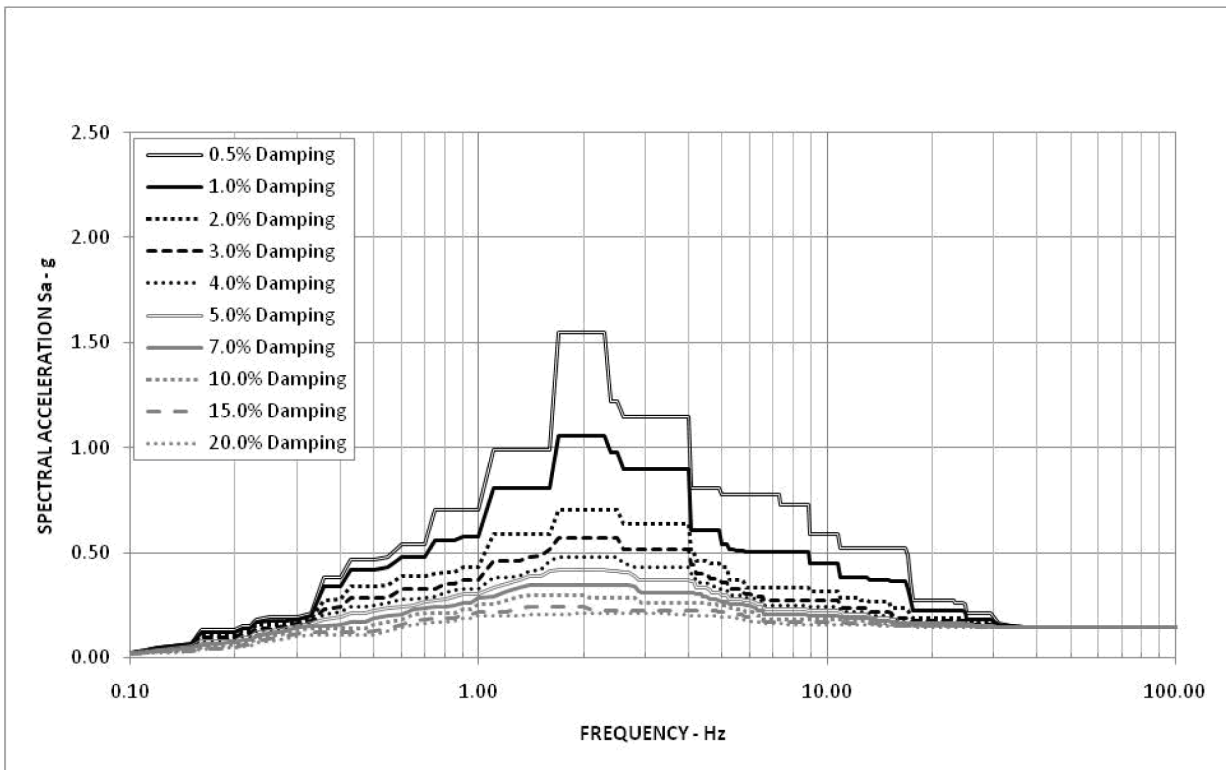


Figure 3H.6-26 Broadened FRS in N-S (Y) Direction at the Top of UHS Basin Mat (Elevation 14 ft MSL)

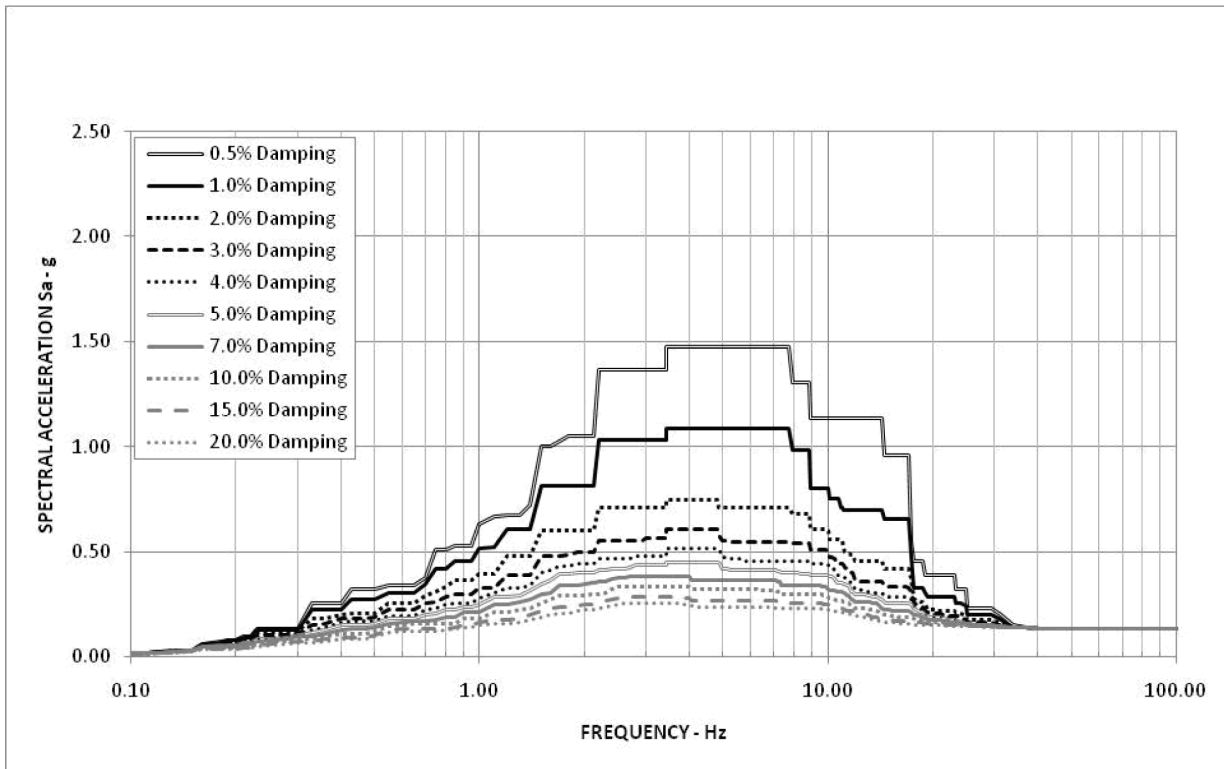


Figure 3H.6-27 Broadened FRS in Vertical (Z) Direction at the Top of UHS Basin Mat (Elevation 14 ft MSL)

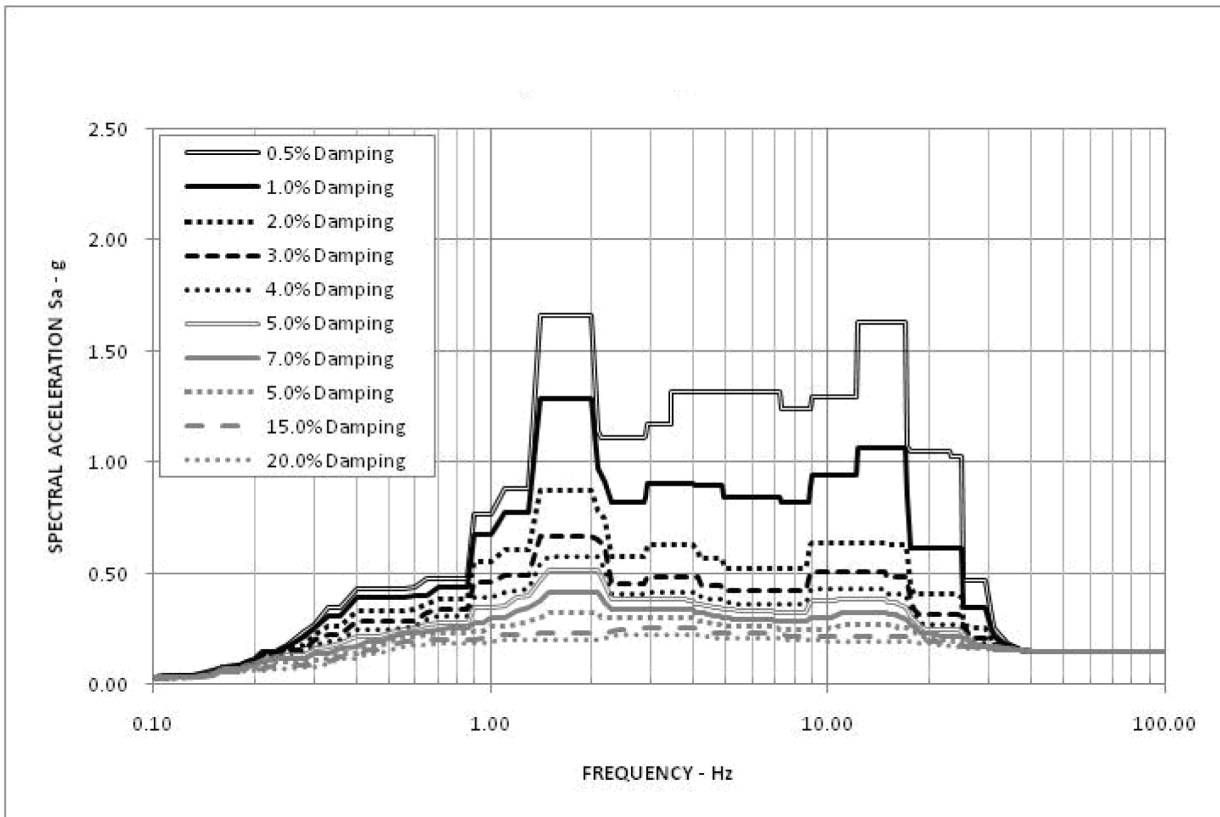


Figure 3H.6-28 Broadened FRS in E-W (X) Direction at the Top of the UHS Basin Walls (Elevation 97.5 ft MSL)

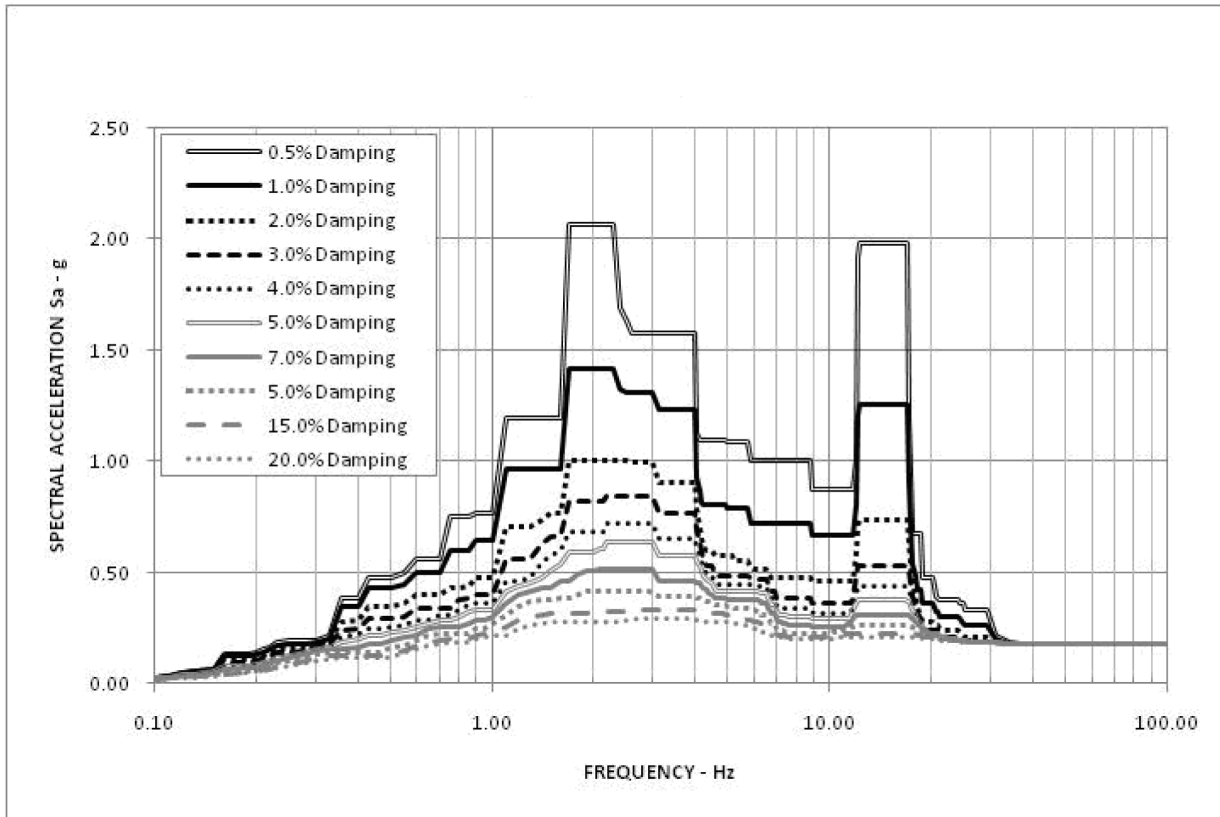


Figure 3H.6-29 Broadened FRS in N-S (Y) Direction at the Top of the UHS Basin Walls (Elevation 97.5 ft MSL)

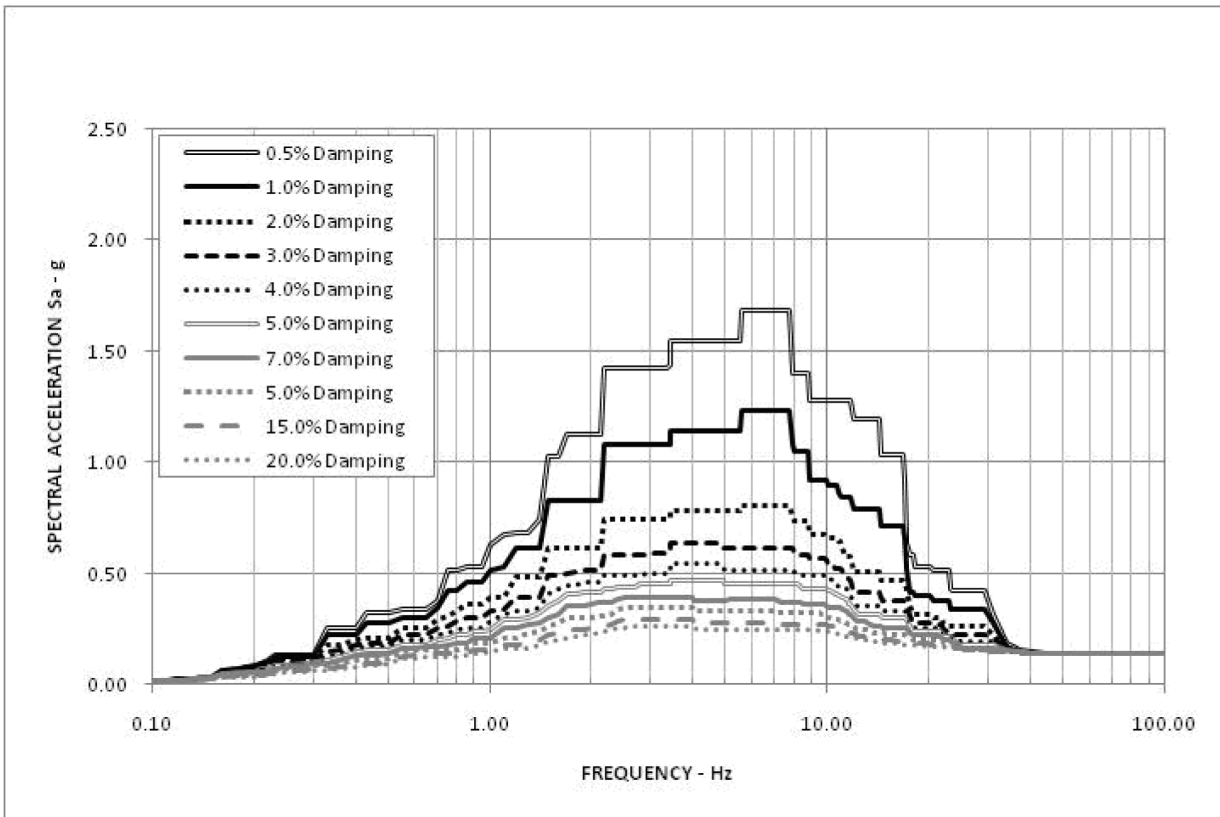


Figure 3H.6-30 Broadened FRS in Vertical (Z) Direction at the Top of the UHS Basin Walls (Elevation 97.5 ft MSL)

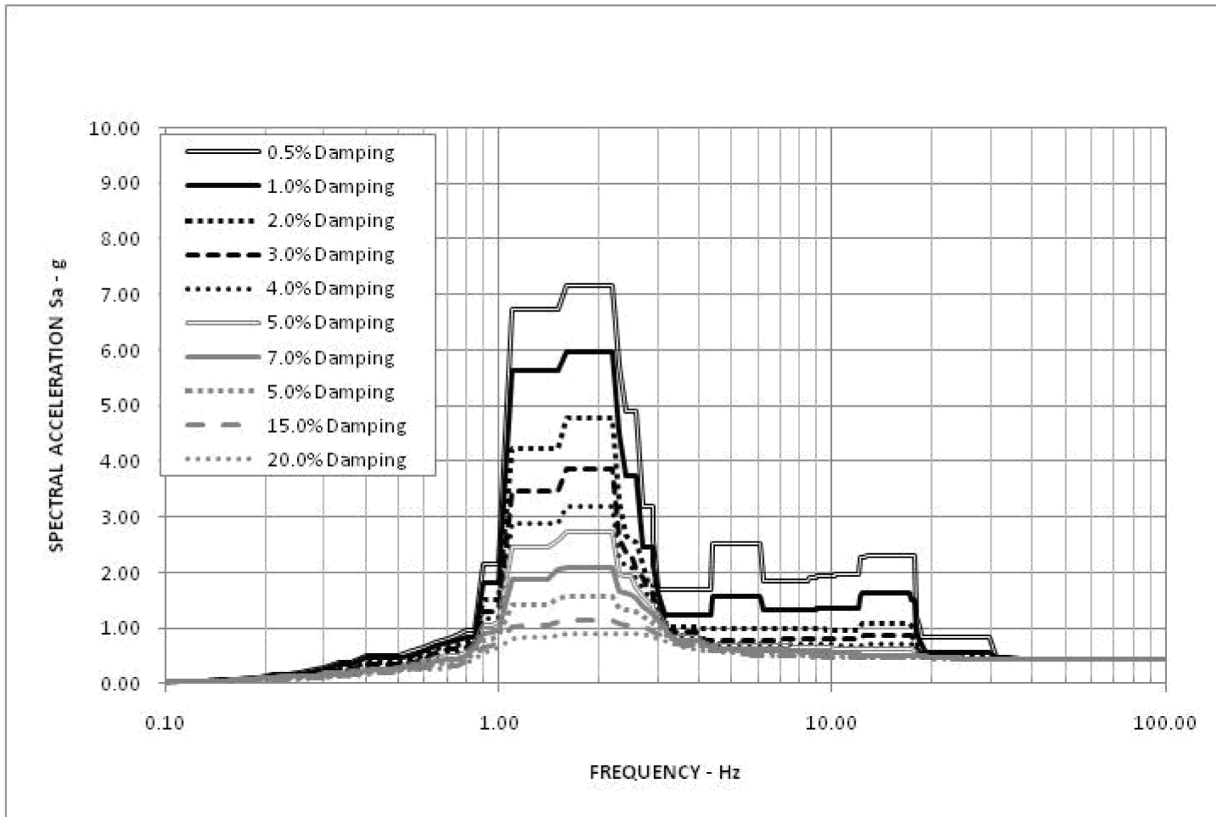


Figure 3H.6-31 Broadened FRS in E-W (X) Direction at the Bottom of Cooling Towers (Elevation 97.5 ft MSL)

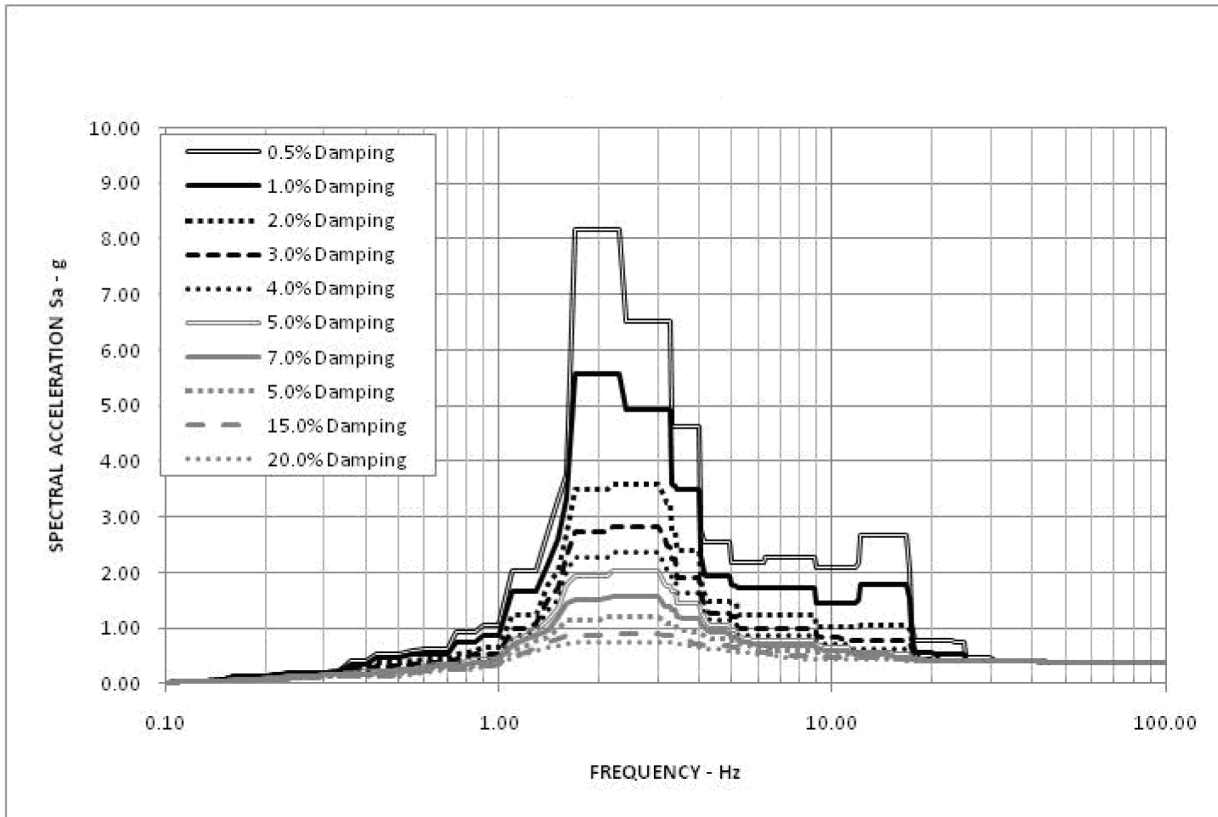


Figure 3H.6-32 Broadened FRS in N-S (Y) Direction at the Bottom of Cooling Towers (Elevation 97.5 ft MSL)

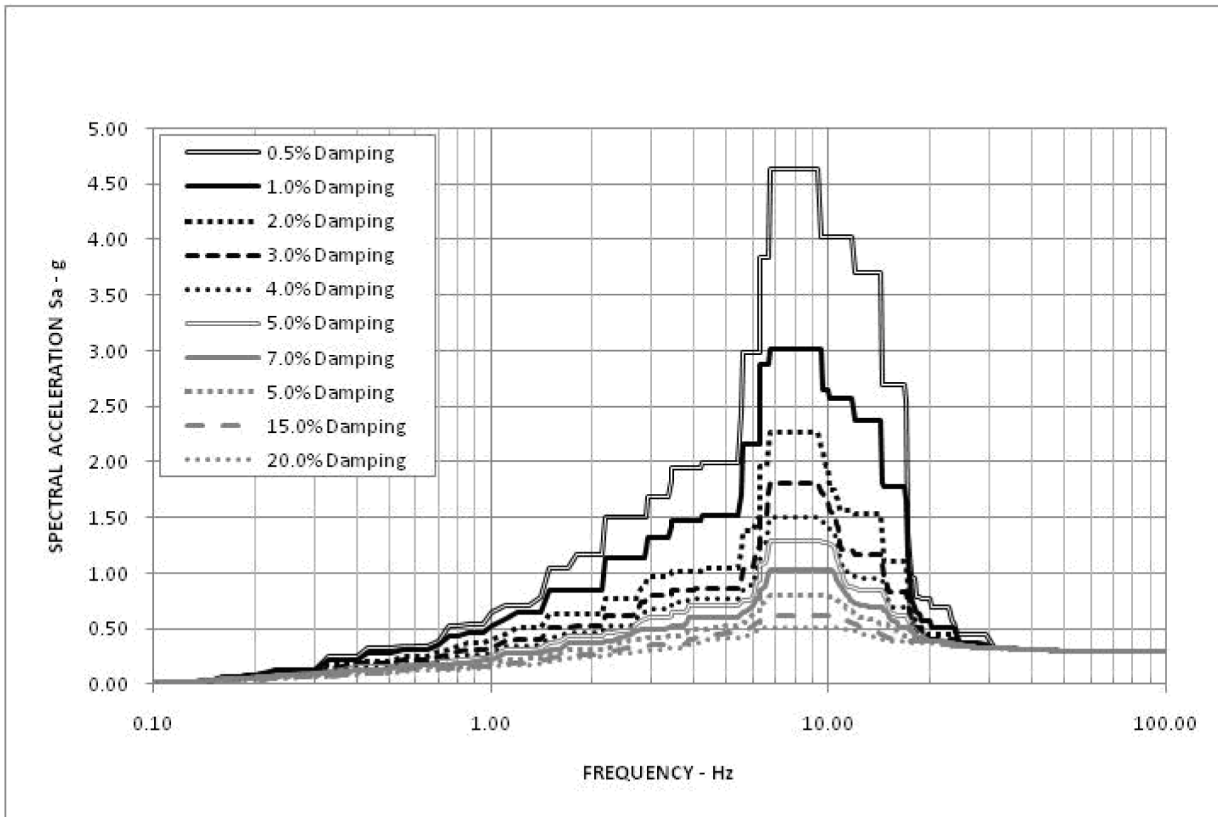


Figure 3H.6-33 Broadened FRS in Vertical (Z) Direction at the Bottom of Cooling Towers (Elevation 97.5 ft MSL)

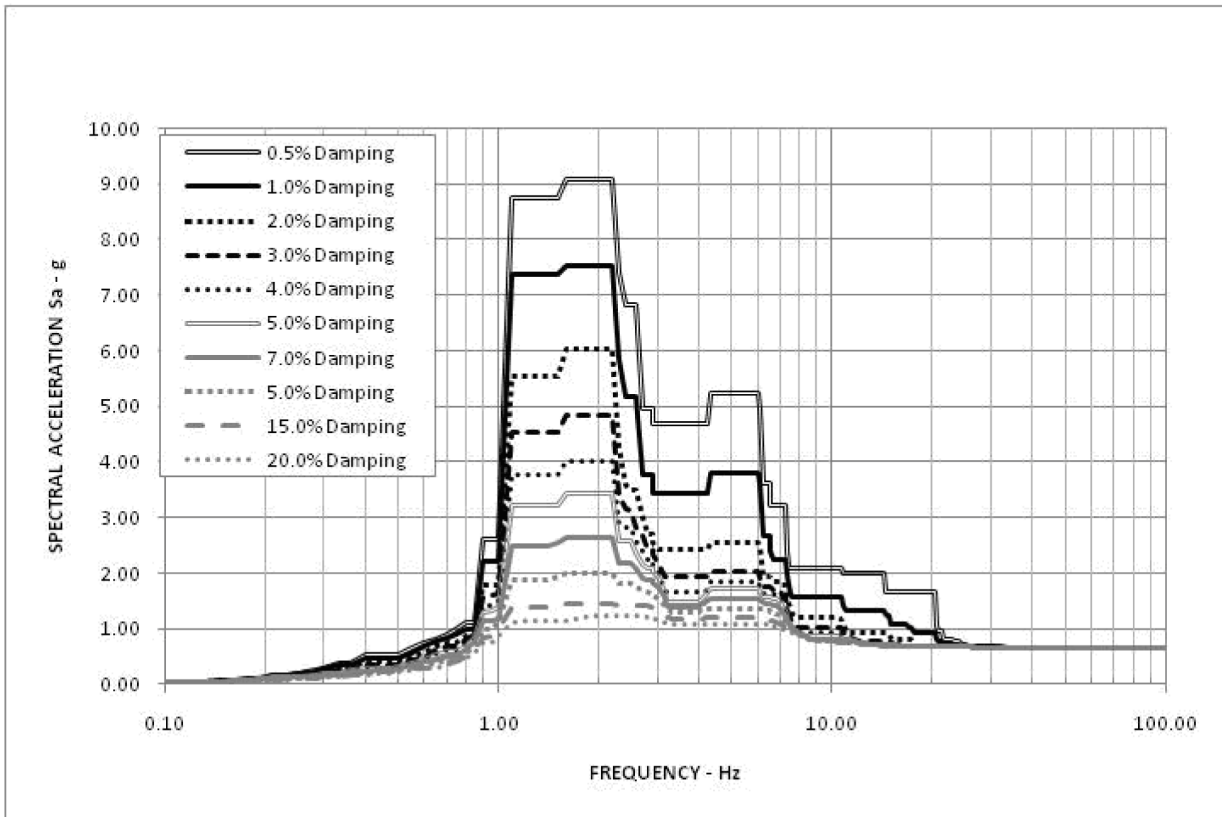


Figure 3H.6-34 Broadened FRS in E-W (X) Direction at the Mid-Level of Cooling Towers (Elevation 125.25 ft MSL)

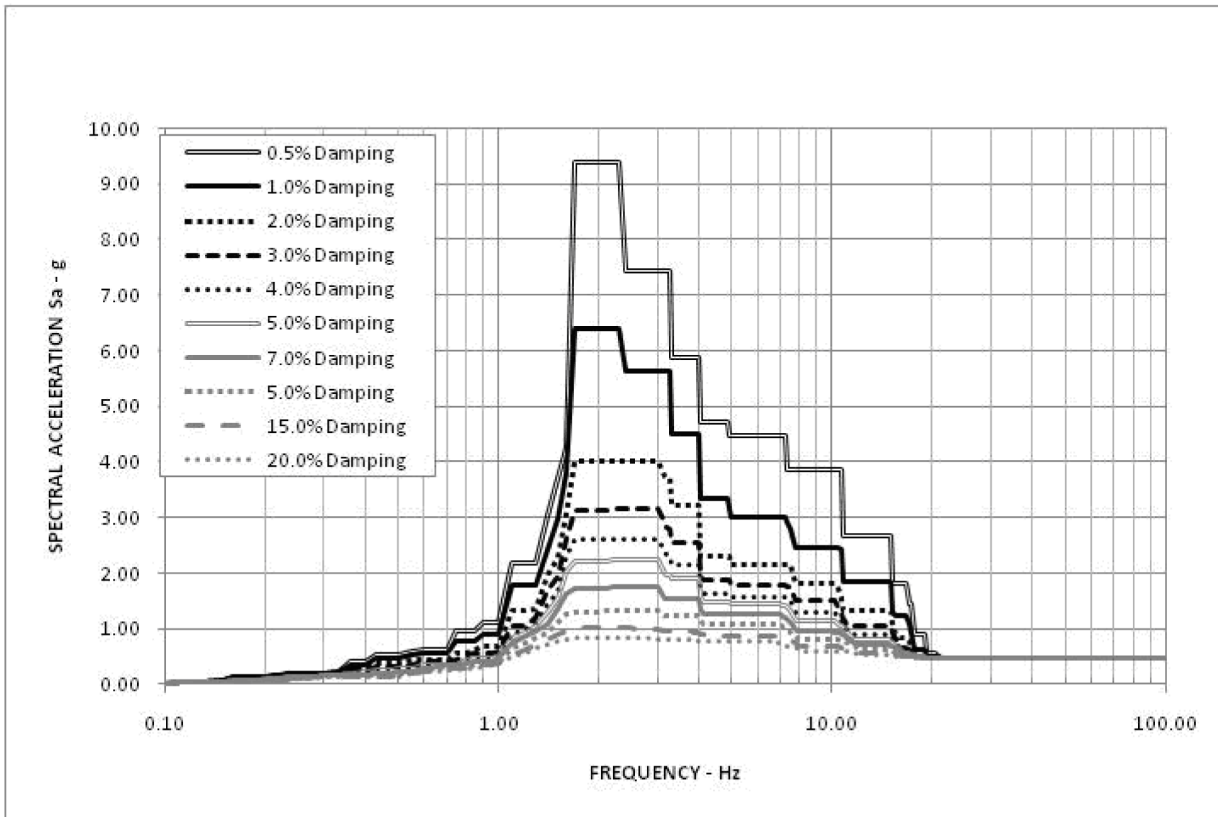


Figure 3H.6-35 Broadened FRS in N-S (Y) Direction at the Mid-Level of Cooling Towers (Elevation 125.25 ft MSL)

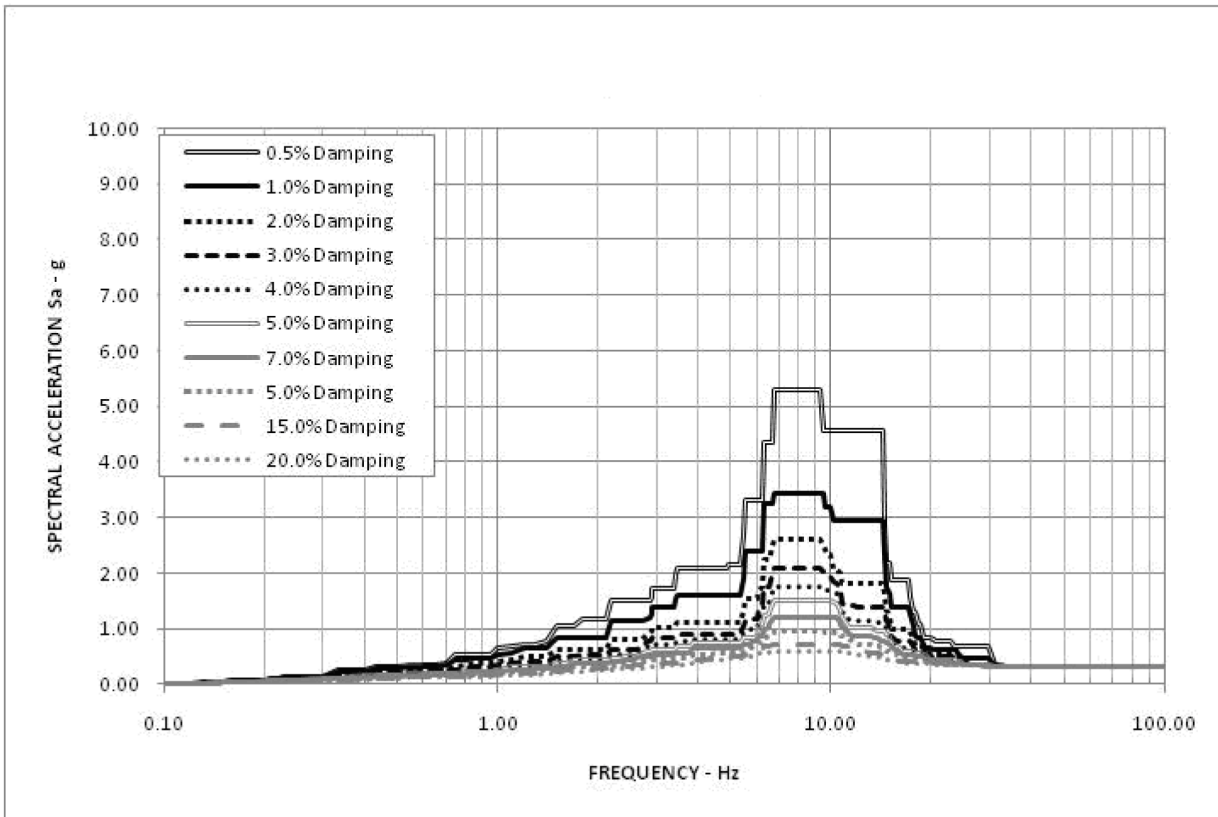


Figure 3H.6-36 Broadened FRS in Vertical (Z) Direction at the Mid-Level of Cooling Towers (Elevation 125.25 ft MSL)

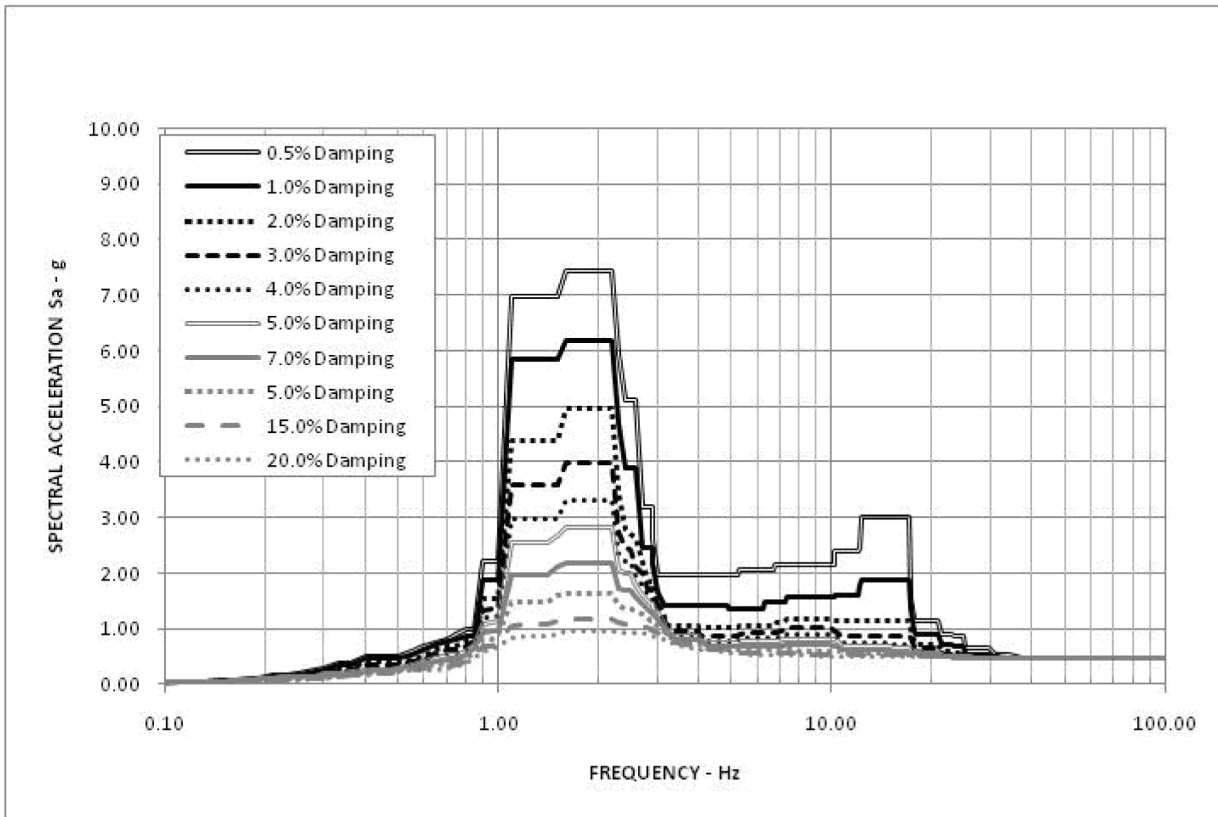


Figure 3H.6-37 Broadened FRS in E-W (X) Direction at the Top of Cooling Towers (Elevation 153 ft MSL)

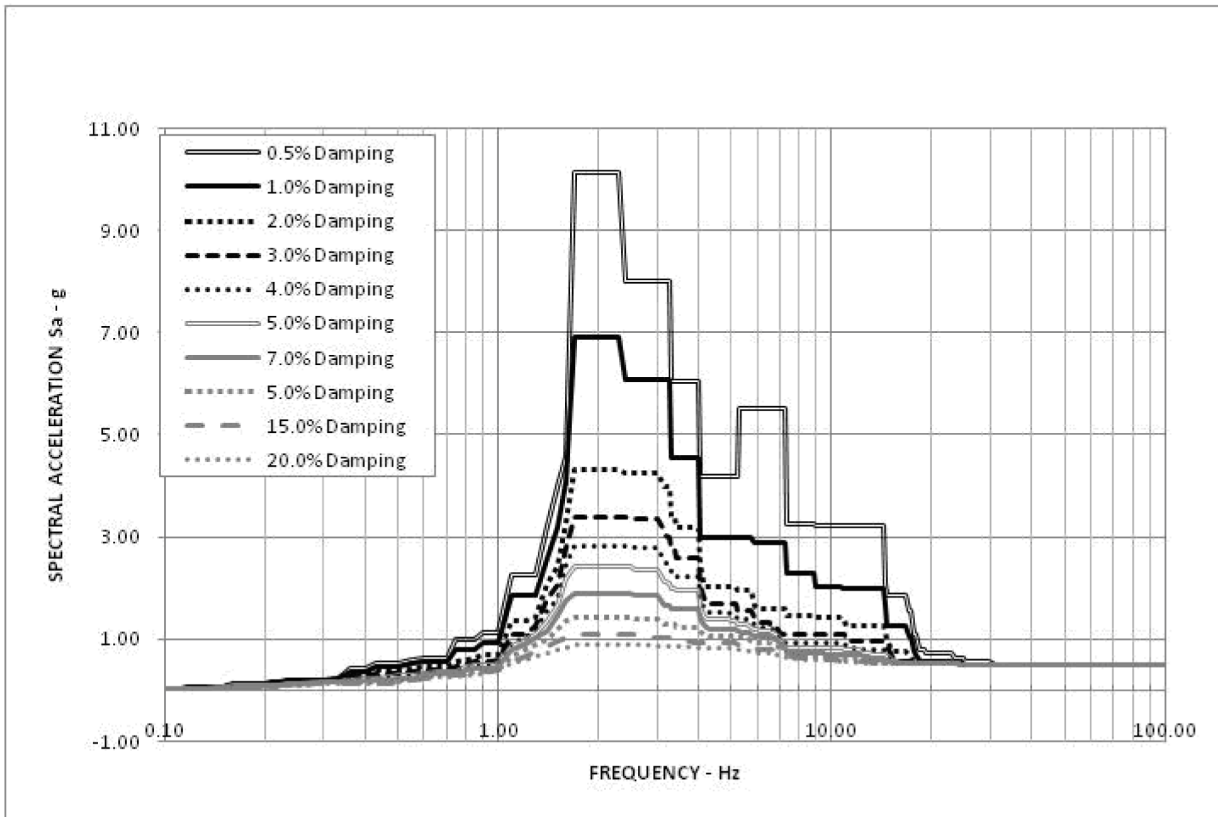


Figure 3H.6-38 Broadened FRS in N-S (Y) Direction at the Top of Cooling Towers (Elevation 153 ft MSL)

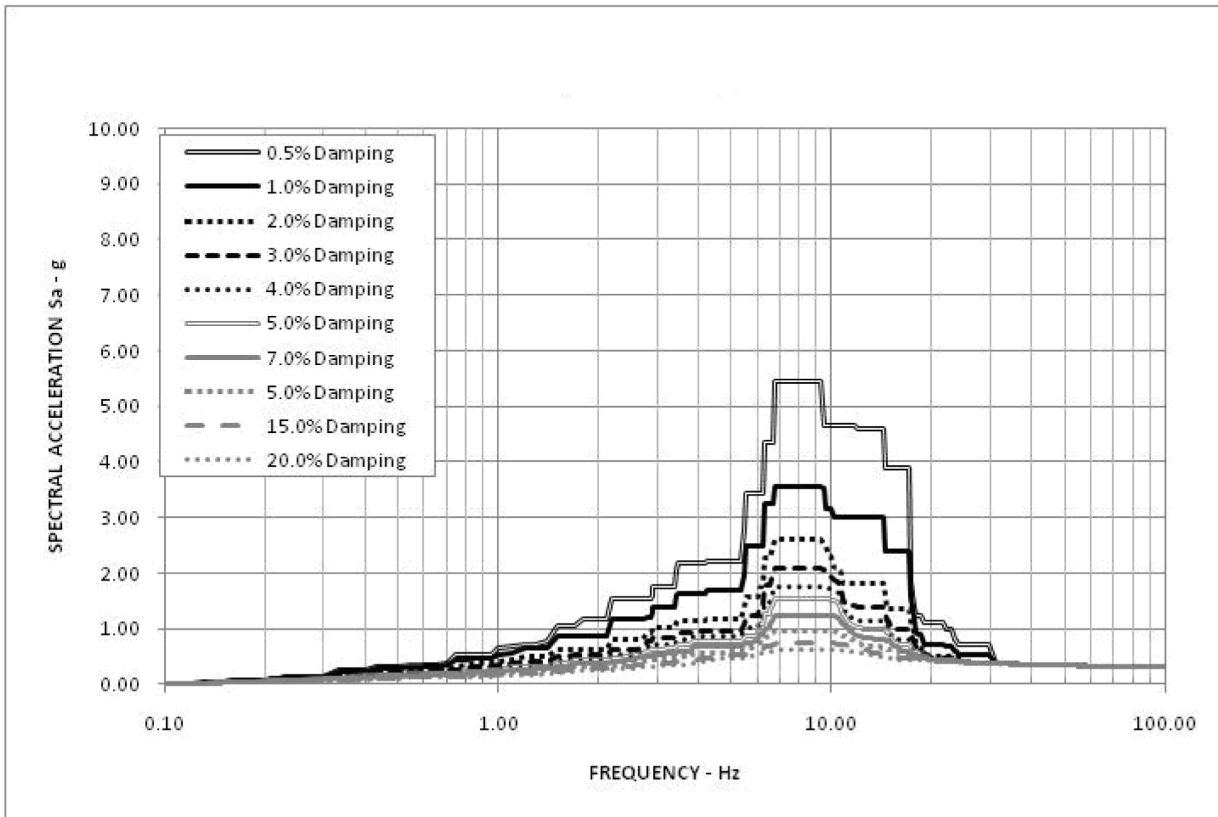


Figure 3H.6-39 Broadened FRS in Vertical (Z) Direction at the Top of Cooling Towers (Elevation 153 ft MSL)

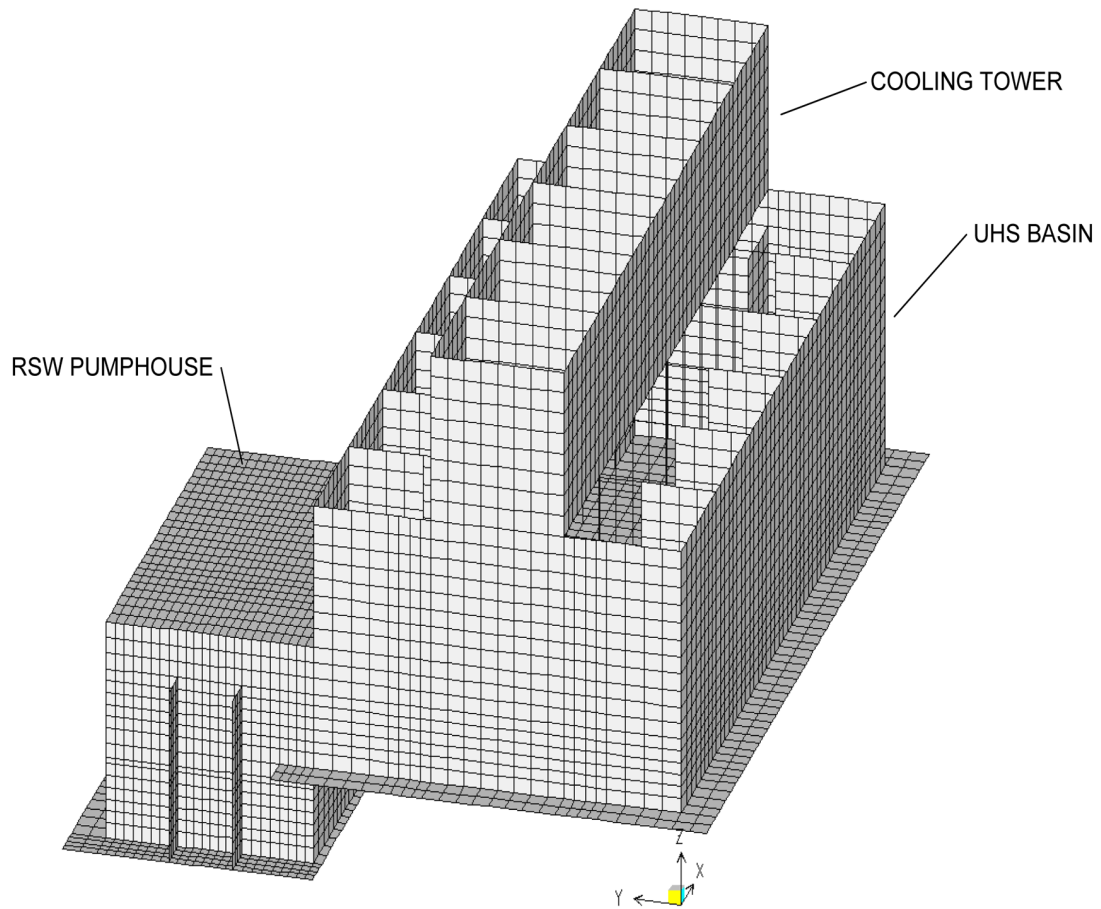


Figure 3H.6-40 SAP Finite Element Model for UHS and RSW Pump House Design

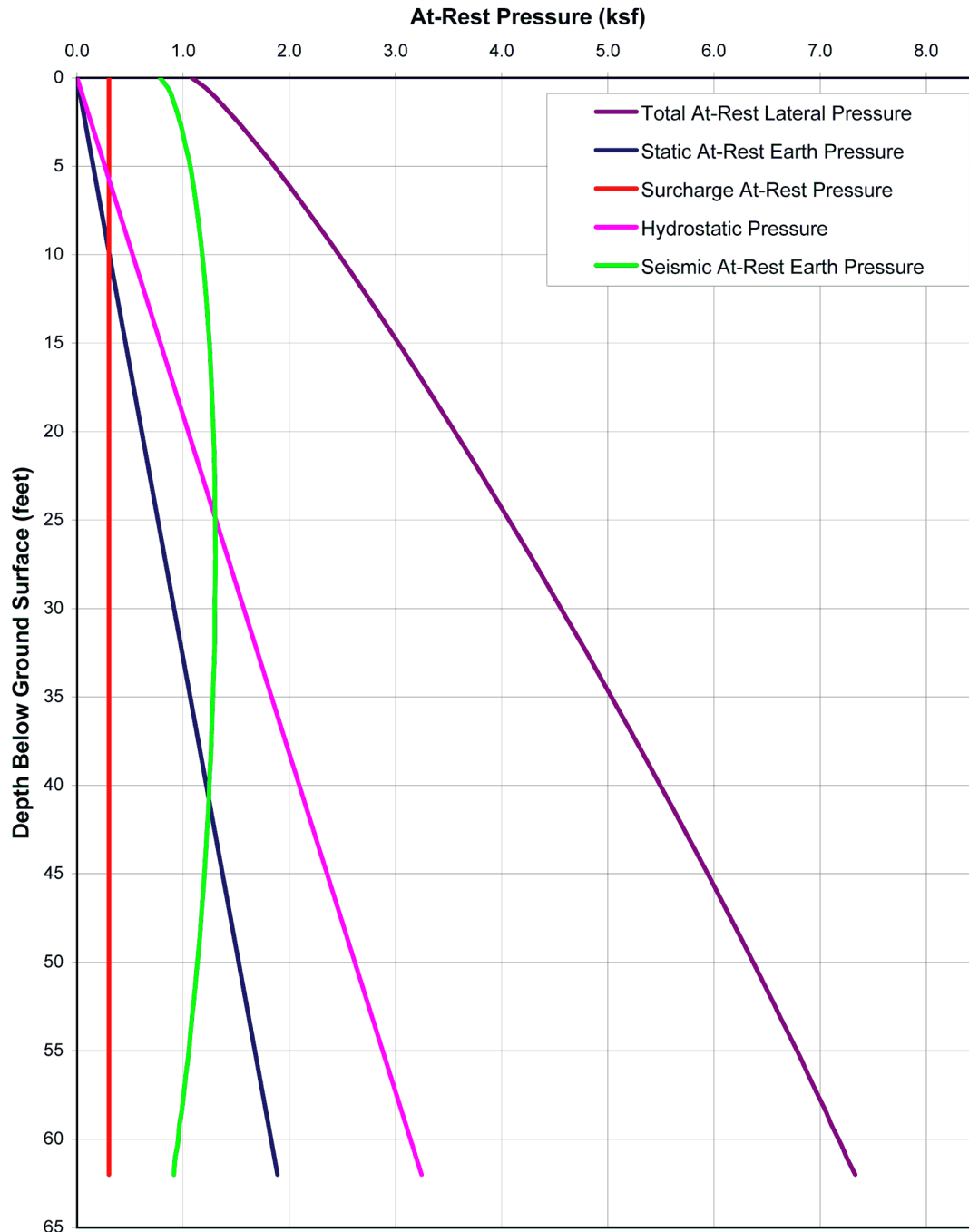


Figure 3H.6-41 At-Rest Lateral Earth Pressure on the East, West, and North Walls of Pump House

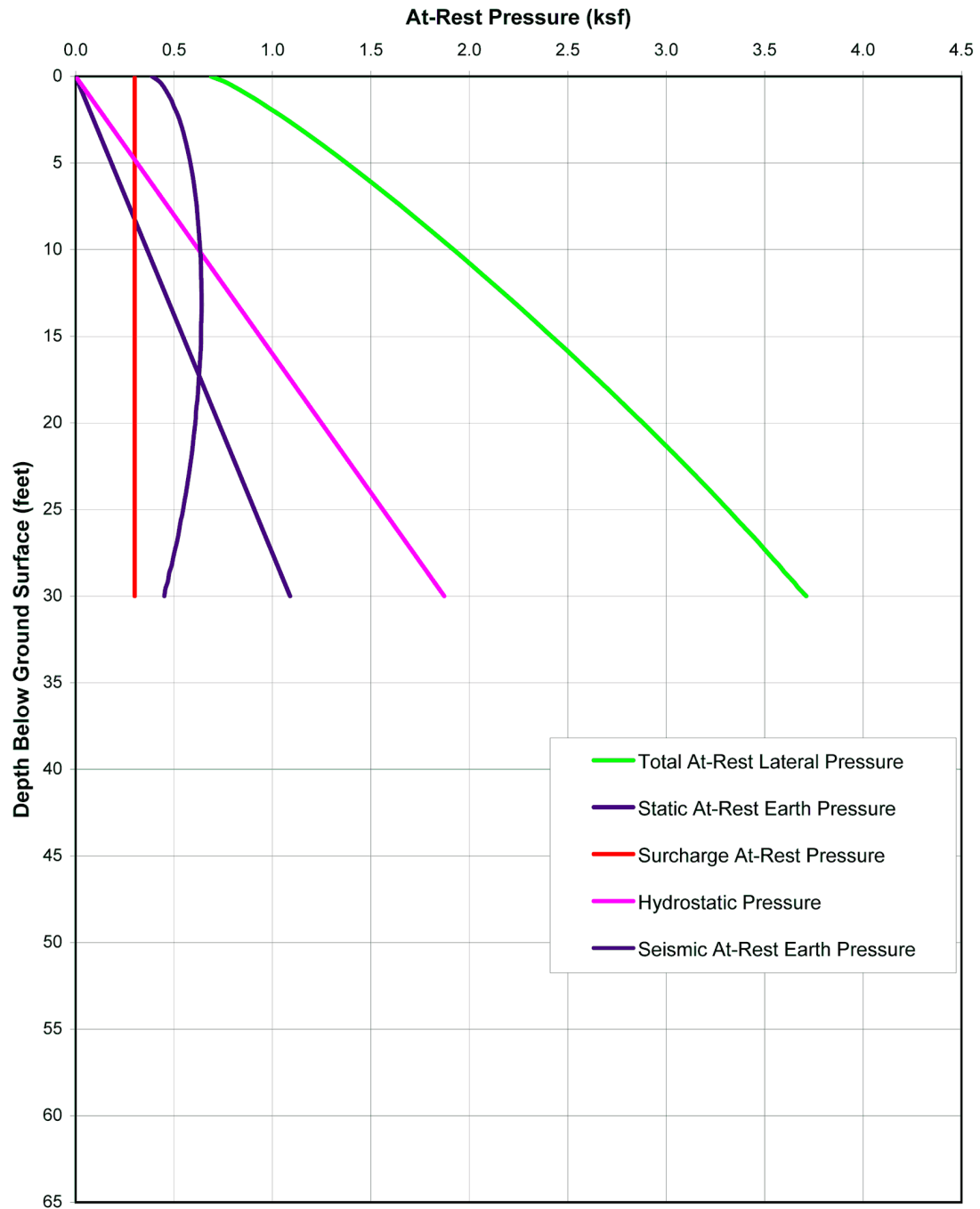


Figure 3H.6-42 At-Rest Lateral Earth Pressure on the UHS Basin Walls

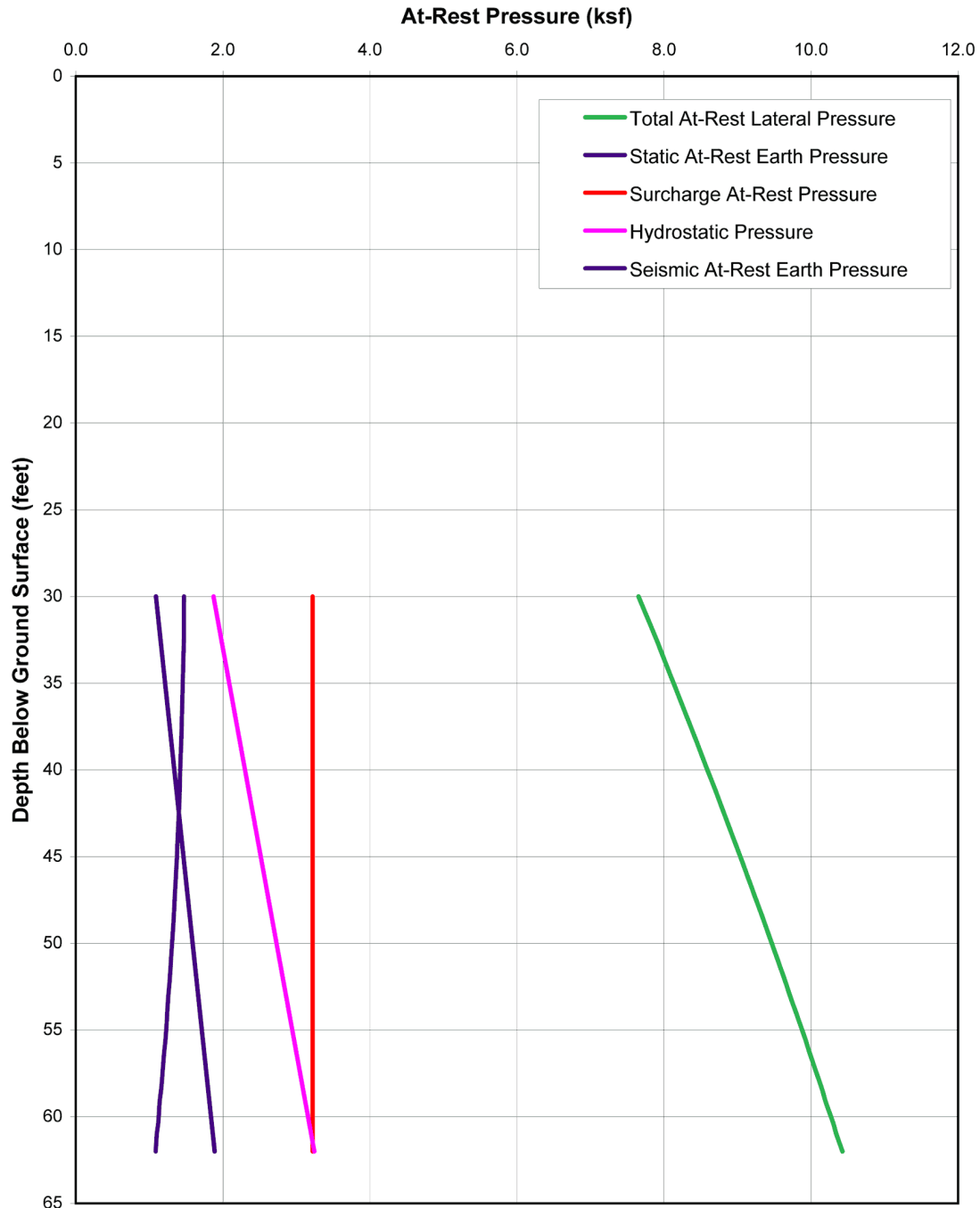


Figure 3H.6-43 At-Rest Lateral Earth Pressure on the South Wall of RSW Pump House

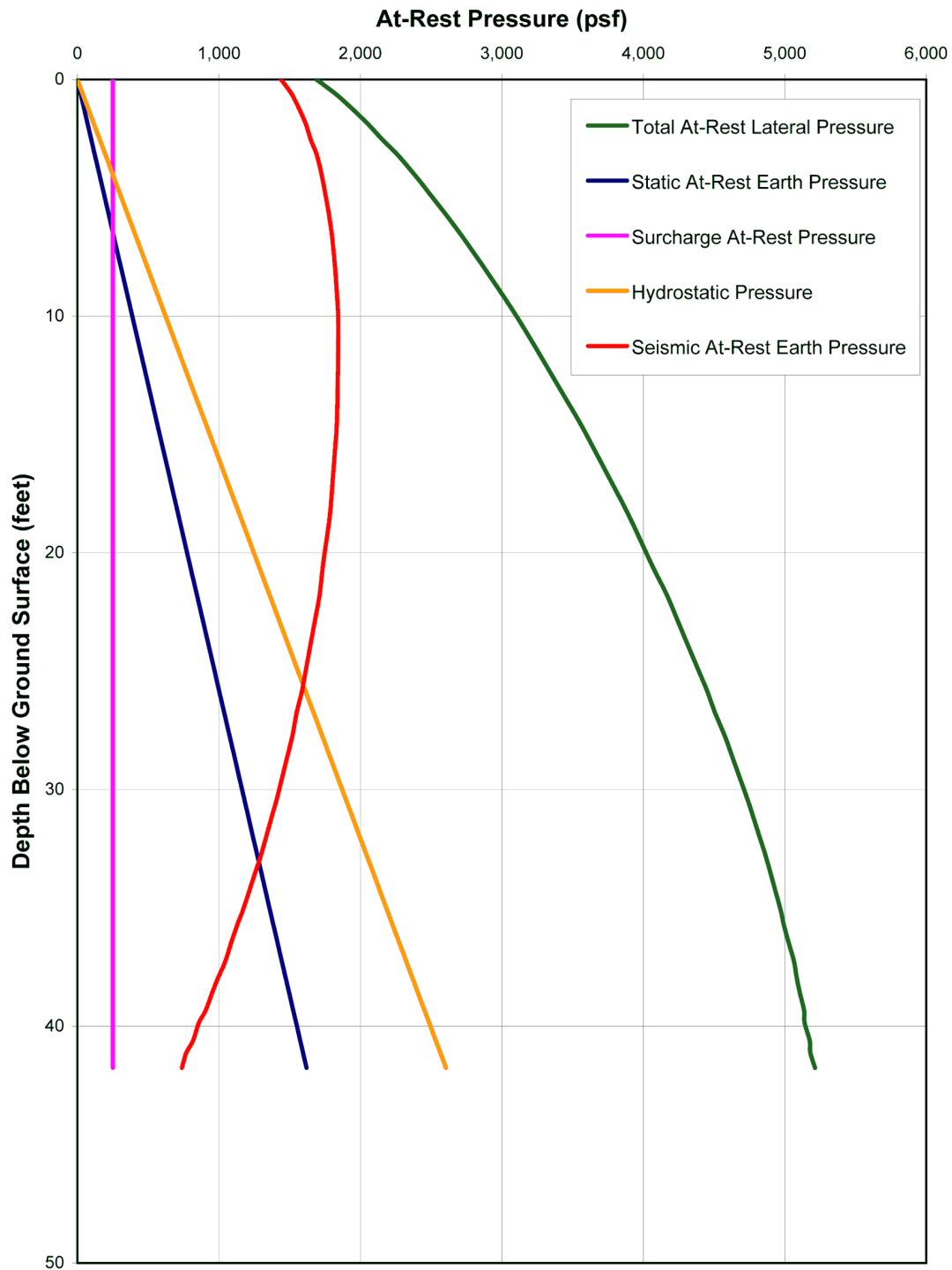


Figure 3H.6-44 At-Rest Lateral Earth Pressure Diagrams for Typical Section of RSW Tunnel

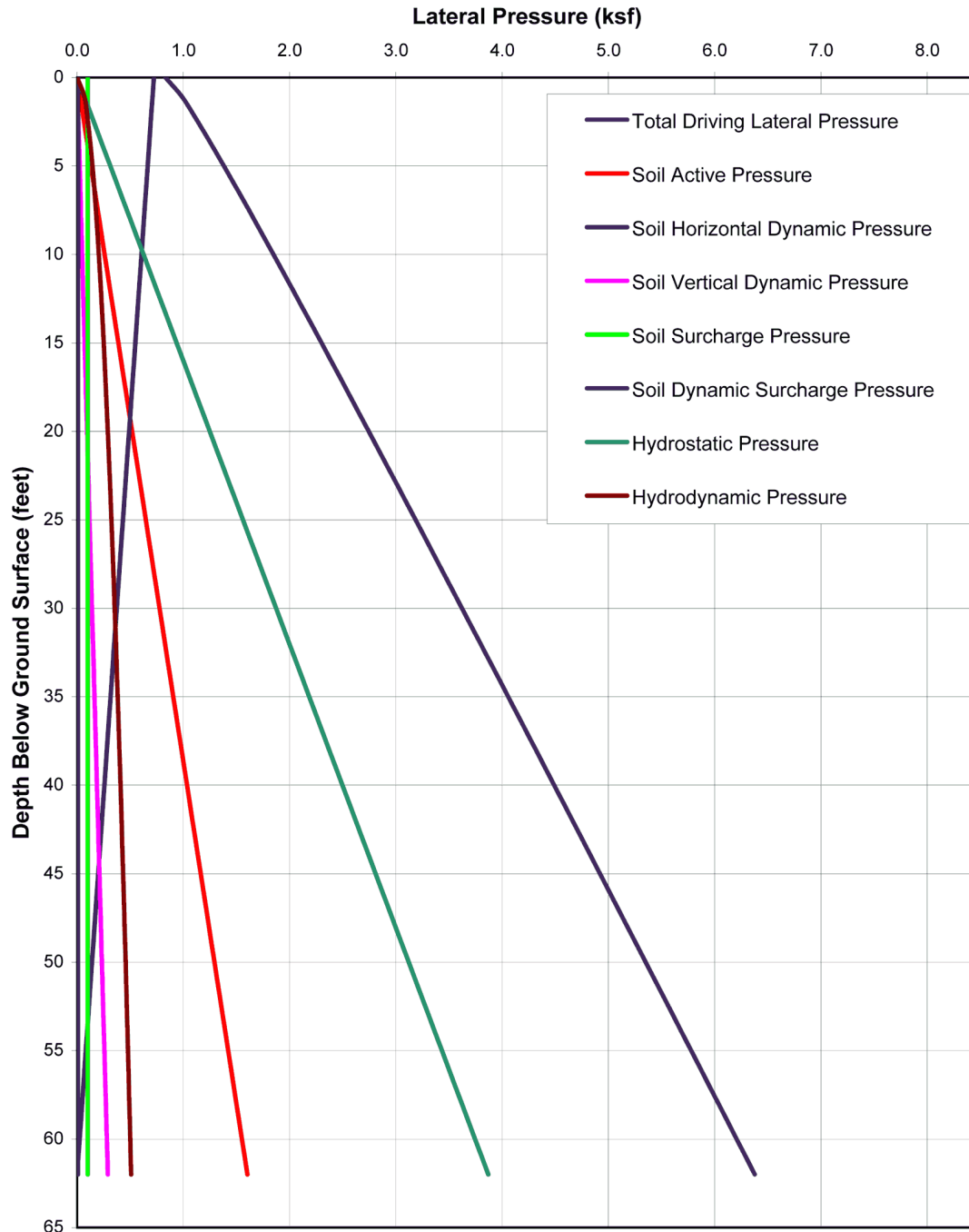


Figure 3H.6-45 Driving Lateral Pressure on the East, West, and North Walls of Pump House (for Stability Evaluation)

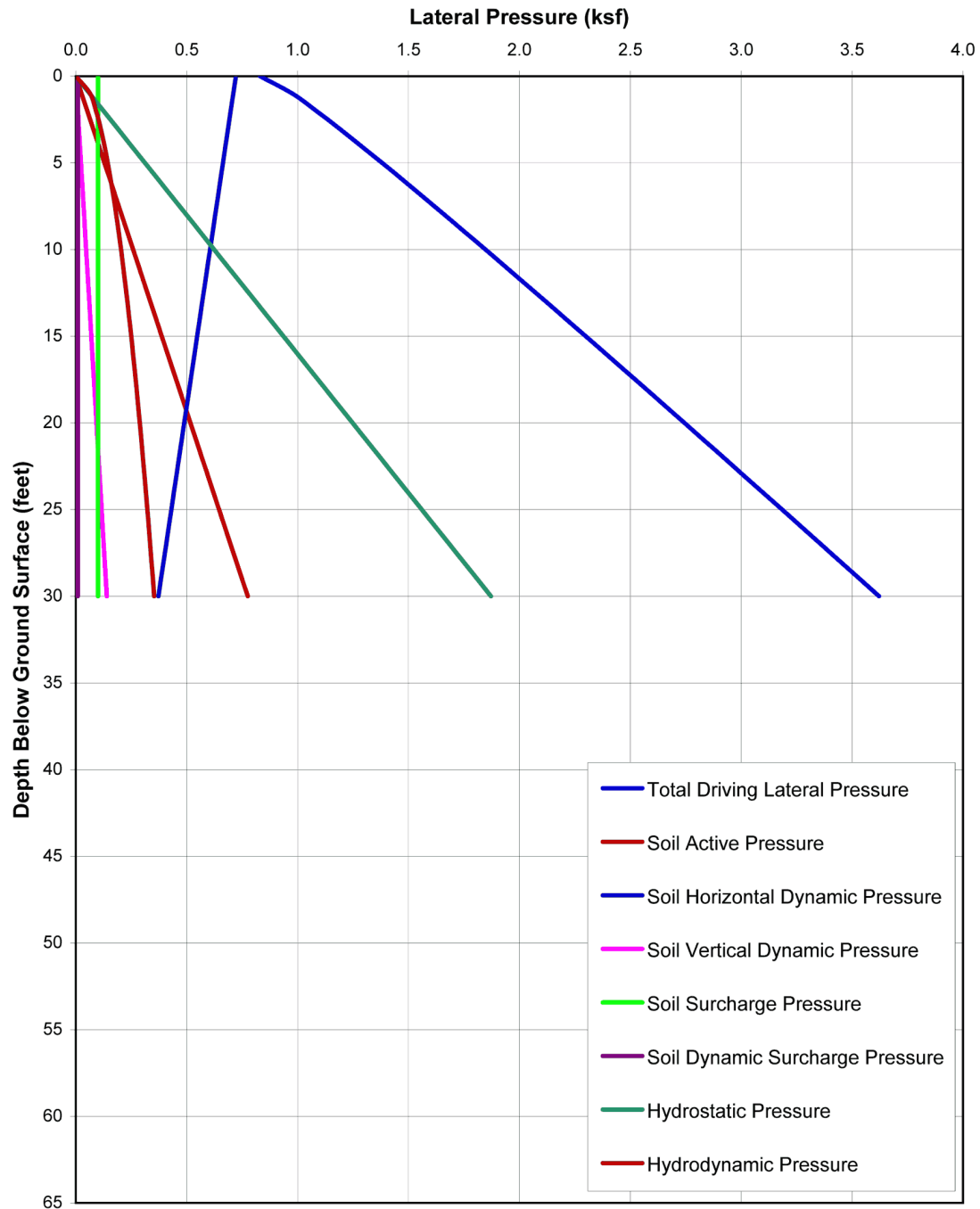


Figure 3H.6-46 Driving Lateral Pressure on Basin Walls (for Stability Evaluation)

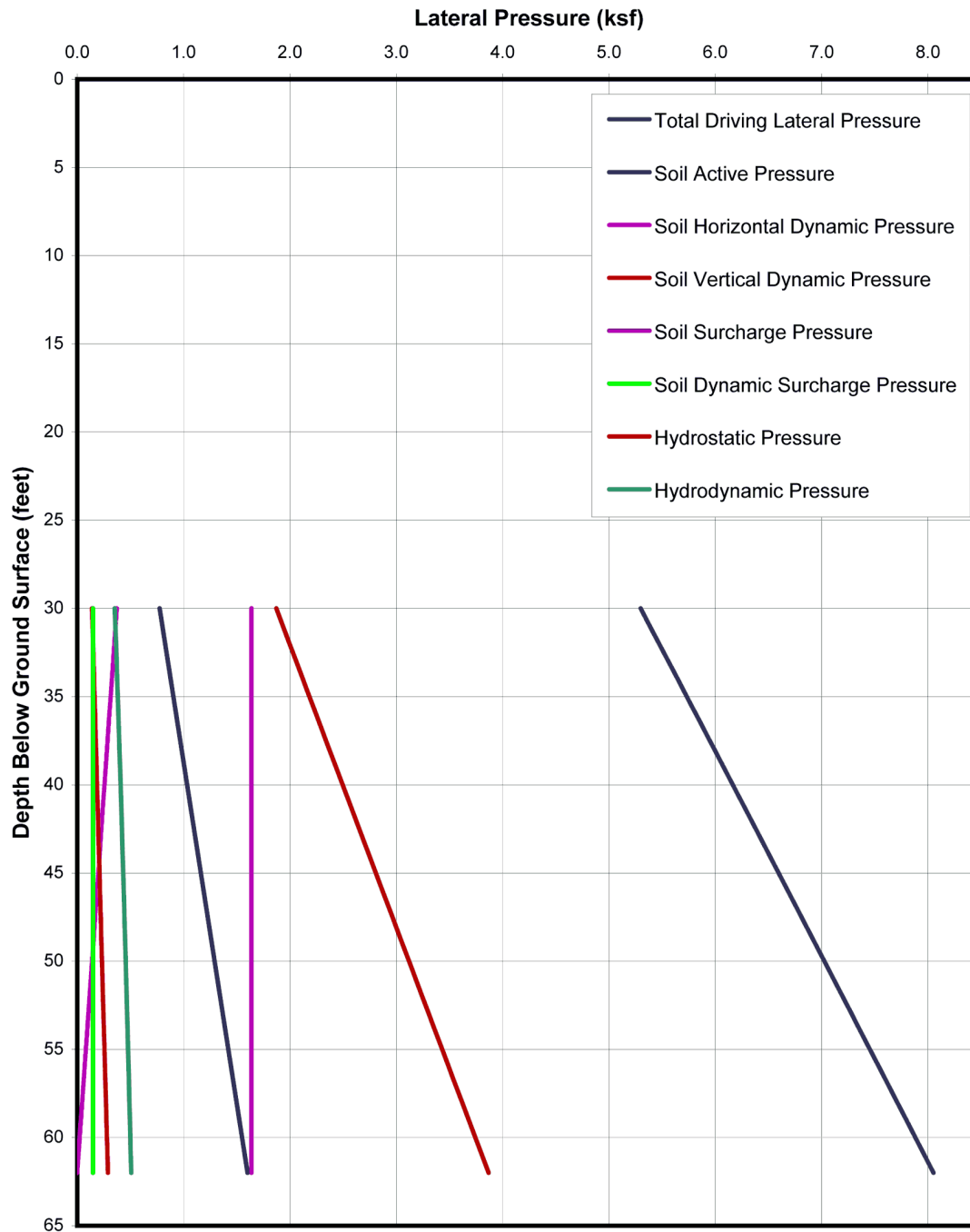


Figure 3H.6-47 Driving Lateral Pressure on the South Wall of Pump House (for Stability Evaluation)

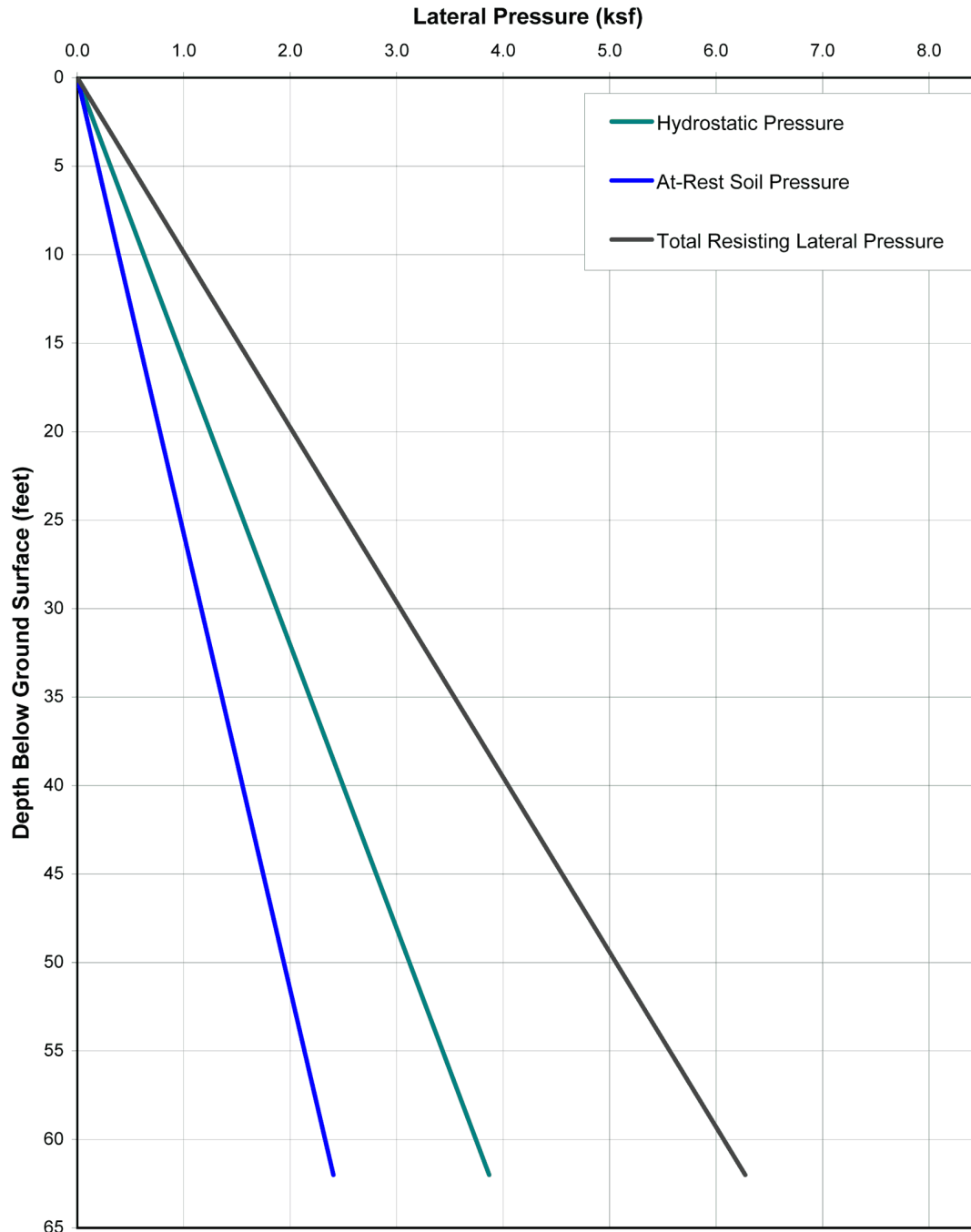


Figure 3H.6-48 Resisting Lateral Pressure on the East, West, and North Walls of Pump House (for Stability Evaluation)

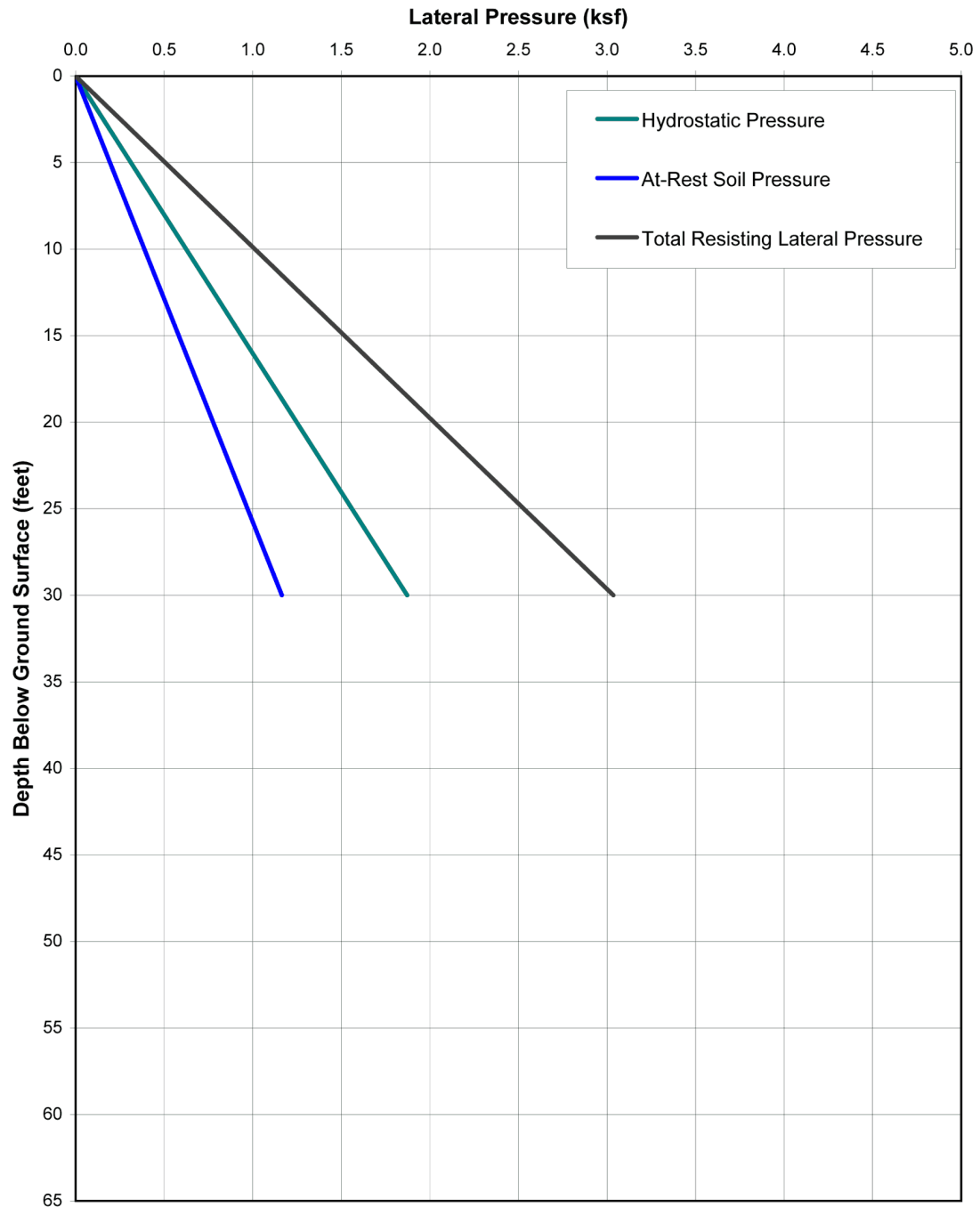


Figure 3H.6-49 Resisting Lateral Pressure on Basin Walls (for Stability Evaluation)

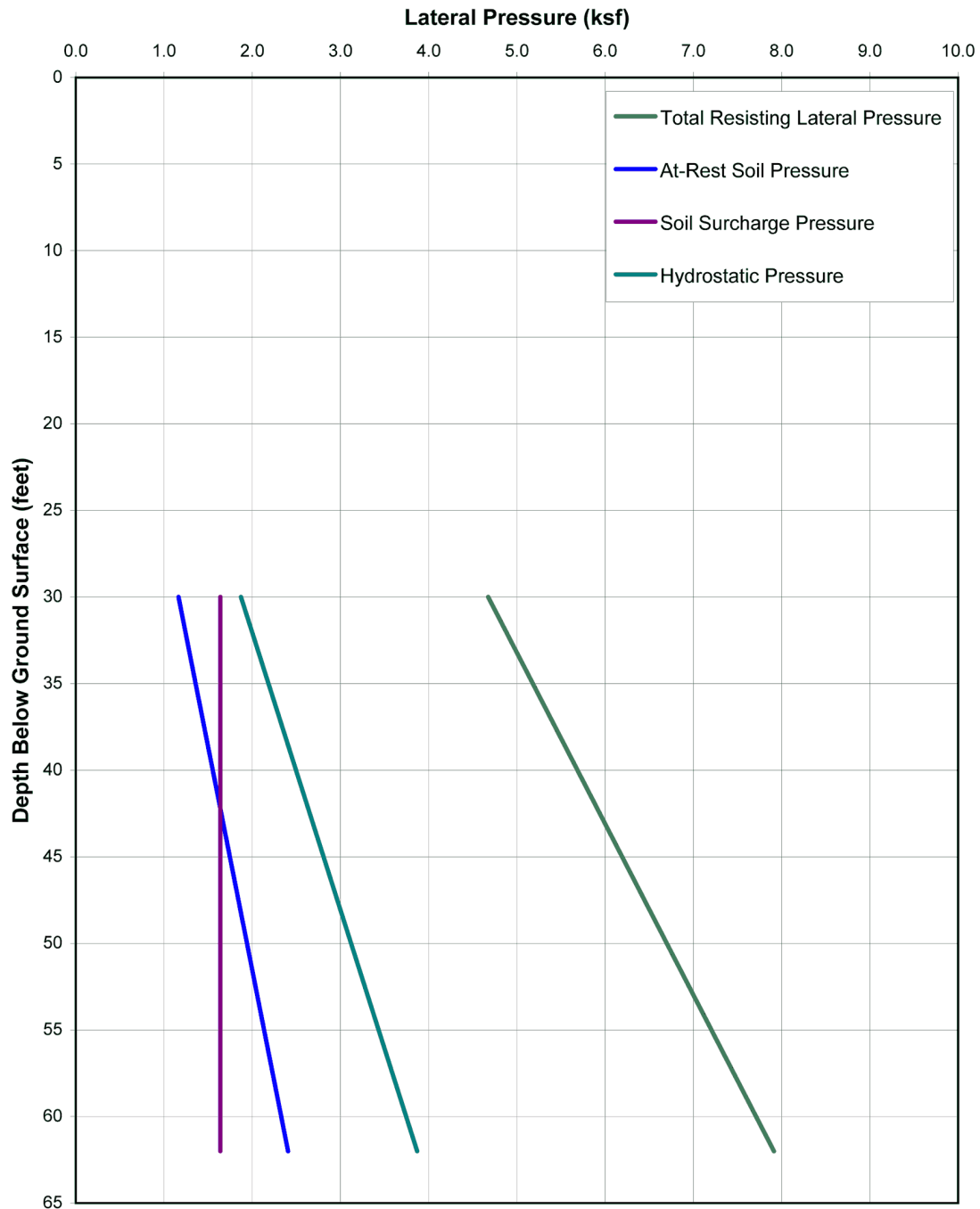
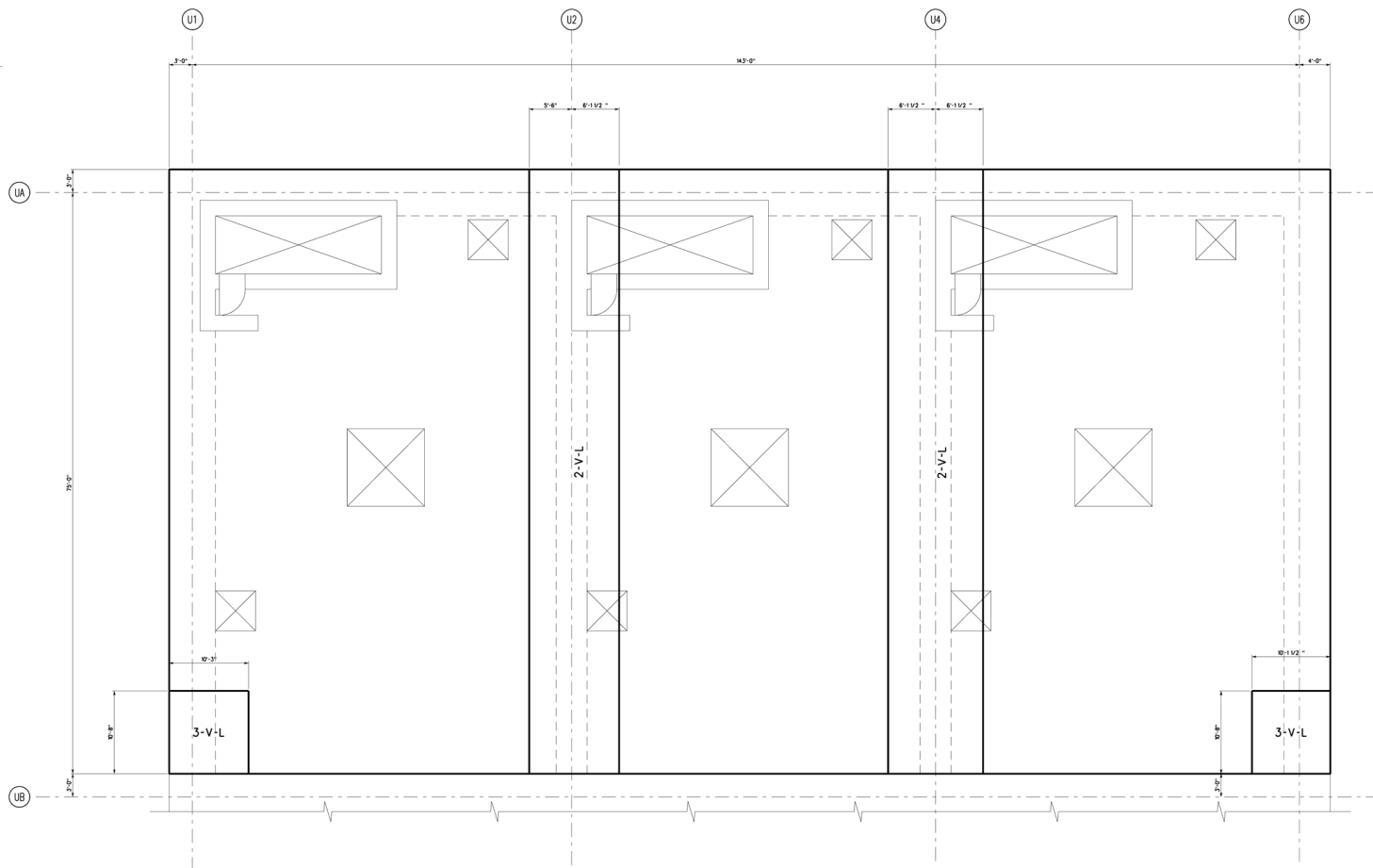


Figure 3H.6-50 Resisting Lateral Pressure on the South Wall of Pump House (for Stability Evaluation)



**Figure 3H.6-51 Pumphouse Roof North/South Reinforcement Zones
Bottom Face**

Note: 1-V-L, unless noted otherwise.

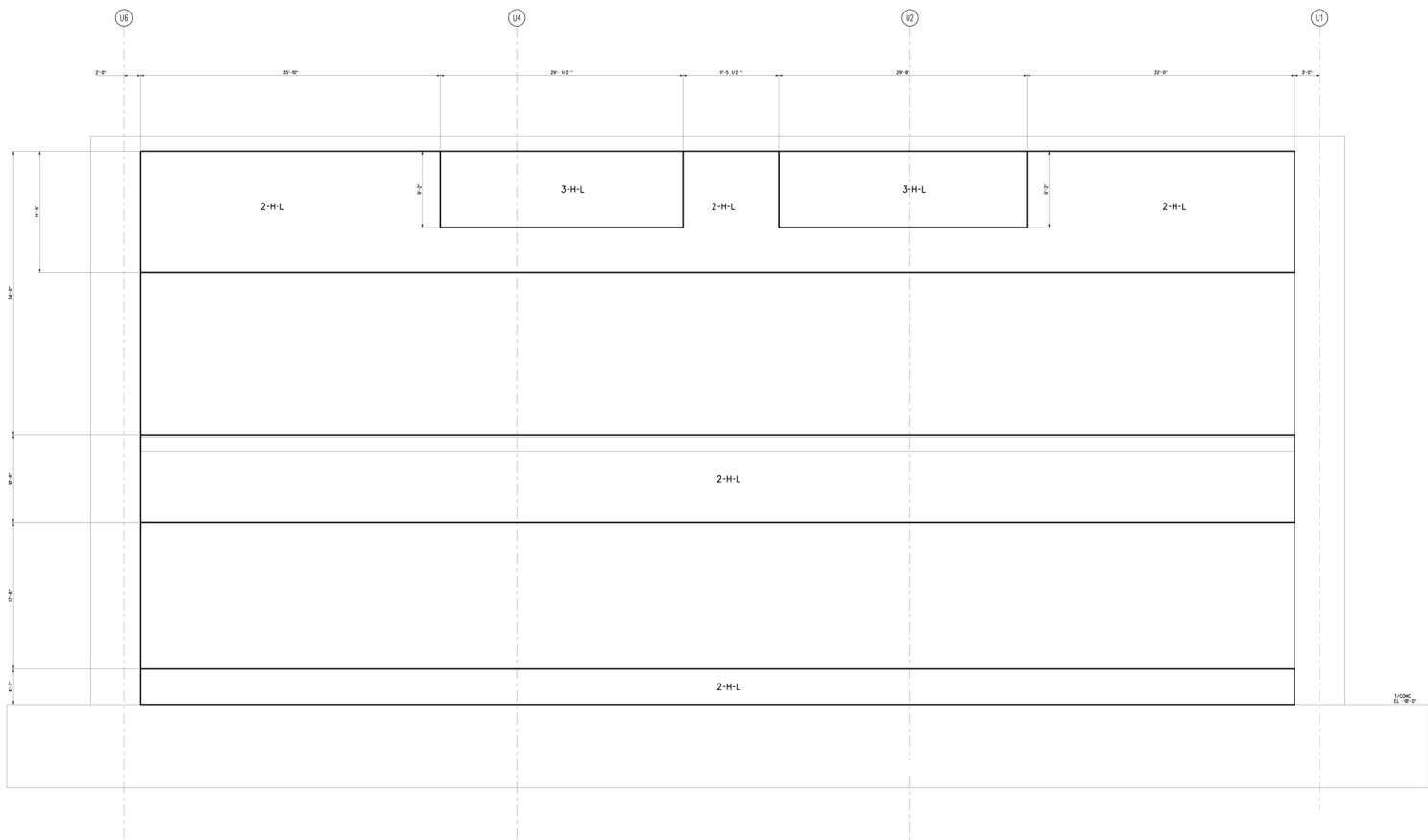


Figure 3H.6-52 Pumphouse North Wall Looking South

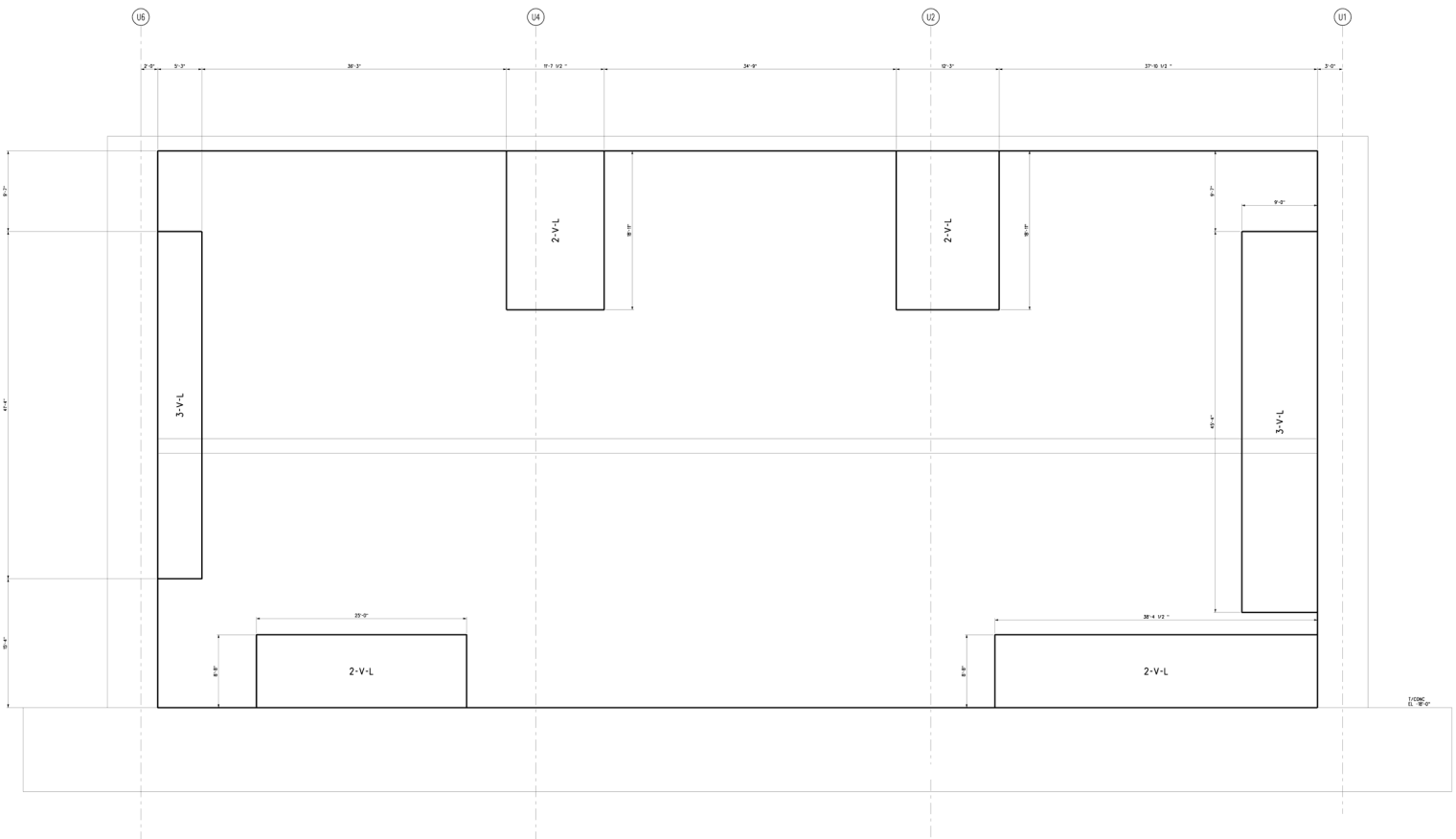


Figure 3H.6-53 Pumphouse North Wall Looking South

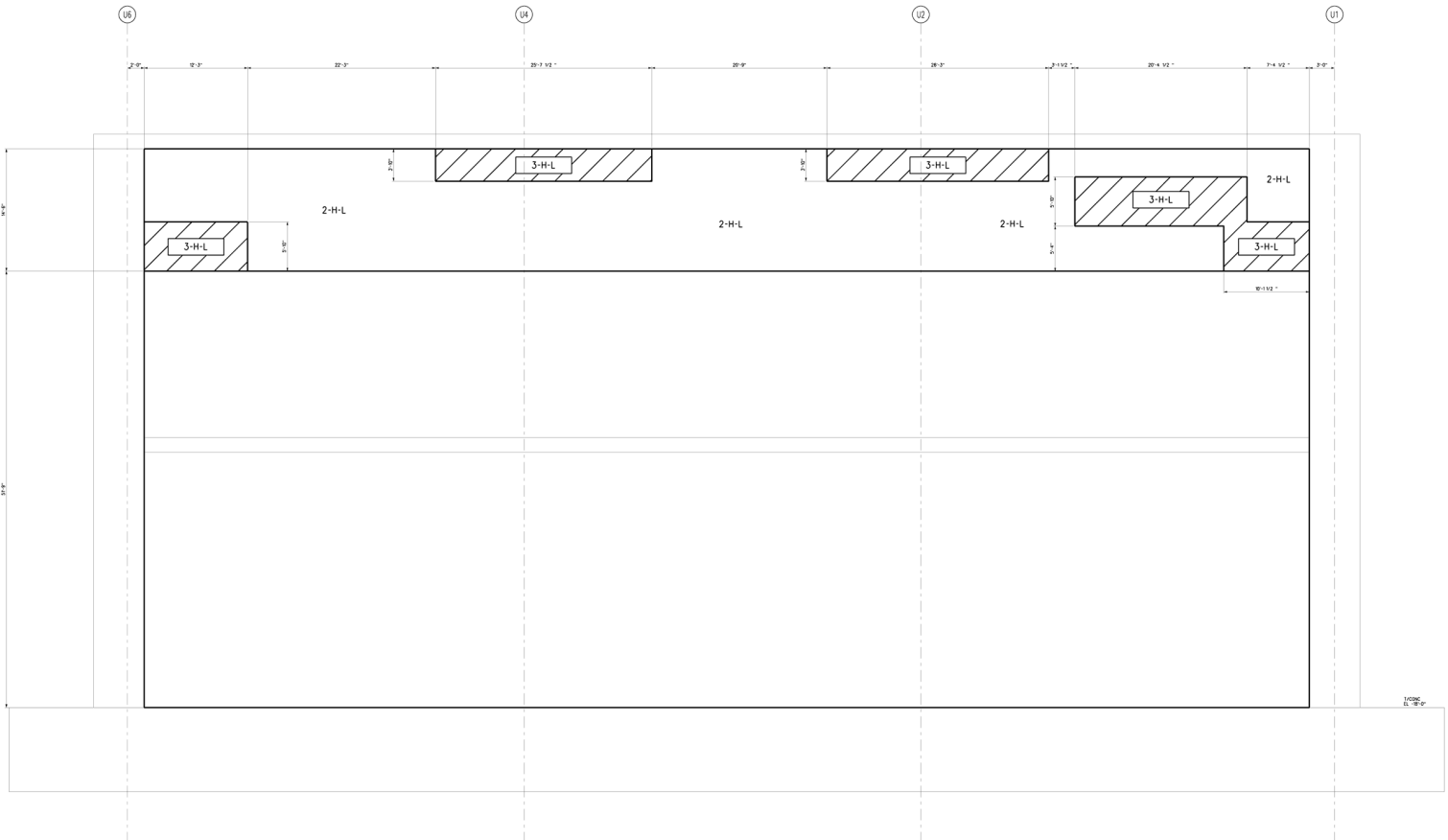


Figure 3H.6-54 Pumphouse North Wall Looking South

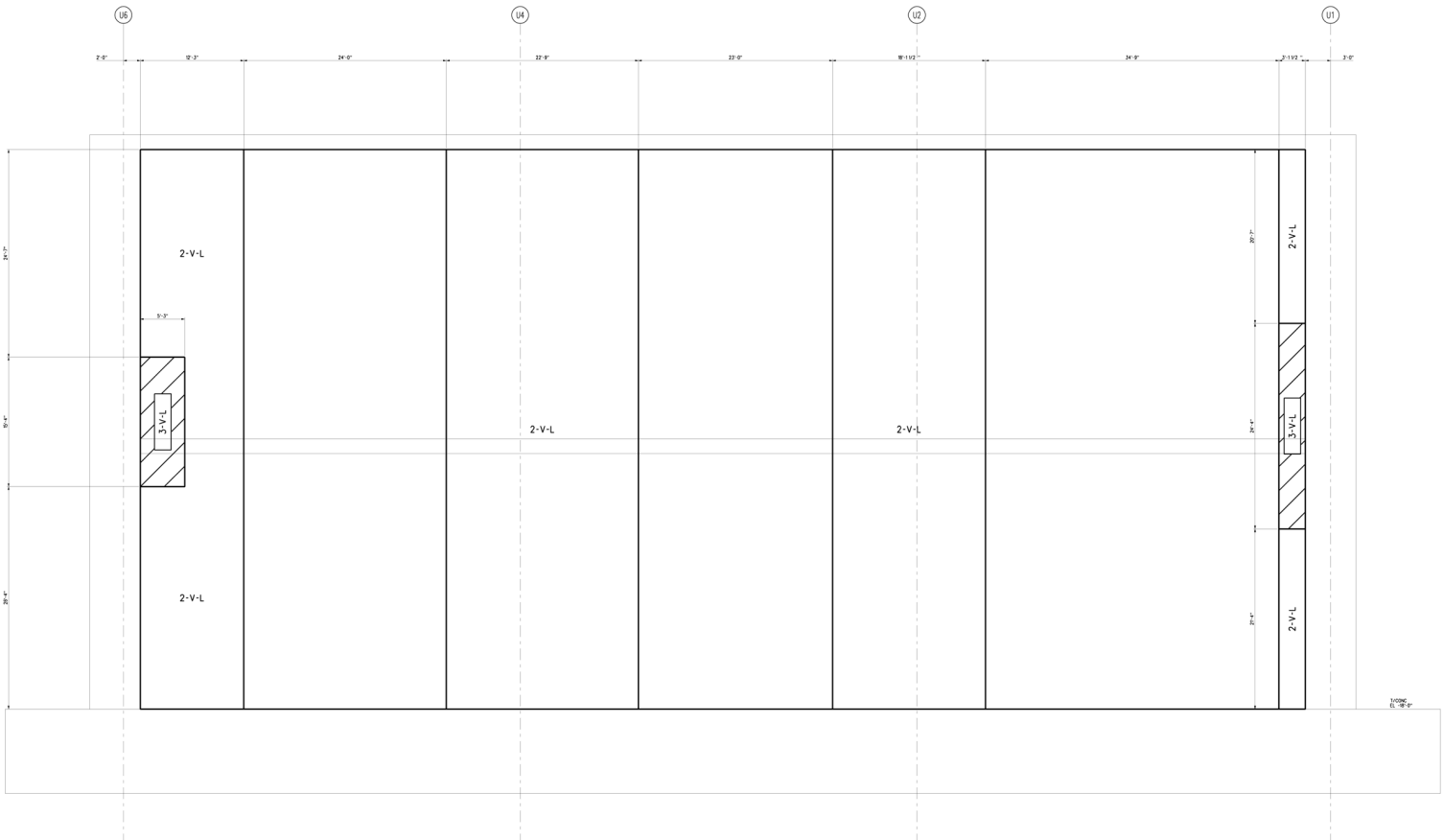
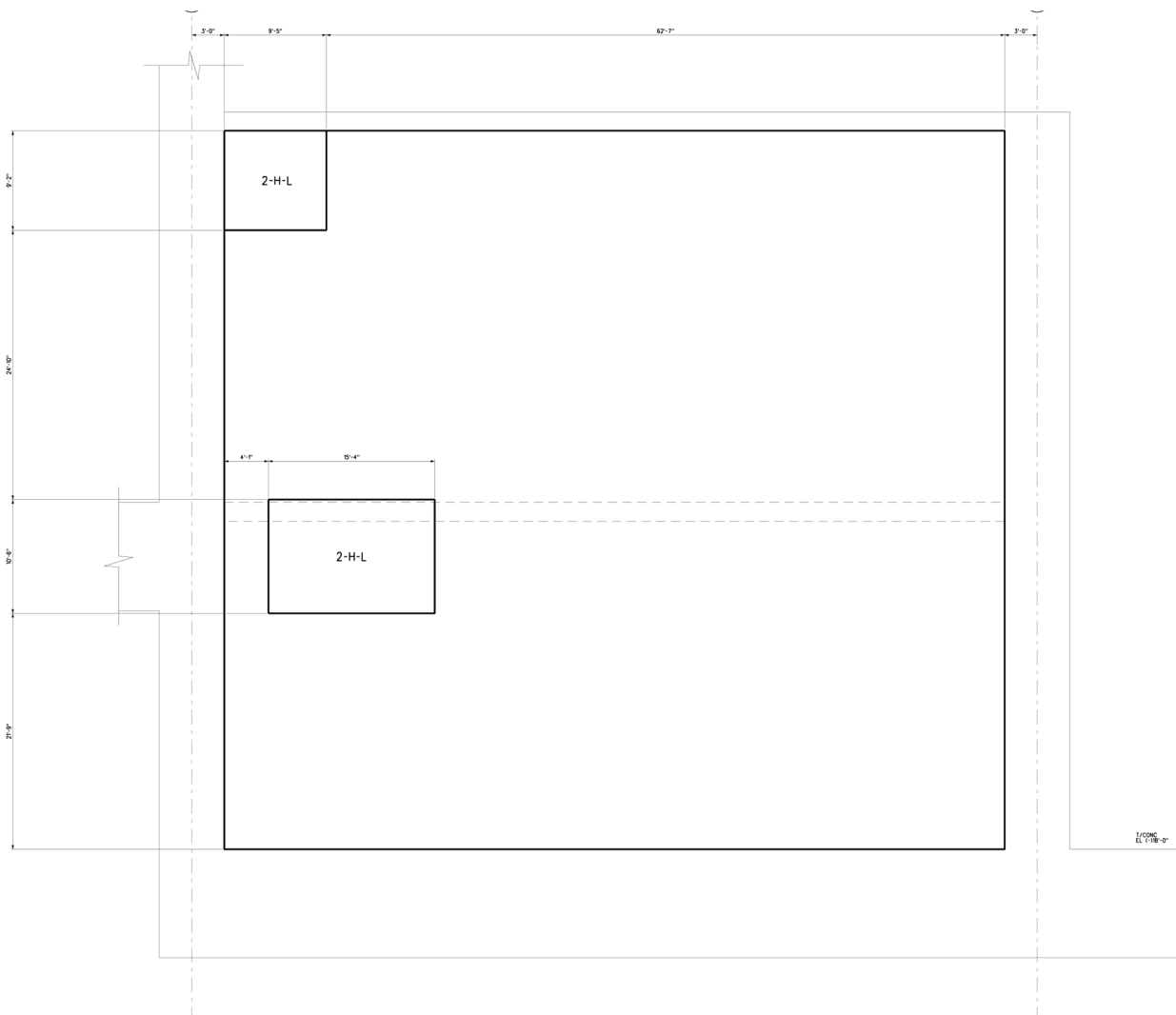


Figure 3H.6-55 Pumphouse North Wall Looking South

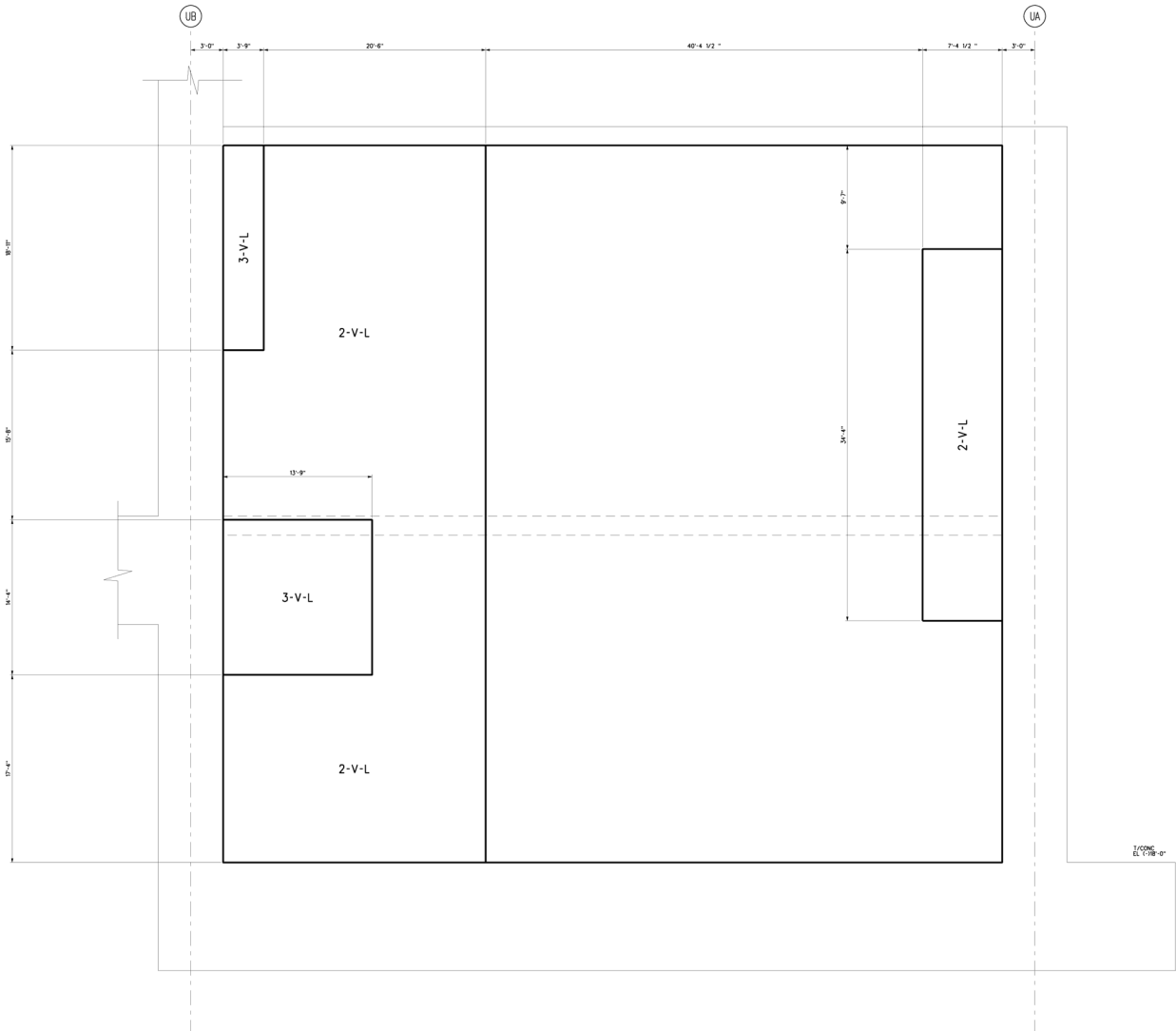


**Figure 3H.6-56 Pumphouse North Wall Looking South
Transverse Horizontal Reinforcement Zones**



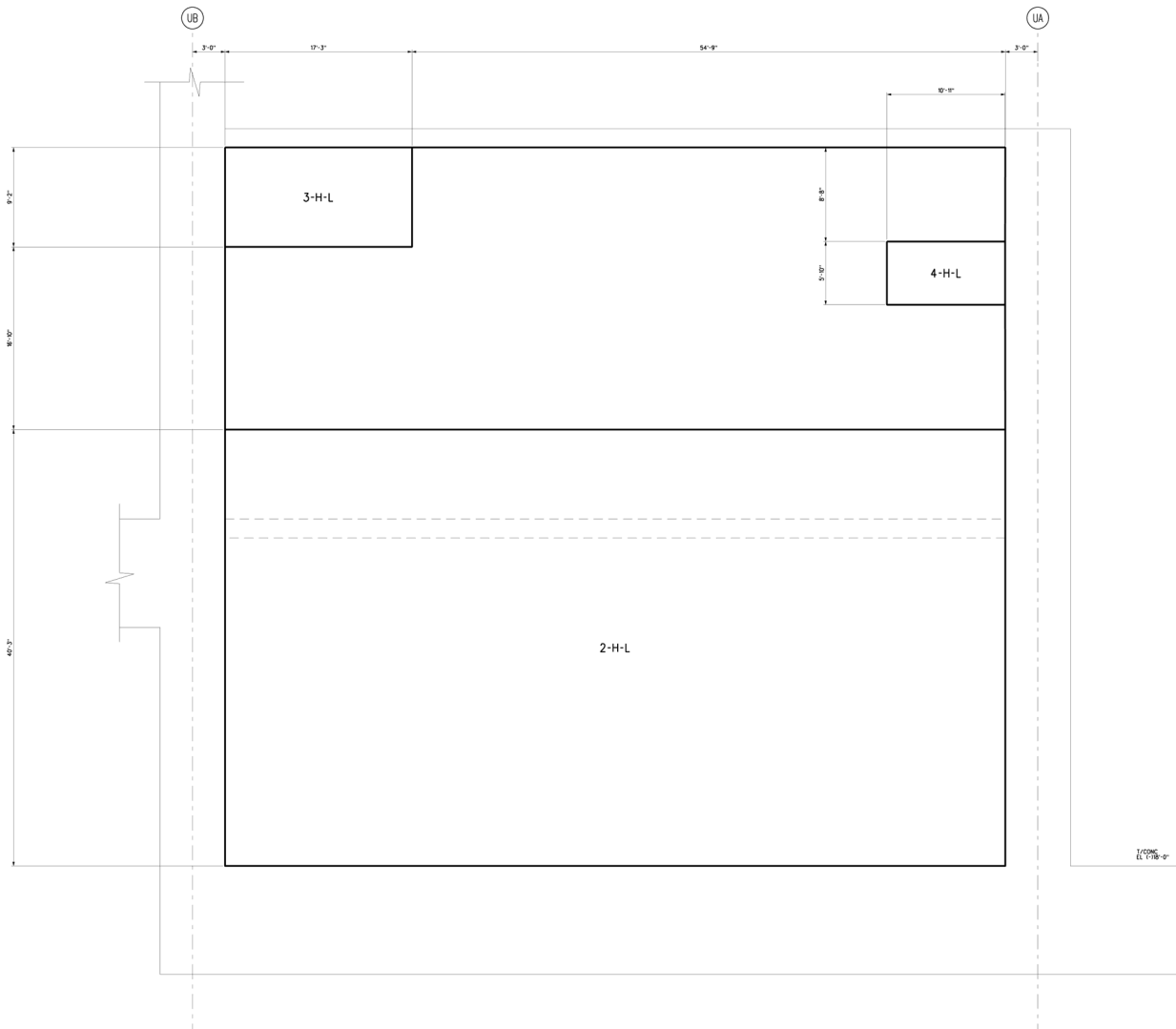
**Figure 3H.6-57 Pumphouse East Wall Looking West
Horizontal Reinforcement Zones
Near Side Face**

Note: 1-H-L, unless noted otherwise.



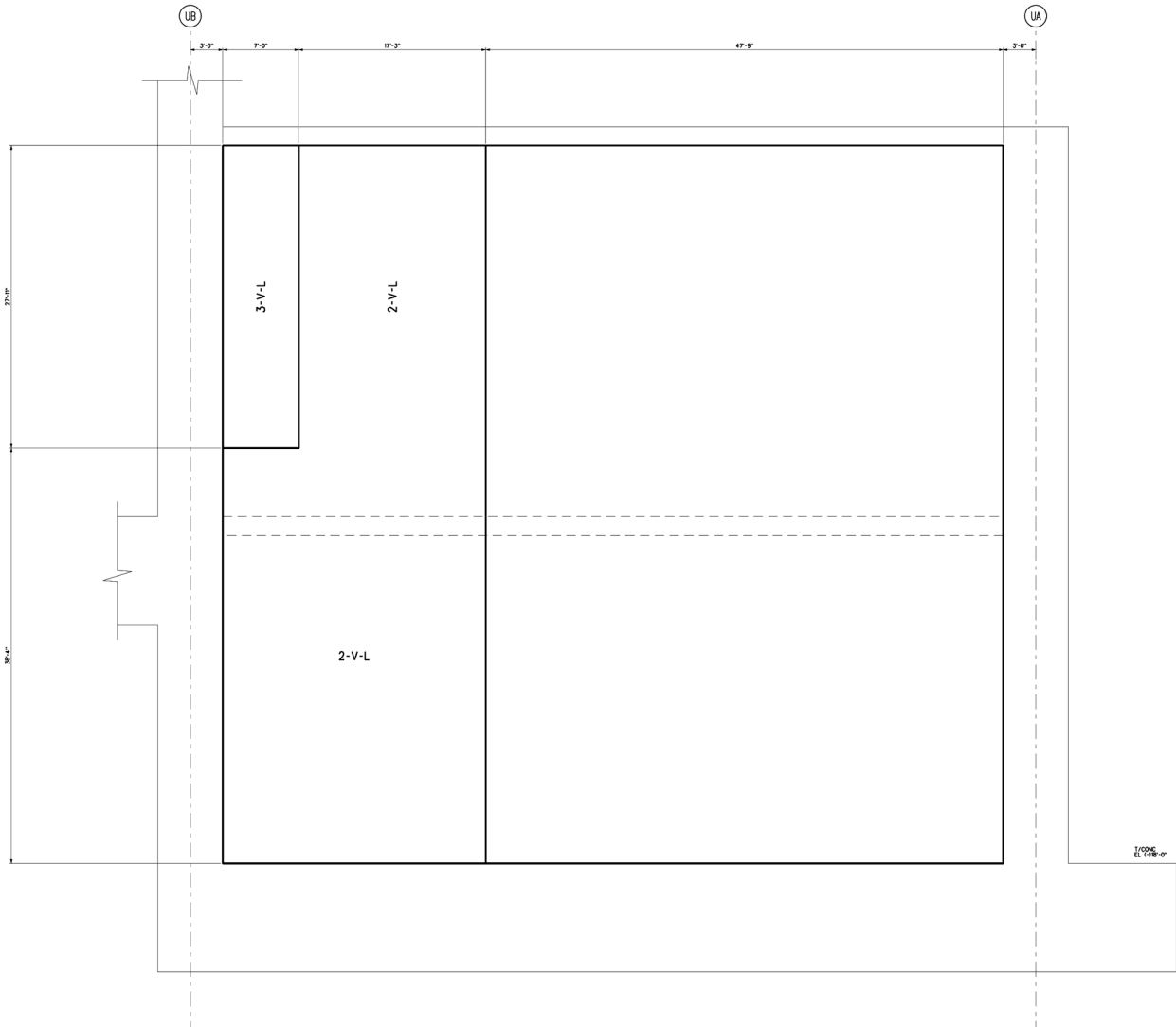
**Figure 3H.6-58 Pumphouse East Wall Looking West
Vertical Reinforcement Zones
Near Side Face**

Note: 1-V-L, unless noted otherwise.



**Figure 3H.6-59 Pumphouse East Wall Looking West
Horizontal Reinforcement Zones
Far Side Face**

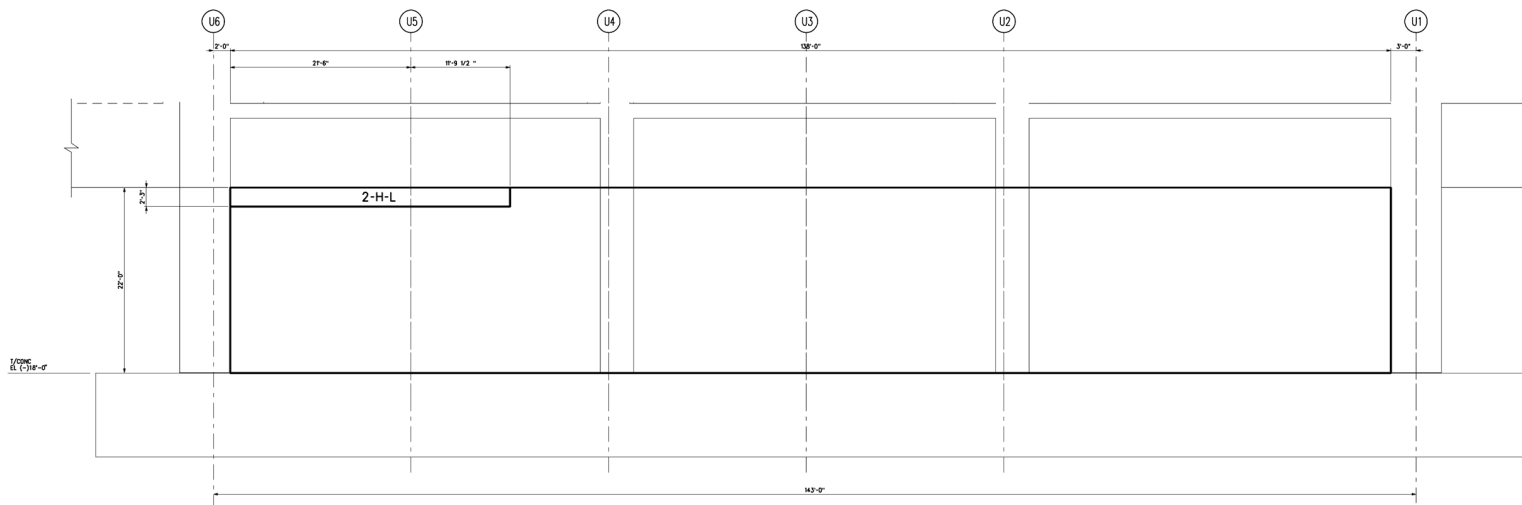
Note: 1-H-L, unless noted otherwise.



**Figure 3H.6-60 Pumphouse East Wall Looking West
Vertical Reinforcement Zones
Far Side Face**

Note: 1-V-L, unless noted otherwise.





**Figure 3H.6-62 Pumphouse South Wall Looking South
Horizontal Reinforcement Zones
Rear Side Face**

Note: 1-V-L, unless noted otherwise.

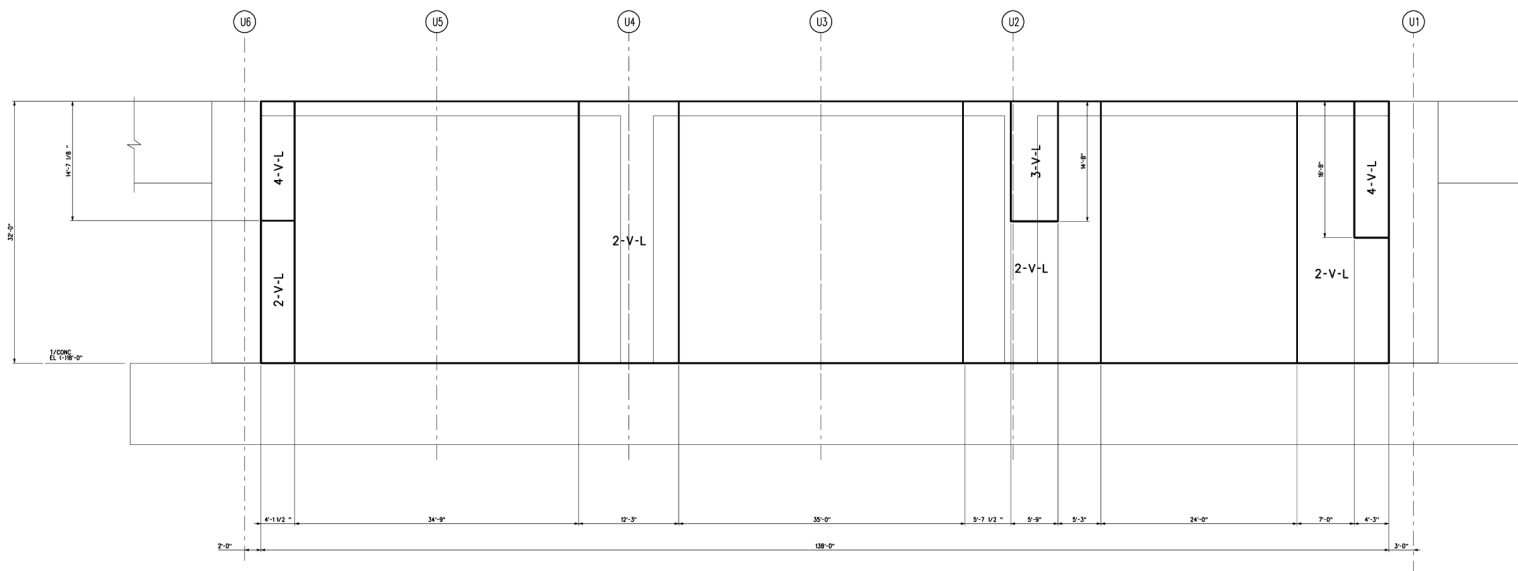
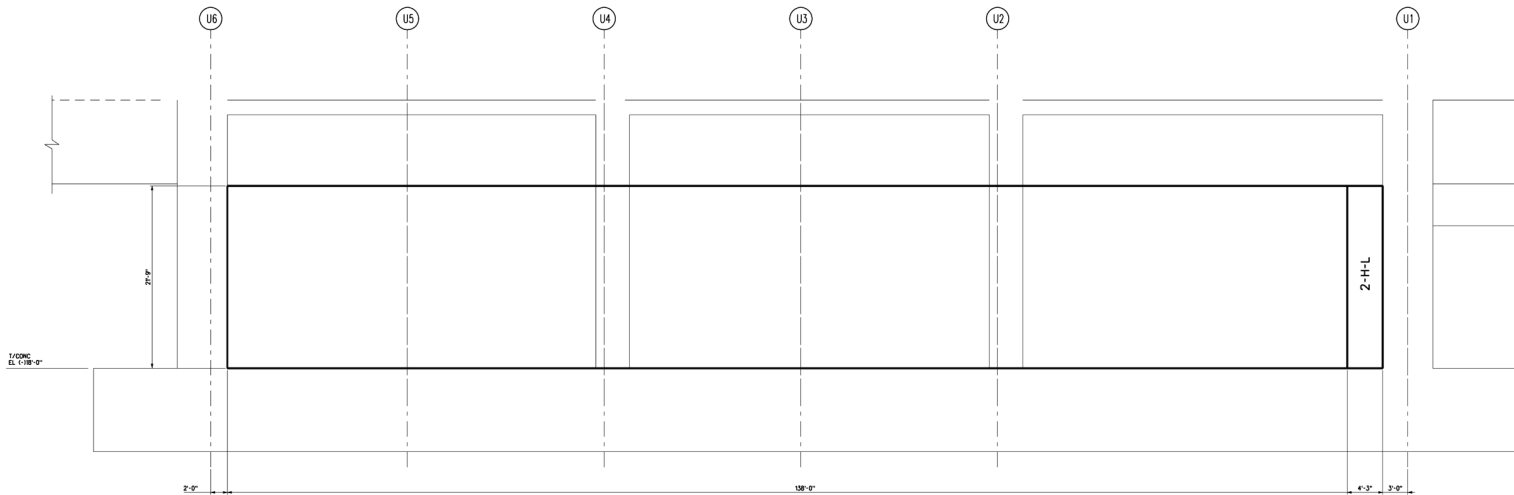


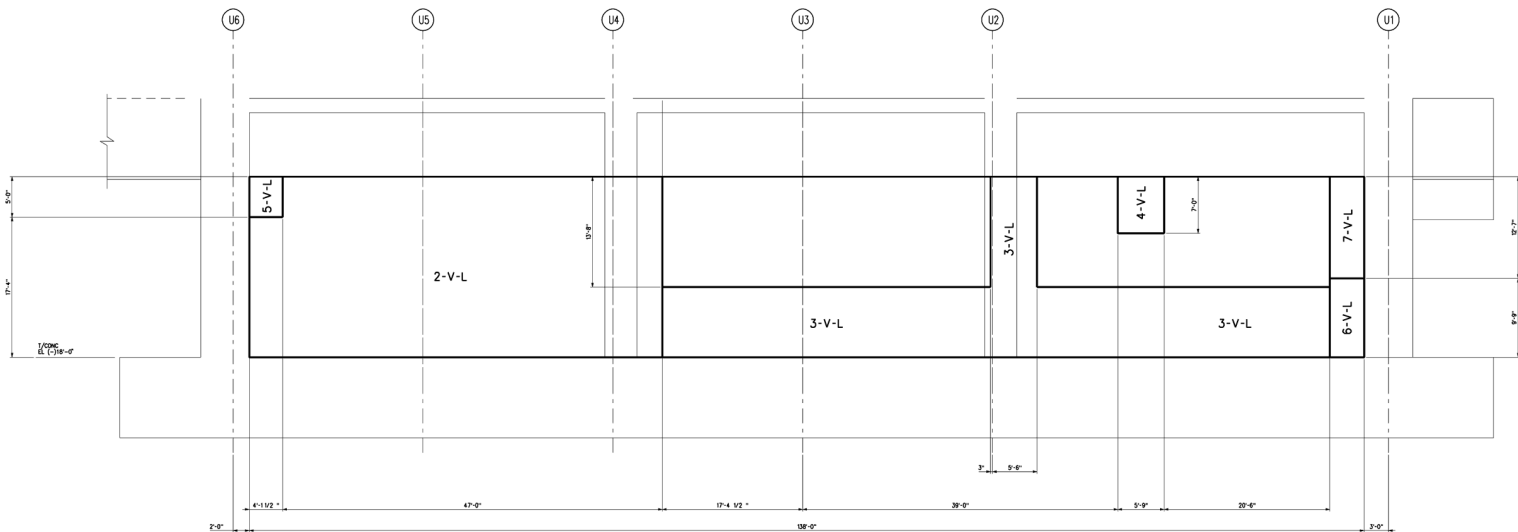
Figure 3H.6-63 Pumphouse South Wall Looking South
Vertical Reinforcement Zones
Near Side Face

Note: 1-V-L, unless noted otherwise.



**Figure 3H.6-64 Pumphouse South Wall Looking South
Horizontal Reinforcement Zones
Far Side Face**

Note: 1-V-L, unless noted otherwise.



**Figure 3H.6-65 Pumphouse South Wall Looking South
Vertical Reinforcement Zones
Far Side Face**

Note: 1-V-L, unless noted otherwise.

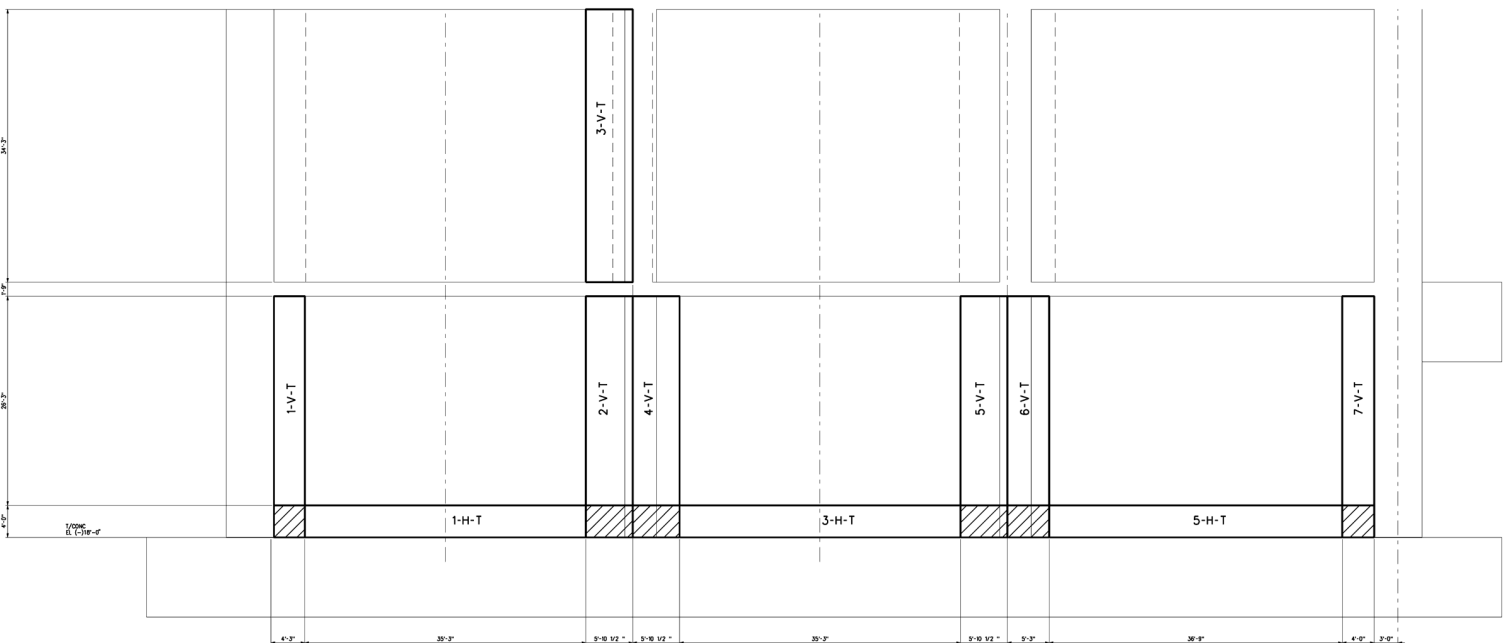
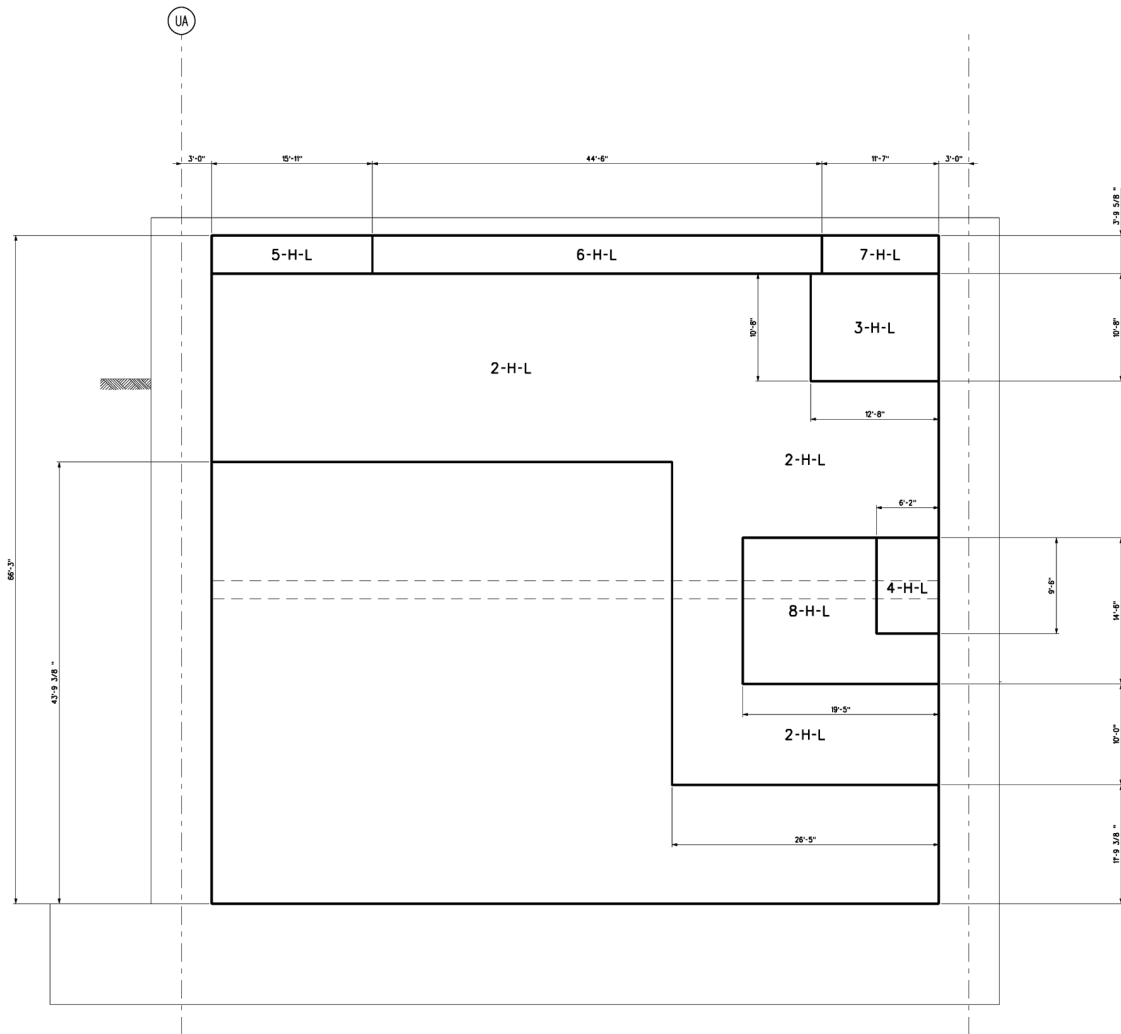
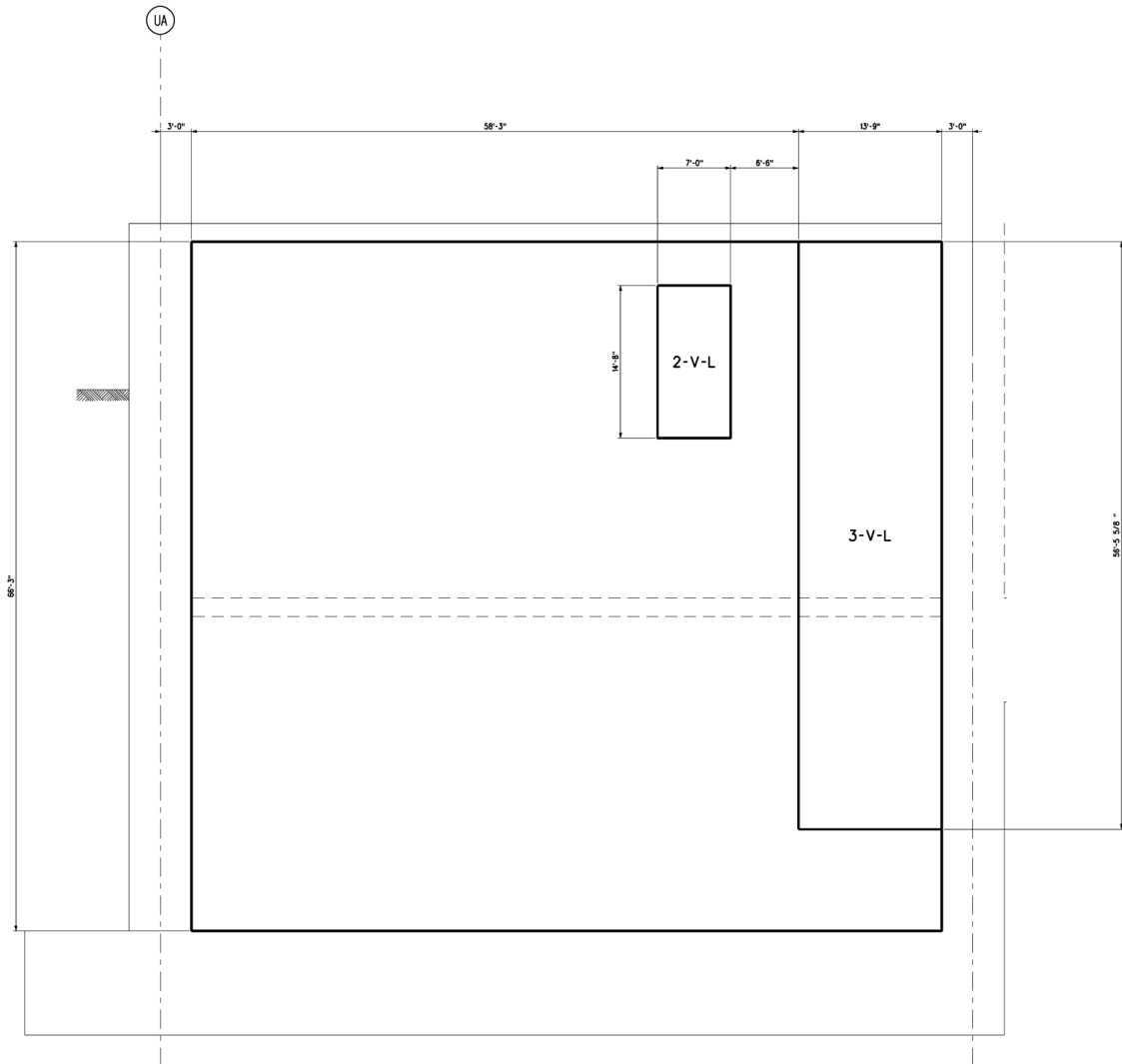


Figure 3H.6-66 Pumphouse South Wall Looking North
Transverse Horizontal and Vertical Reinforcement Zones



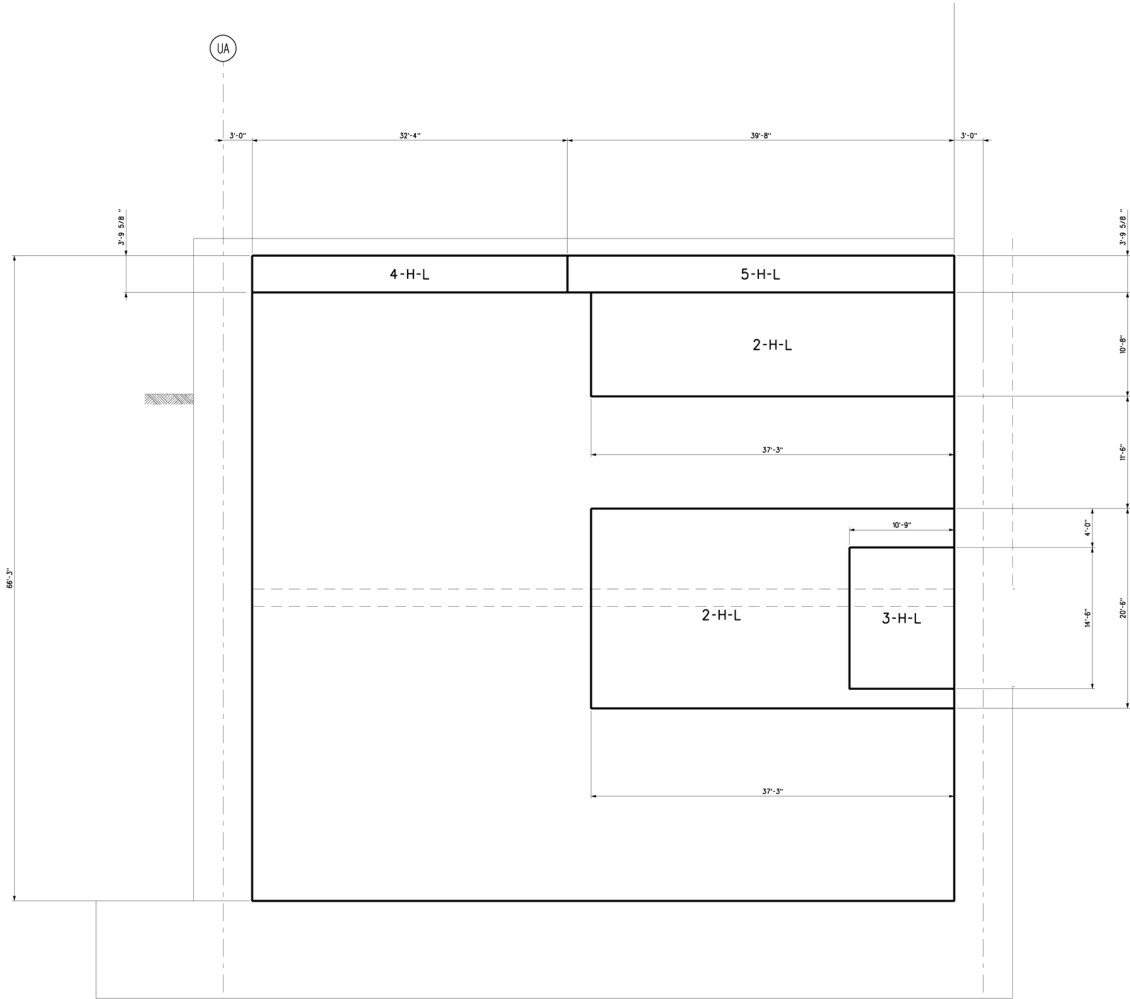
**Figure 3H.6-67 Pumphouse West Wall Looking East
Horizontal Reinforcement Zones
Near Side Face**

Note: 1-V-L, unless noted otherwise.



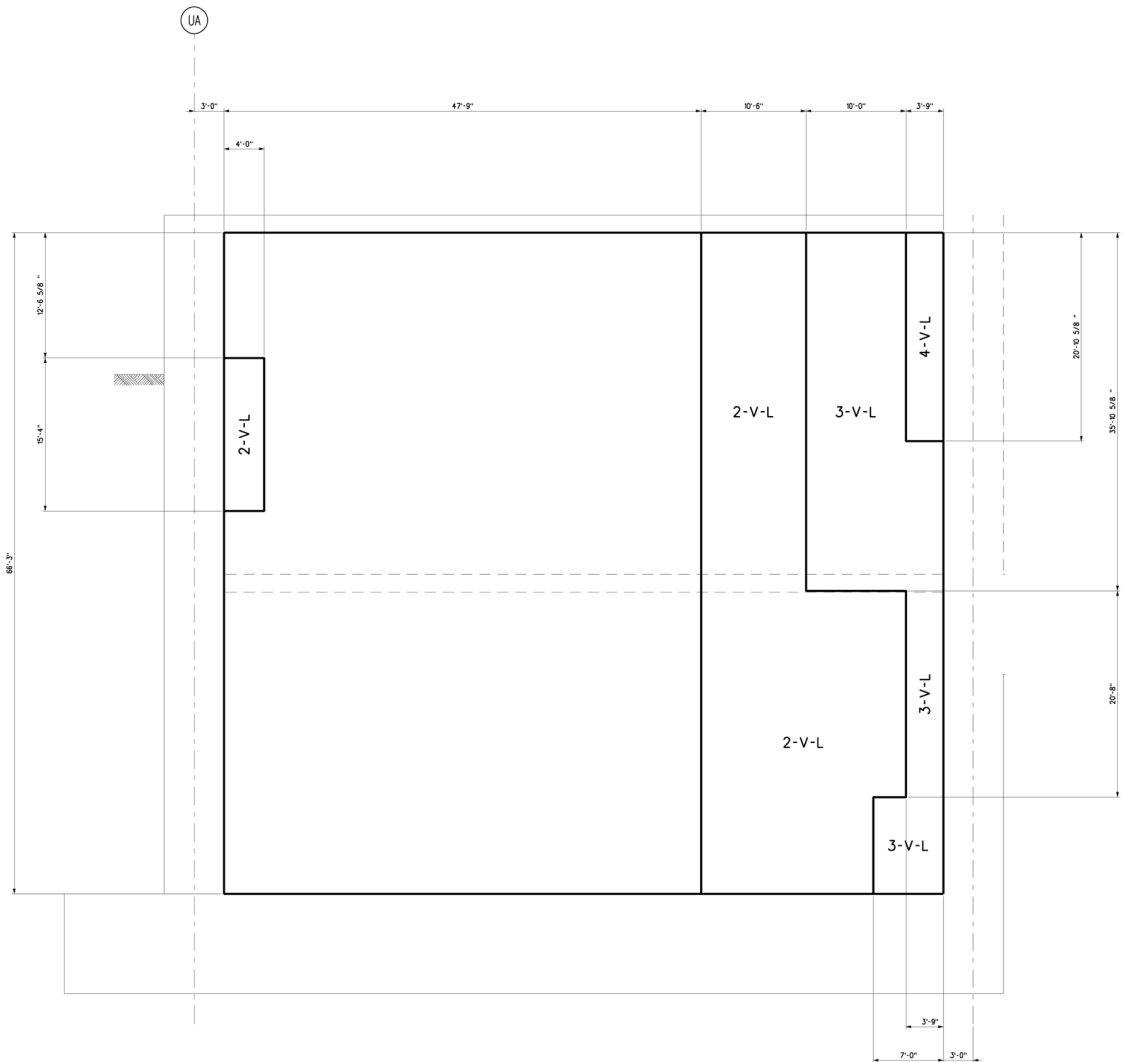
**Figure 3H.6-68 Pumphouse West Wall Looking East
Vertical Reinforcement Zones
Near Side Face**

Note: 1-V-L, unless noted otherwise.



**Figure 3H.6-69 Pumphouse West Wall Looking East
Horizontal Reinforcement Zones
Far Side Face**

Note: 1-V-L, unless noted otherwise.



**Figure 3H.6-70 Pumphouse West Wall Looking East
Vertical Reinforcement Zones
Far Side Face**

Note: 1-V-L, unless noted otherwise.

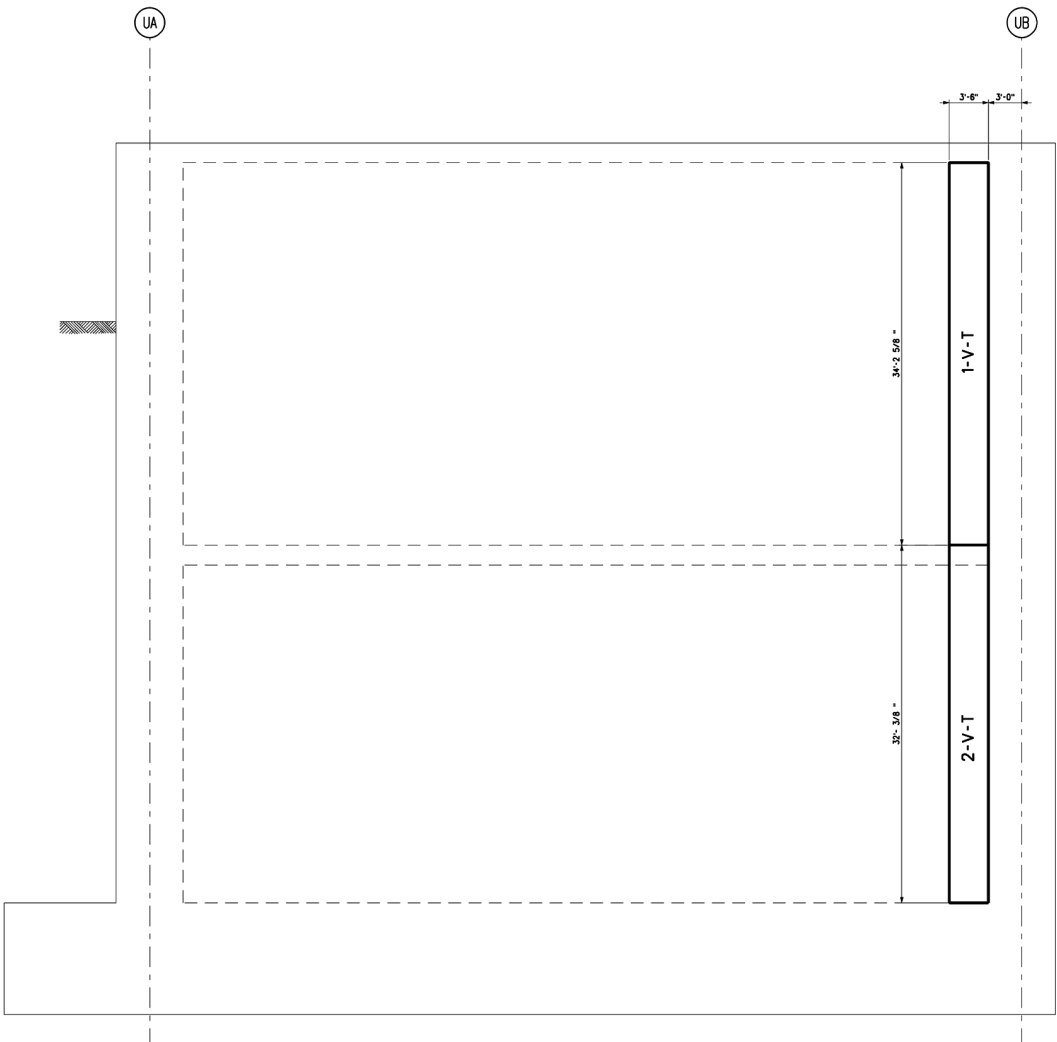
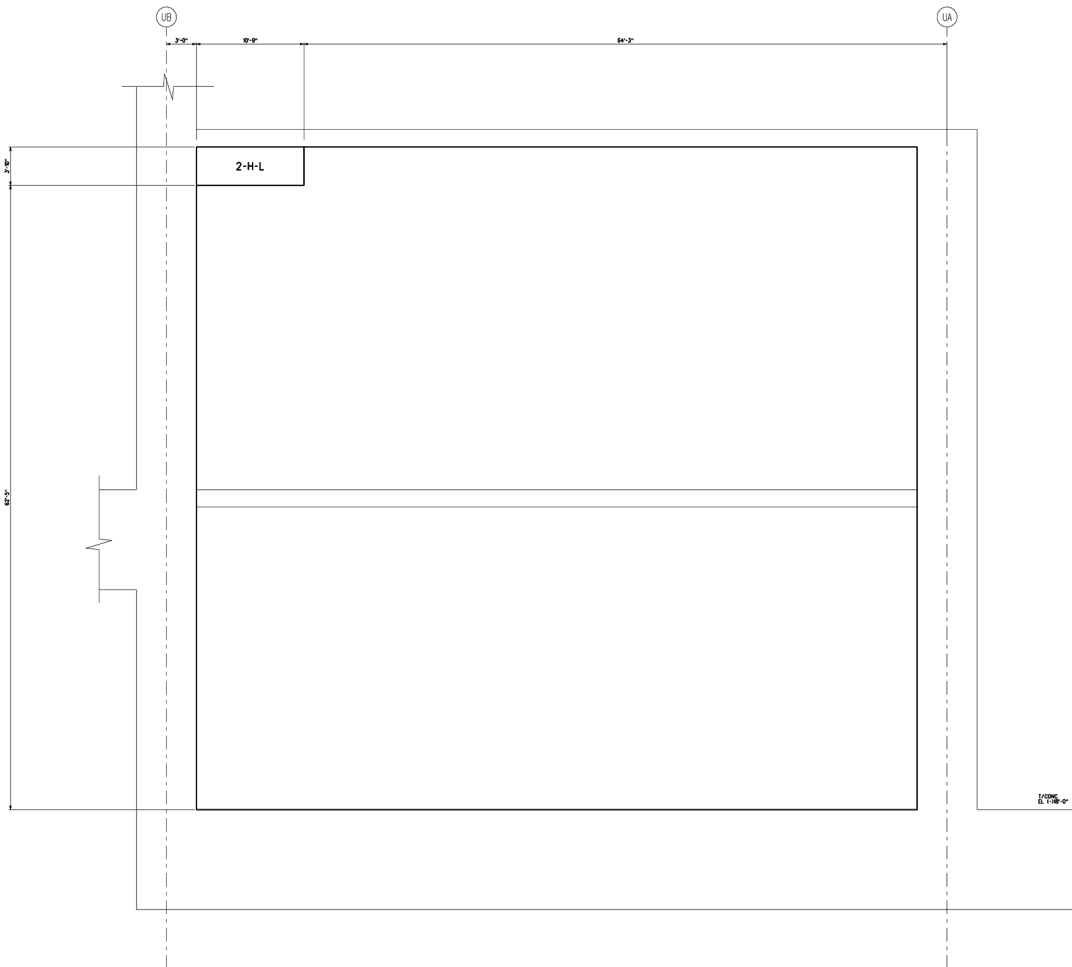
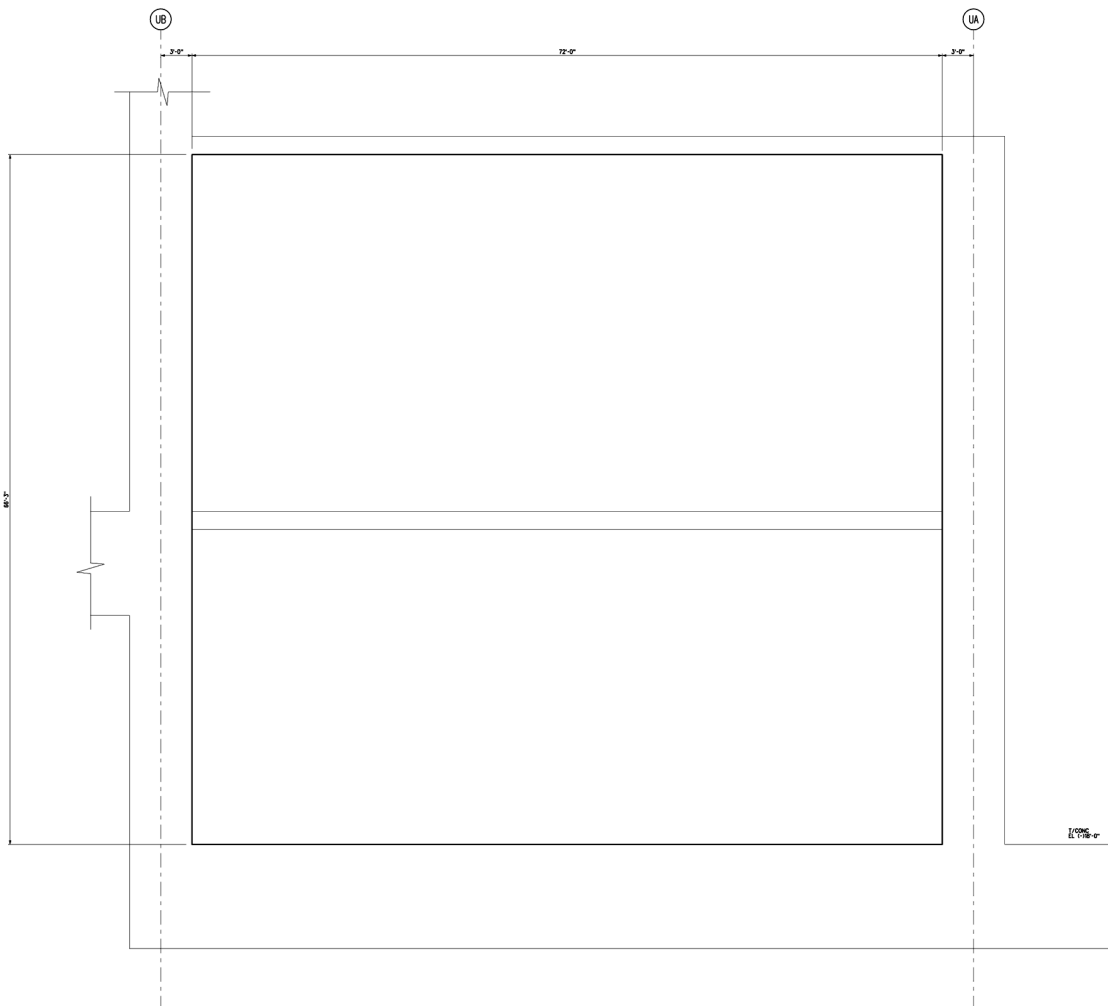


Figure 3H.6-71 Pumphouse West Wall Looking East
Transverse Vertical Reinforcement Zones



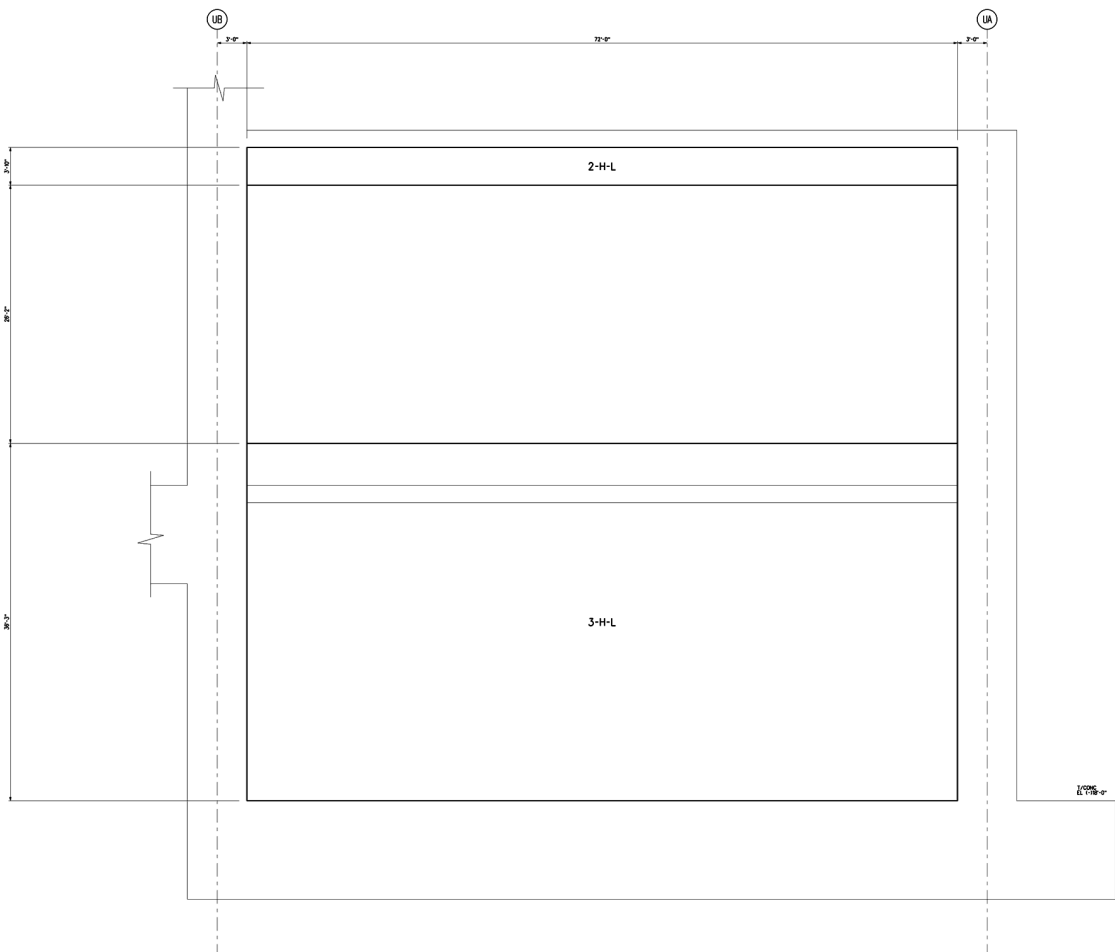
**Figure 3H.6-72 Pumphouse Internal East Wall Looking West
Horizontal Reinforcement Zones
Near Side Face**

Note: 1-H-L, unless noted otherwise.



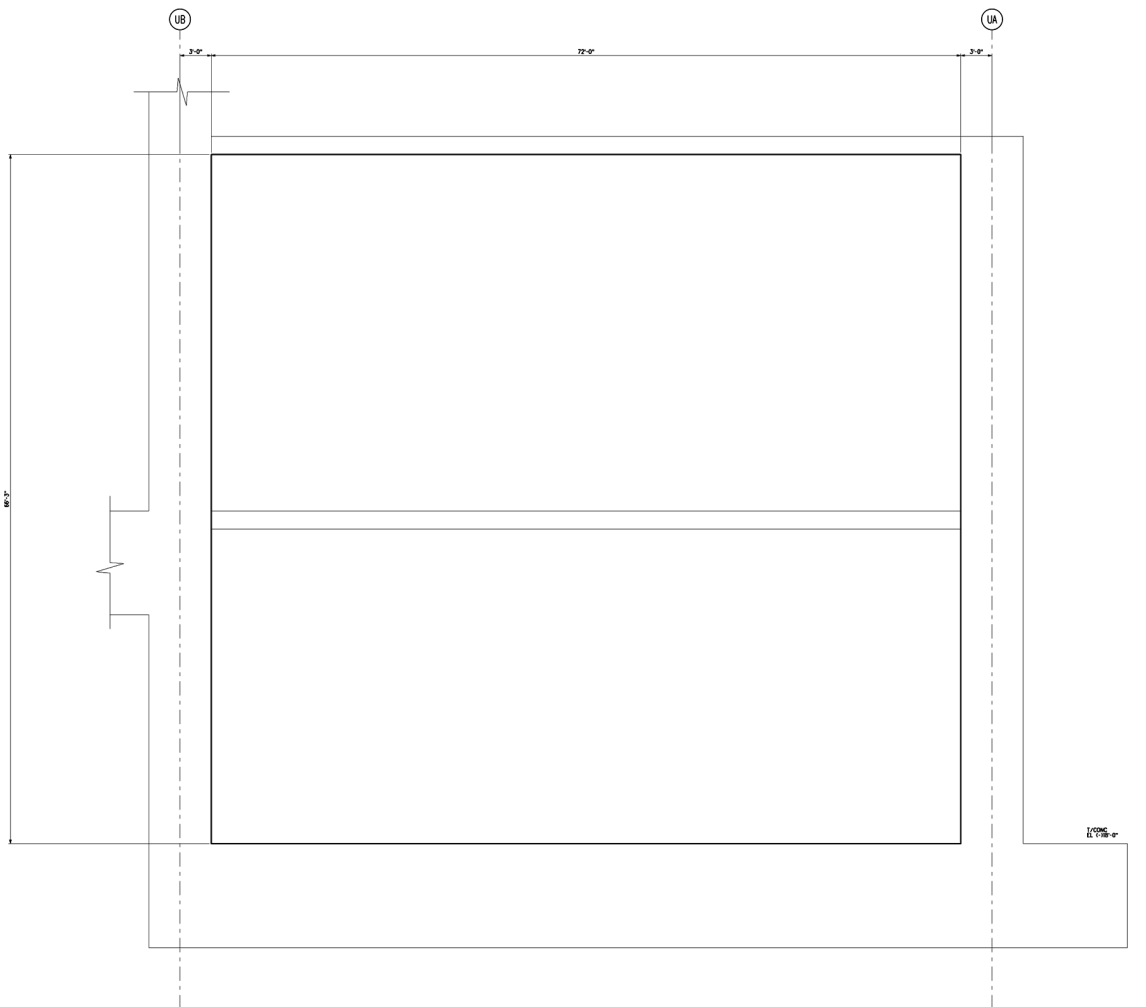
**Figure 3H.6-73 Pumphouse Internal East Wall Looking West
Vertical Reinforcement Zones
Near Side Face**

Note: 1-V-L, unless noted otherwise.



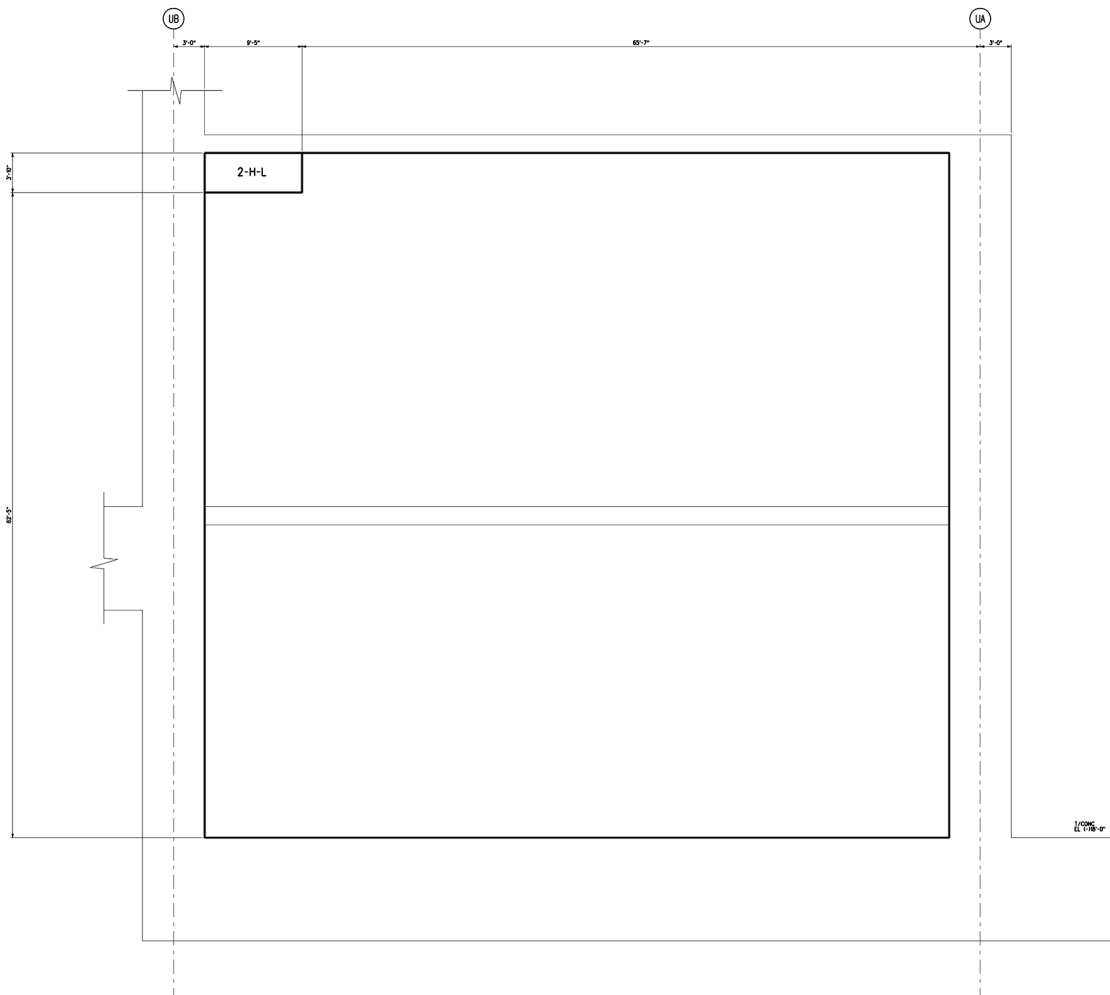
**Figure 3H.6-74 Pumphouse Internal East Wall Looking West
Horizontal Reinforcement Zones
Far Side Face**

Note: 1-H-L, unless noted otherwise.



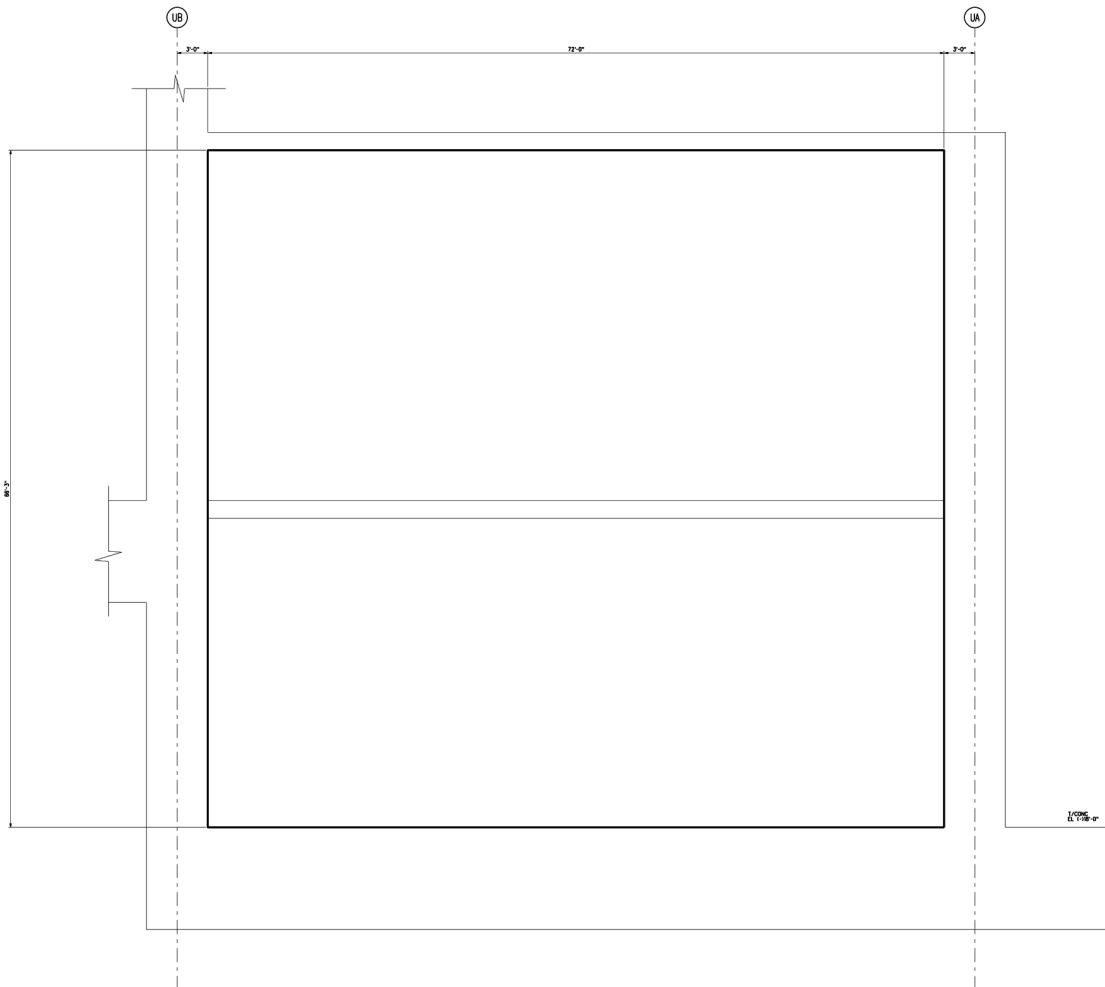
**Figure 3H.6-75 Pumphouse Internal East Wall Looking West
Vertical Reinforcement Zones
Far Side Face**

Note: 1-V-L, unless noted otherwise.



**Figure 3H.6-76 Pumphouse Internal West Wall Looking West
Horizontal Reinforcement Zones
Near Side Face**

Note: 1-H-L, unless noted otherwise.



**Figure 3H.6-77 Pumphouse Internal West Wall Looking West
Vertical Reinforcement Zones
Near Side Face**

Note: 1-V-L, unless noted otherwise.

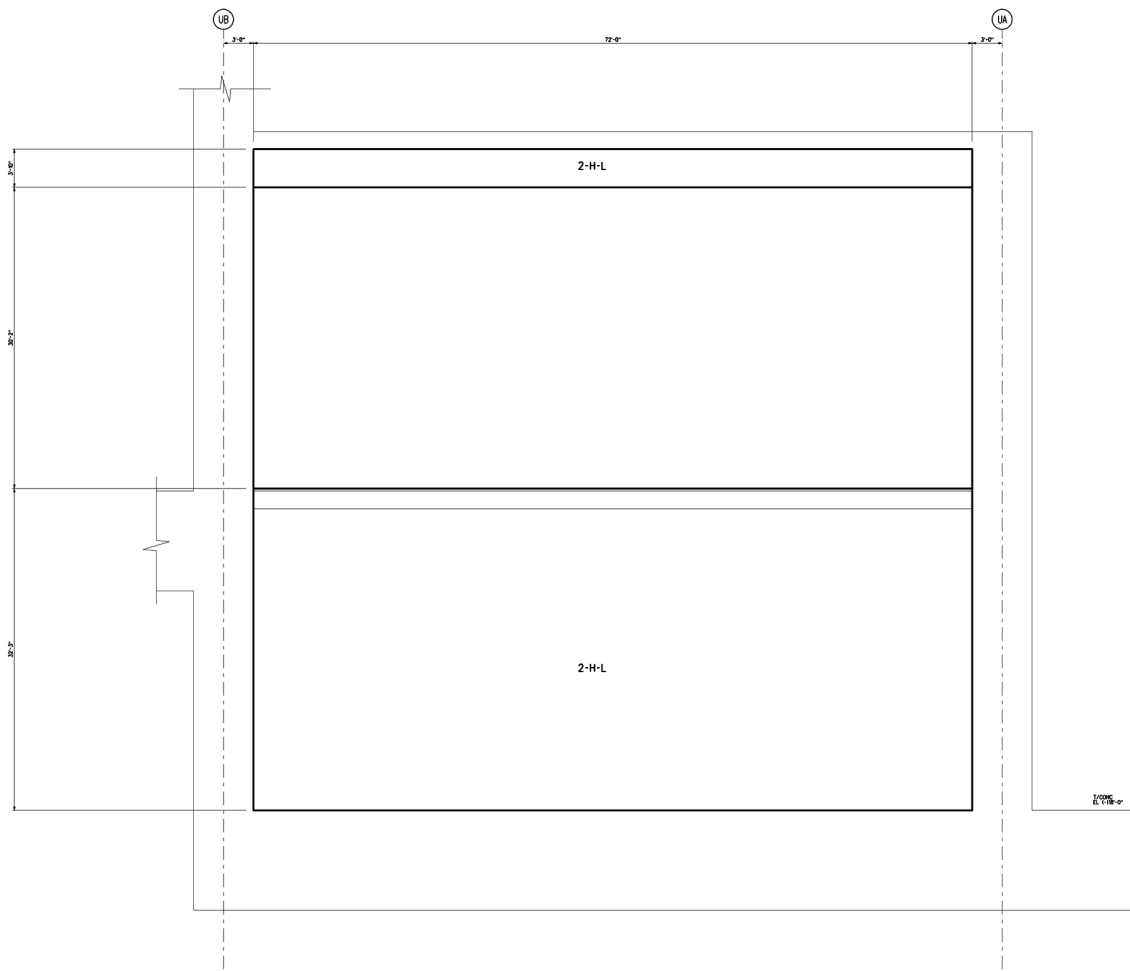
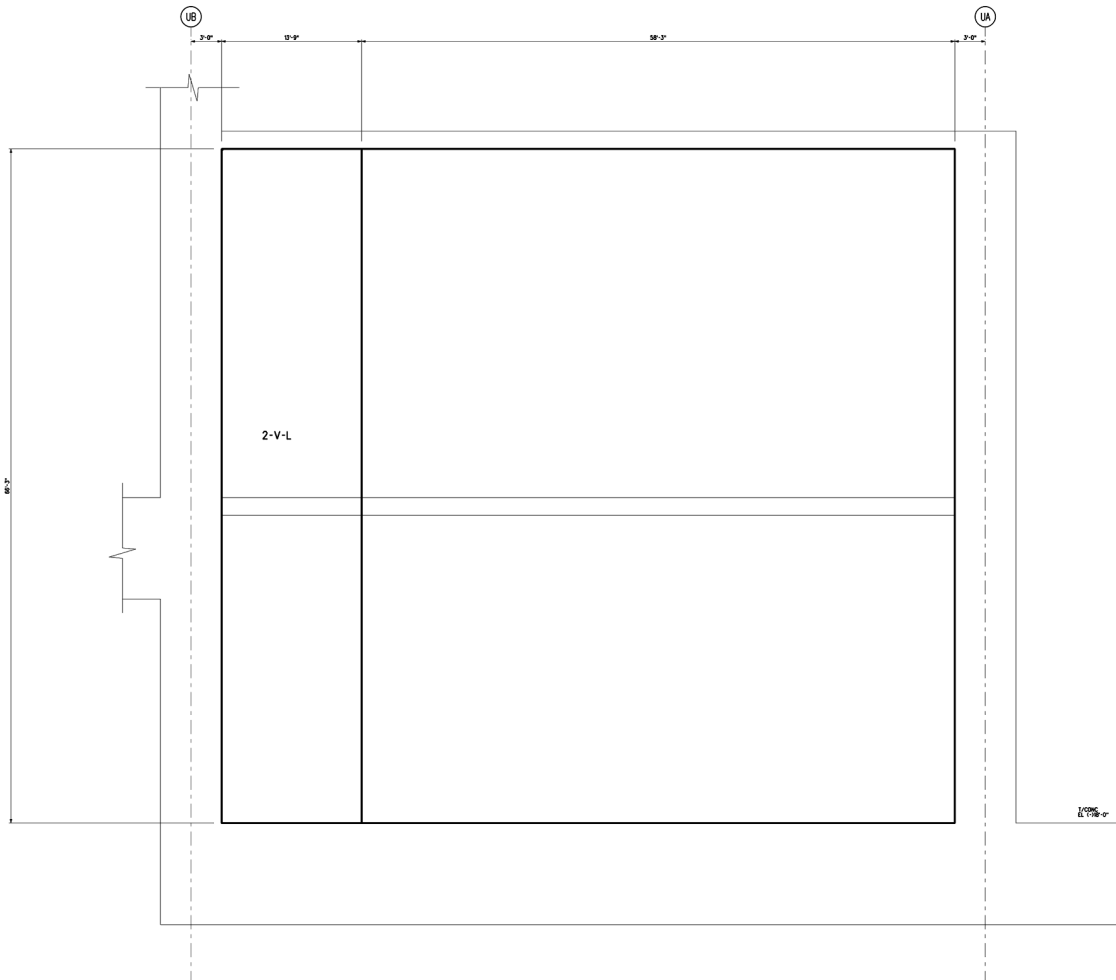
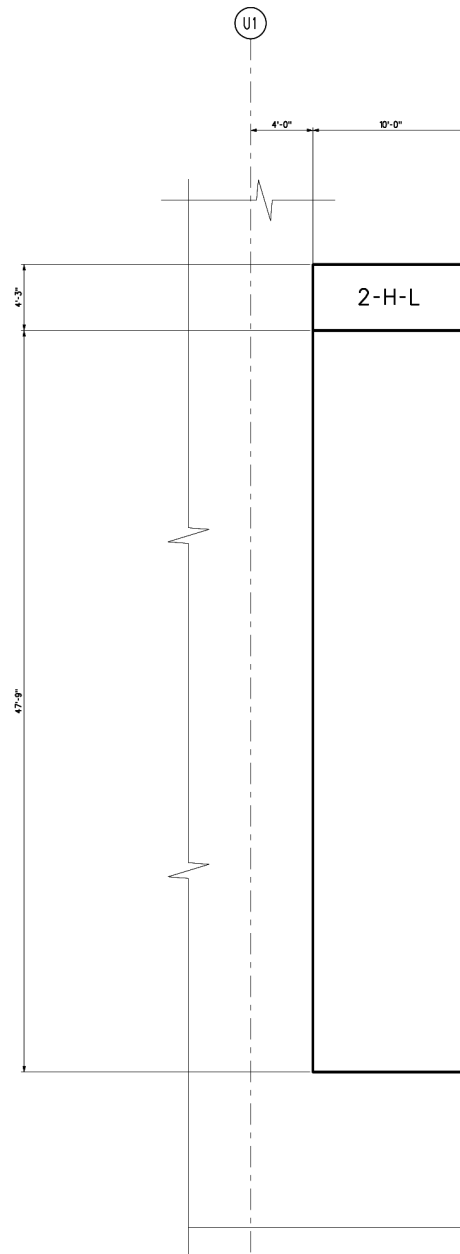


Figure 3H.6-78 Pumphouse Internal West Wall Looking West
Horizontal Reinforcement Zones
Far Side Face

Note: 1-H-L, unless noted otherwise.

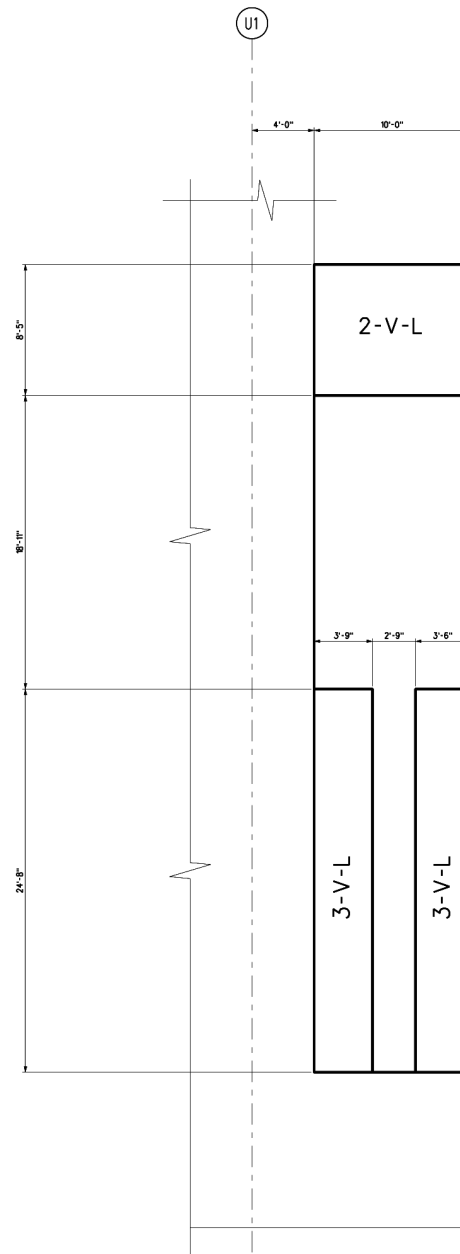


Note: 1-V-L, unless noted otherwise.



**Figure 3H.6-80 Pumphouse East Buttress Looking North & Pumphouse West Buttress Looking South
Horizontal Reinforcement Zones
Near & Far Side Faces**

Note: 1-H-L, unless noted otherwise.



**Figure 3H.6-81 Pumphouse East Buttress Looking North & Pumphouse West Buttress Looking South
Vertical Reinforcement Zones
Near & Far Side Faces**

Note: 1-V-L, unless noted otherwise.

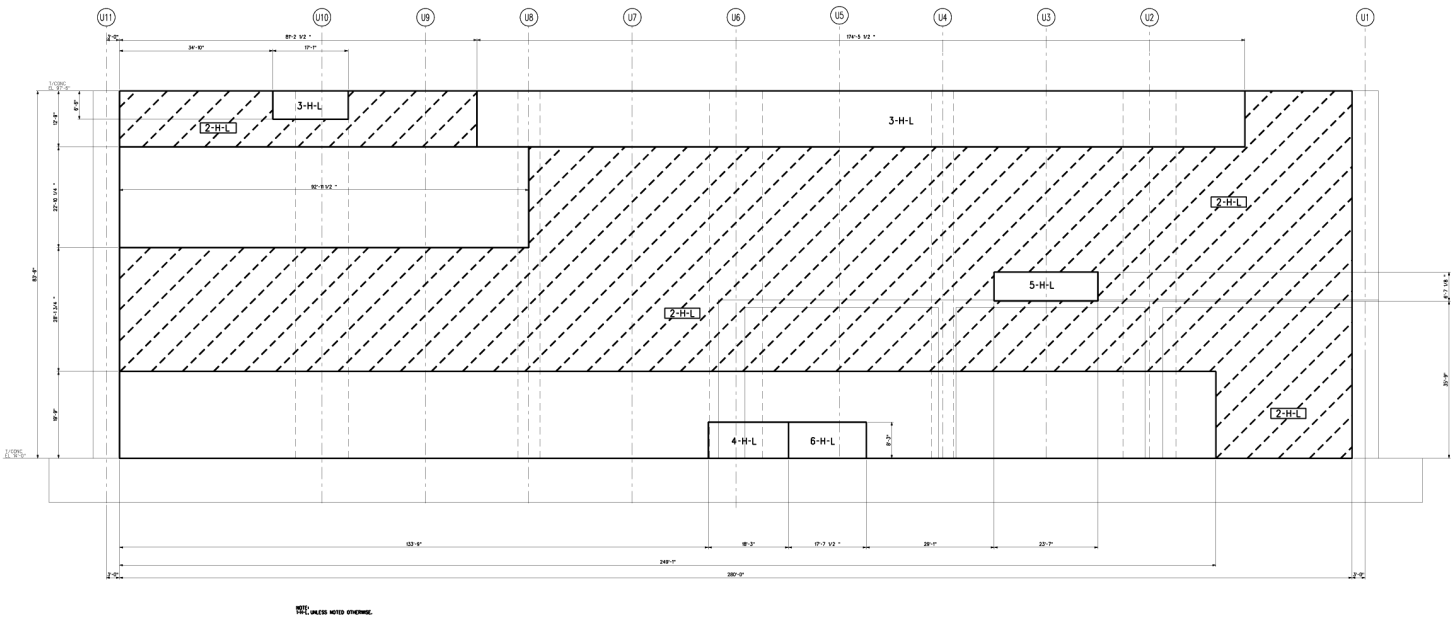


Figure 3H.6-82 Basin North Wall Looking South
Horizontal Reinforcement Zones
Near Side Face

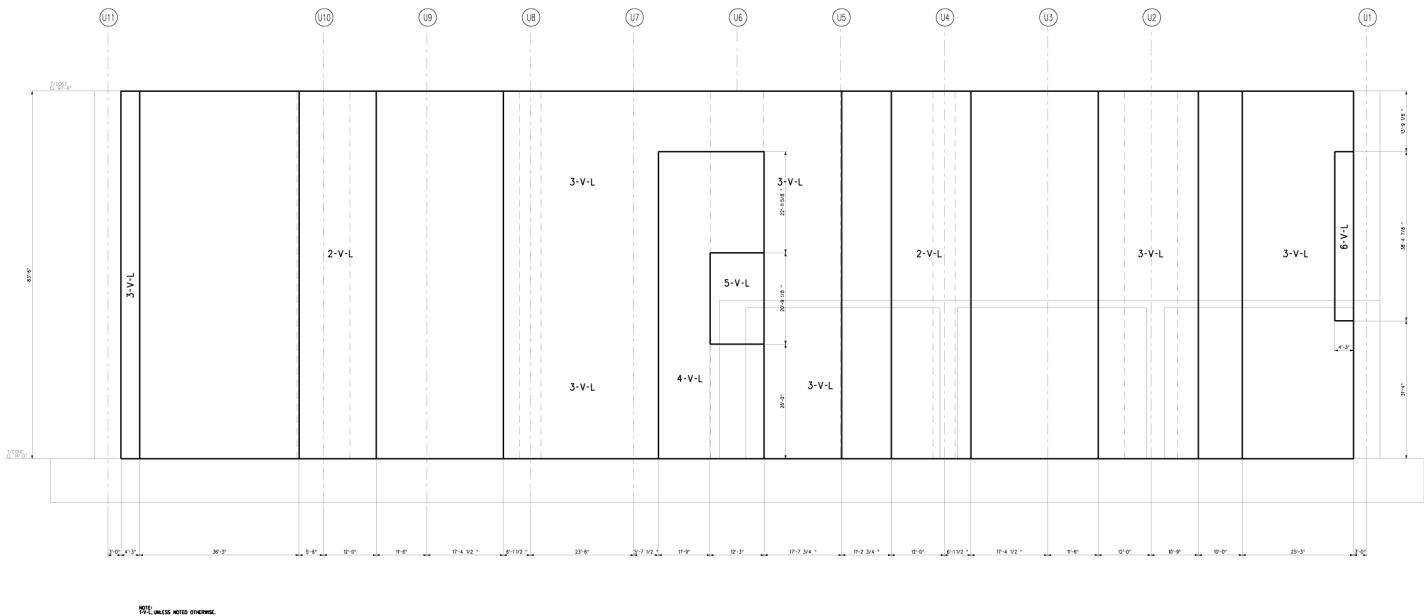
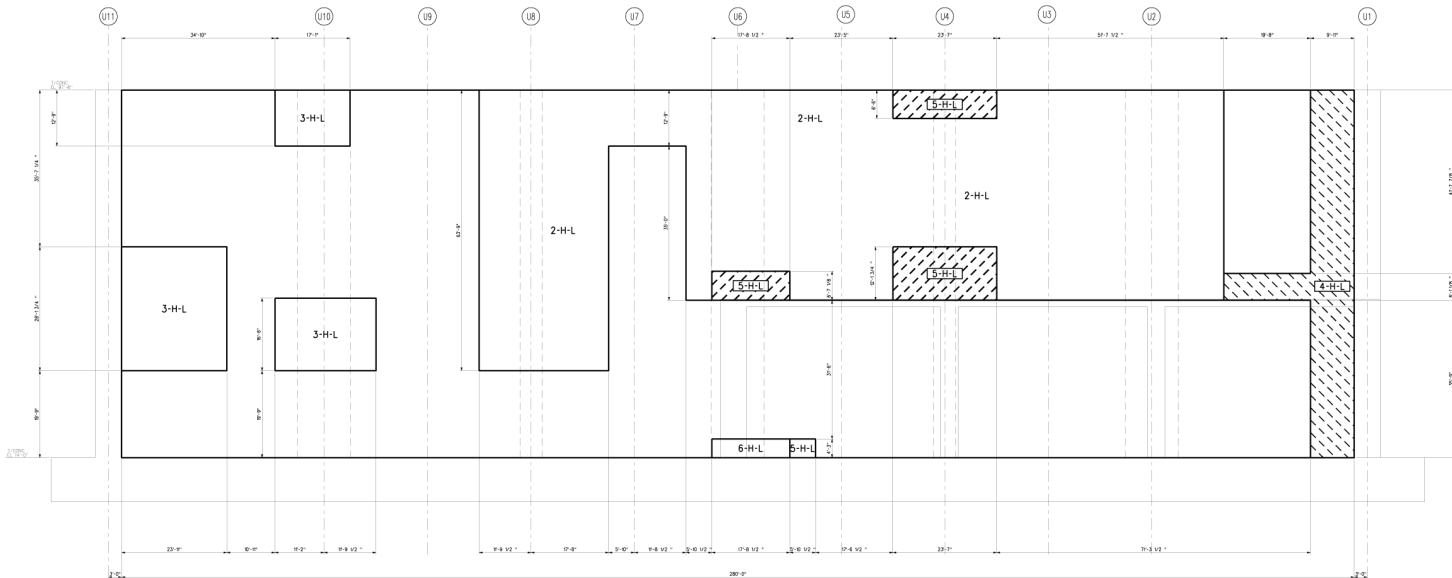


Figure 3H.6-83 Basin North Wall Looking South
Vertical Reinforcement Zones
Near Side Face



**Figure 3H.6-84 Basin North Wall Looking South
Horizontal Reinforcement Zones
Far Side Face**

Note: 1-H-L, unless noted otherwise.

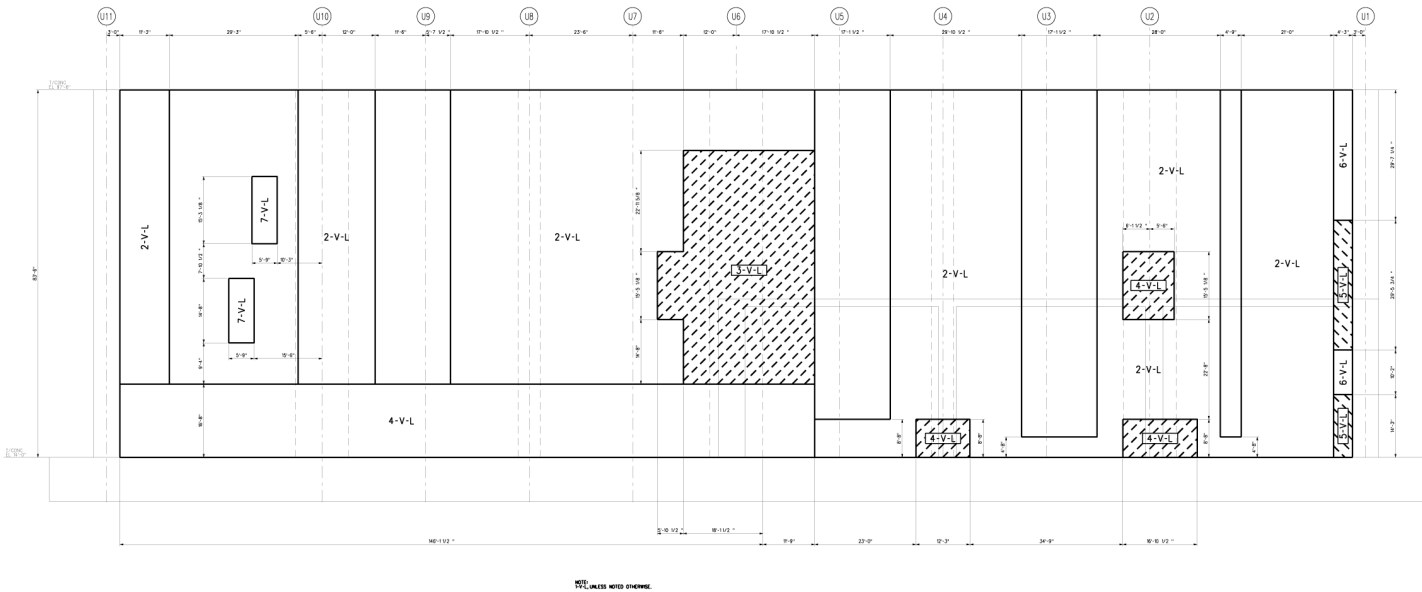


Figure 3H.6-85 Basin North Wall Looking South
Vertical Reinforcement Zones
Far Side Face

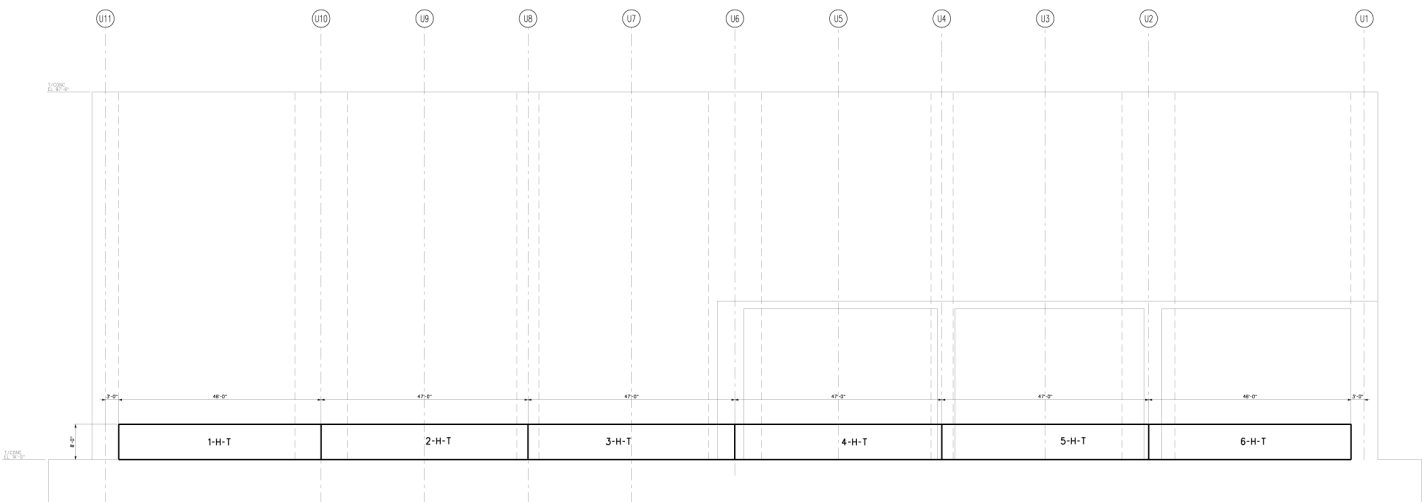
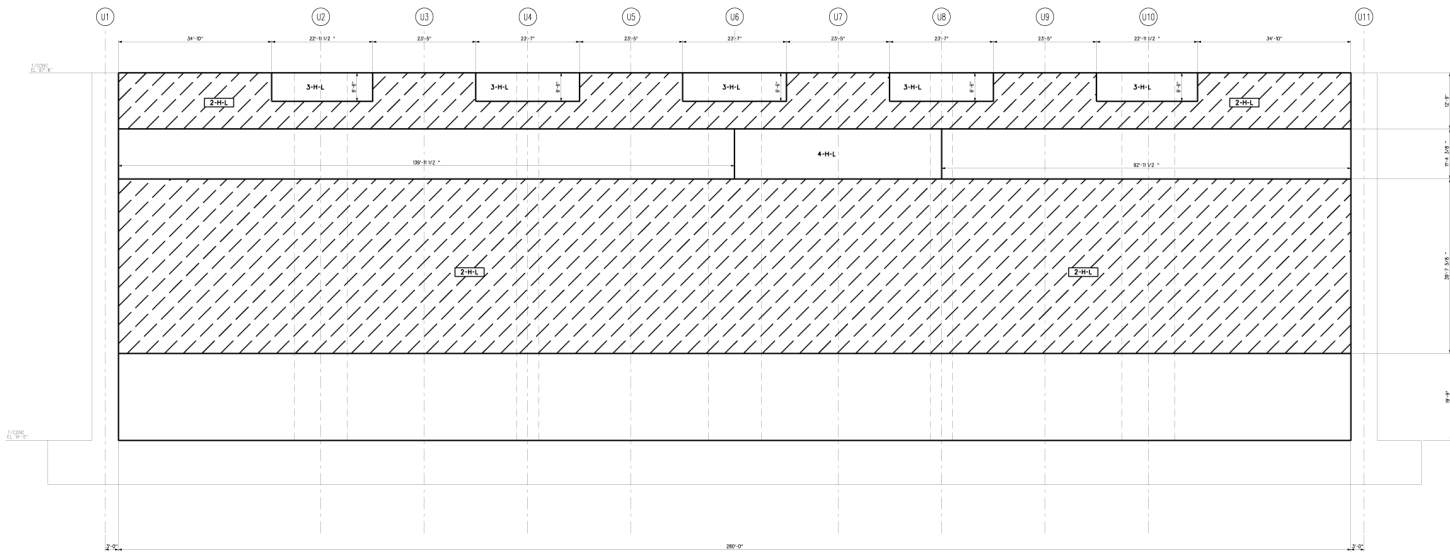


Figure 3H.6-86 Basin North Wall Looking South
Transverse Horizontal Reinforcement Zones



**Figure 3H.6-87 Basin South Wall Looking North
Horizontal Reinforcement Zones
Near Side Face**

Note: 1-H-L, unless noted otherwise.

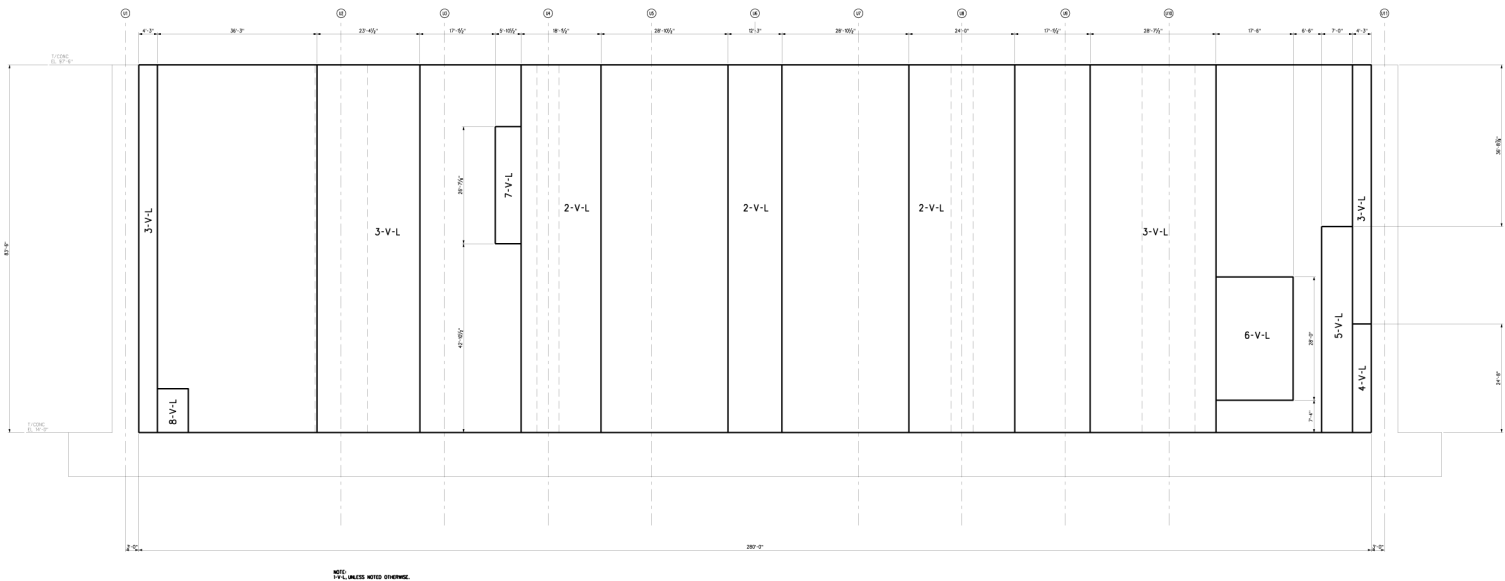
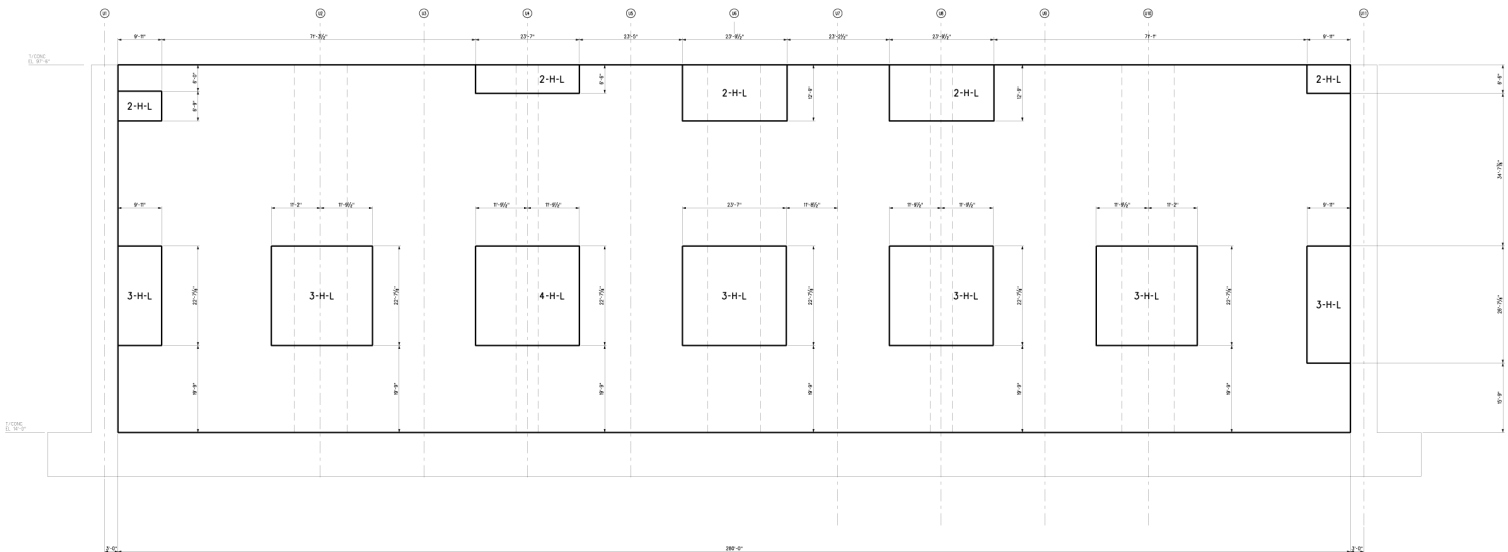
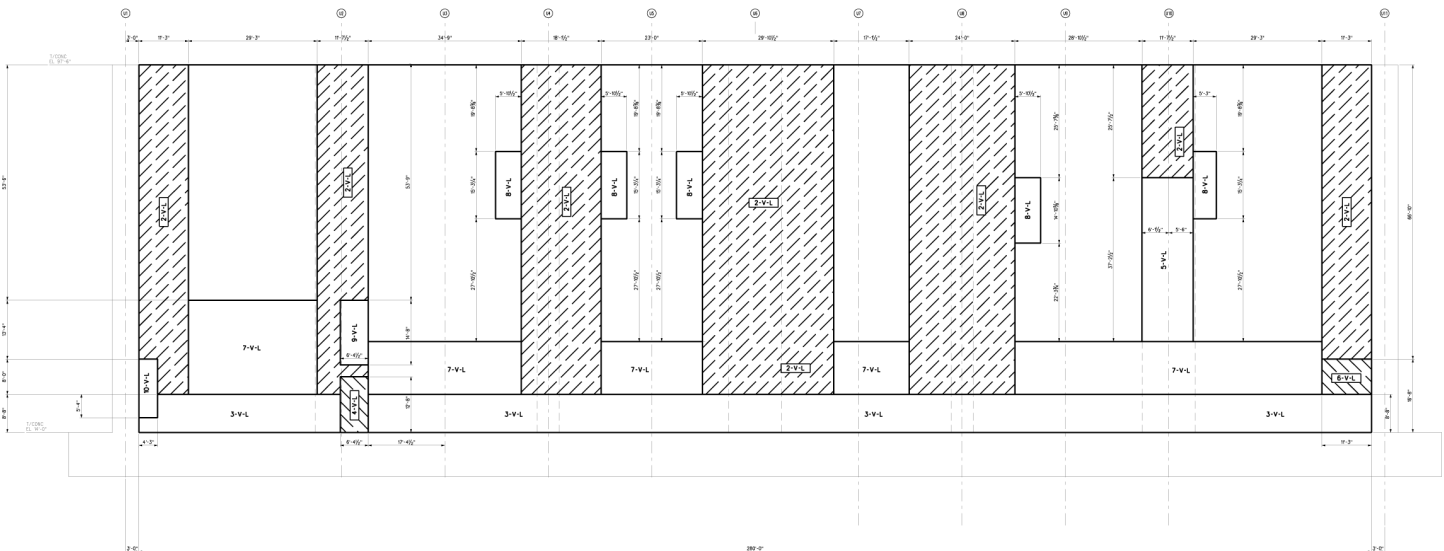


Figure 3H.6-88 Basin South Wall Looking North
Vertical Reinforcement Zones
Near Side Face



**Figure 3H.6-89 Basin South Wall Looking North
Horizontal Reinforcement Zones
Far Side Face**

Note: 1-H-L, unless noted otherwise.



**Figure 3H.6-90 Basin South Wall Looking North
Vertical Reinforcement Zones
Far Side Face**

Note: 1-V-L, unless noted otherwise.

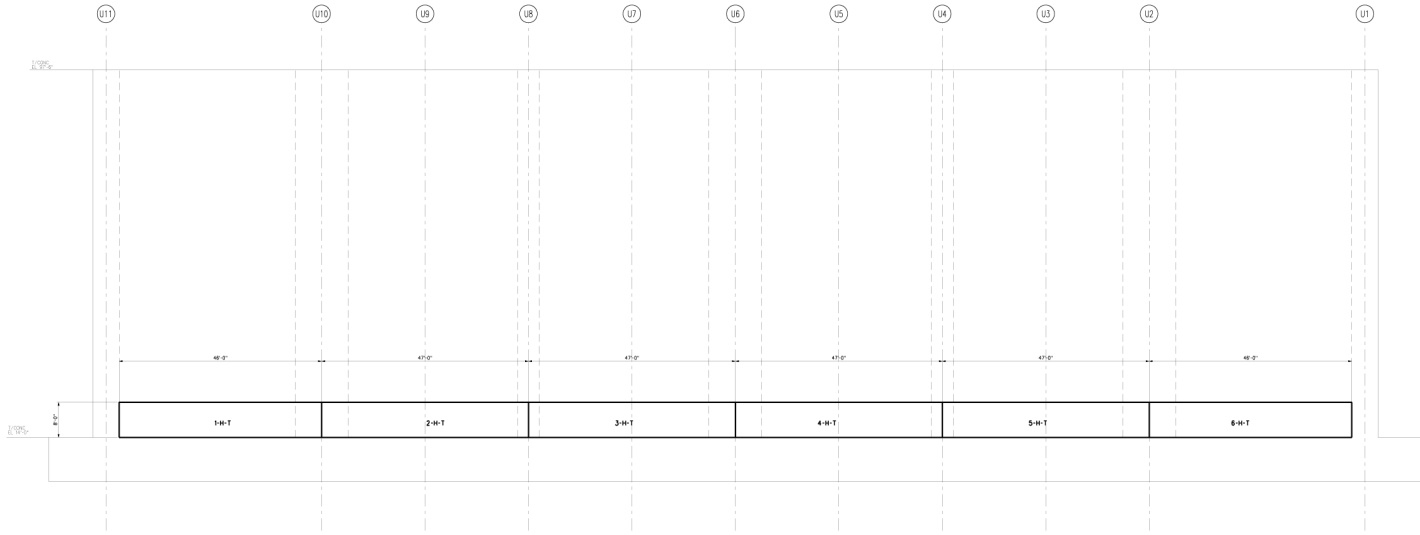


Figure 3H.6-91 Basin South Wall Looking North
Transverse Horizontal Reinforcing Zones

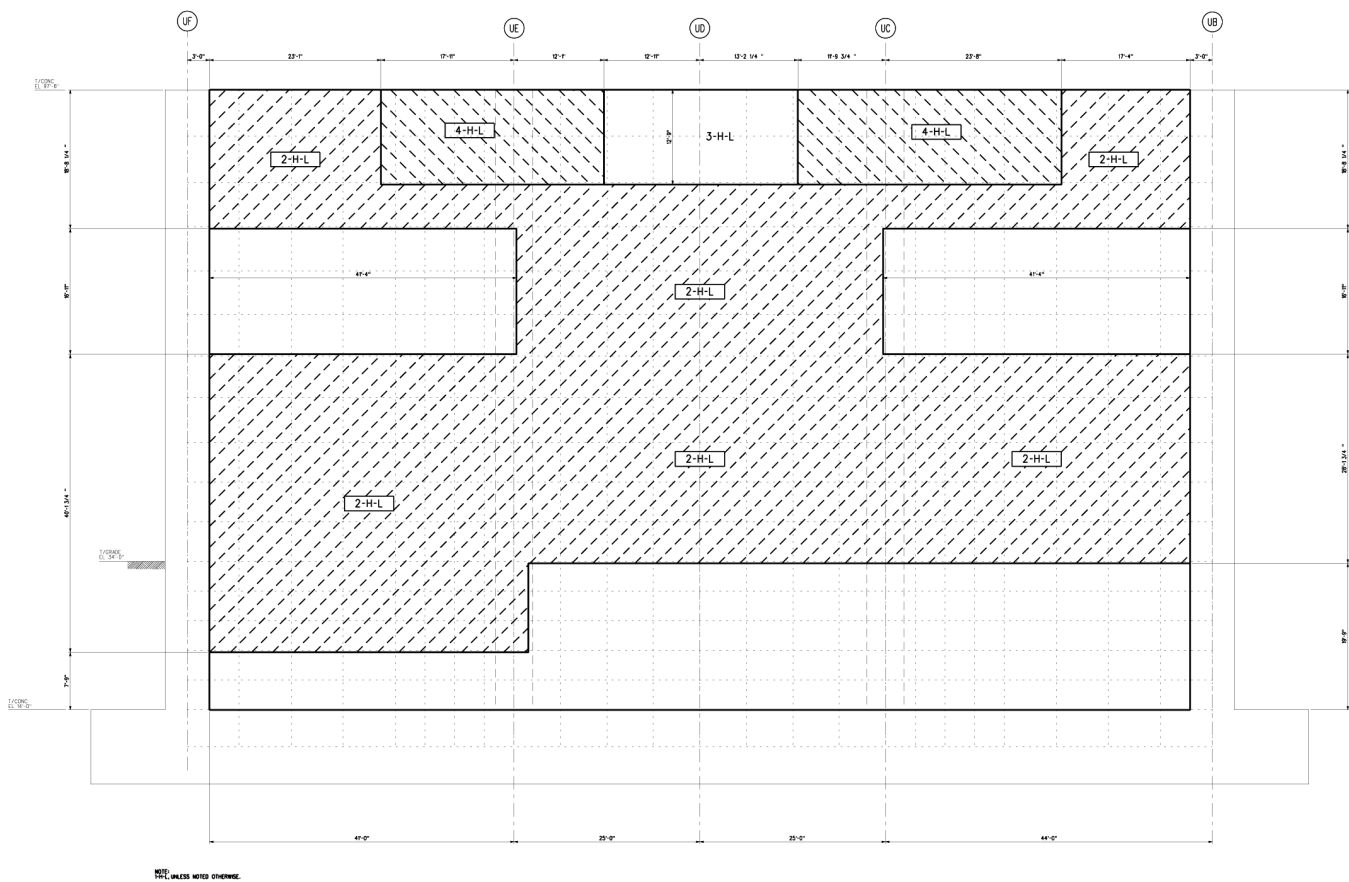
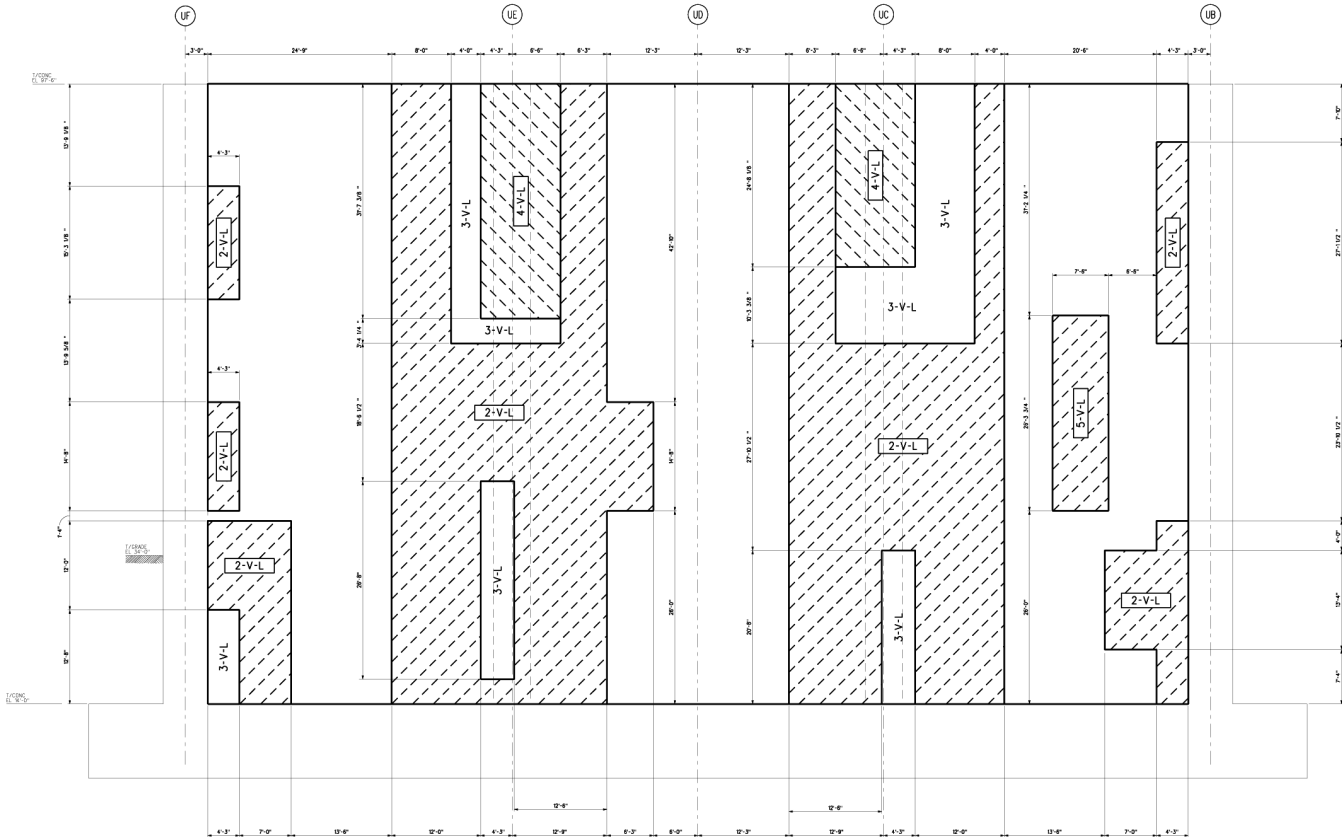


Figure 3H.6-92 Basin East Wall Looking West
Horizontal Reinforcement Zones
Near Side Face



**Figure 3H.6-93 Basin East Wall Looking West
Vertical Reinforcement Zones
Near Side Face**

Note: 1-V-L, unless noted otherwise.

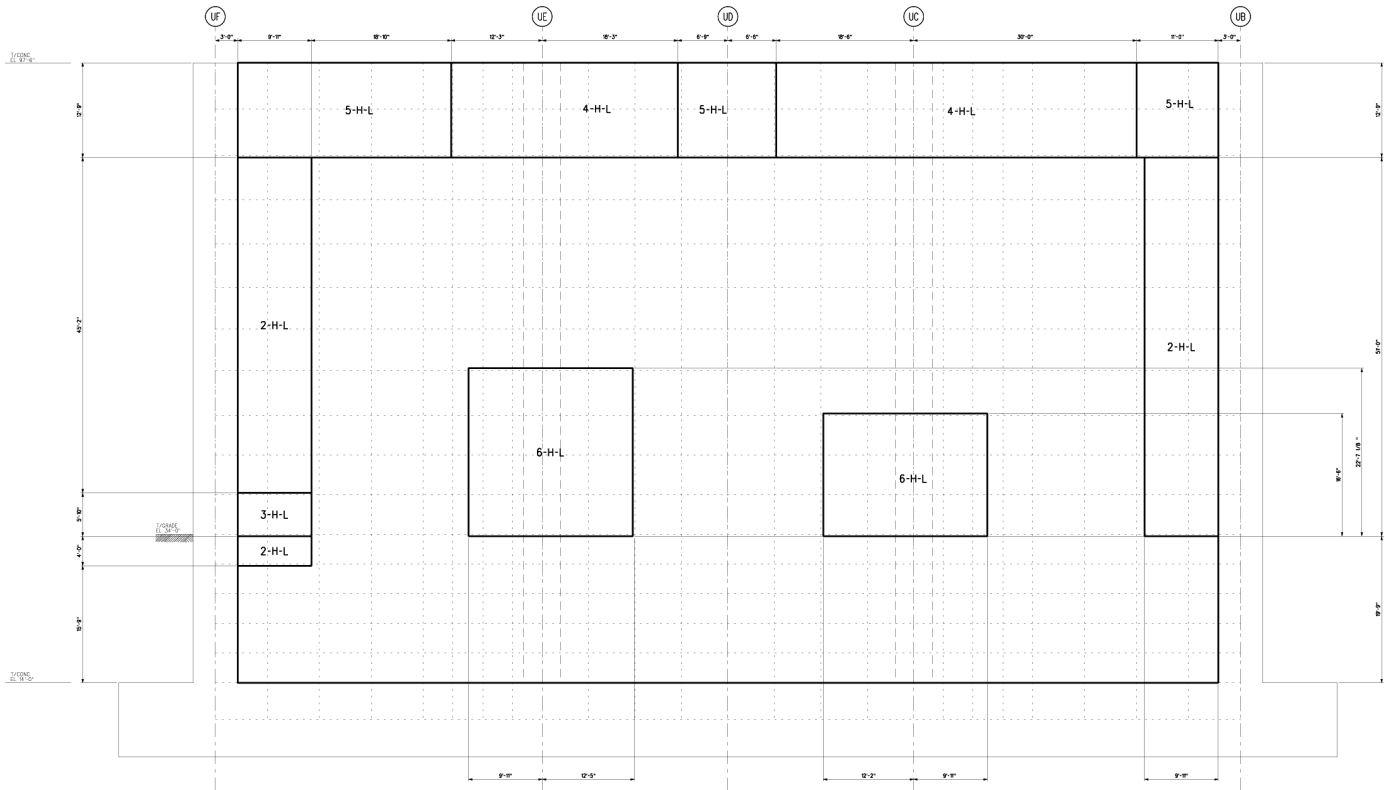


Figure 3H.6-94 Basin East Wall Looking West
Horizontal Reinforcement Zones
Far Side Face

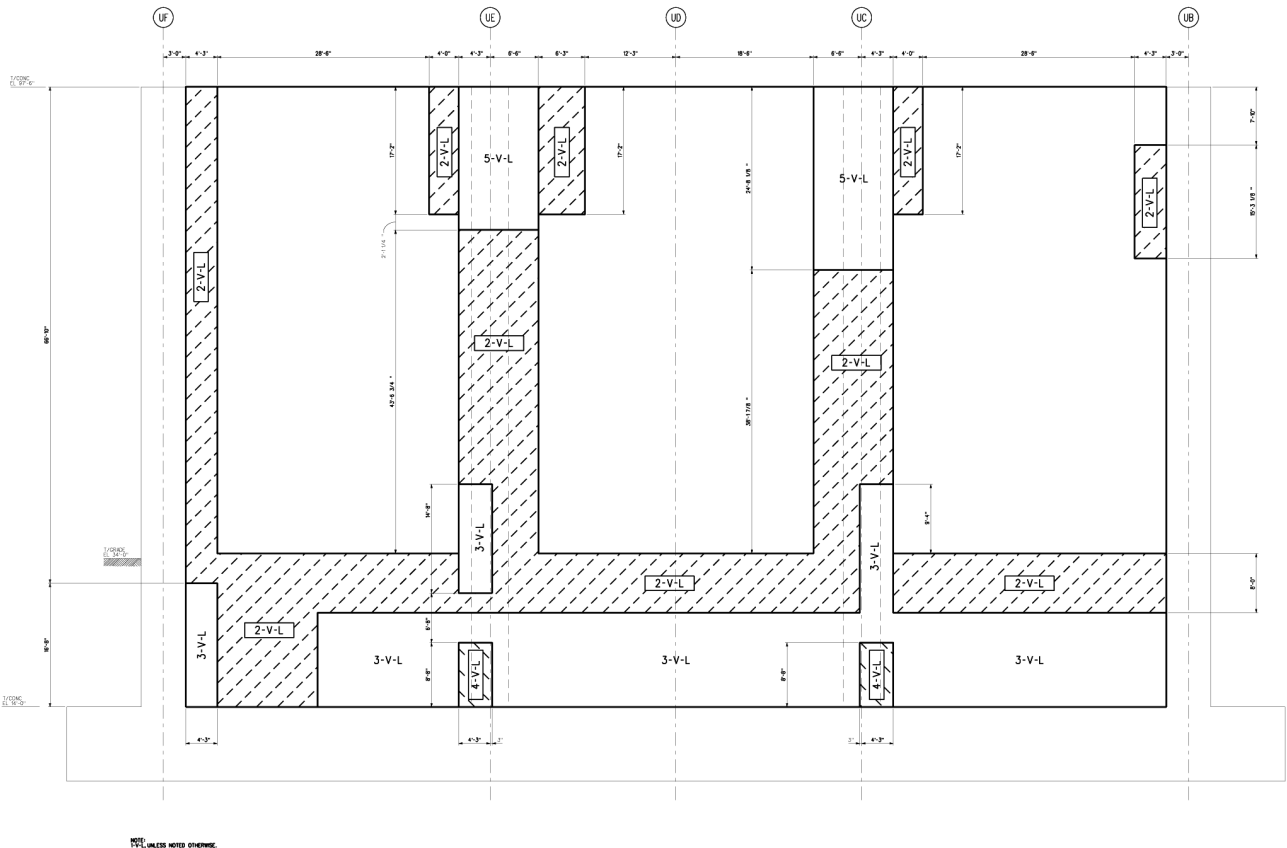


Figure 3H.6-95 Basin East Wall Looking West
Vertical Reinforcement Zones
Far Side Face

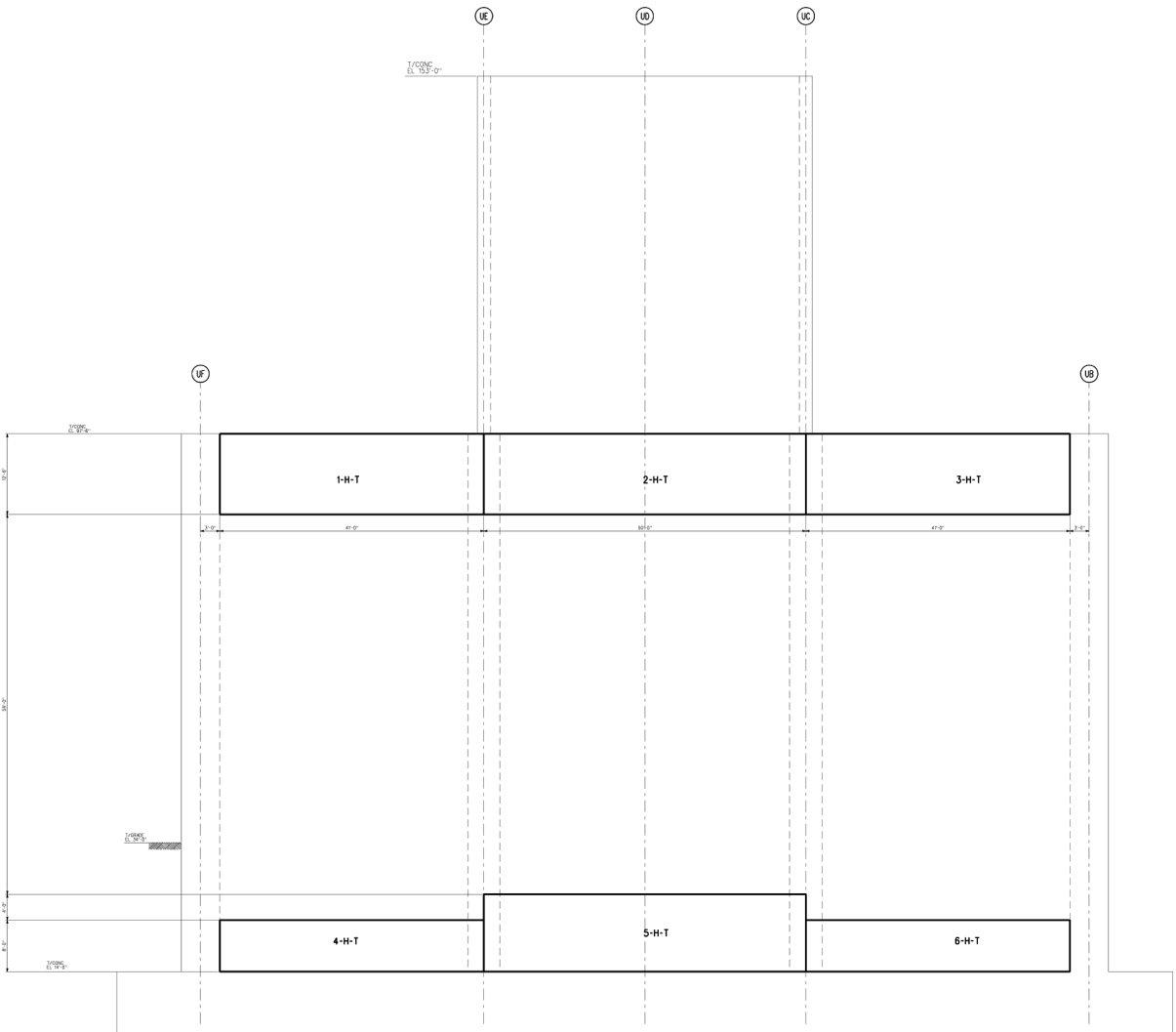
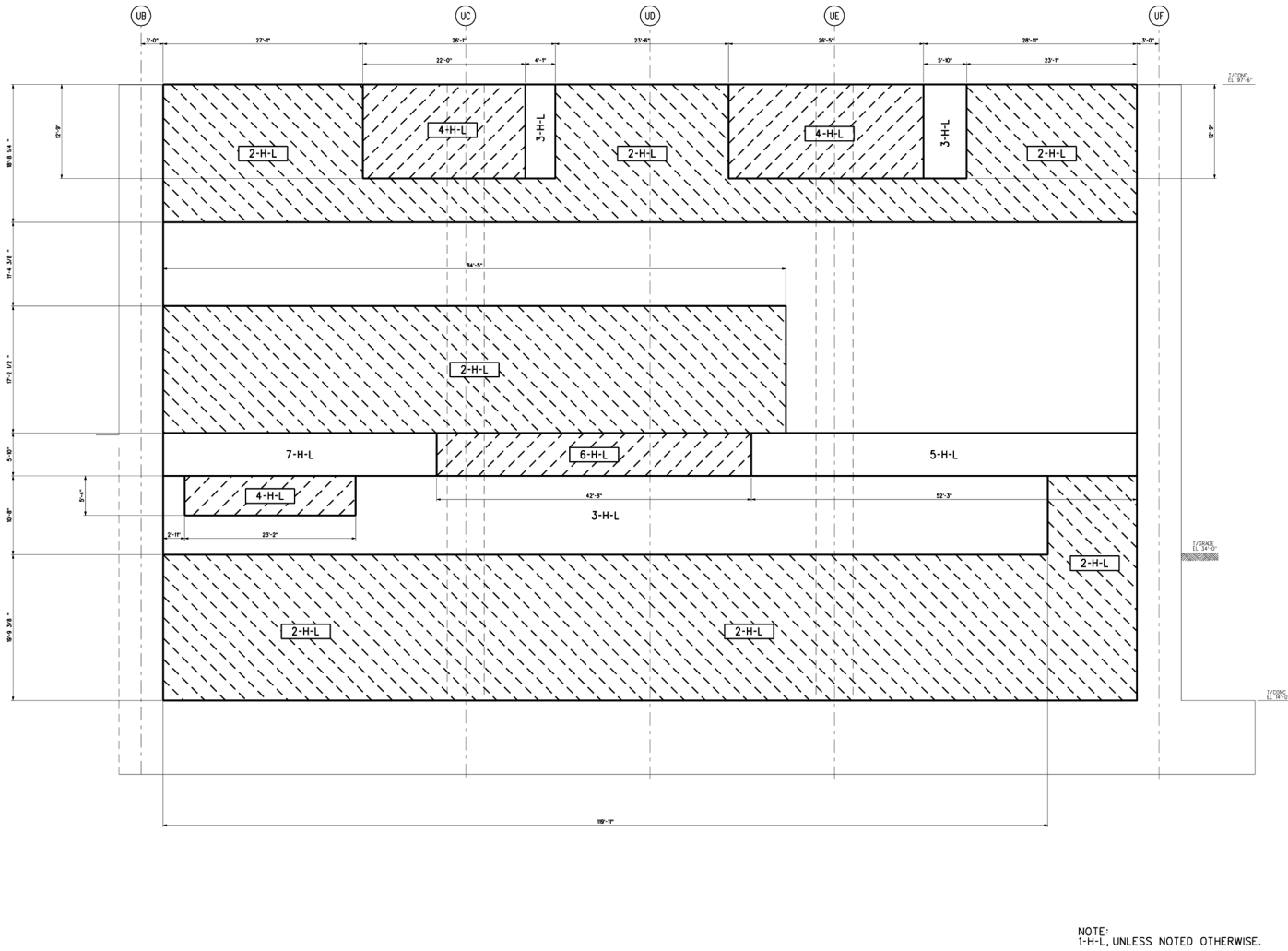


Figure 3H.6-96 Basin/Fan East Wall Looking West
Transverse Horizontal Reinforcement Zones



**Figure 3H.6-97 Basin West Wall Looking East
Horizontal Reinforcement Zones
Near Side Face**

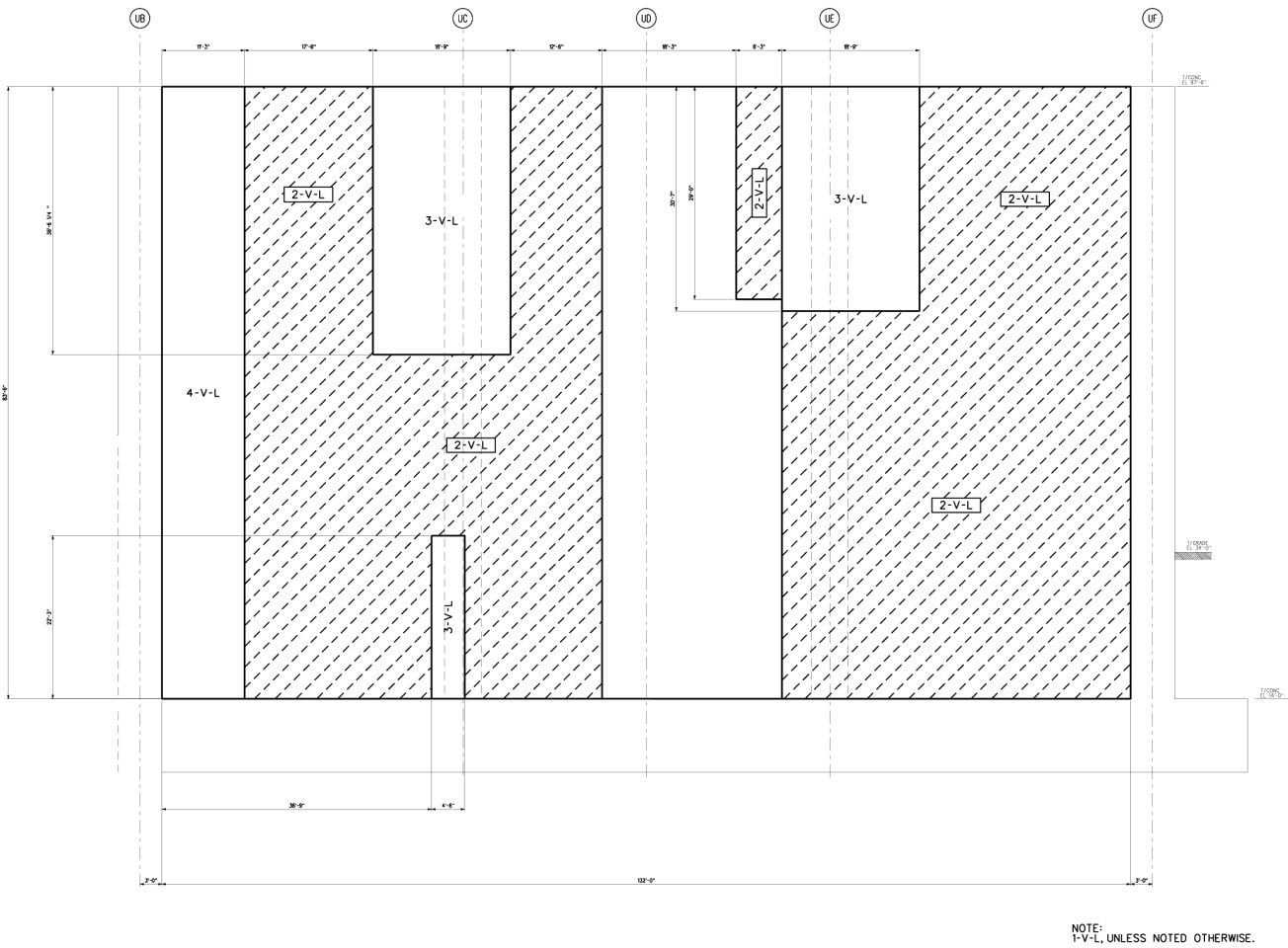


Figure 3H.6-98 Basin West Wall Looking East
Vertical Reinforcement Zones
Near Side Face

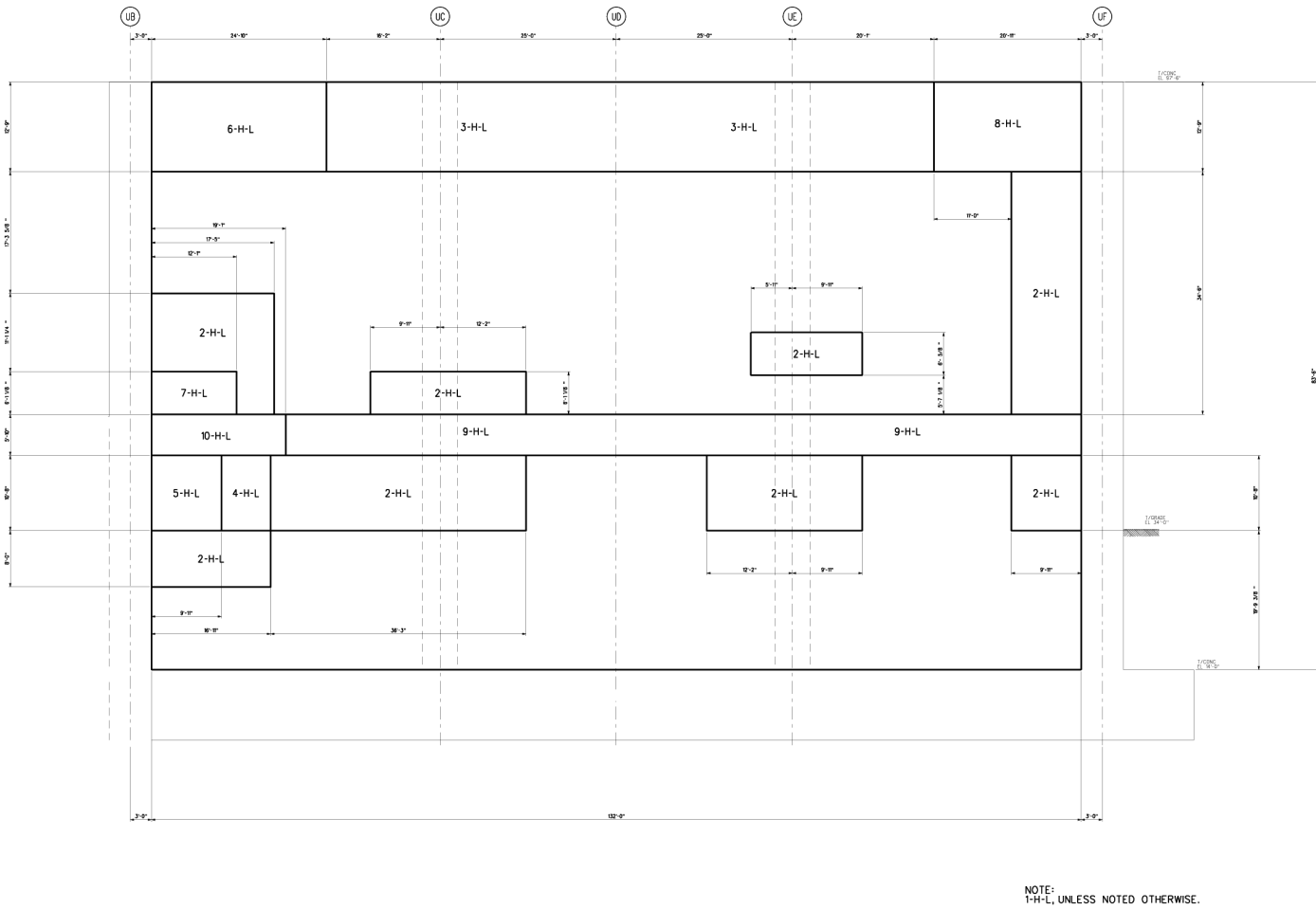
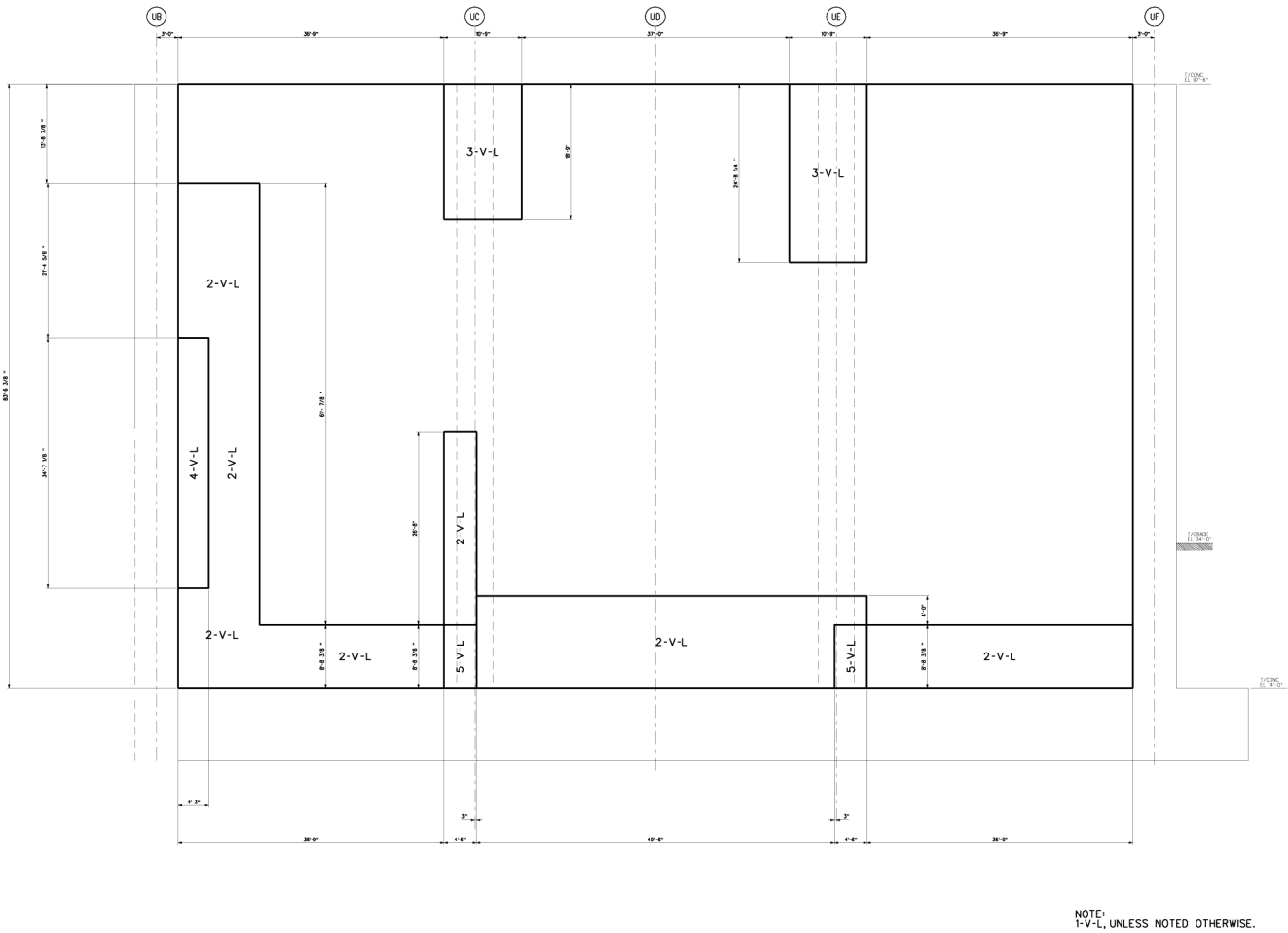


Figure 3H.6-99 Basin West Wall Looking East
Horizontal Reinforcement Zones
Far Side Face



**Figure 3H.6-100 Basin West Wall Looking East
Vertical Reinforcement Zones
Far Side Face**

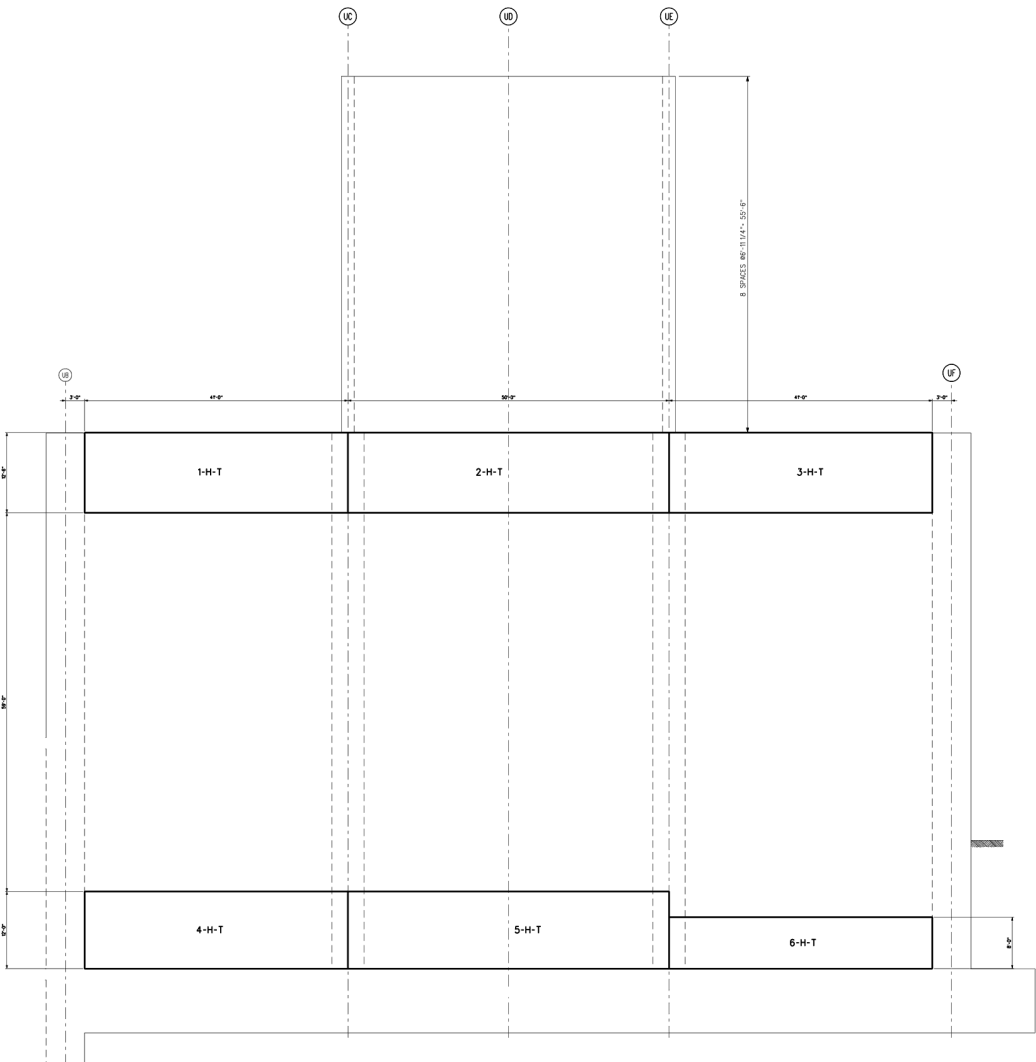
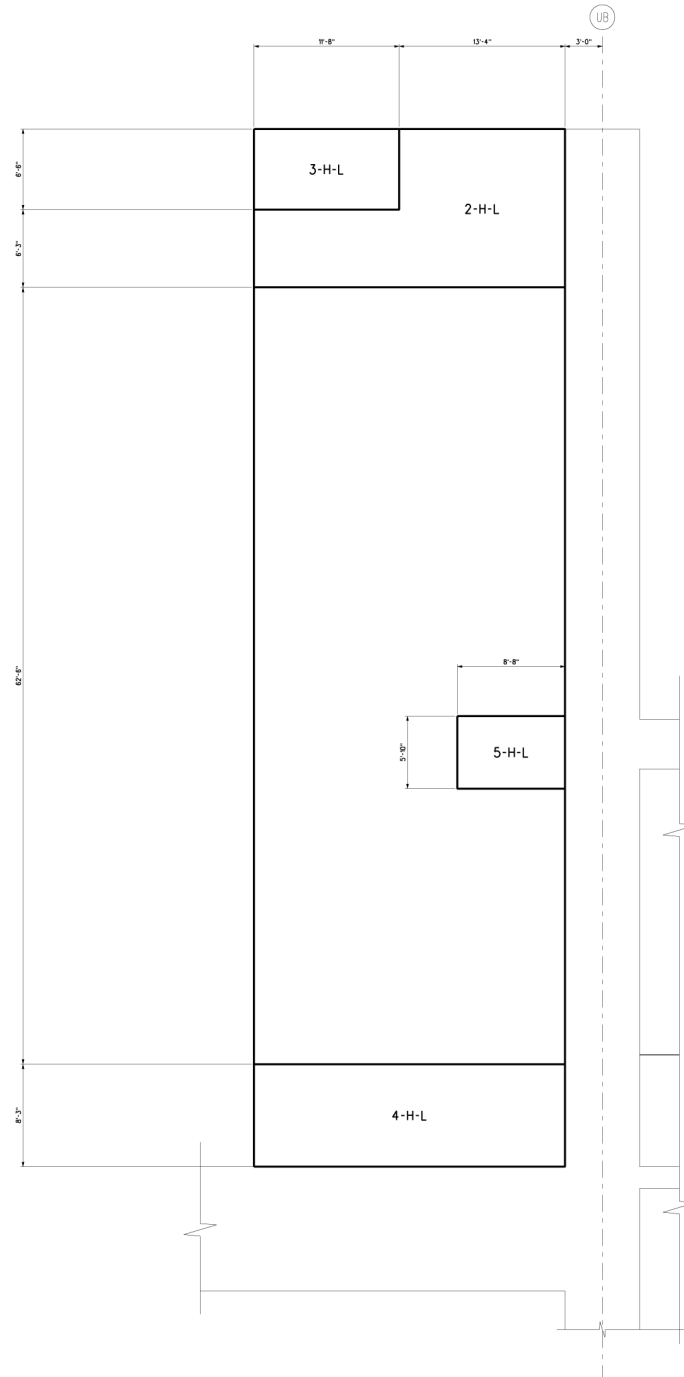
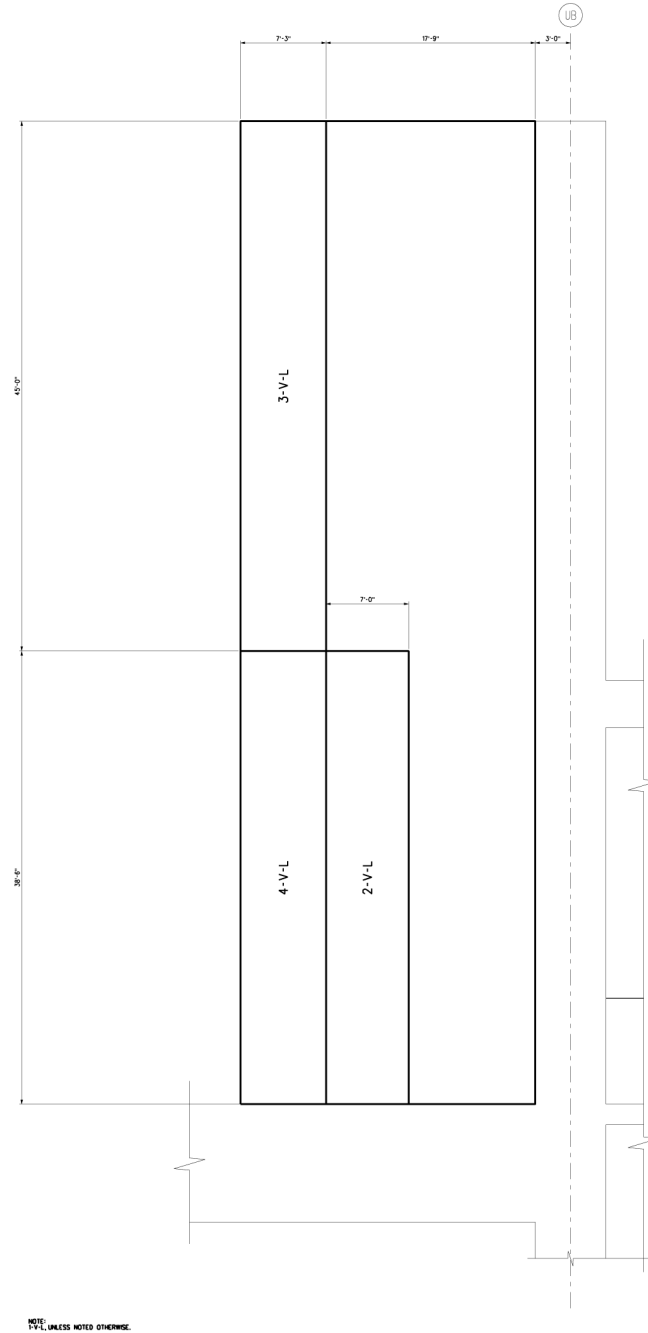


Figure 3H.6-101 Basin/Fan West Wall Looking East
Transverse Horizontal Reinforcement Zones

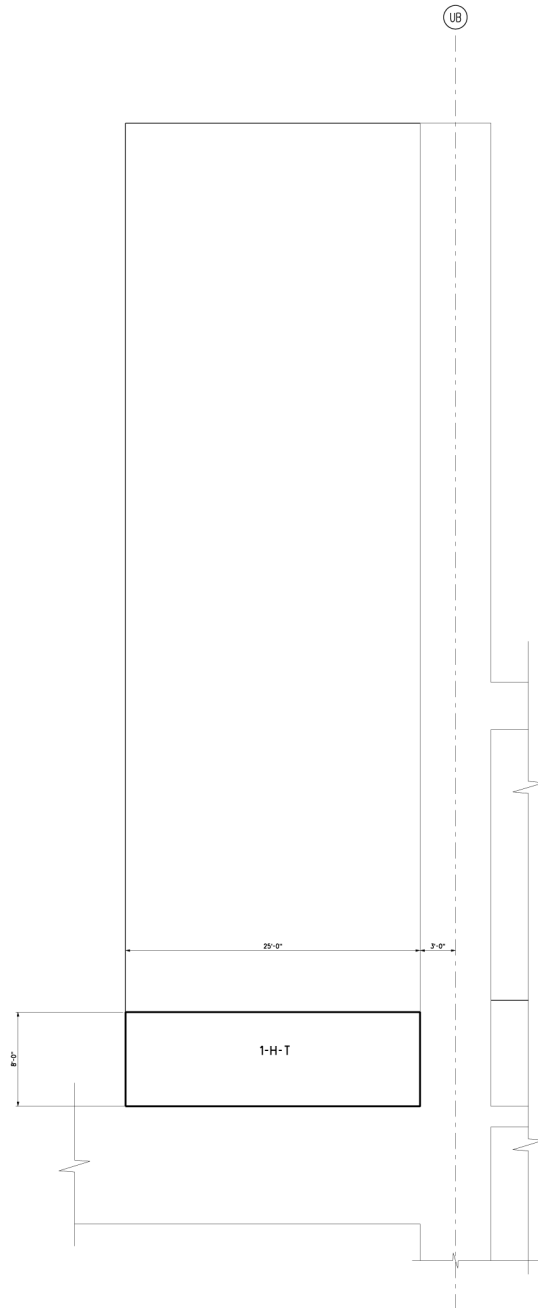


NOTE:
FH-L UNLESS NOTED OTHERWISE.

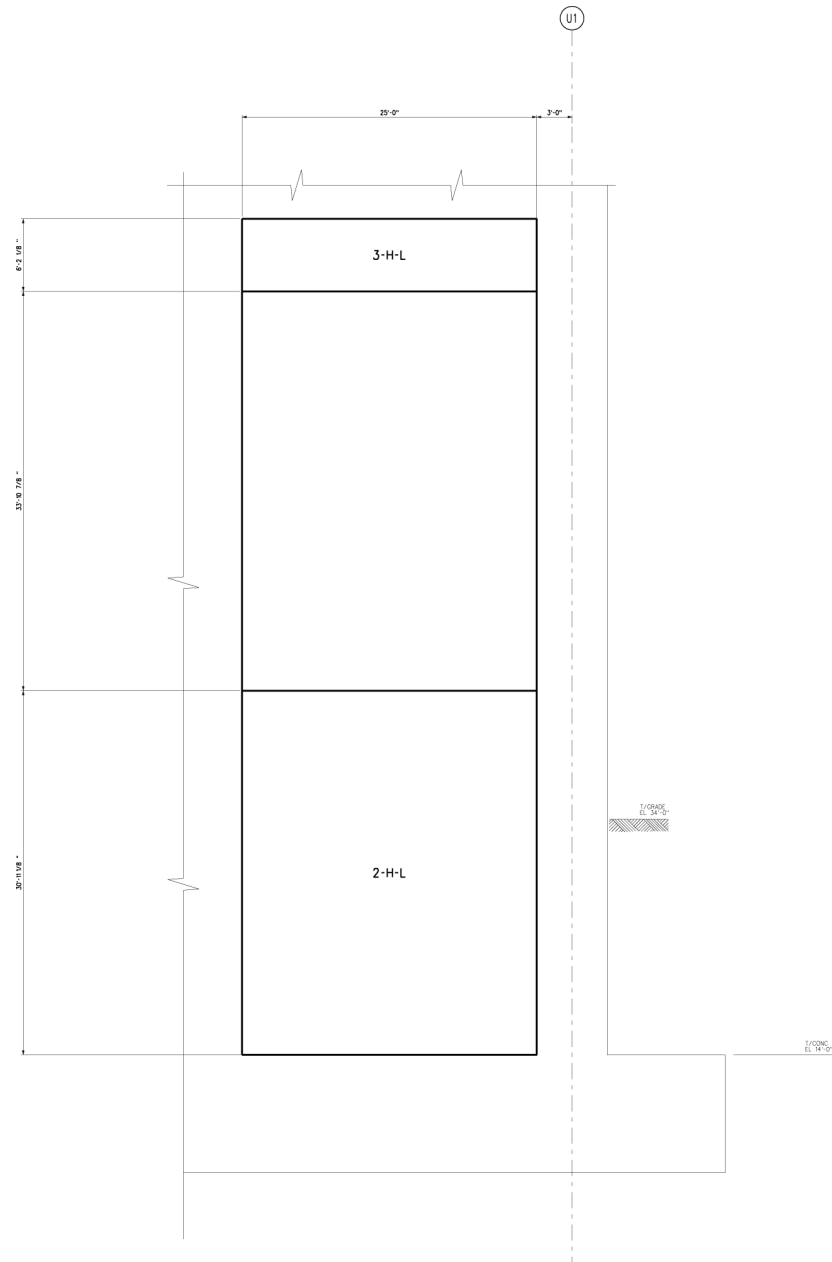
**Figure 3H.6-102 Basin North Buttress Looking West & Basin South Buttress Looking East
Horizontal Reinforcement Zones
Near & Far Side Faces**



**Figure 3H.6-103 Basin North Buttress Looking West & Basin South Buttress Looking East
Vertical Reinforcement Zones
Near & Far Side Faces**

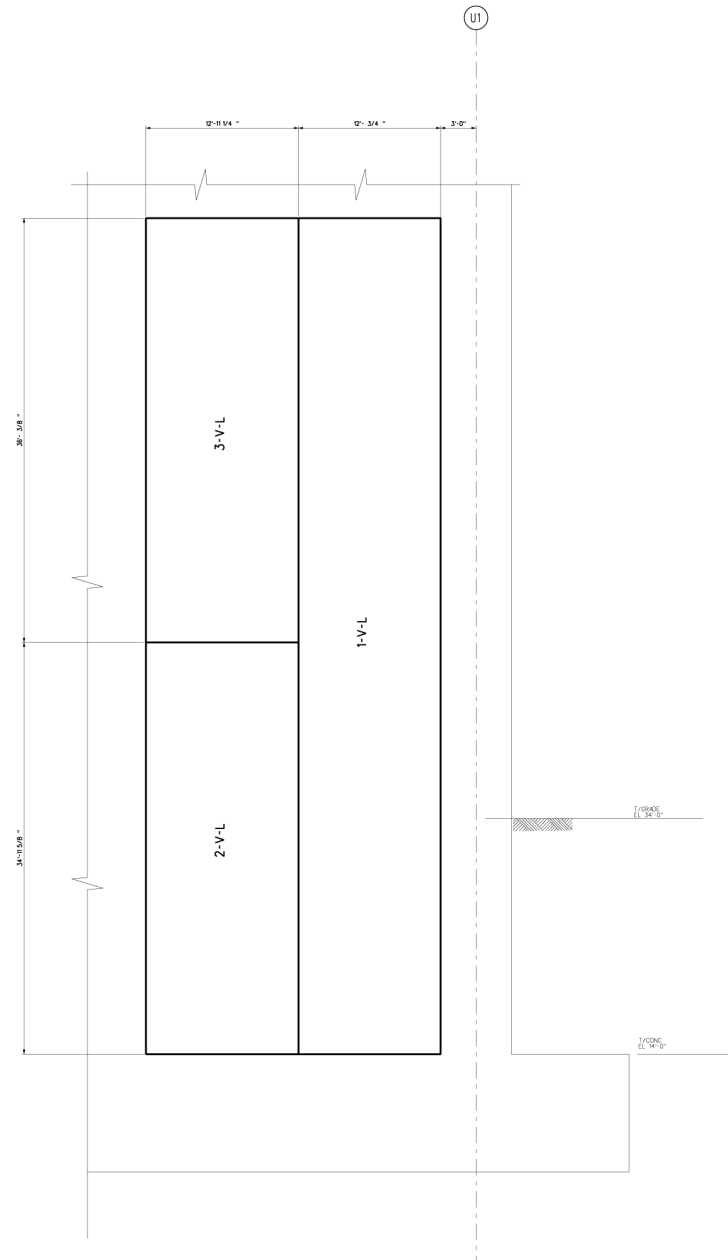


**Figure 3H.6-104 Basin North Buttress Looking West & Basin South Buttress Looking East
Transverse Horizontal Reinforcement Zones**



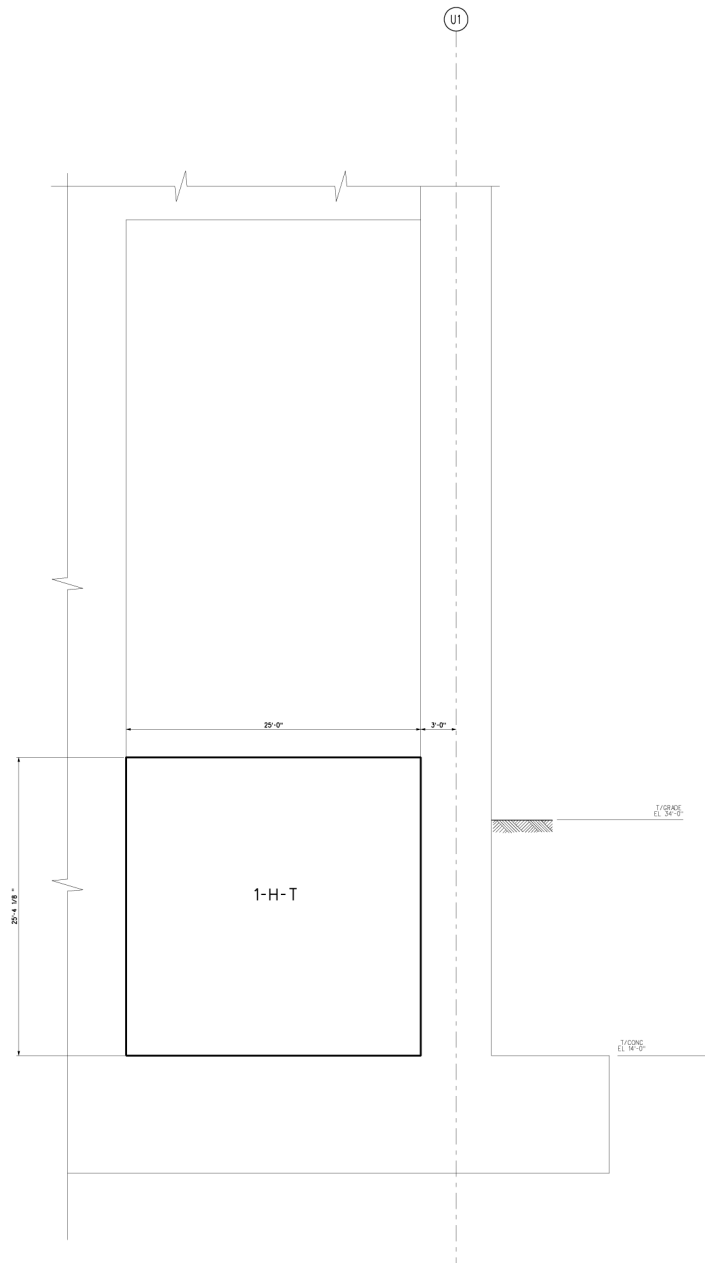
**Figure 3H.6-105 Basin East Buttress Looking North & Basin West Buttress Looking South
Horizontal Reinforcement Zones
Near and Far Side Faces**

Note: 1-H-L, unless noted otherwise.

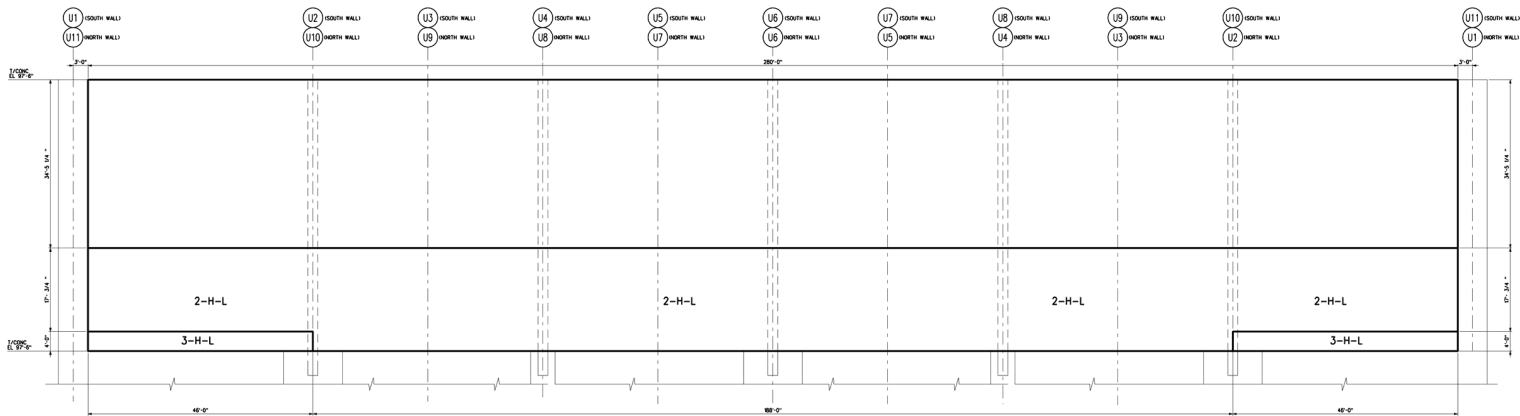


**Figure 3H.6-106 Basin East Buttress Looking North & Basin West Buttress Looking South
Vertical Reinforcement Zones
Near & Far Side Faces**

Note: 1-V-L, unless noted otherwise.

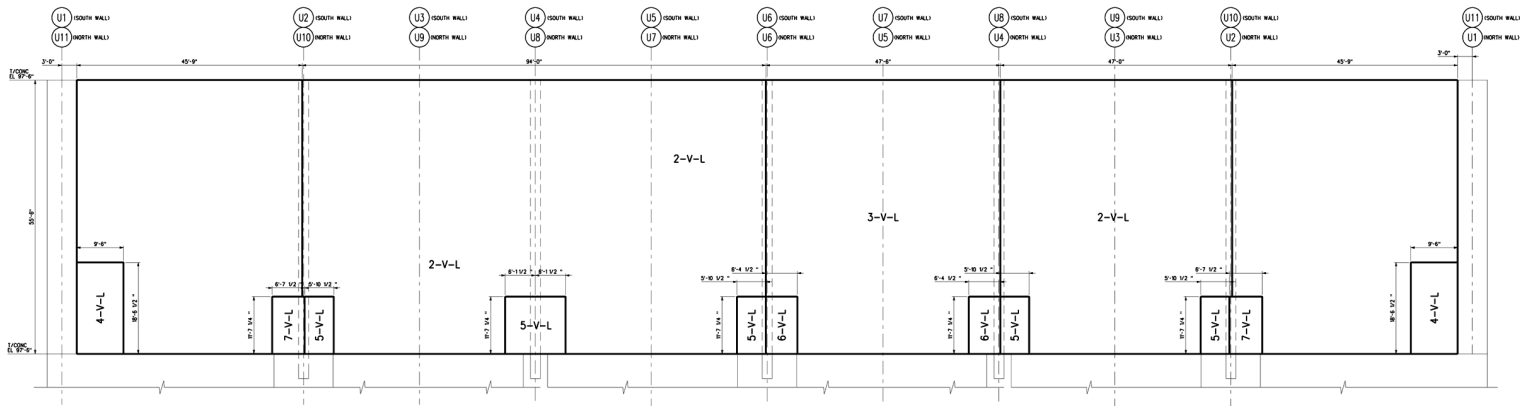


**Figure 3H.6-107 Basin East Buttress Looking North & Basin West Buttress Looking South
Transverse Horizontal Reinforcement Zones
Near & Far Side Faces**



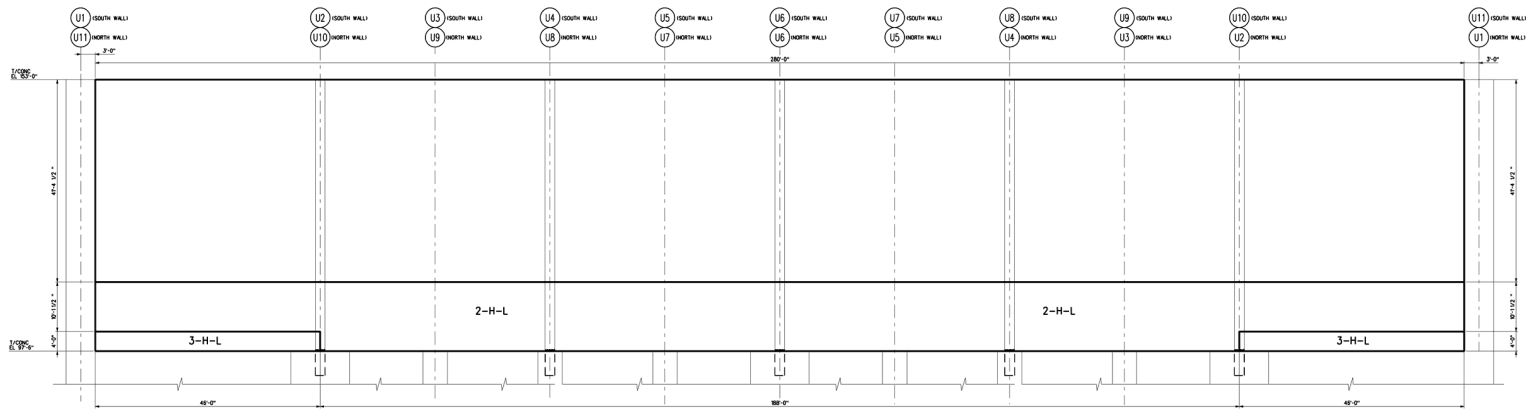
**Figure 3H.6-108 Fan North (and South) Wall Looking South (North)
Horizontal Reinforcement Zones
Near Side Face**

Note: 1-H-L, unless noted otherwise.



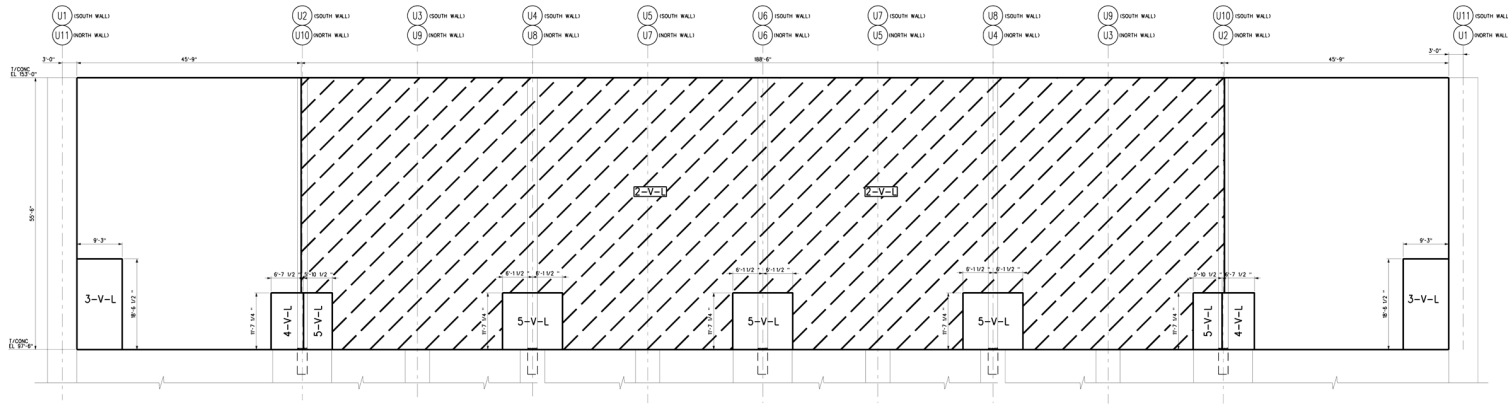
**Figure 3H.6-109 Fan North (and South) Wall Looking South (North)
Vertical Reinforcement Zones
Near Side Face**

Note: 1-V-L, unless noted otherwise.



**Figure 3H.6-110 Fan North (and South) Wall Looking South (North)
Horizontal Reinforcement Zones
Far Side Face**

Note: 1-H-L, unless noted otherwise.



**Figure 3H.6-111 Fan North (and South) Wall Looking South (North)
Vertical Reinforcement Zones
Far Side Face**

Note: 1-V-L, unless noted otherwise.

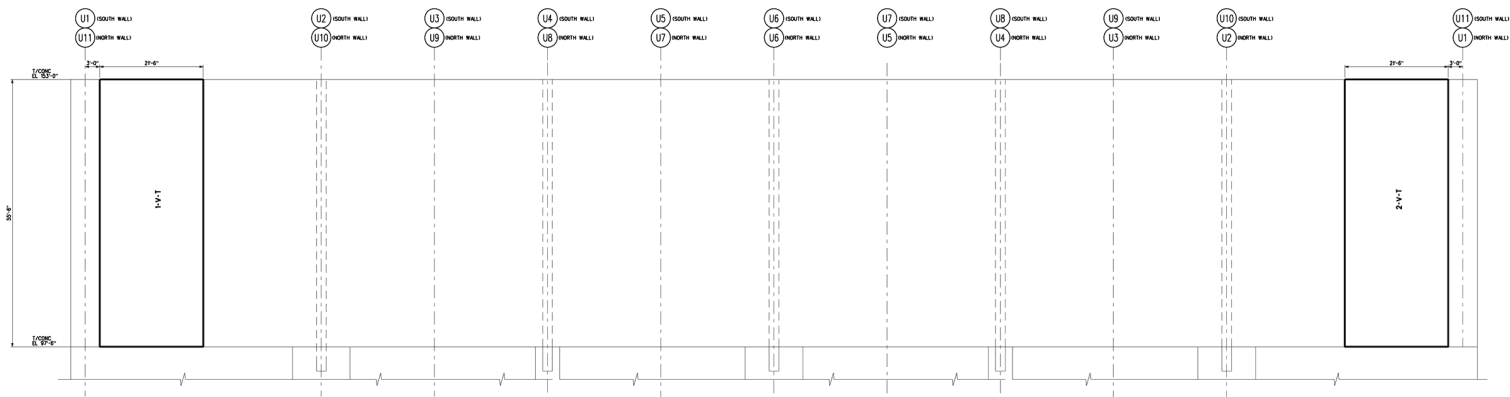
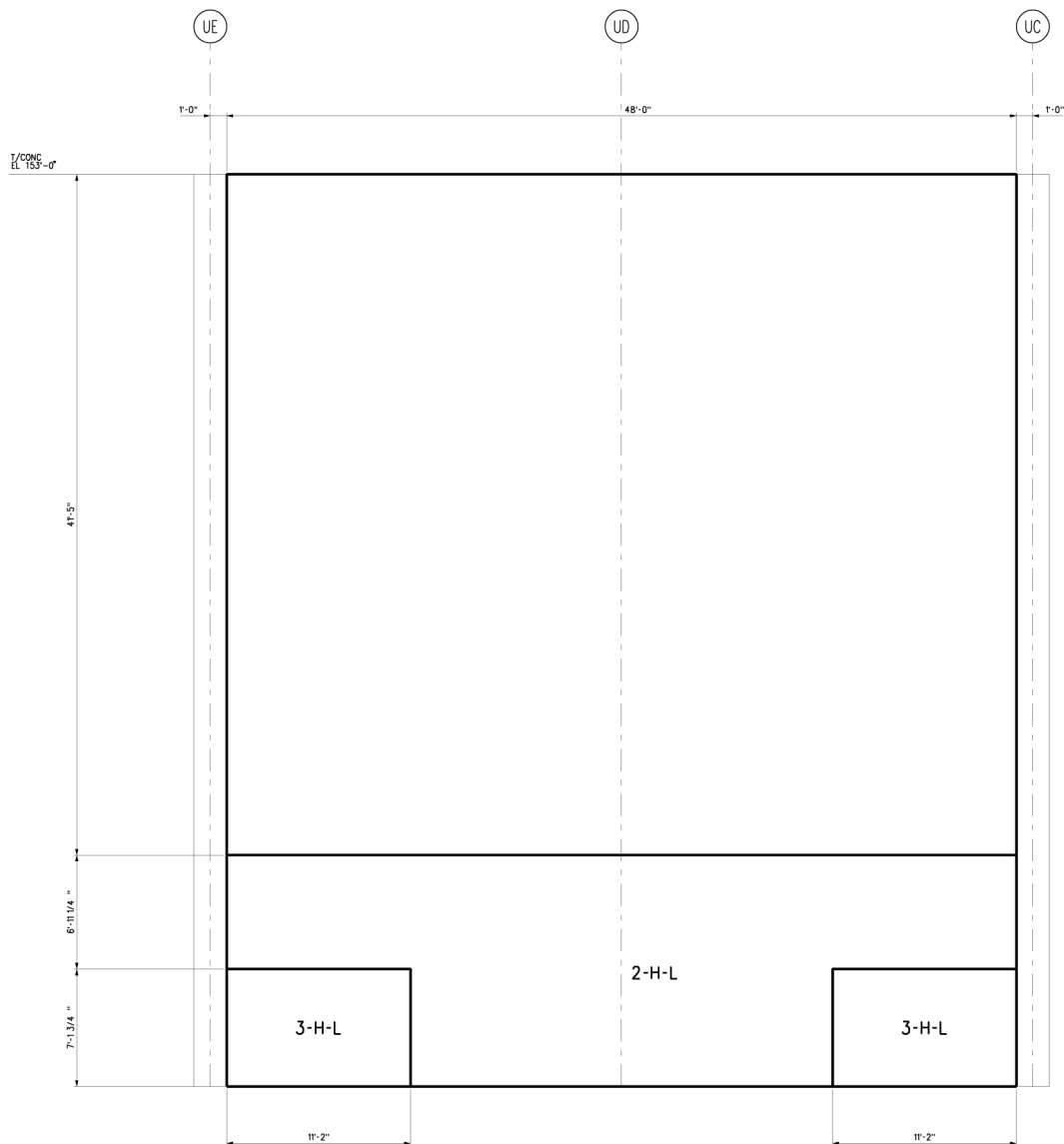
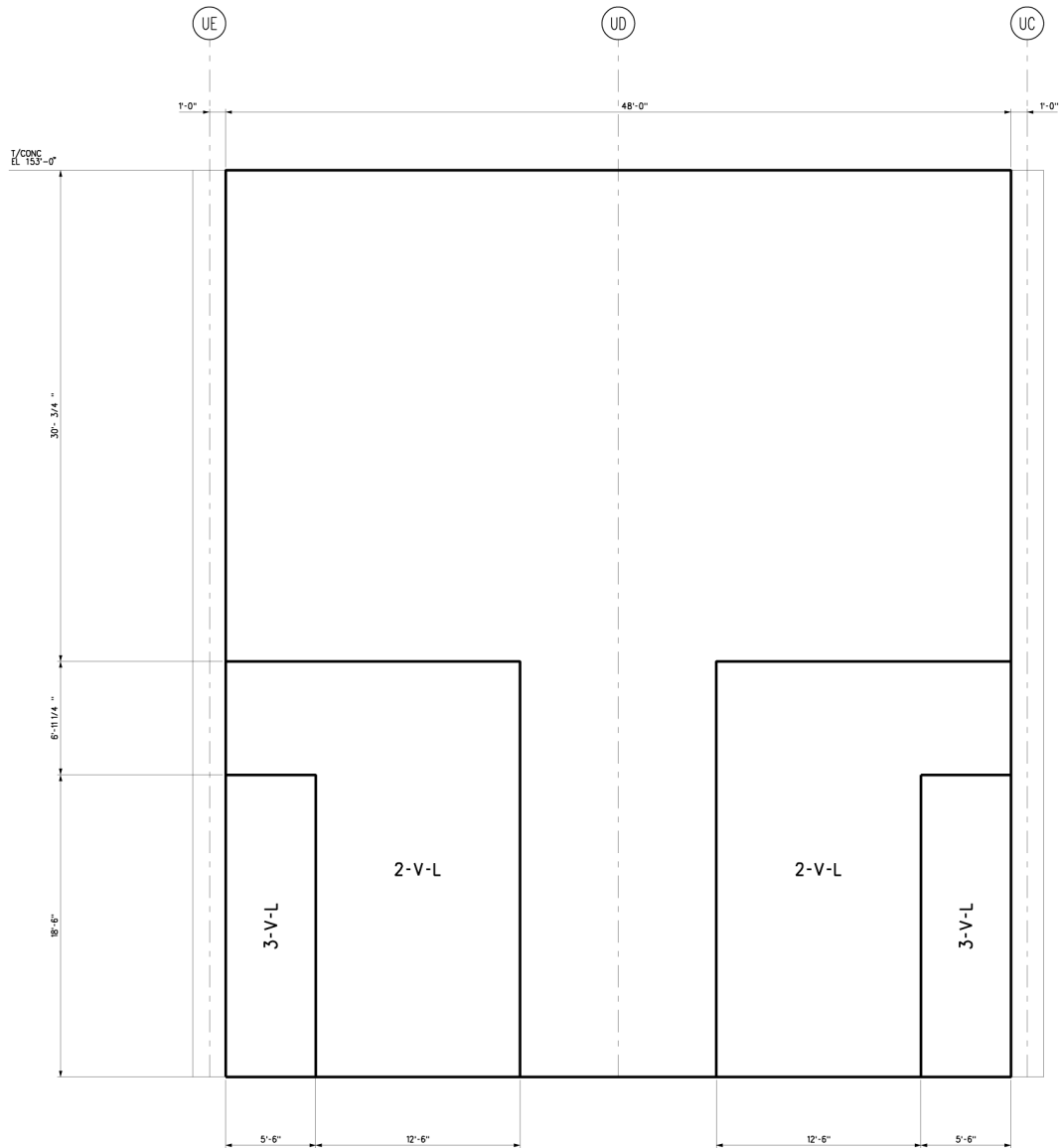


Figure 3H.6-112 Fan North Wall Looking South & South Wall Looking North
Transverse Vertical Reinforcement Zones



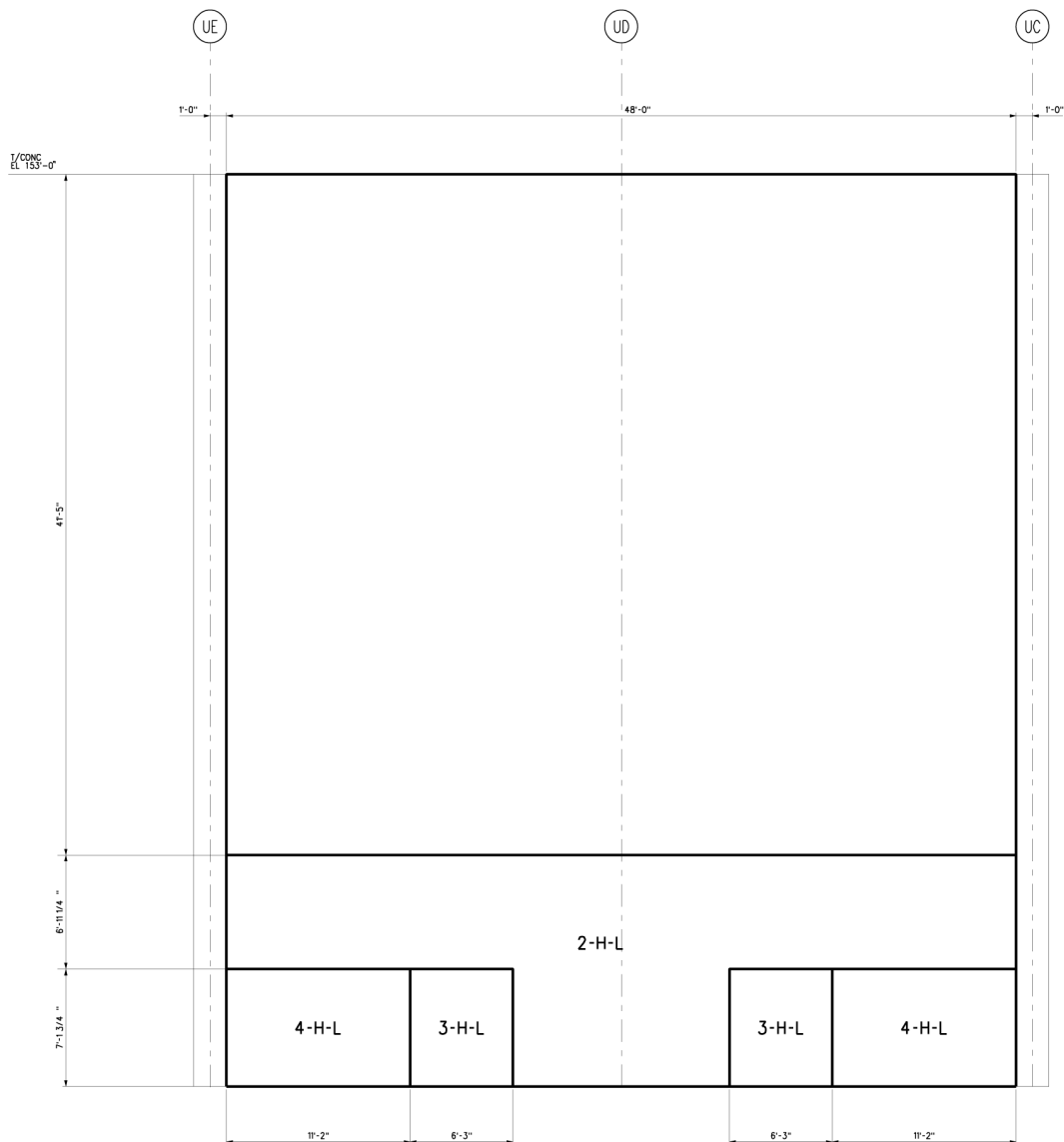
**Figure 3H.6-113 Fan Enclosure East Wall Looking West
Horizontal Reinforcement Zones
Near Side Face**

Note: 1-H-L, unless noted otherwise.



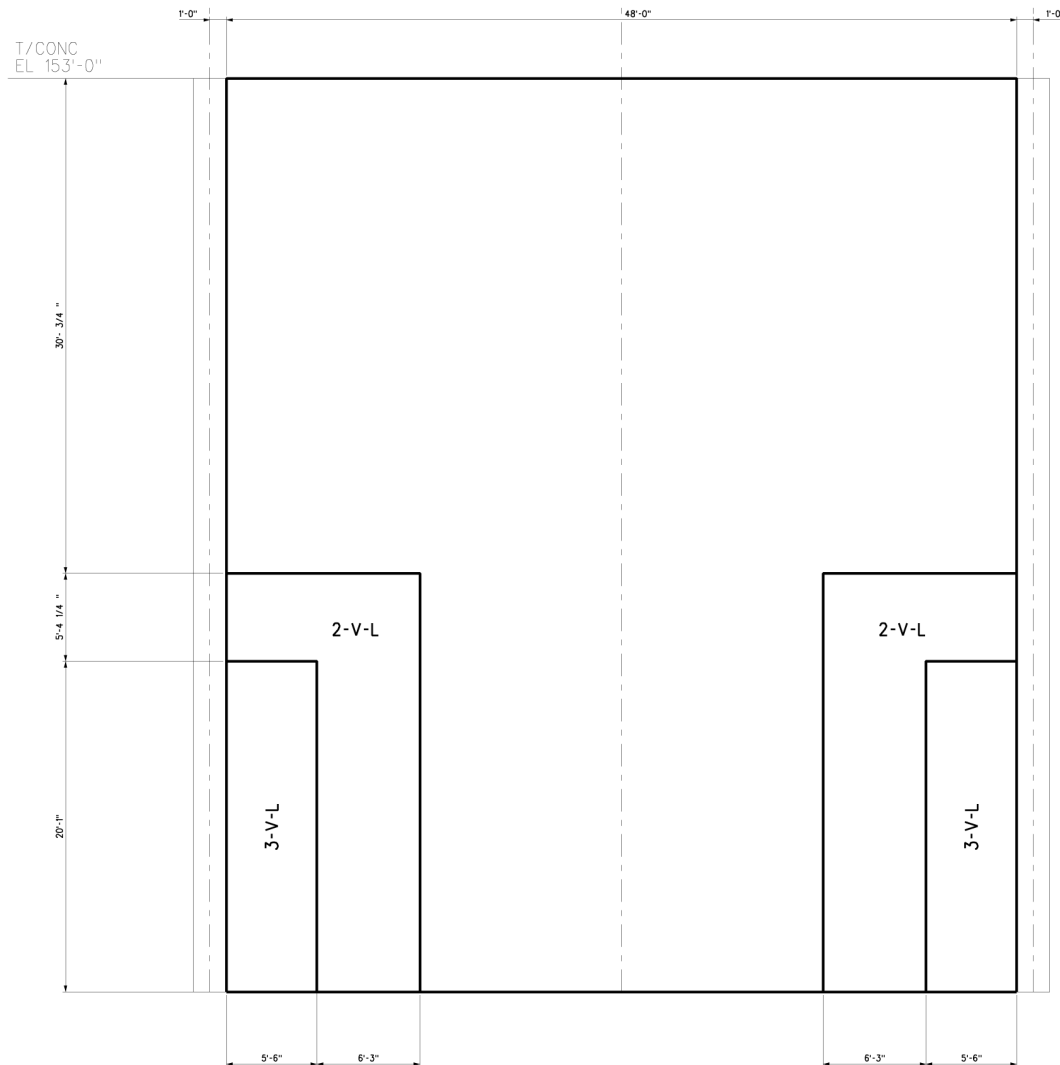
**Figure 3H.6-114 Fan Enclosure East Wall Looking West
Vertical Reinforcement Zones
Near Side Face**

Note: 1-V-L, unless noted otherwise.



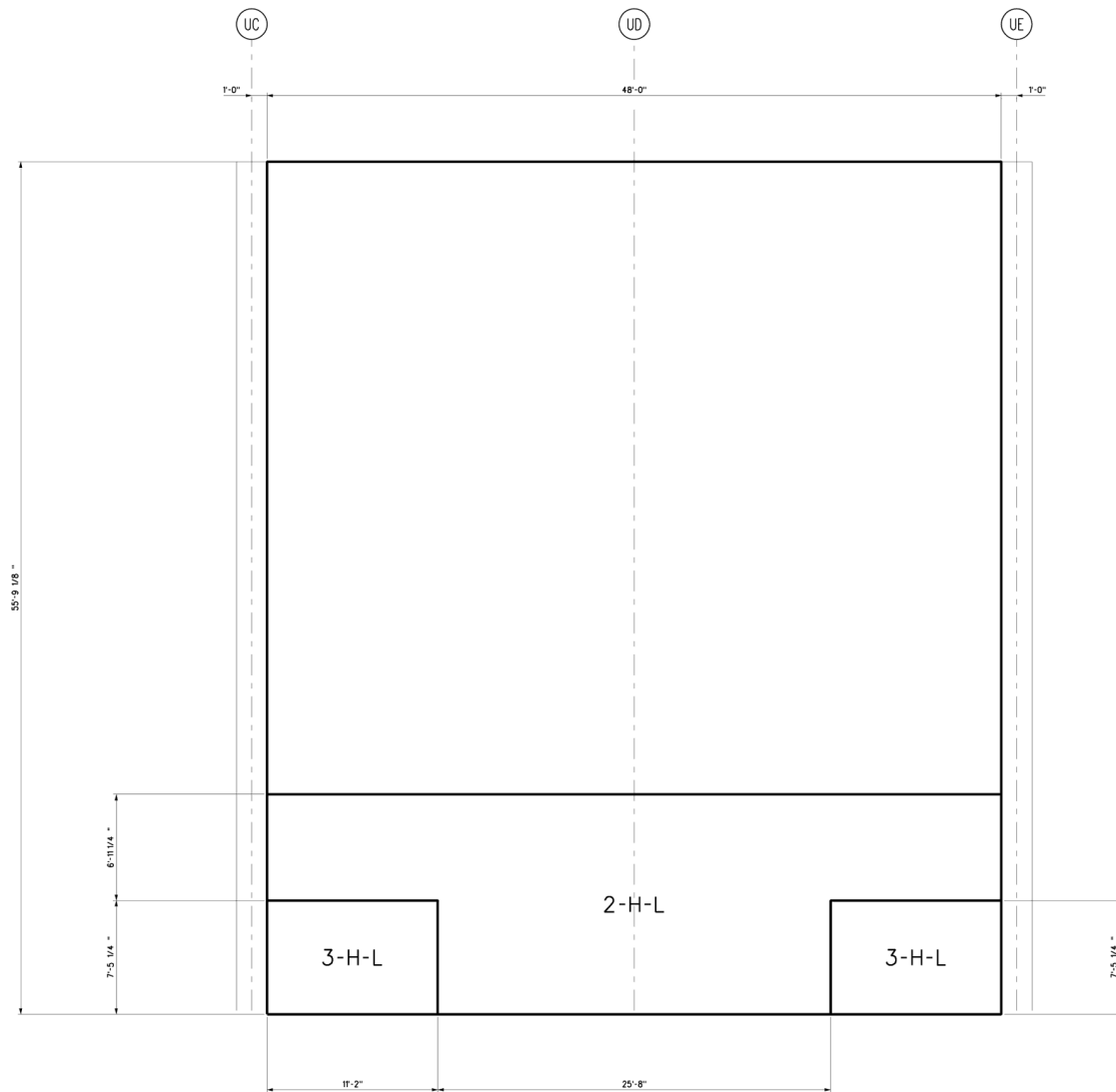
**Figure 3H.6-115 Fan Enclosure East Wall Looking West
Horizontal Reinforcement Zones
Far Side Face**

Note: 1-H-L, unless noted otherwise.



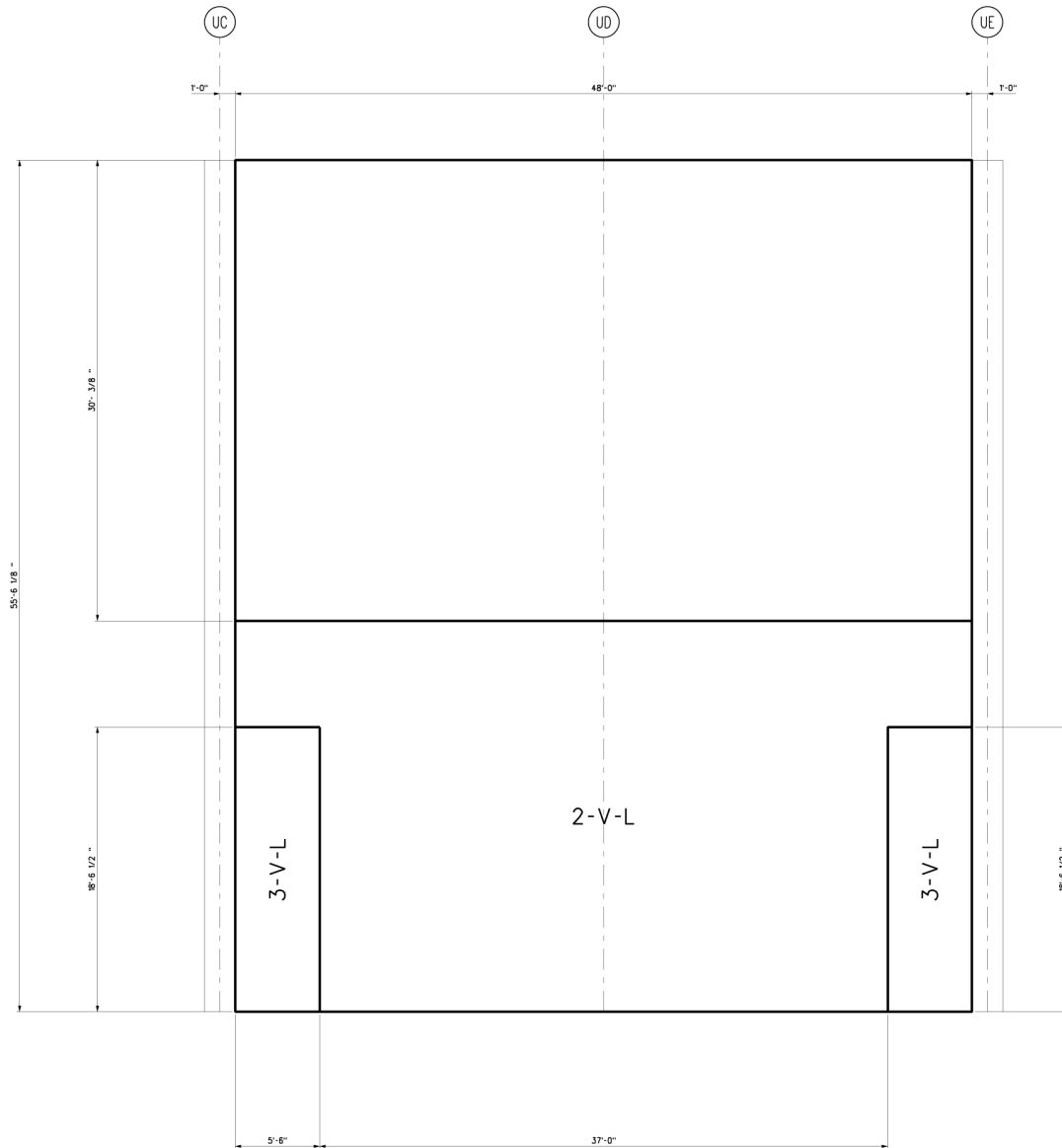
**Figure 3H.6-116 Fan Enclosure East Wall Looking West
Vertical Reinforcement Zones
Far Side Face**

Note: 1-V-L, unless noted otherwise.



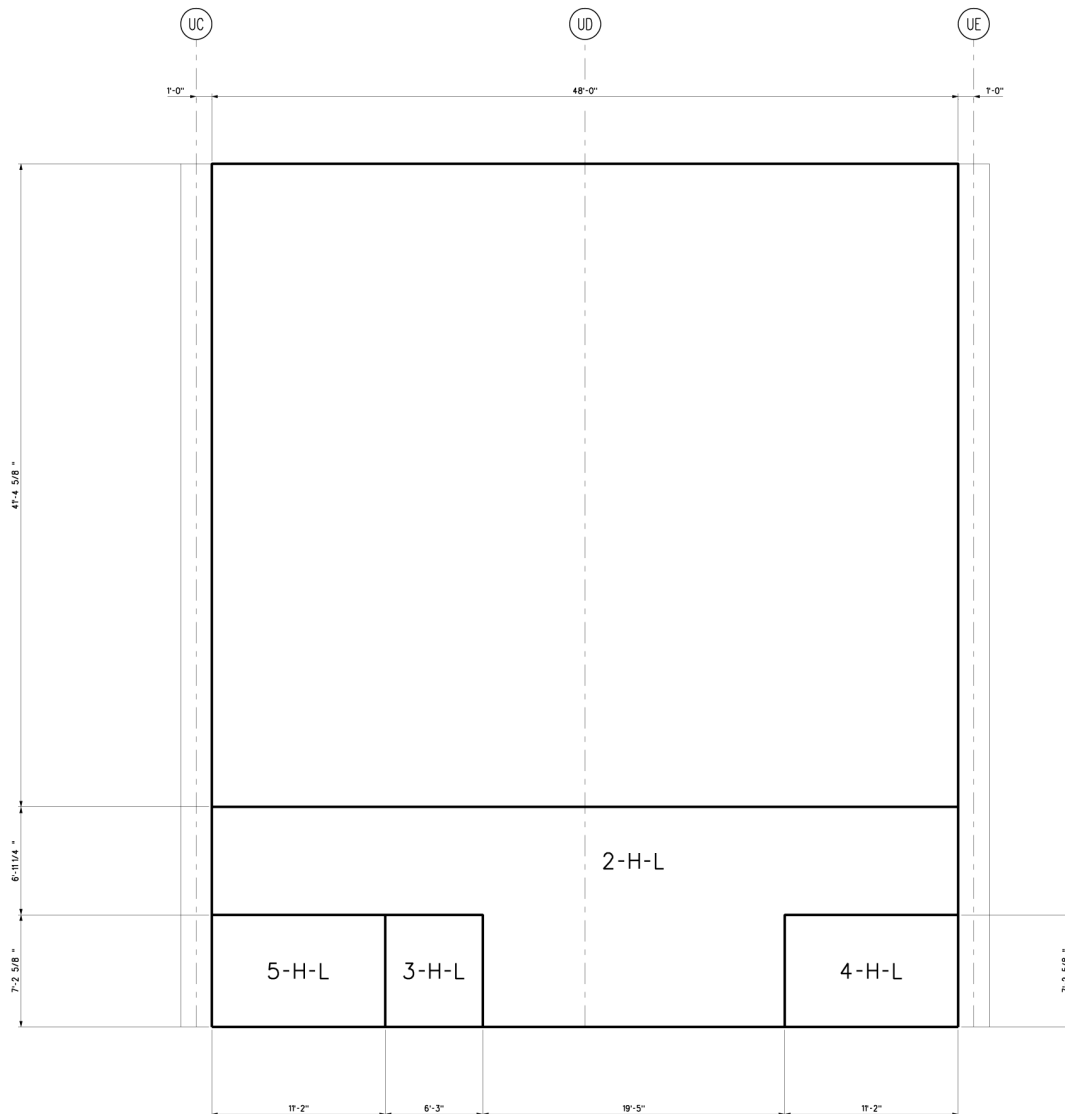
**Figure 3H.6-117 Fan West Wall Looking East
Horizontal Reinforcement Zones
Near Side Face**

Note: 1-H-L, unless noted otherwise.



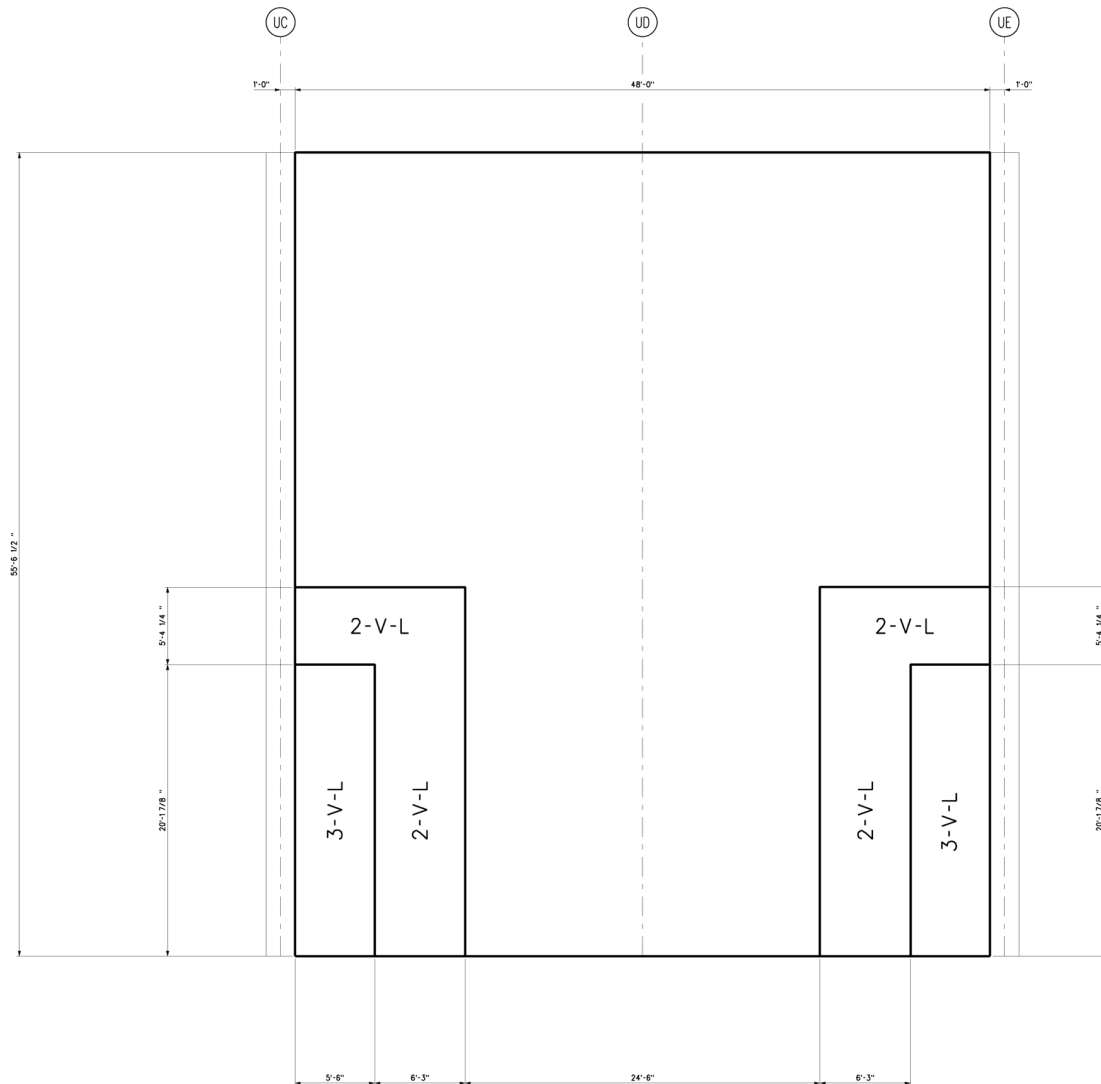
**Figure 3H.6-118 Fan West Wall Looking East
Vertical Reinforcement Zones
Near Side Face**

Note: 1-V-L, unless noted otherwise.



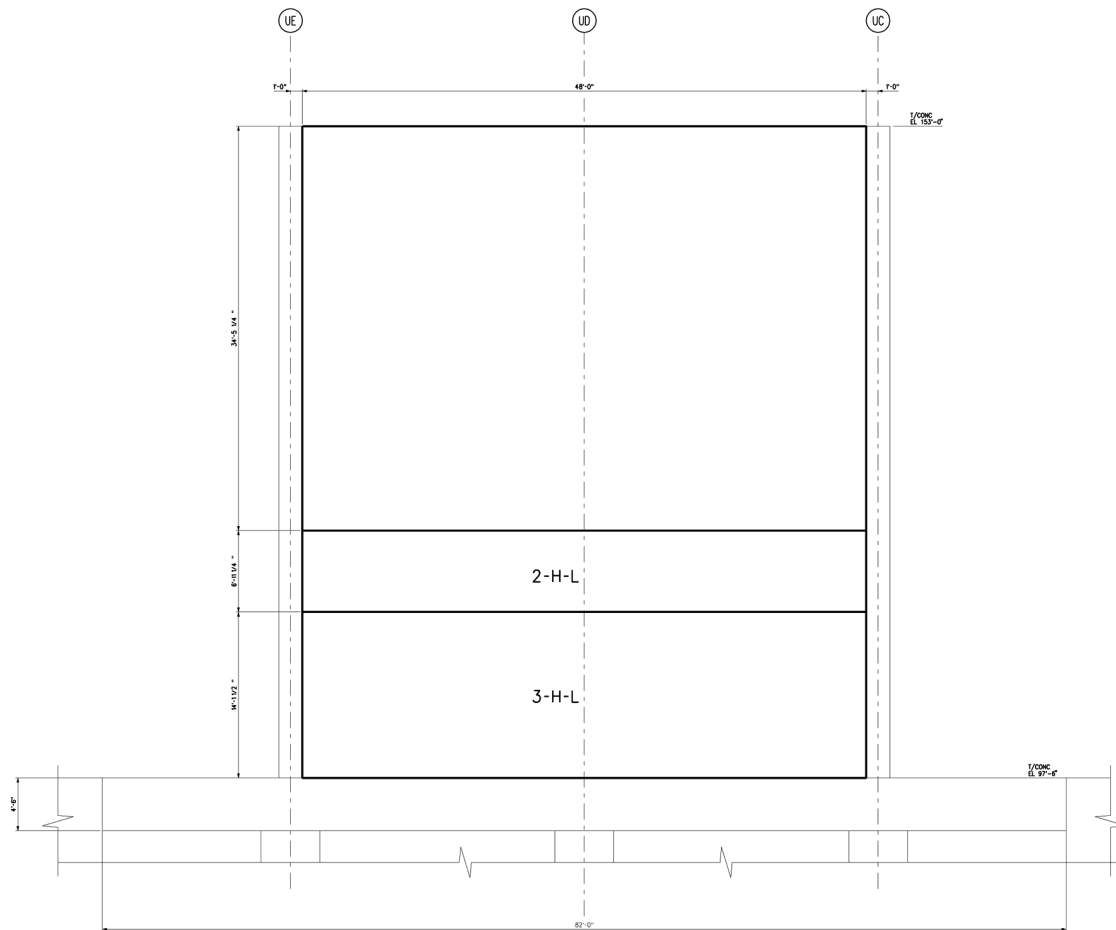
**Figure 3H.6-119 Fan West Wall Looking East
Horizontal Reinforcement Zones
Far Side Face**

Note: 1-H-L, unless noted otherwise.



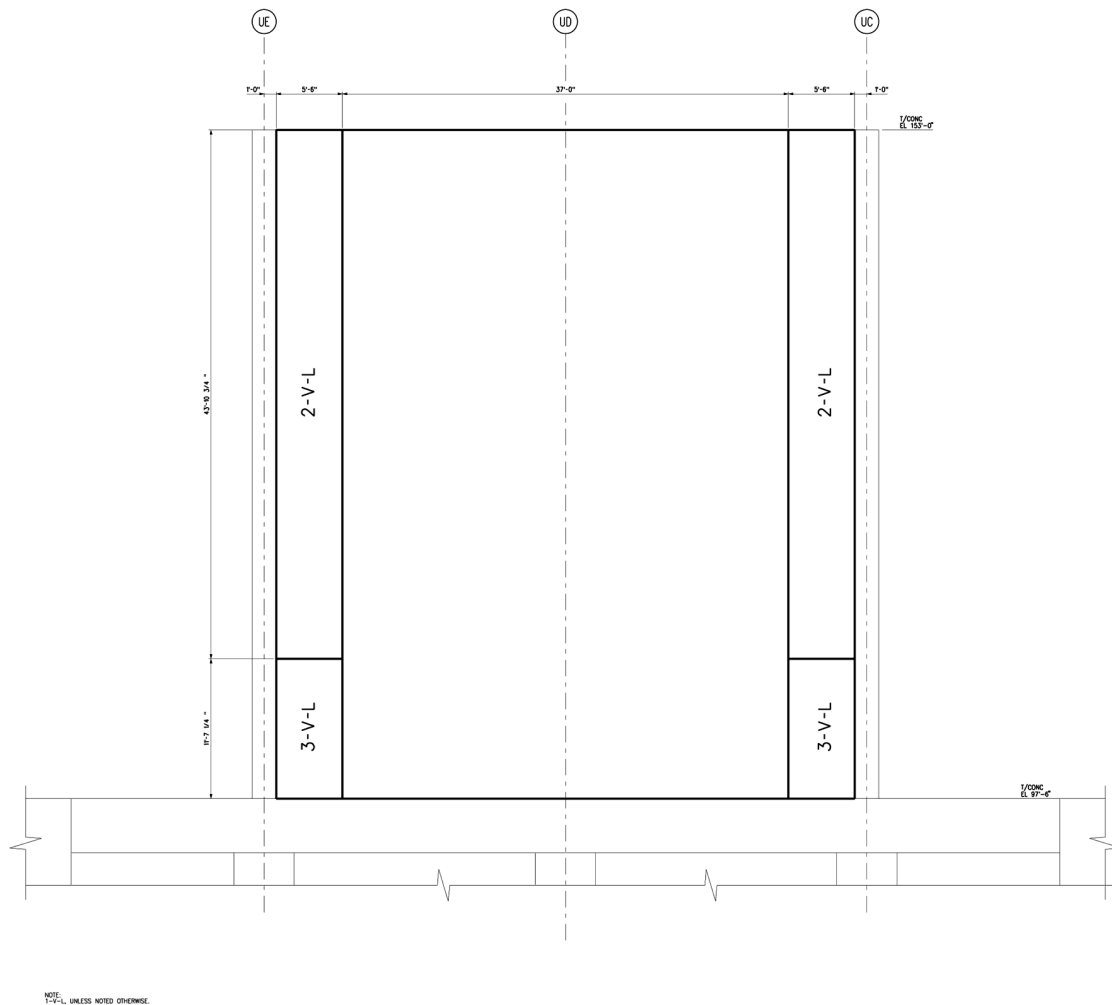
**Figure 3H.6-120 Fan West Wall Looking East
Vertical Reinforcement Zones
Far Side Face**

Note: 1-V-L, unless noted otherwise.

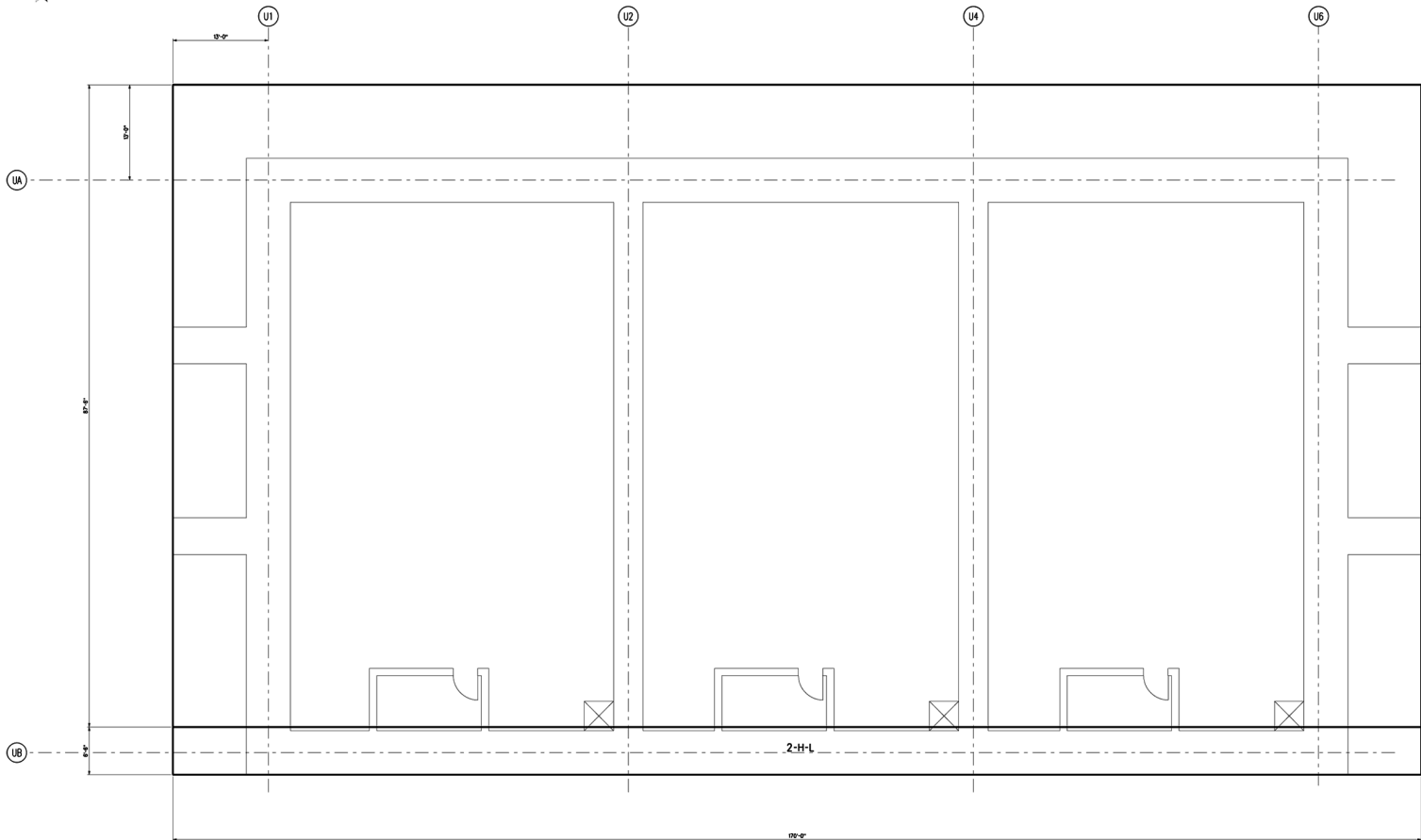


**Figure 3H.6-121 Fan Internal Wall Looking West
Horizontal Reinforcement Zones
Near and Far Side Faces**

Note: 1-H-L, unless noted otherwise.



**Figure 3H.6-122 Fan Internal Wall Looking West
Vertical Reinforcement Zones
Near and Far Side Faces**



**Figure 3H.6-123 Pumphouse Mat
East/West Reinforcement Zones
Top Face**

Note: 1-H-L, unless noted otherwise.

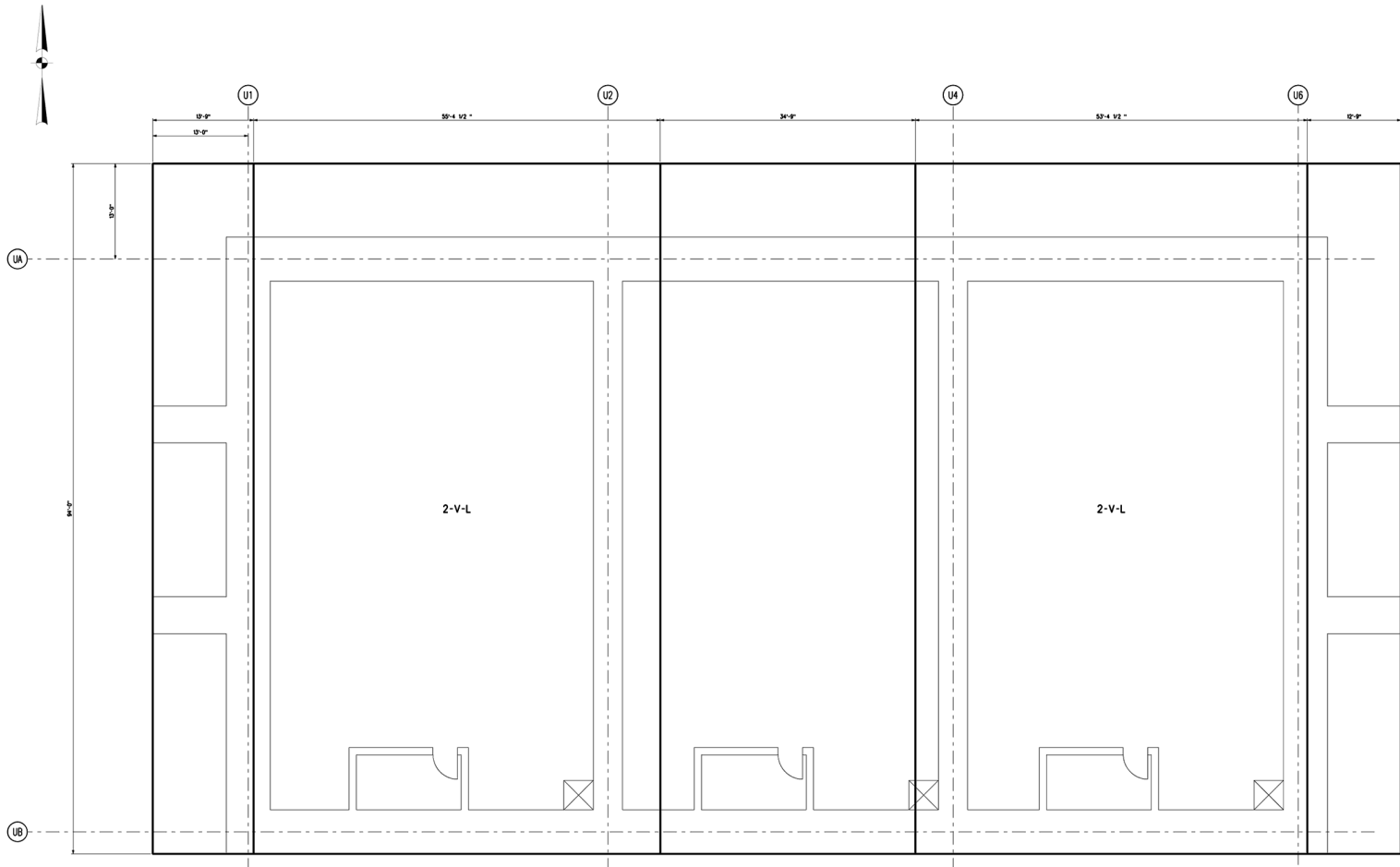
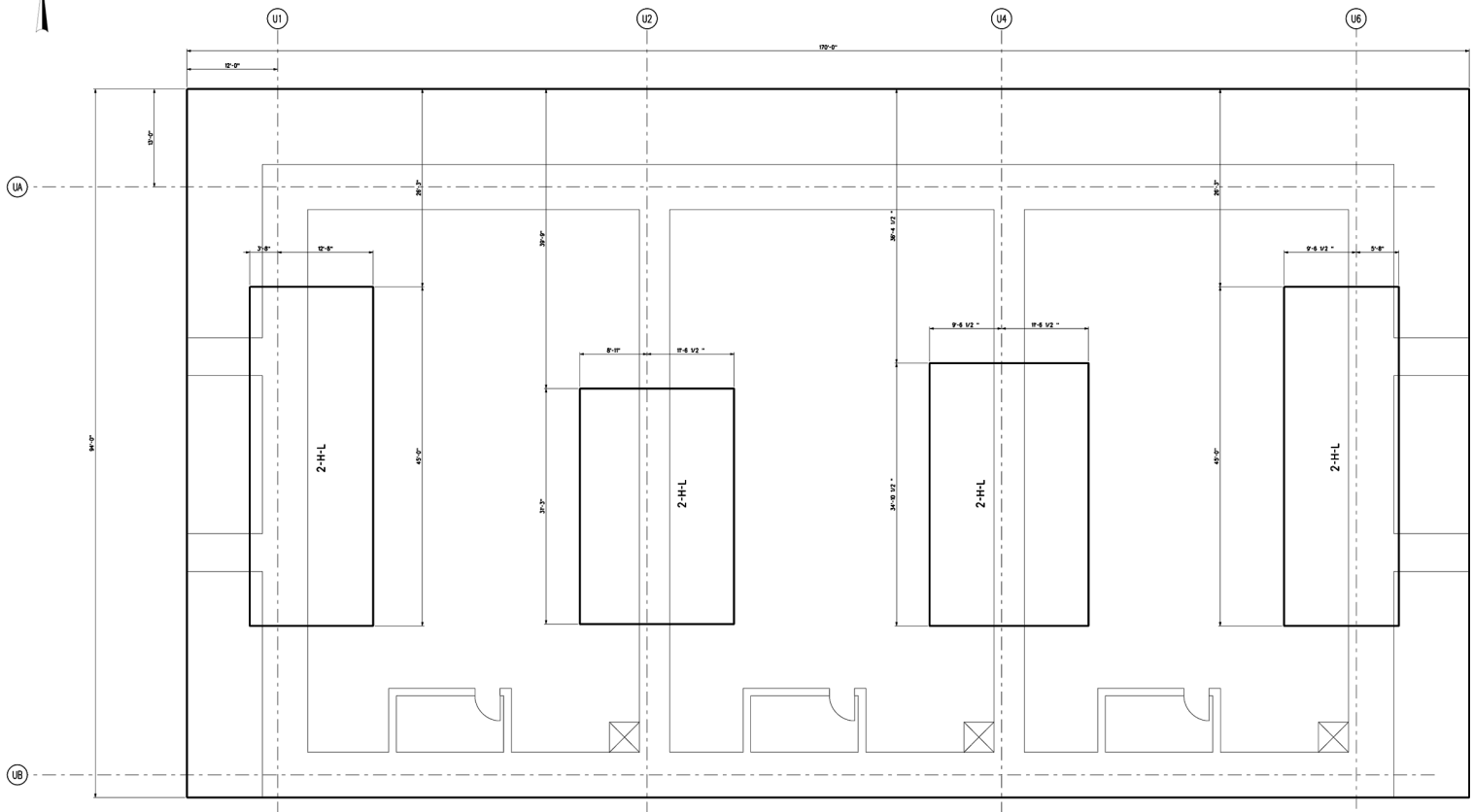


Figure 3H.6-124 Pumphouse Mat
North/South Reinforcement Zones
Top Face

Note: 1-V-L, unless noted otherwise.



**Figure 3H.6-125 Pumphouse Mat
East/West Reinforcement Zones
Bottom Face**

Note: 1-H-L, unless noted otherwise.

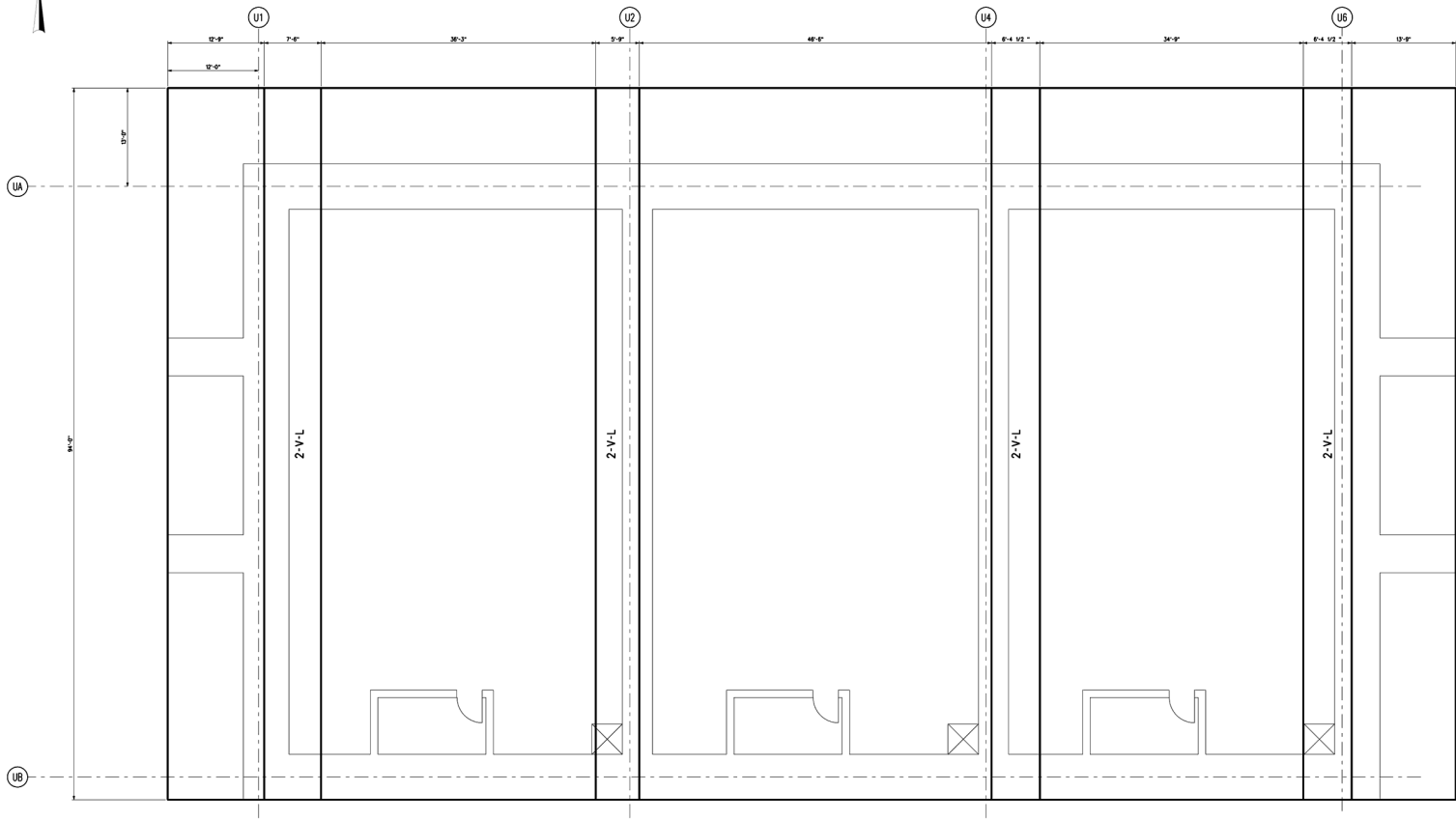


Figure 3H.6-126 Pumphouse Mat
North/South Reinforcement Zones
Bottom Face

Note: 1-V-L, unless noted otherwise.

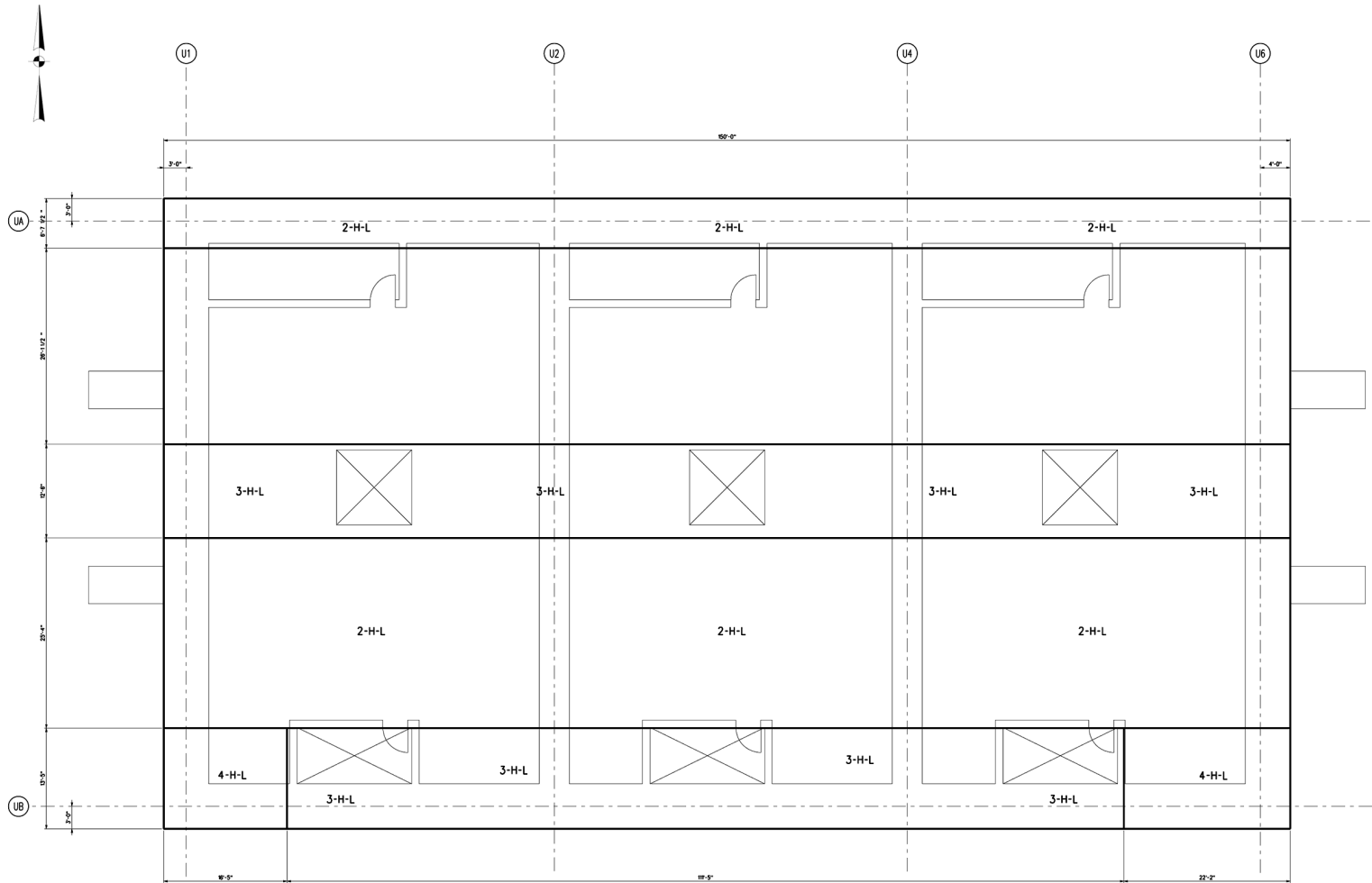


Figure 3H.6-127 Pumphouse Floor El 14'-0"
East/ West Reinforcement Zones
Top and Bottom Faces

Note: 1-H-L, unless noted otherwise.

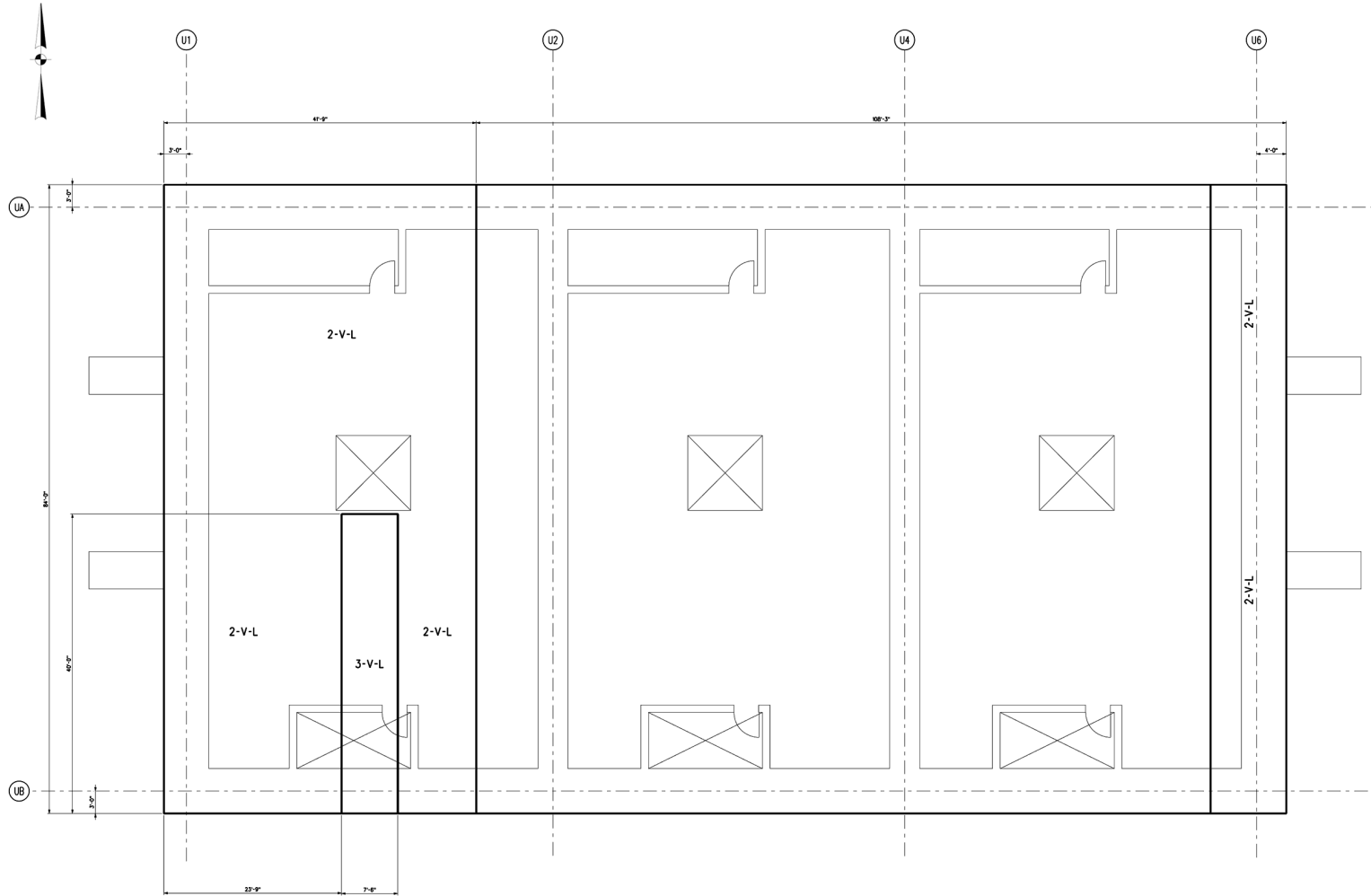


Figure 3H.6-128 Pumhouse Floor EI 14'-0"
North/South Reinforcement Zones
Top and Bottom Faces

Note: 1-V-L, unless noted otherwise.

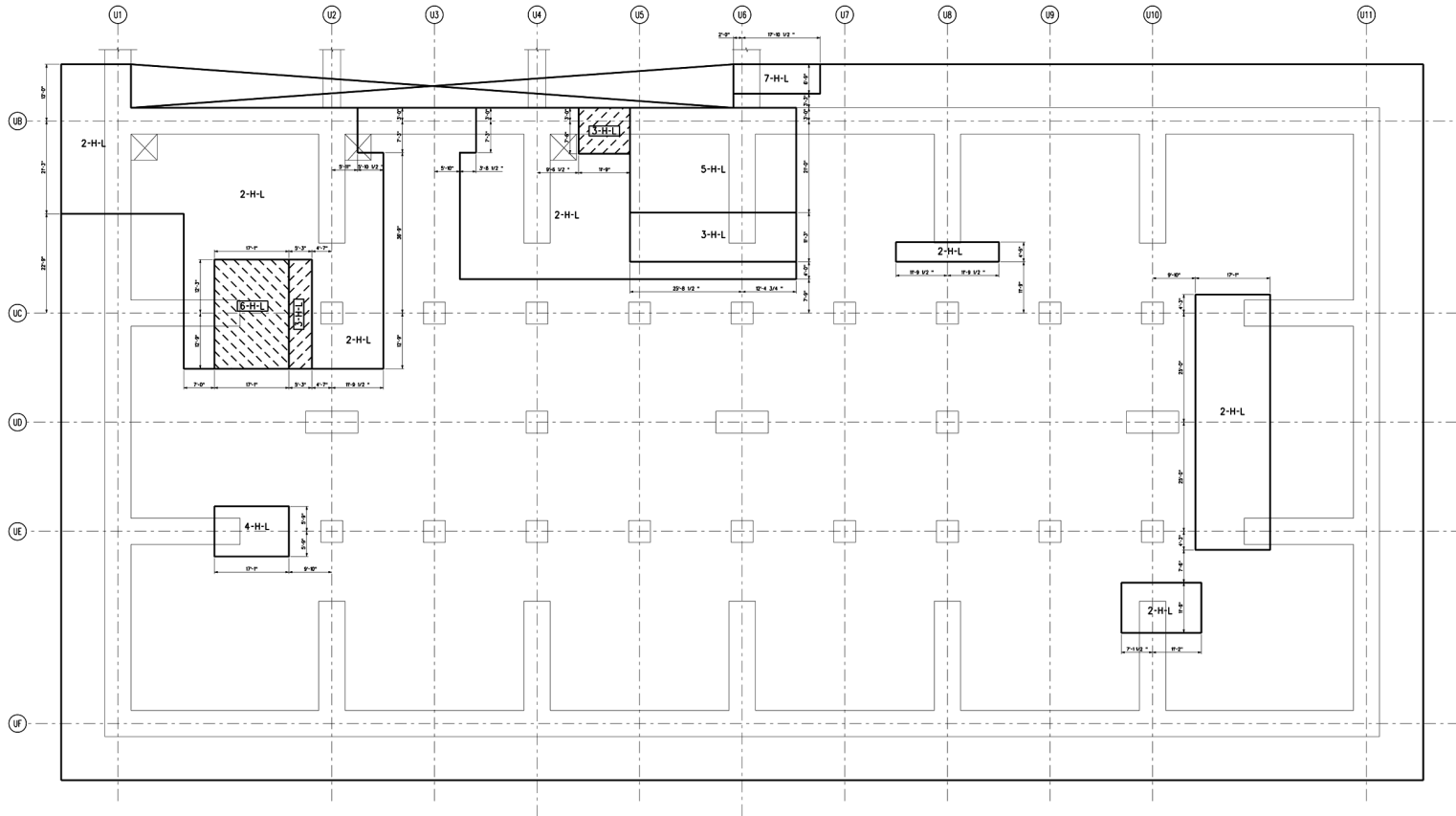
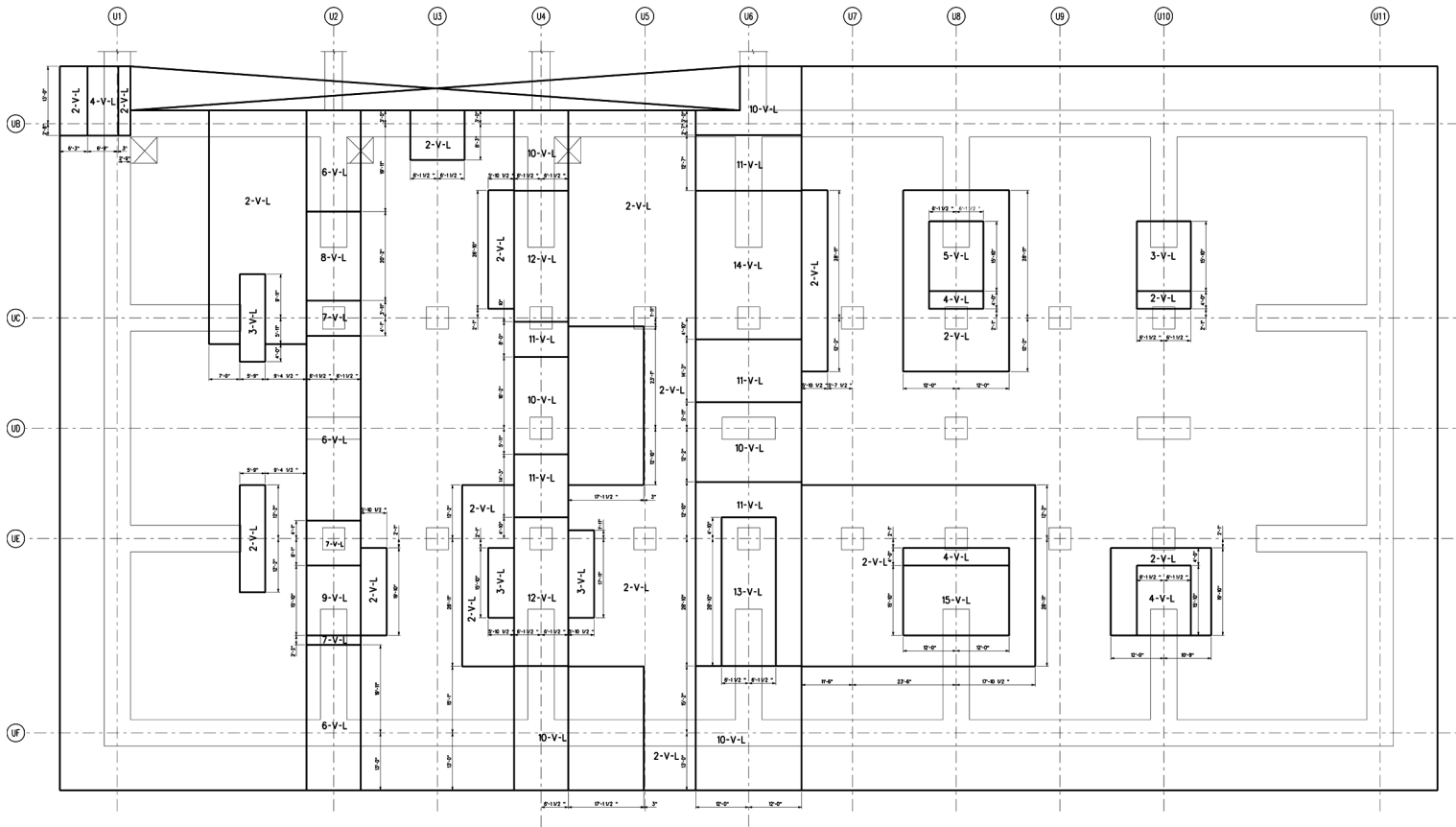


Figure 3H.6-129 Ultimate Heat Sink Basin Base Mat Plan
East/West Reinforcement Zones
Top Face

Note: 1-H-L, unless noted otherwise.



**Figure 3H.6-130 Ultimate Heat Sink Basin Base Mat Plan
North/South Reinforcement Zones
Top Face**

Note: 1-V-L, unless noted otherwise.

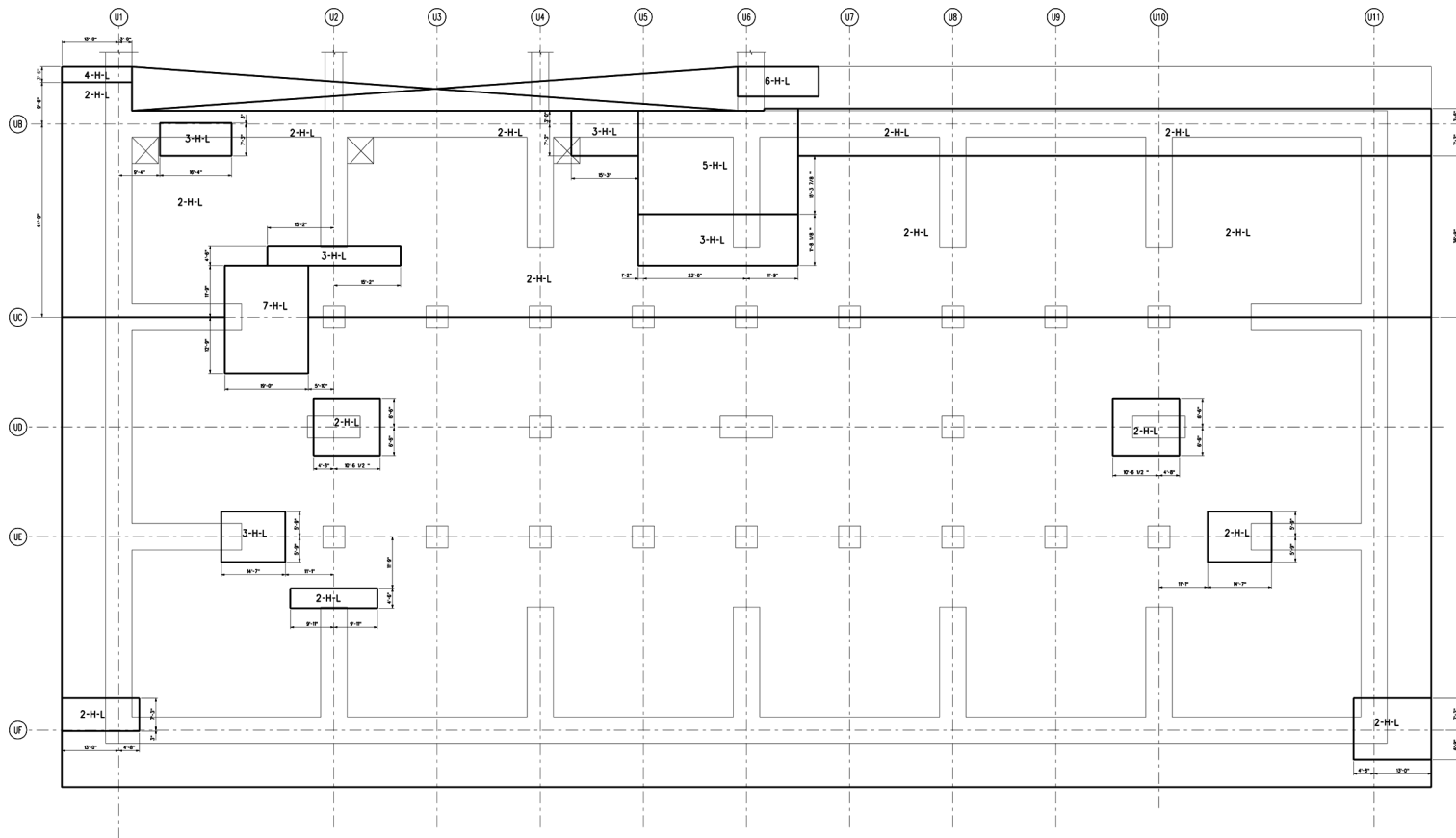
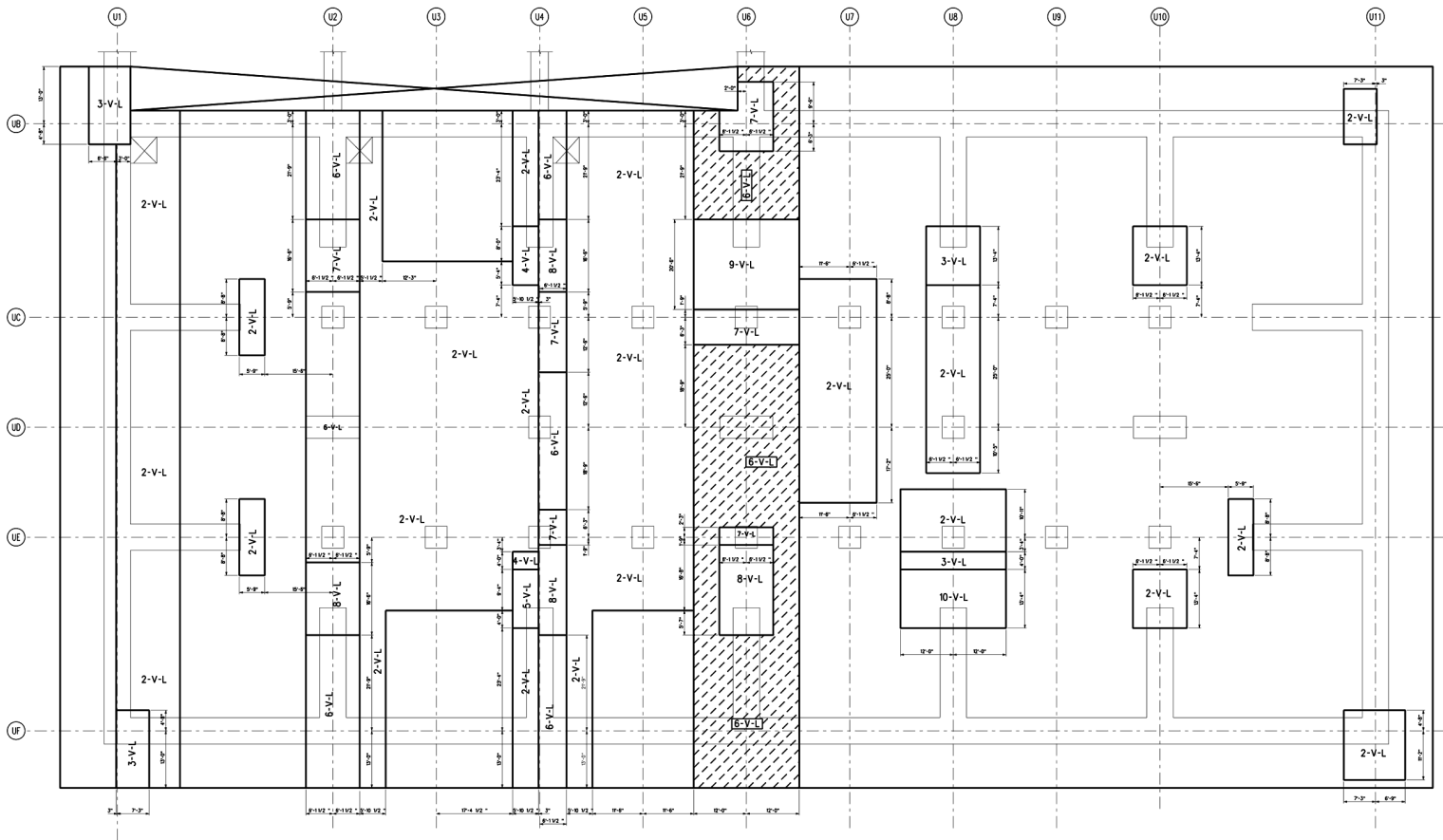


Figure 3H.6-131 Ultimate Heat Sink Basin Base Mat Plan
East/West Reinforcement Zones
Bottom Face

Note: 1-H-L, unless noted otherwise.



**Figure 3H.6-132 Ultimate Heat Sink Basin Base Mat Plan
North/South Reinforcement Zones
Bottom Face**

Note: 1-V-L, unless noted otherwise.

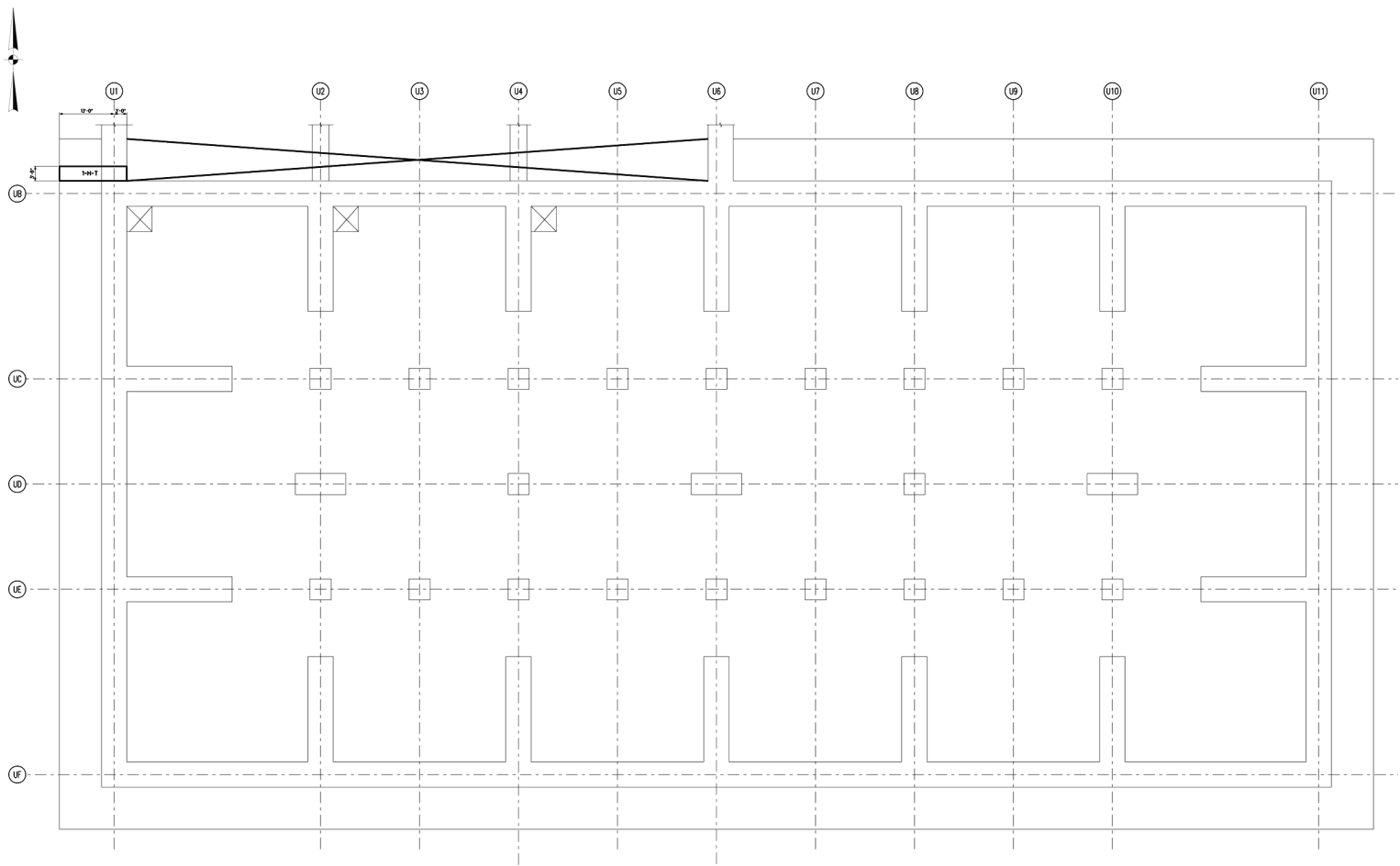
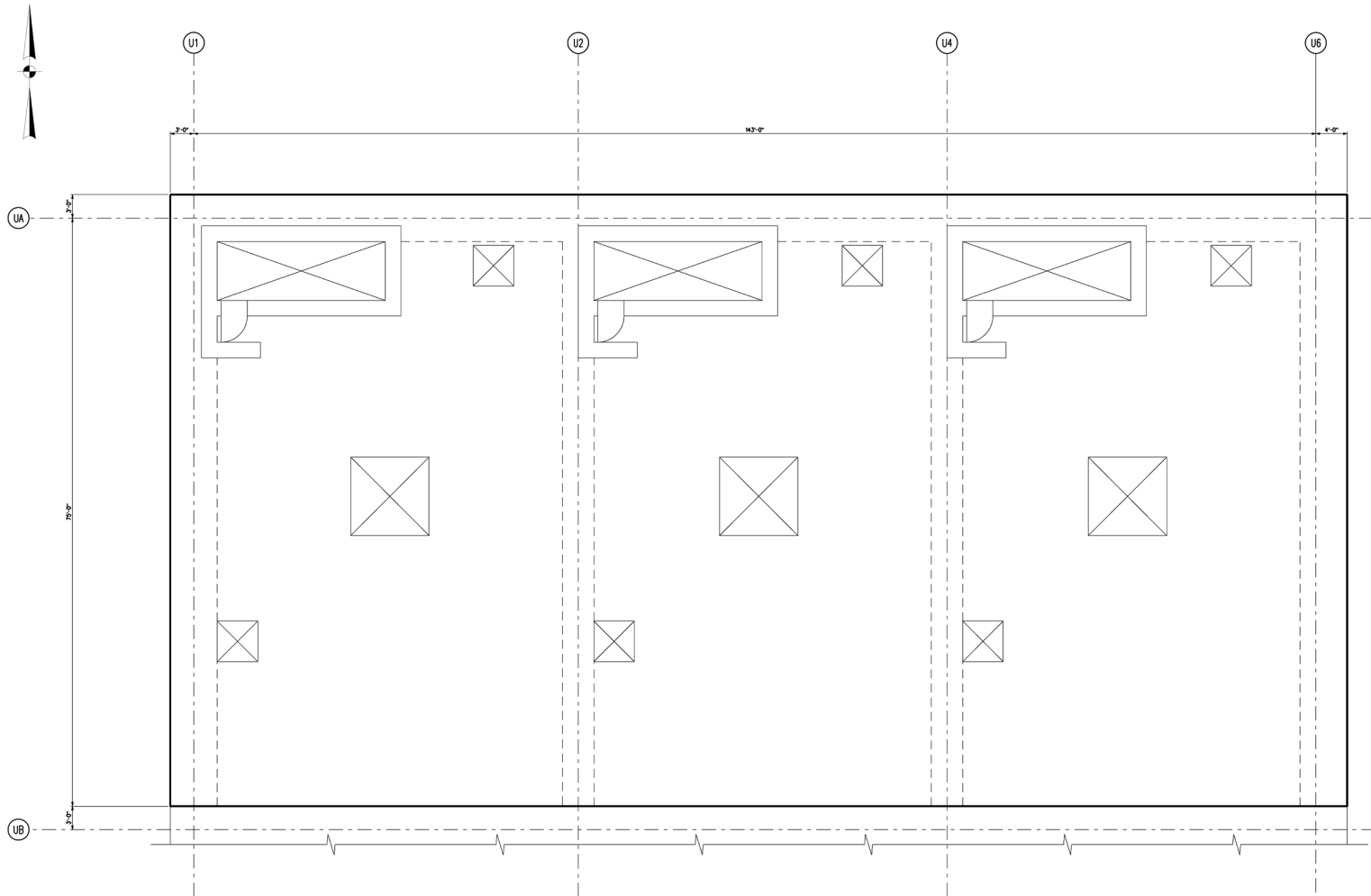
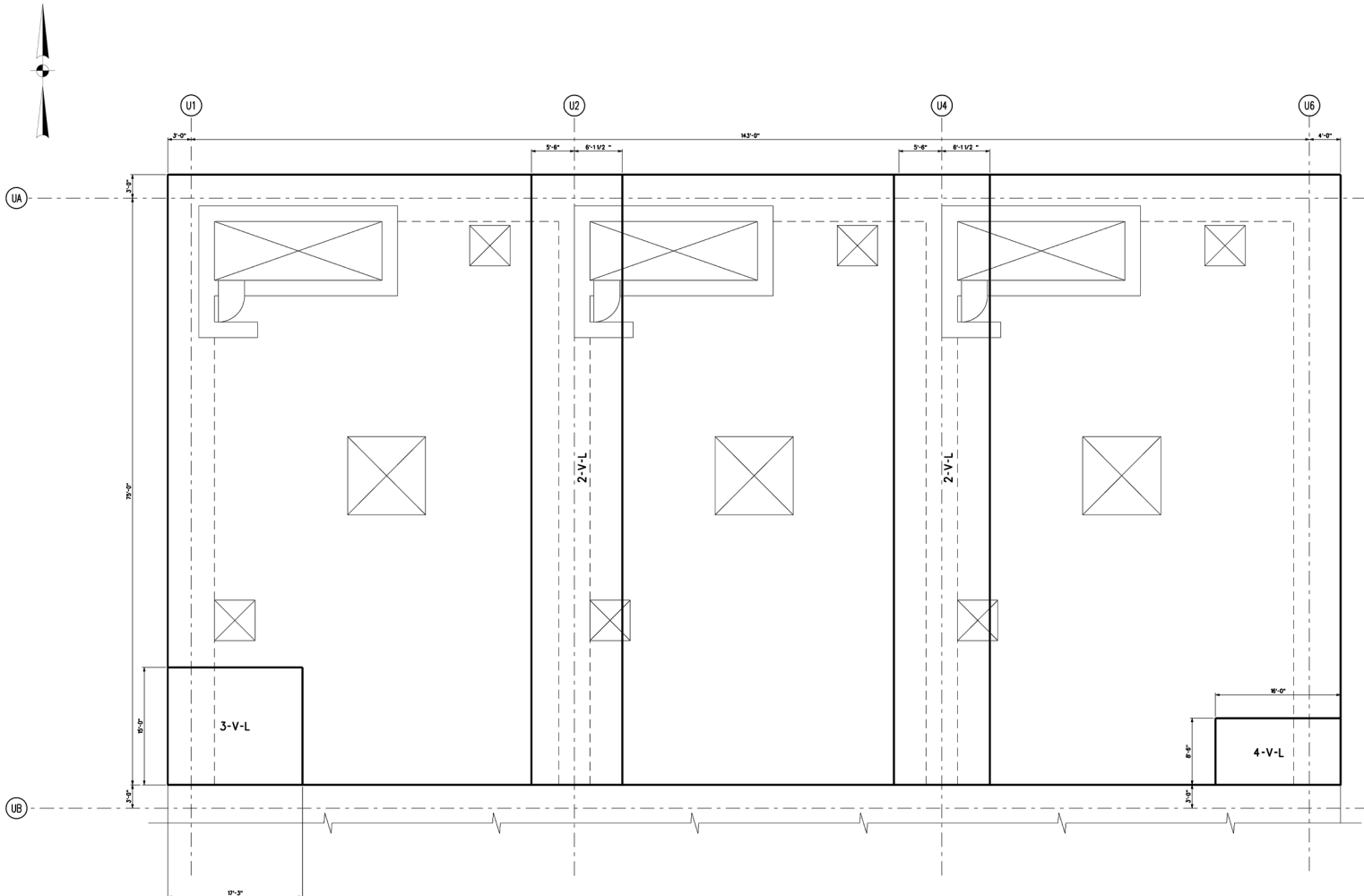


Figure 3H.6-133 Ultimate Heat Sink Basin Base Mat Plan
Transverse Horizontal Reinforcement Zones



**Figure 3H.6-134 Pumphouse Roof
East/West Reinforcement Zones
Top Face**

Note: 1-H-L, unless noted otherwise.



**Figure 3H.6-135 Pumphouse Roof
North/South Reinforcement Zones
Top Face**

Note: 1-V-L, unless noted otherwise.

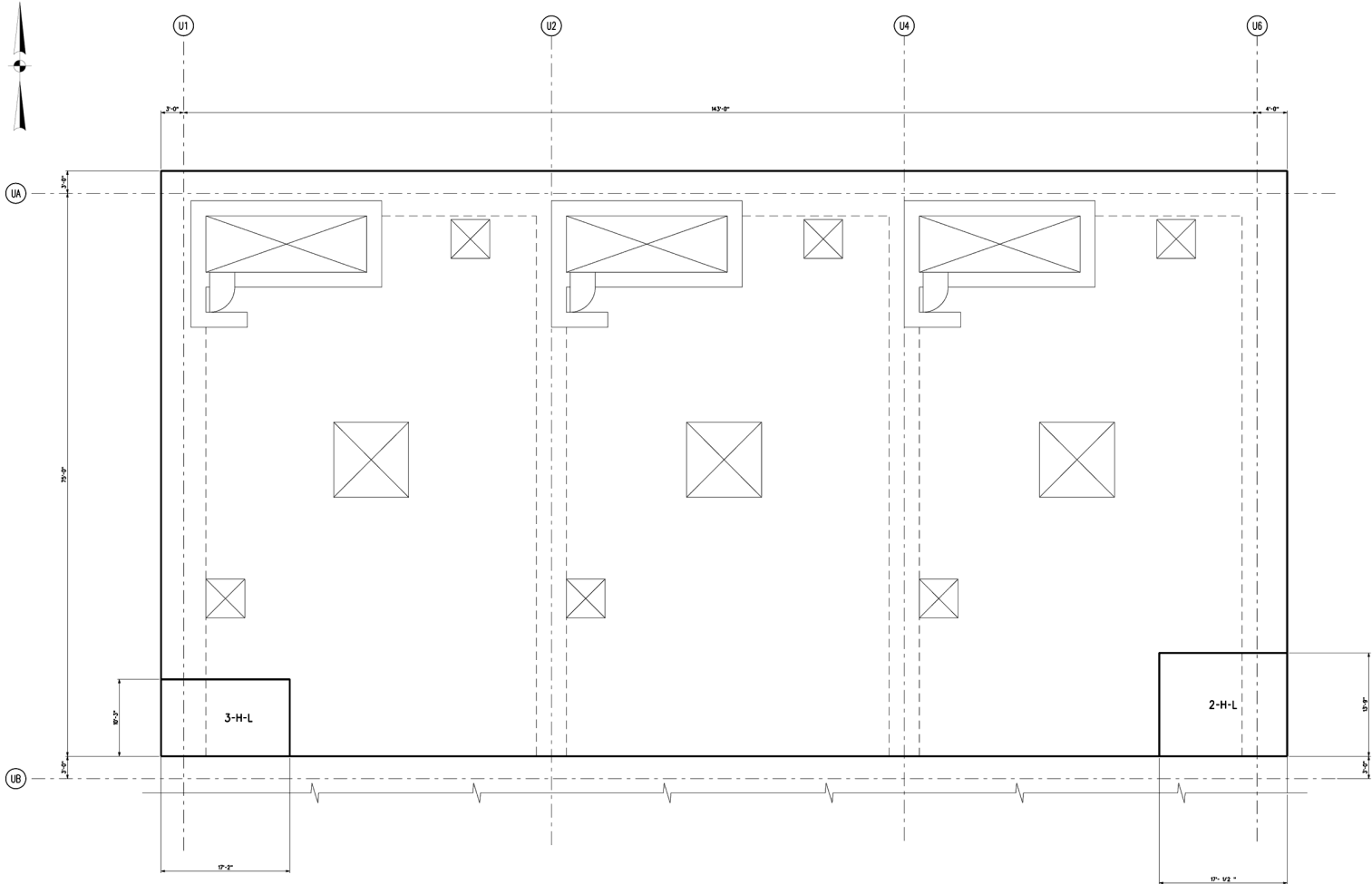
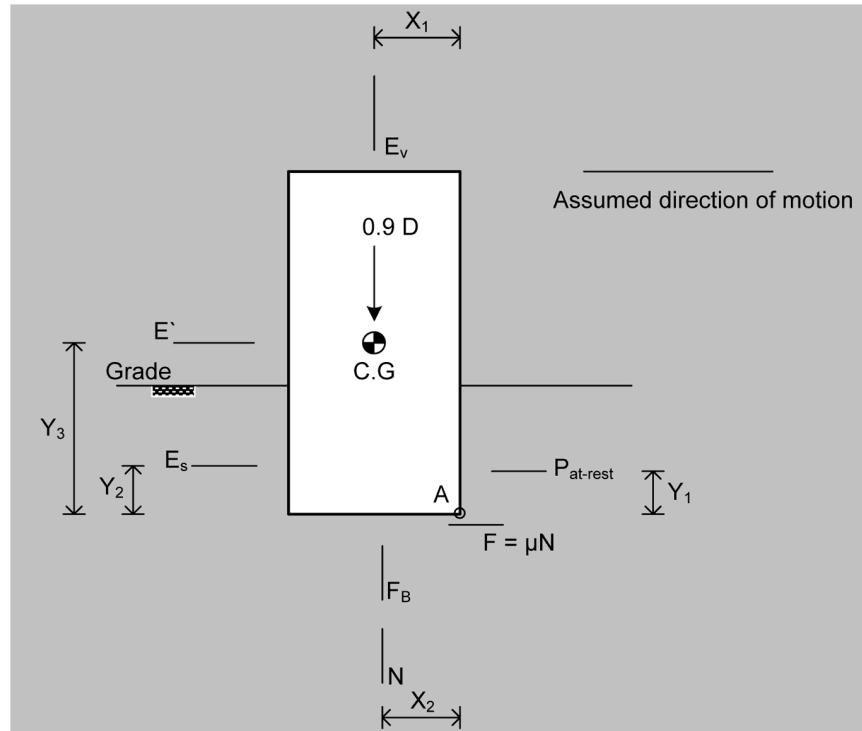


Figure 3H.6-136 Pumphouse Roof
East/West Reinforcement Zones
Bottom Face

Note: 1-H-L, unless noted otherwise.



Factors of Safety against Sliding and Overturning about point A are calculated as follows:

$$SF_{\text{sliding}} = \frac{P_{\text{at_rest}} + F}{E_s + E'}$$

$$SF_{\text{OT_A}} = \frac{(P_{\text{at_rest}})(Y_1) + (0.9D)(X_1)}{(F_B)(X_2) + (E_s)(Y_2) + (E')(Y_3) + (E_v)(X_1)}$$

Where:

SF_{sliding} = Safety factor against sliding

$SF_{\text{OT_A}}$ = Safety factor against overturning about "A"

D = Dead load

$P_{\text{at_rest}}$ = Total at-rest soil pressure (see Figures 3H.6-48 through 3H.6-50)

$F = \mu N$ = friction force and μ is the coefficient of friction

E_s = Static and dynamic soil pressure (see Figures 3H.6-45 through 3H.6-47)

E' = Self weight excitation in the horizontal direction

E_v = Self weight excitation in the vertical direction

F_B = Buoyancy force

N = Vertical reaction = $0.9D - F_B - E_v$

Figure 3H.6-137 Formulations Used for Calculation of Factors of Safety Against Sliding and Overturning

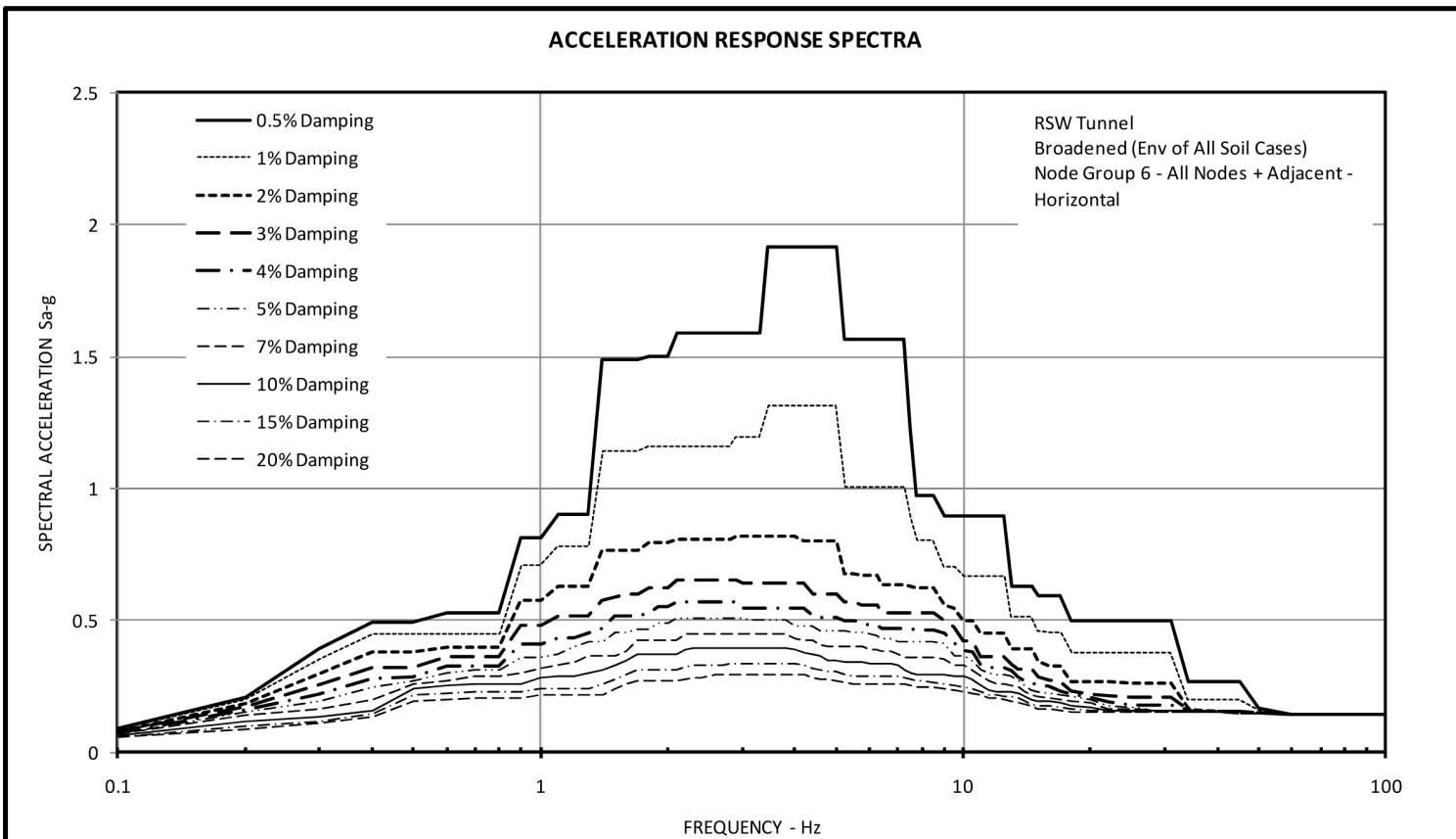


Figure 3H.6-138 Broadened Horizontal FRS for RSW Piping Tunnels

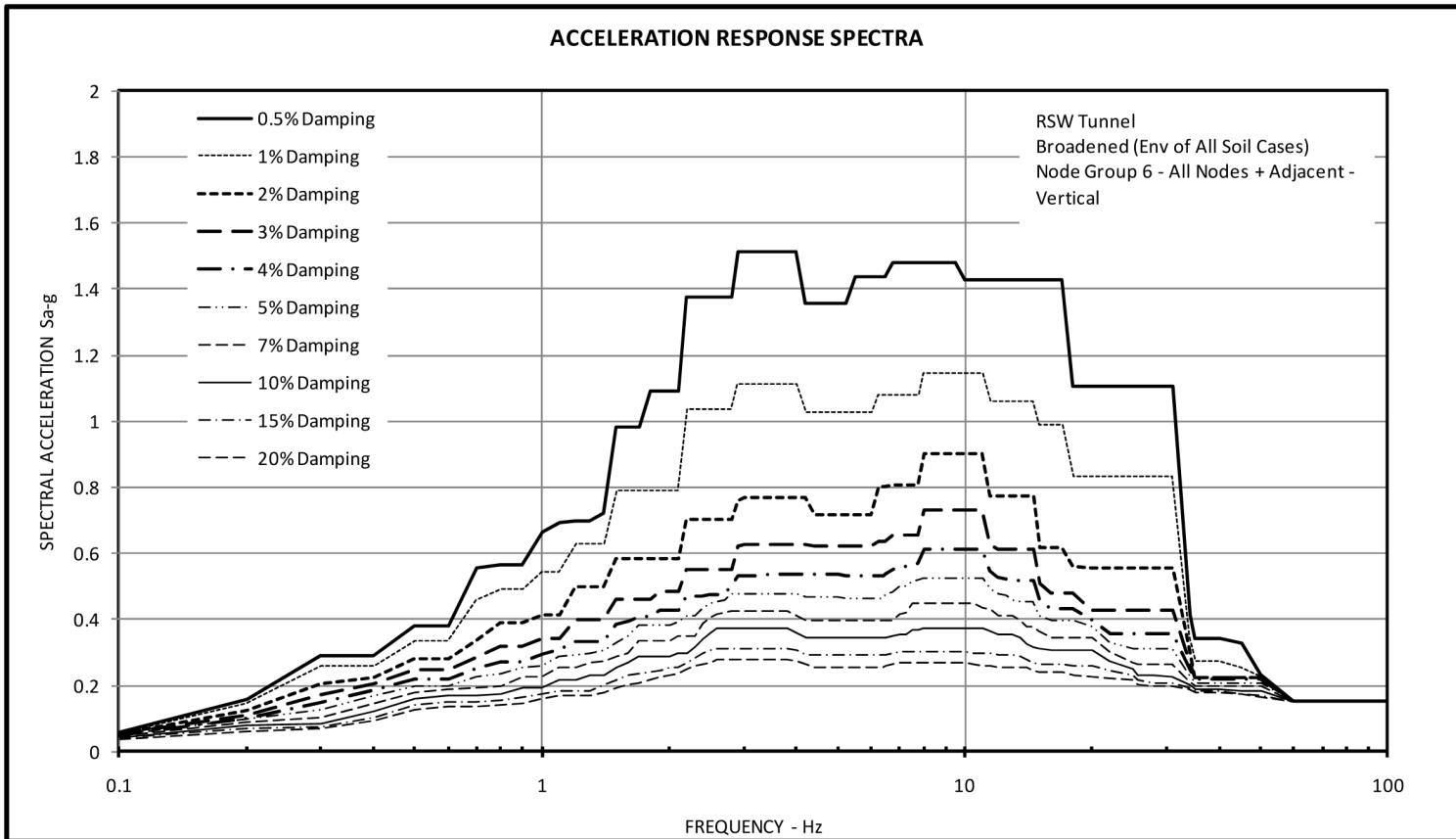
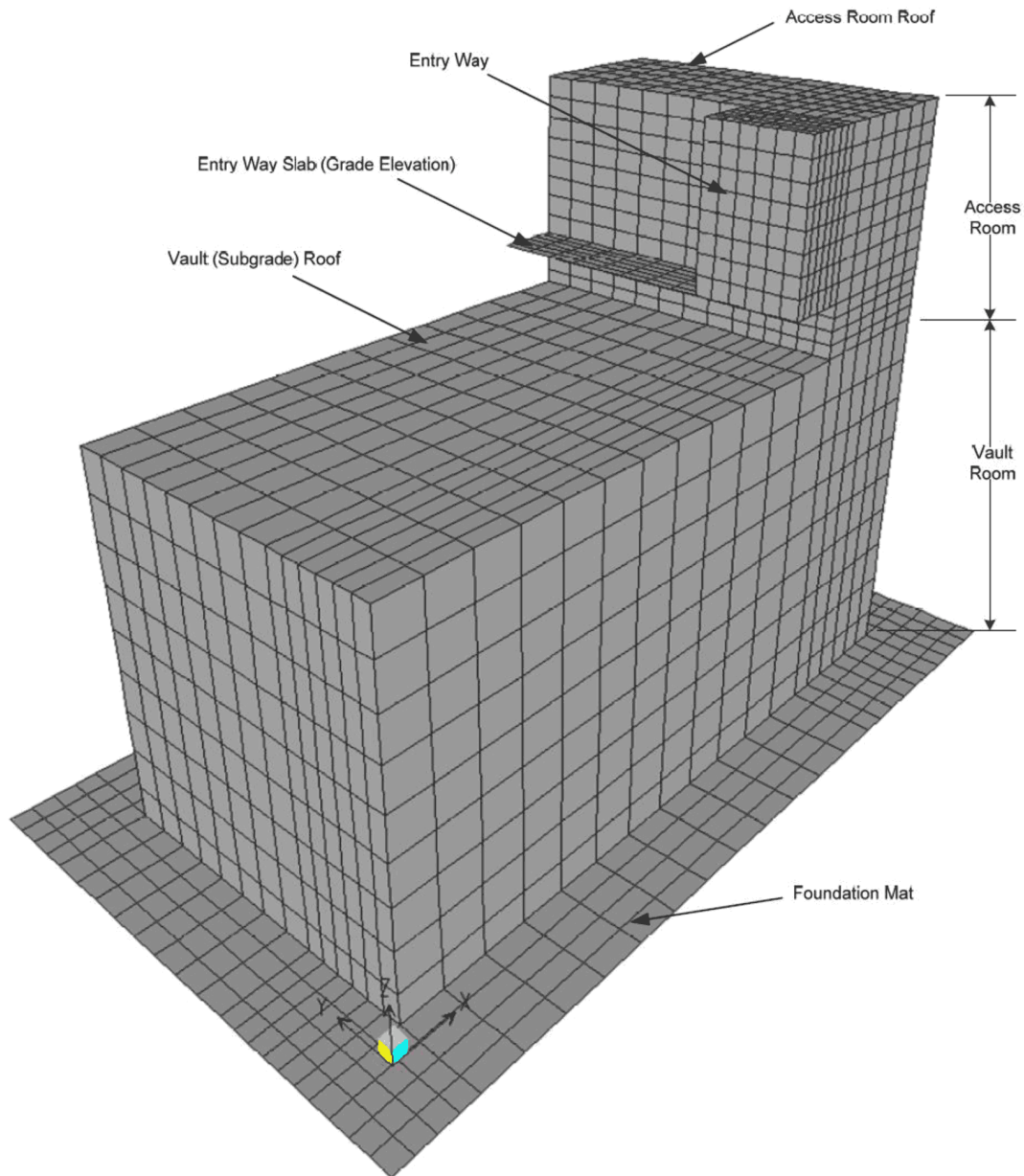


Figure 3H.6-139 Broadened Vertical FRS for RSW Piping Tunnels

**Figure 3H.6-140 DGFOSV SAP2000 Model**

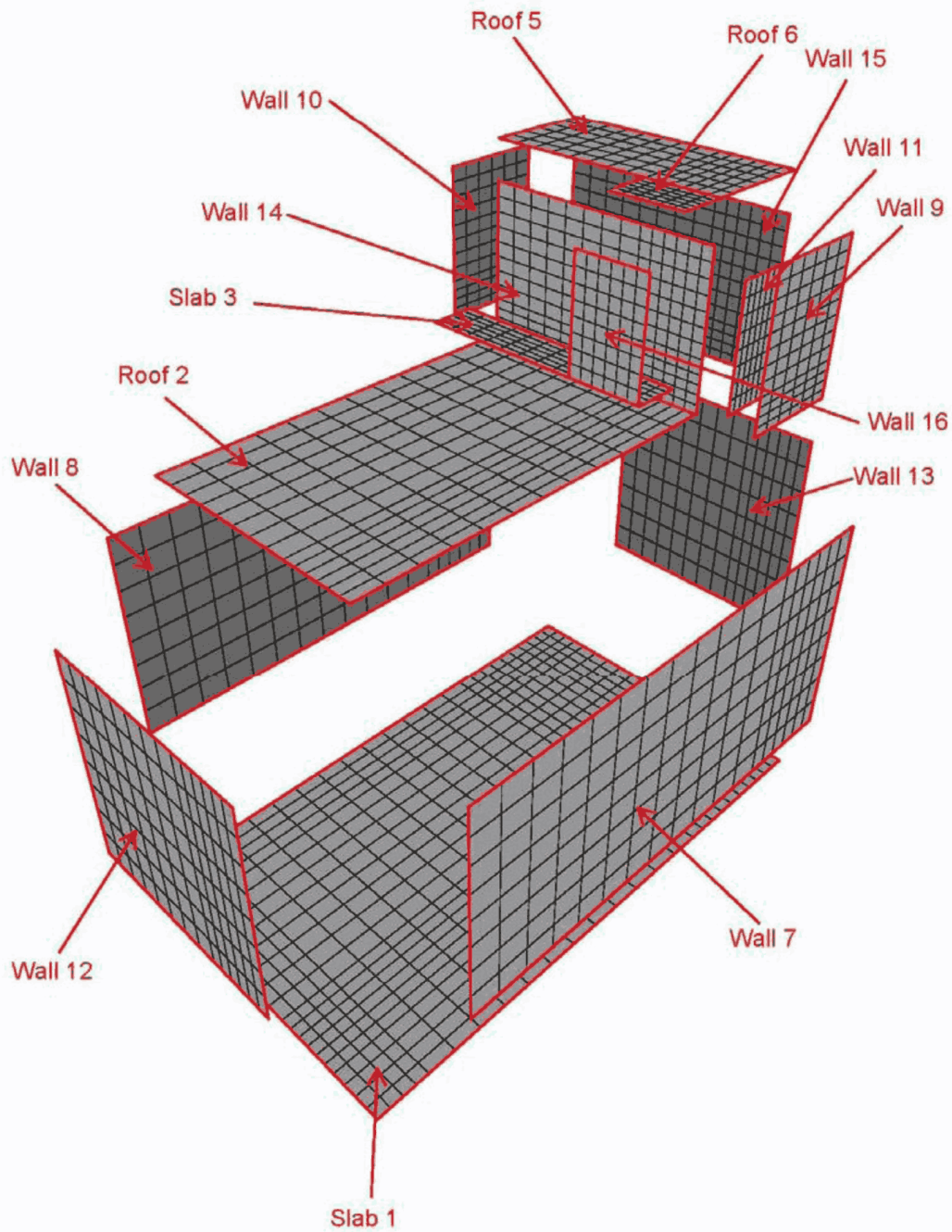


Figure 3H.6-141 DGFSV Wall and Slab Labeling Convention

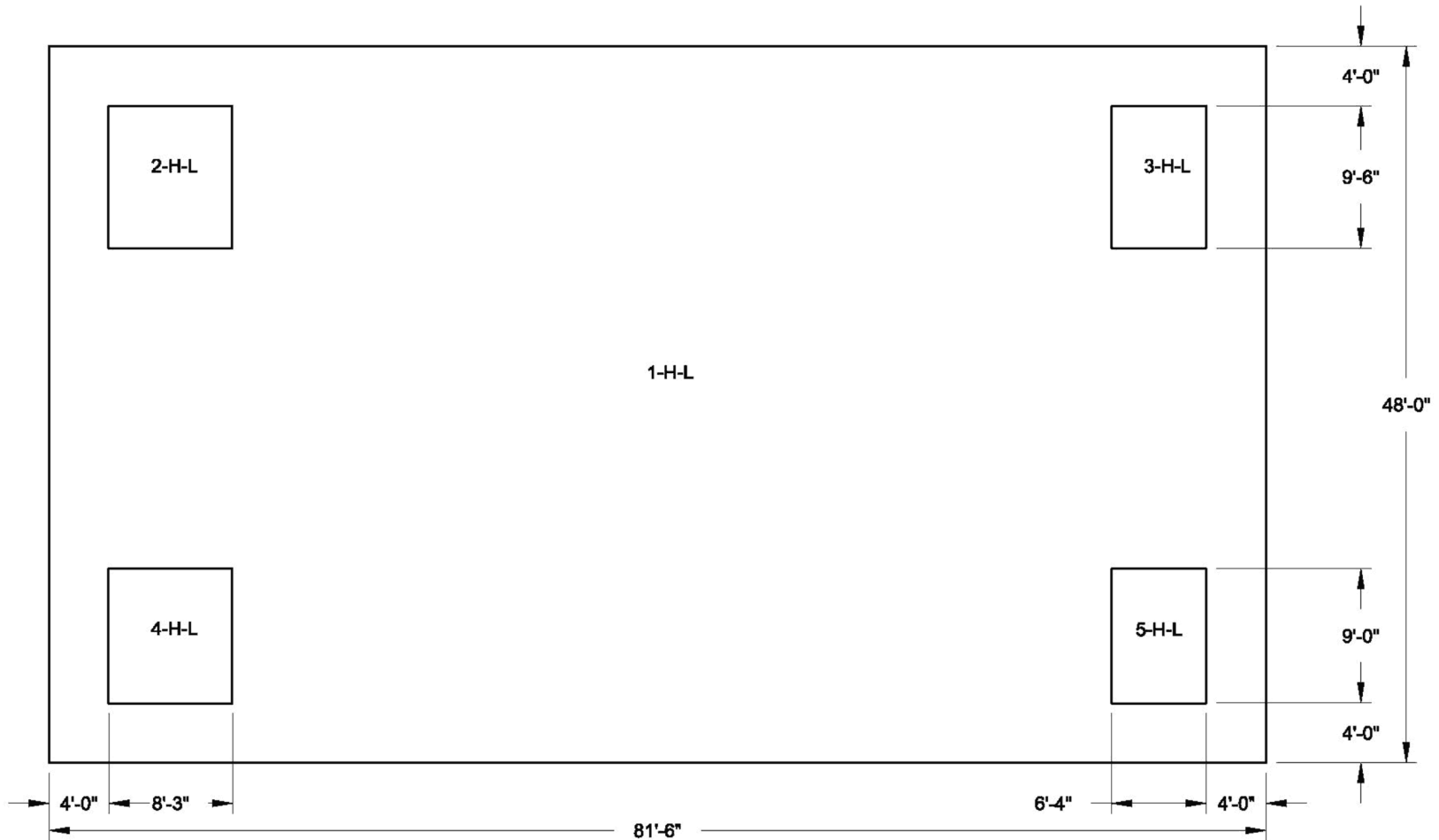


Figure 3H.6-142 Slab 1 Looking Down
Horizontal Reinforcement Zones
Near Side Face

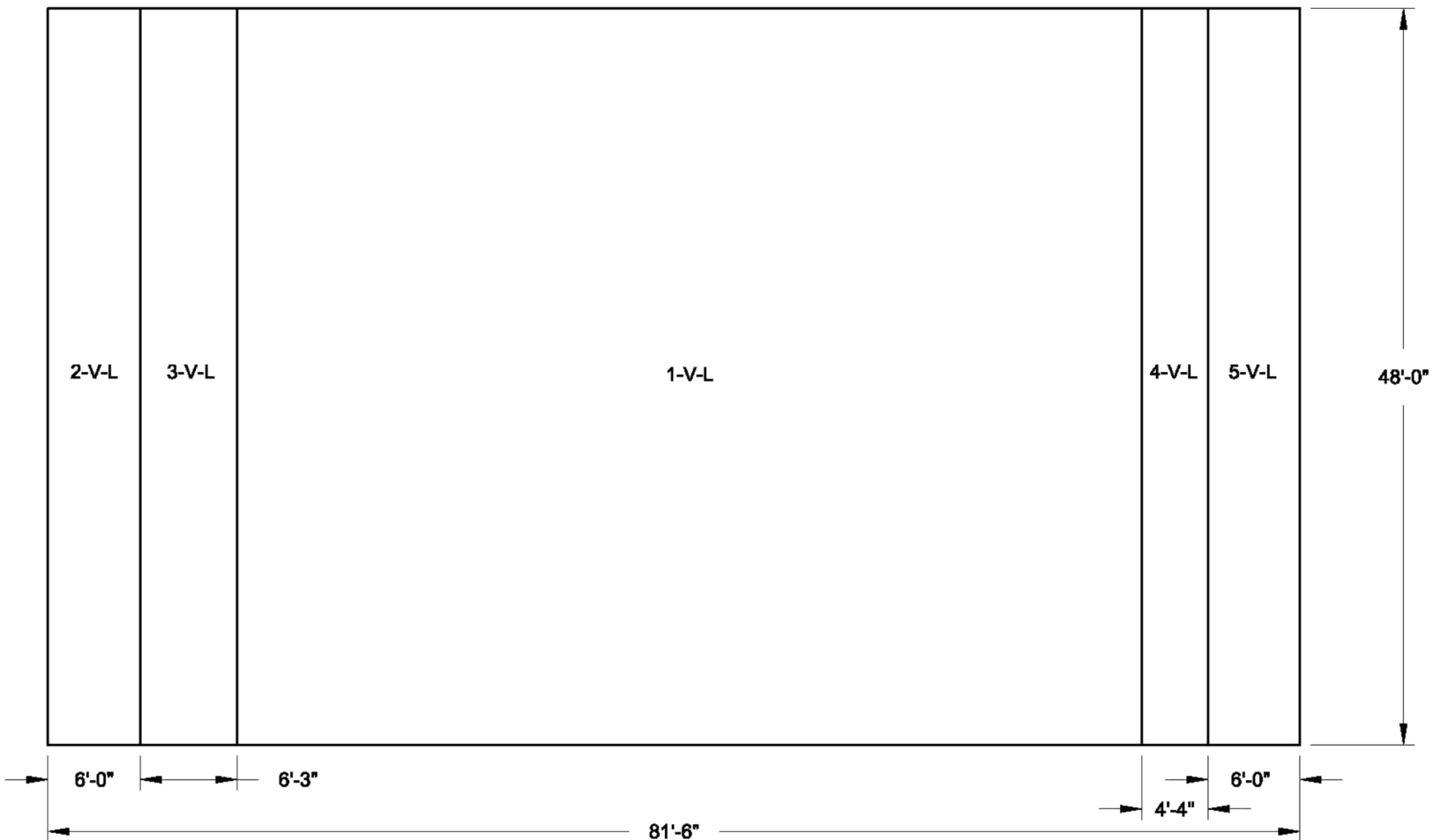


Figure 3H.6-143 Slab 1 Looking Down
Vertical Reinforcement Zones
Near Side Face



**Figure 3H.6-144 Slab 1 Looking Down
Horizontal Reinforcement Zones
Far Side Face**

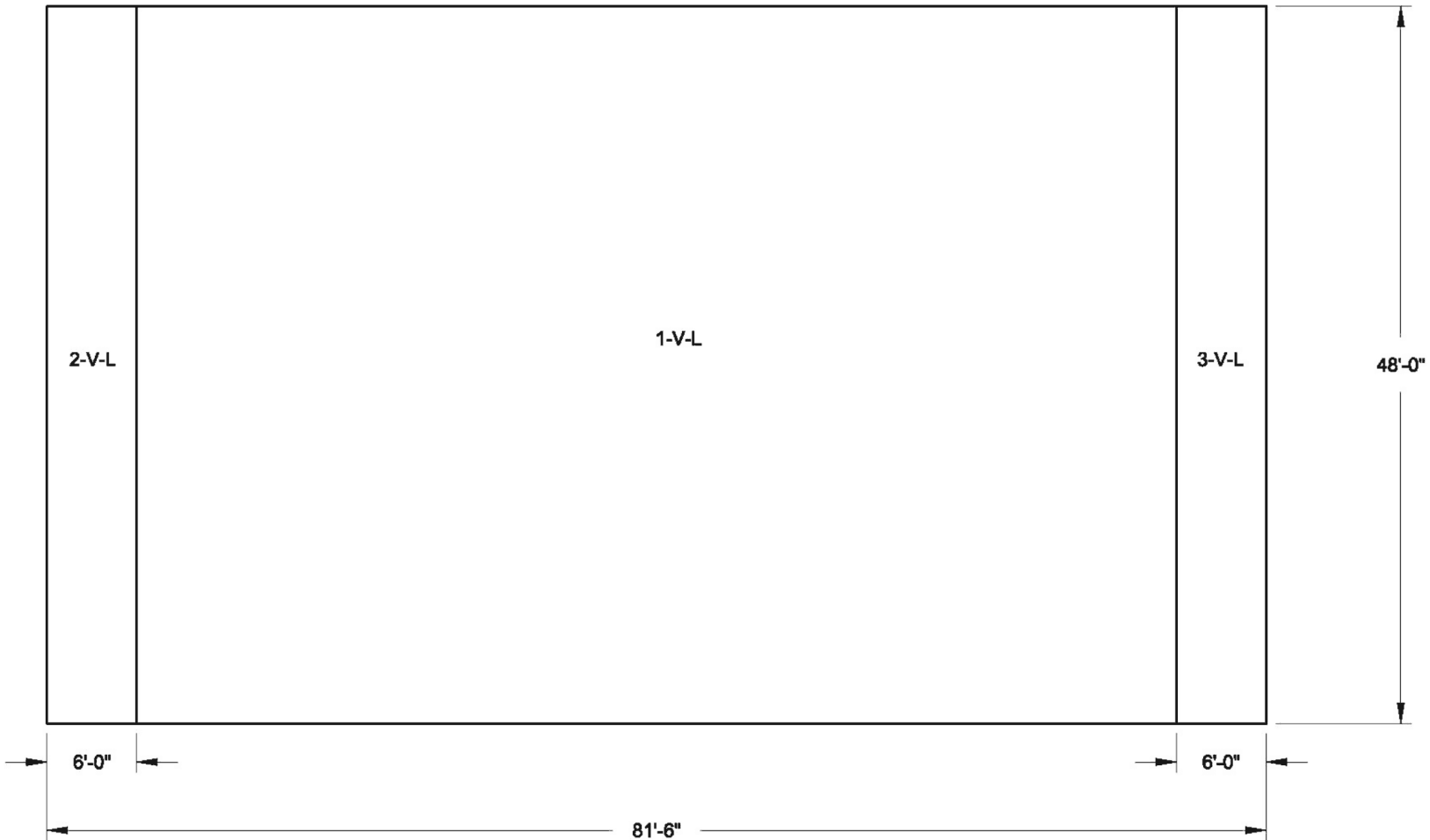


Figure 3H.6-145 Slab 1 Looking Down
Vertical Reinforcement Zones
Far Side Face

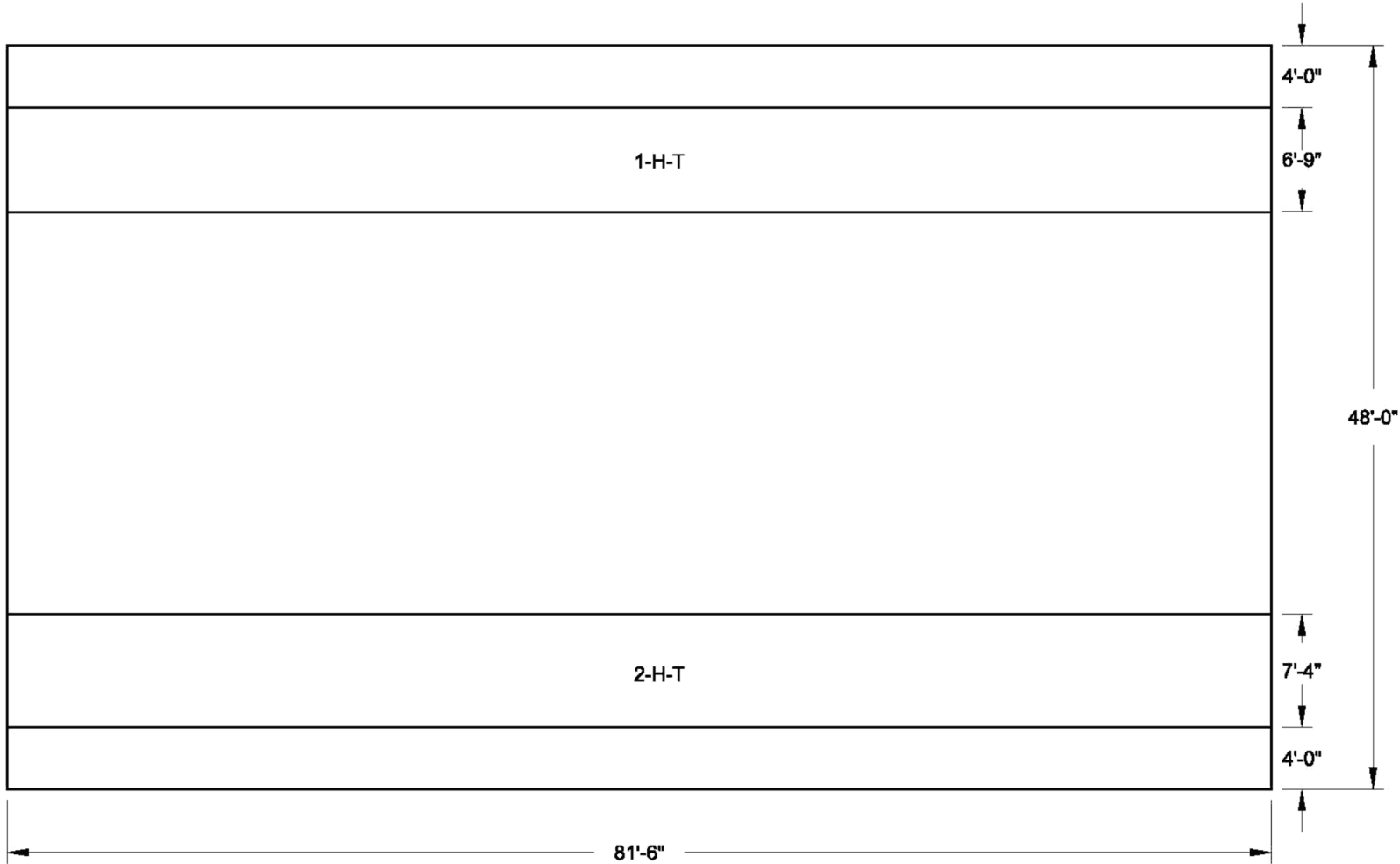


Figure 3H.6-146 Slab 1 Looking Down
Transverse Reinforcement Zones

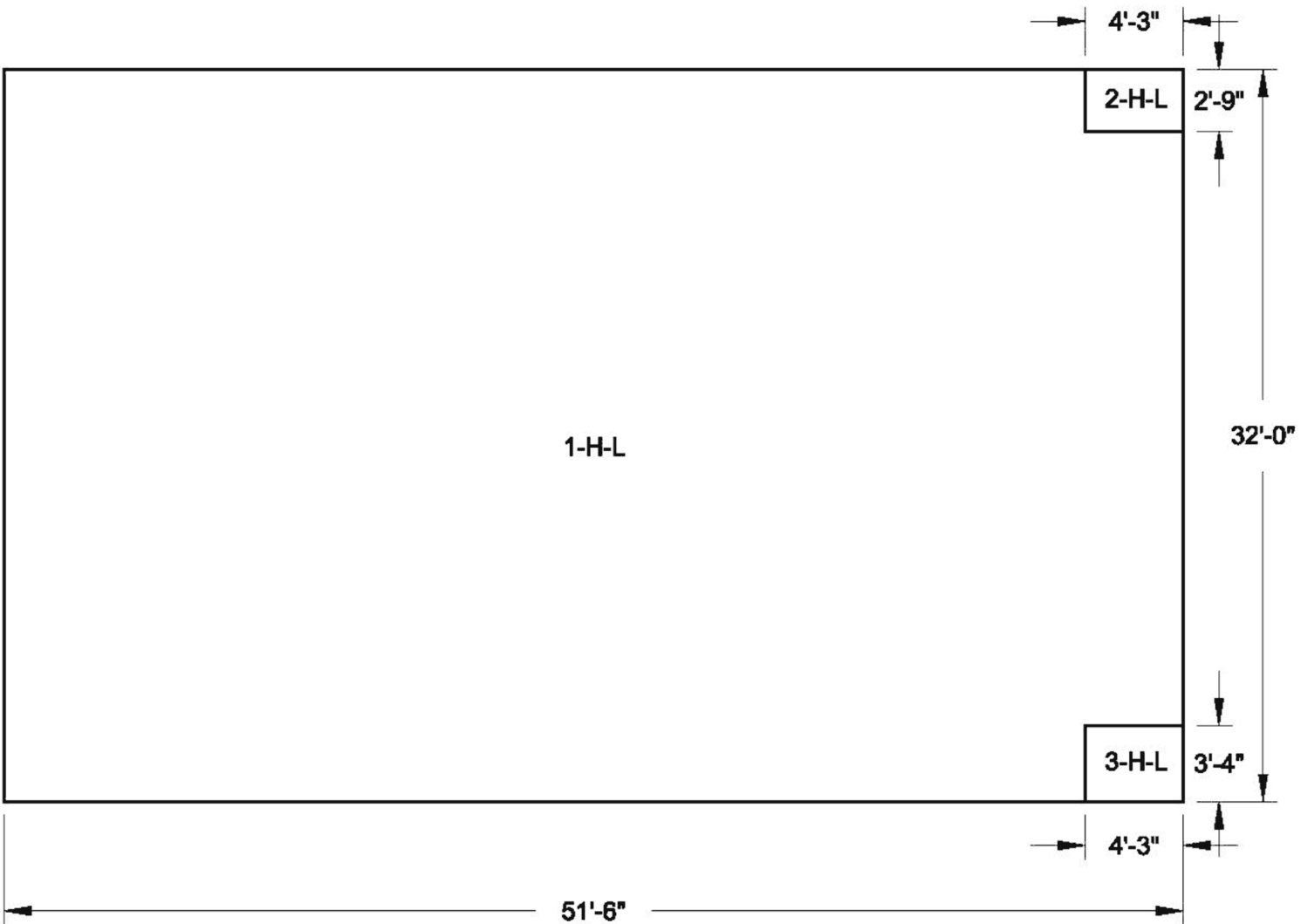


Figure 3H.6-147 Roof 2 Looking Down
Horizontal Reinforcement Zones
Near Side Face

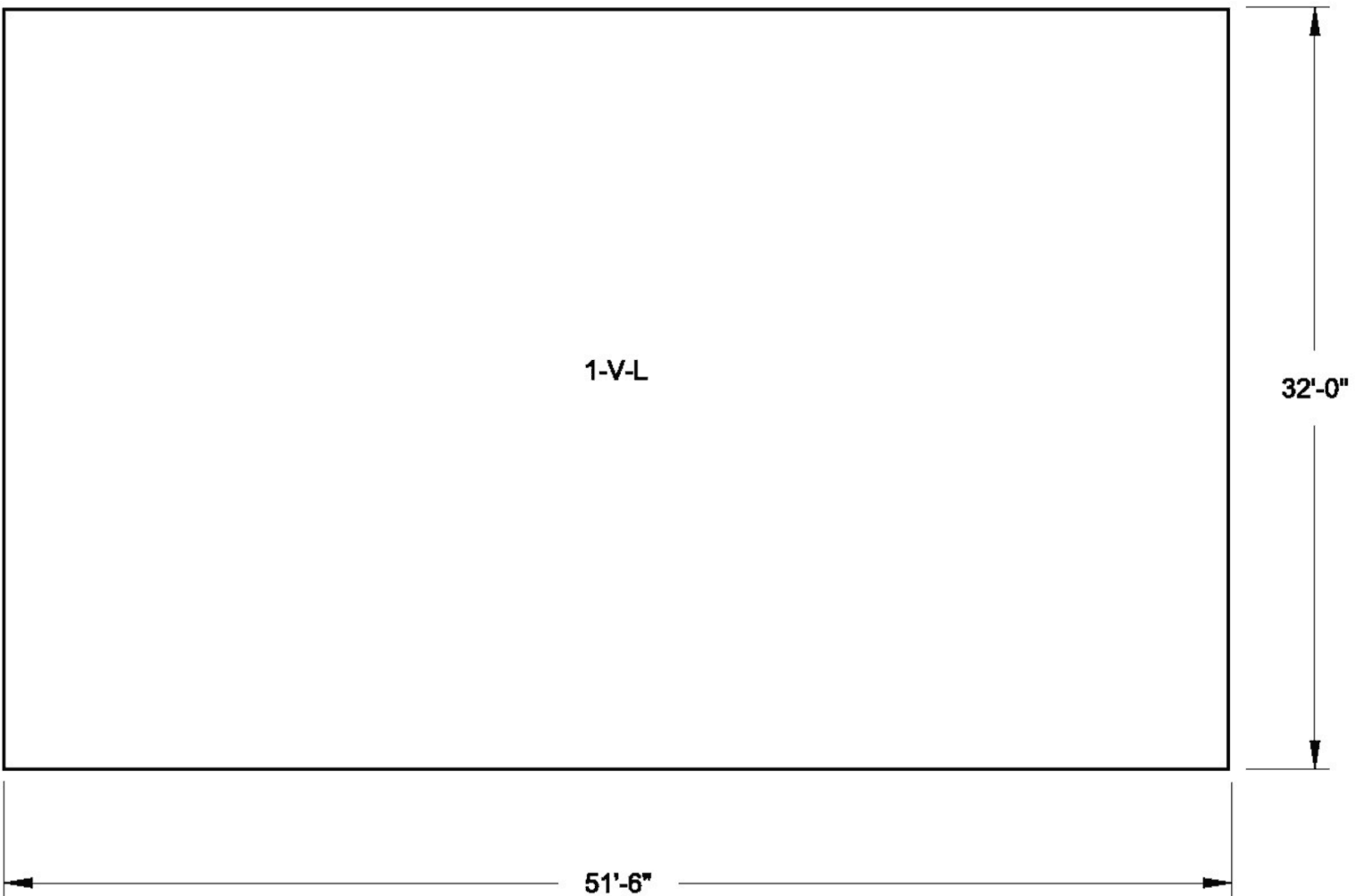


Figure 3H.6-148 Roof 2 Looking Down
Vertical Reinforcement Zones
Near Side Face

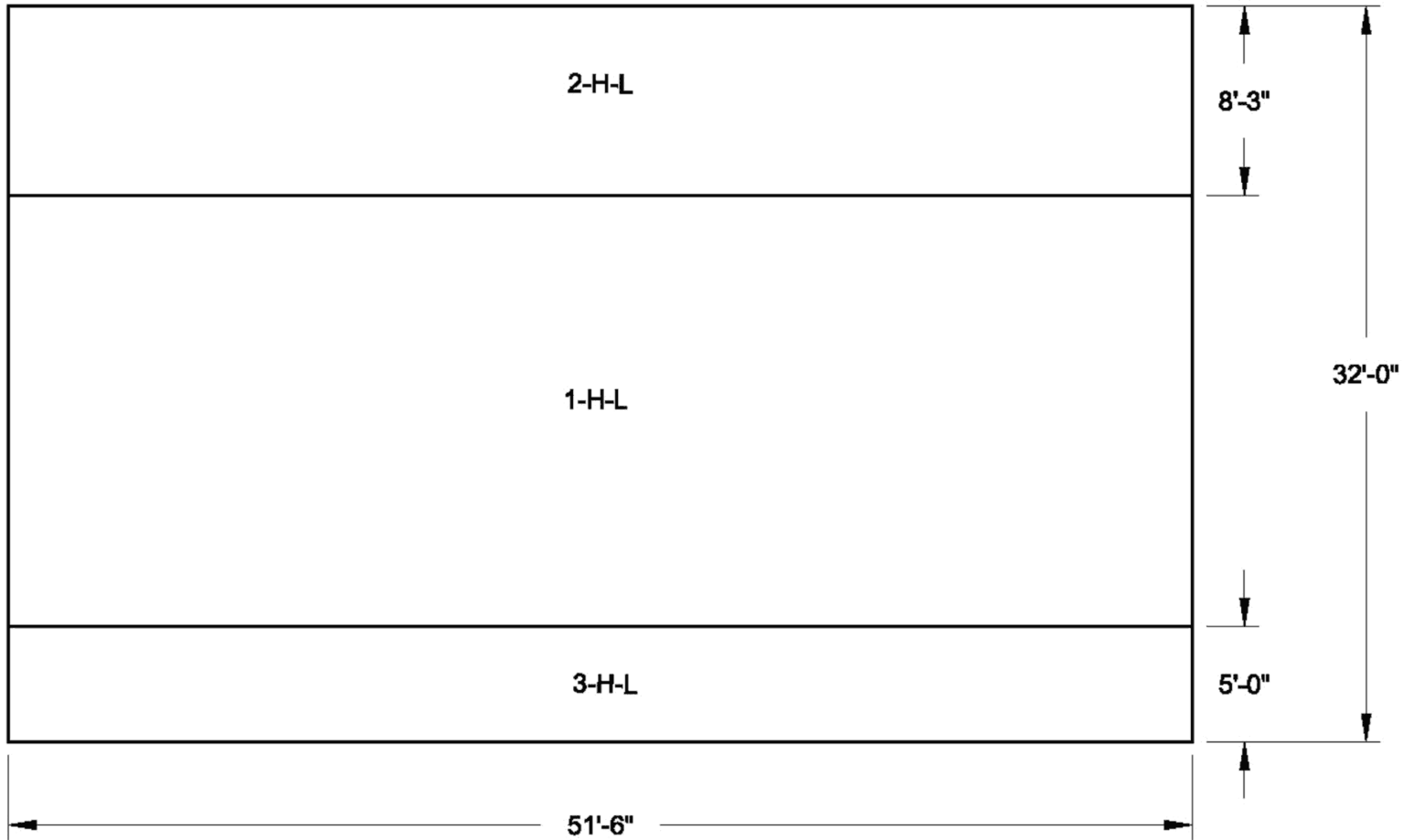
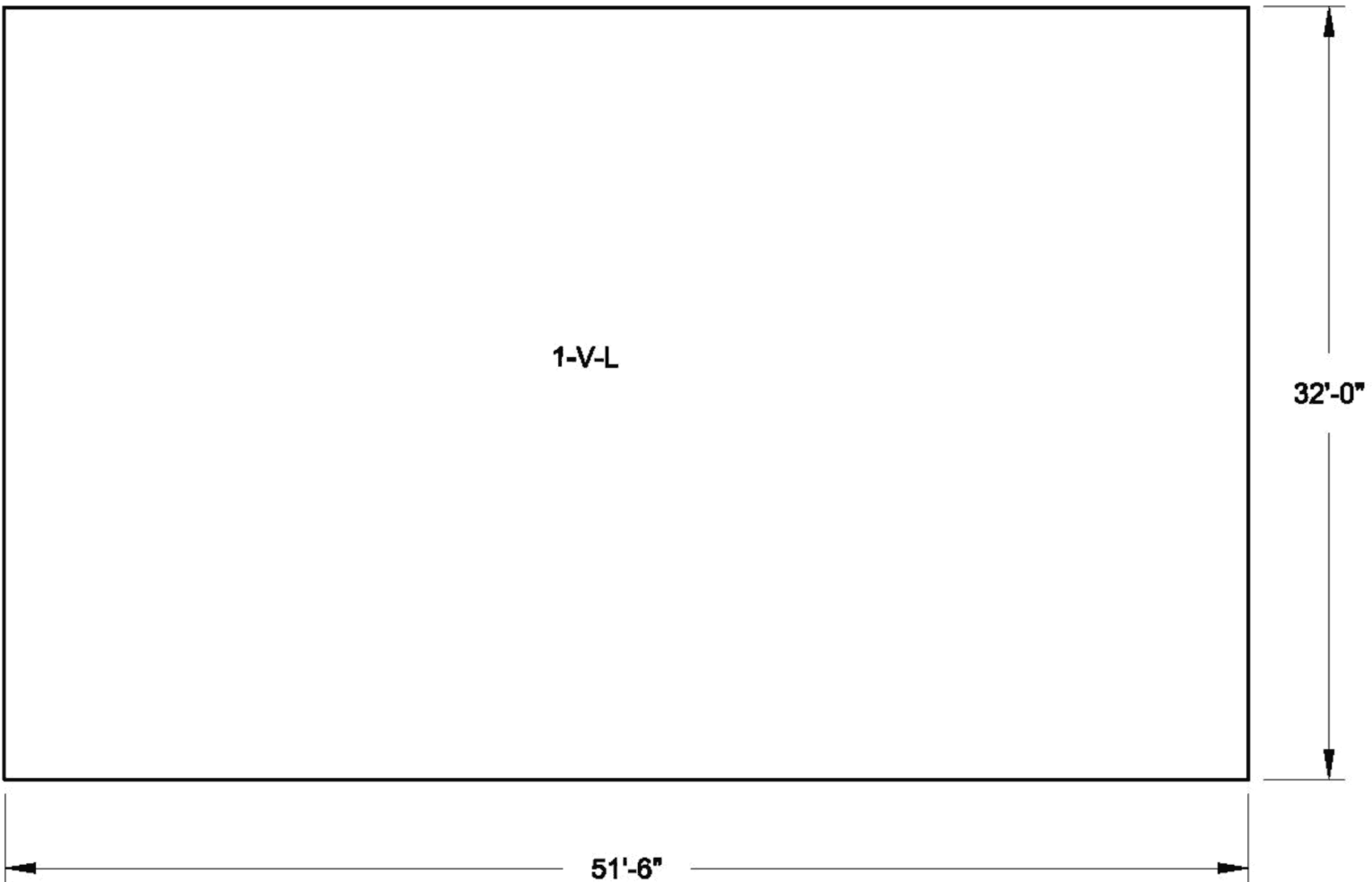


Figure 3H.6-149 Roof 2 Looking Down
Horizontal Reinforcement Zones
Far Side Face



**Figure 3H.6-150 Roof 2 Looking Down
Vertical Reinforcement Zones
Far Side Face**

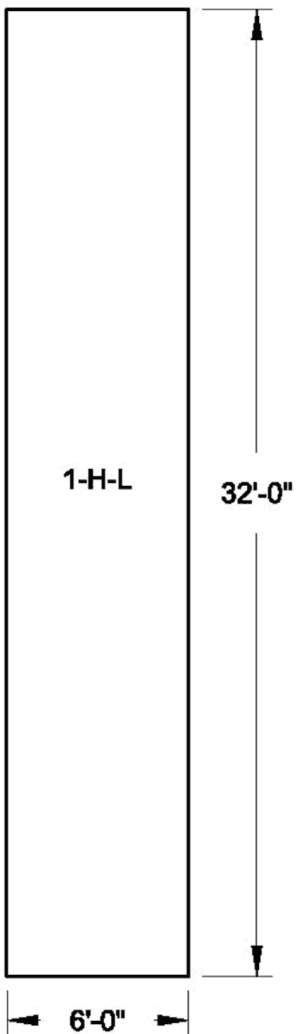
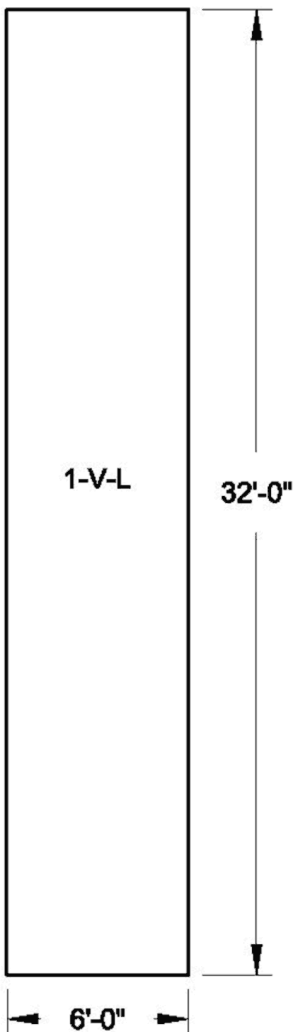
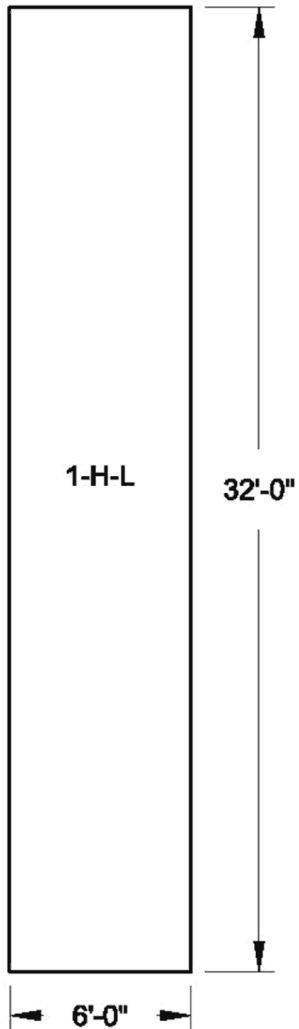


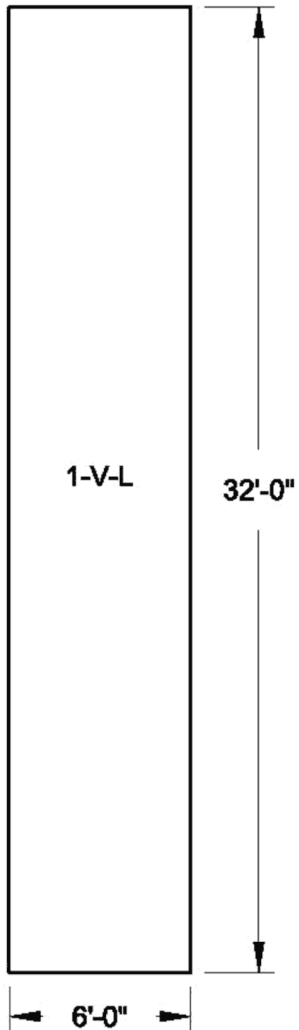
Figure 3H.6-151 Slab 3 Looking Down
Horizontal Reinforcement Zones
Near Side Face



**Figure 3H.6-152 Slab 3 Looking Down
Vertical Reinforcement Zones
Near Side Face**



**Figure 3H.6-153 Slab 3 Looking Down
Horizontal Reinforcement Zones
Far Side Face**



**Figure 3H.6-154 Slab 3 Looking Down
Vertical Reinforcement Zones
Far Side Face**

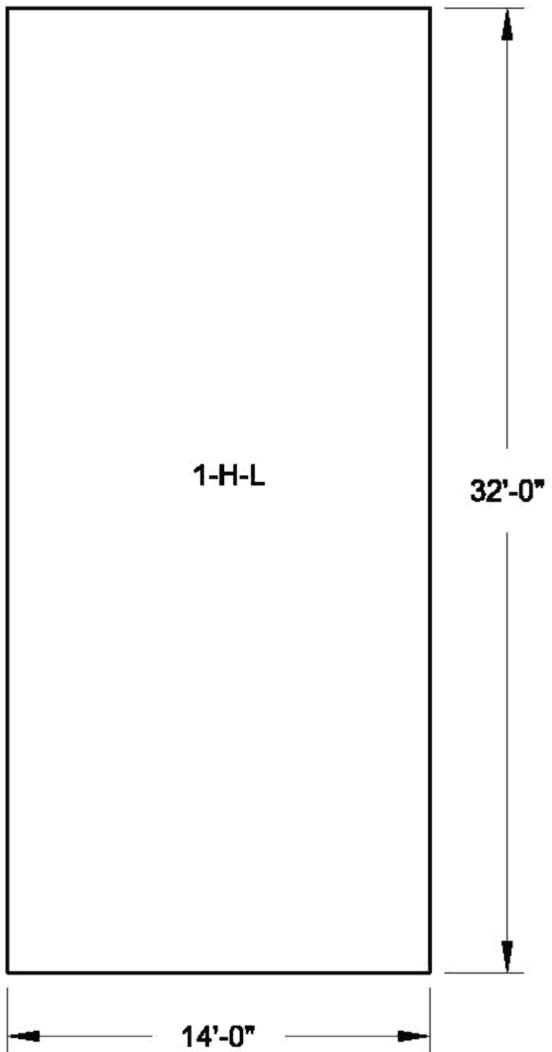
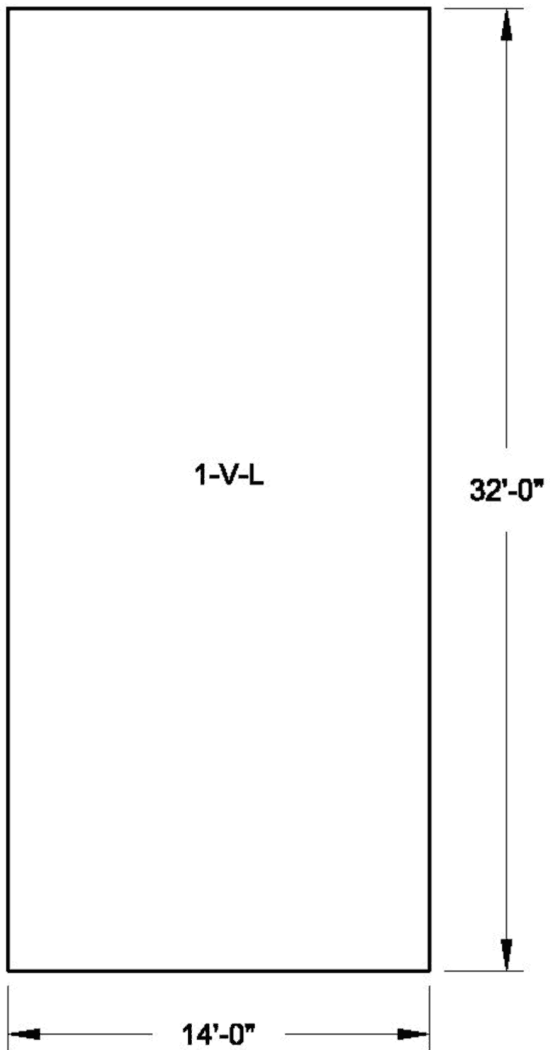


Figure 3H.6-155 Roof 5 Looking Down
Horizontal Reinforcement Zones
Near Side Face



**Figure 3H.6-156 Roof 5 Looking Down
Vertical Reinforcement Zones
Near Side Face**

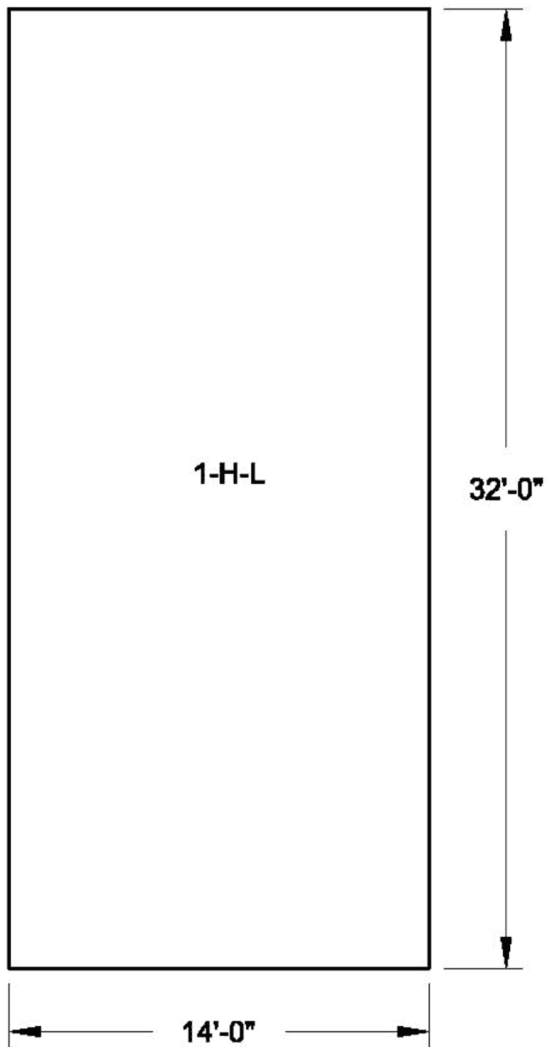
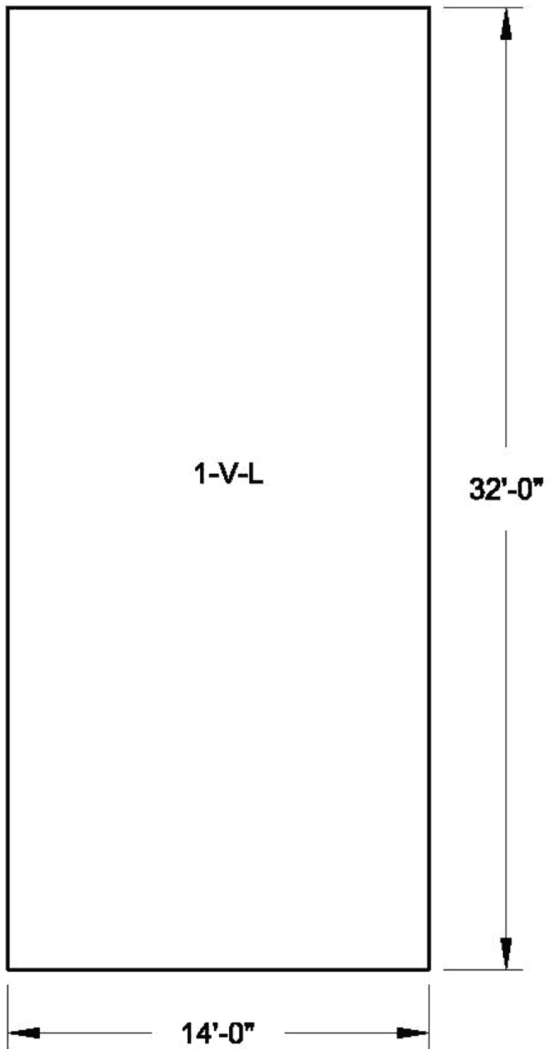


Figure 3H.6-157 Roof 5 Looking Down
Horizontal Reinforcement Zones
Far Side Face



**Figure 3H.6-158 Roof 5 Looking Down
Vertical Reinforcement Zones
Far Side Face**

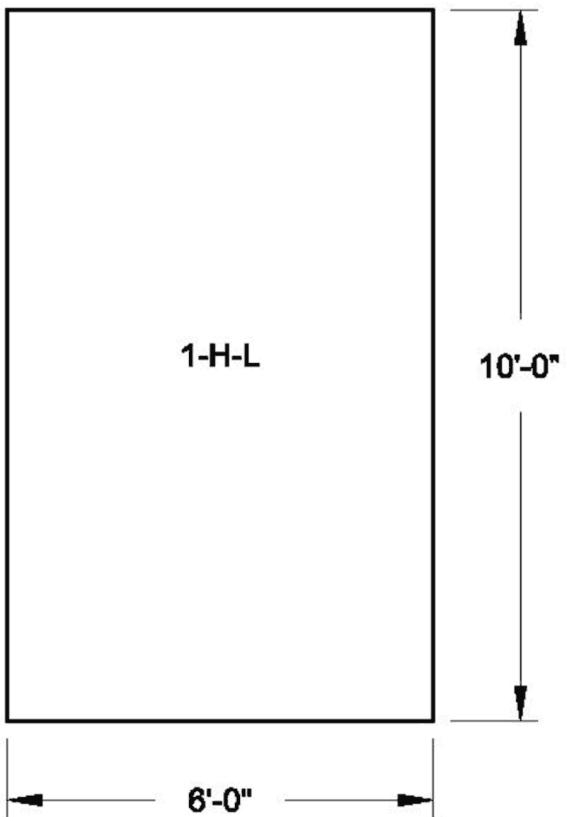


Figure 3H.6-159 Roof 6 Looking Down
Horizontal Reinforcement Zones
Near Side Face

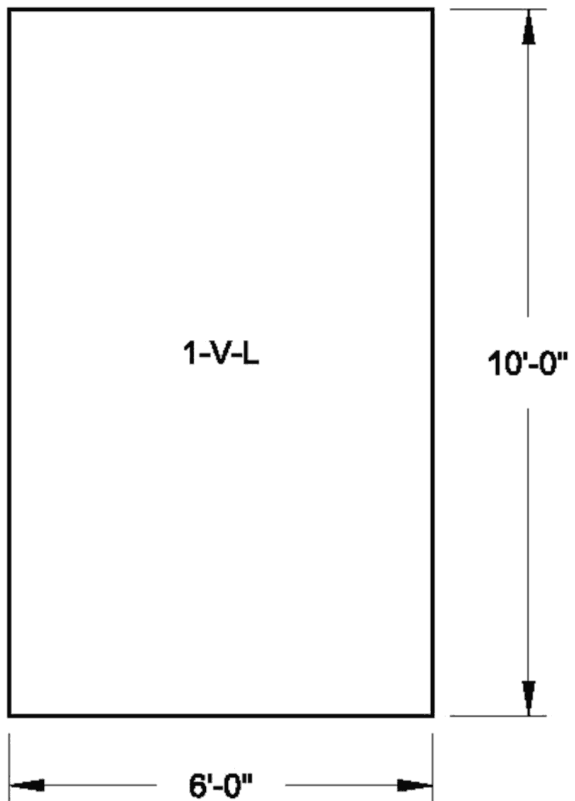


Figure 3H.6-160 Roof 6 Looking Down
Vertical Reinforcement Zones
Near Side Face

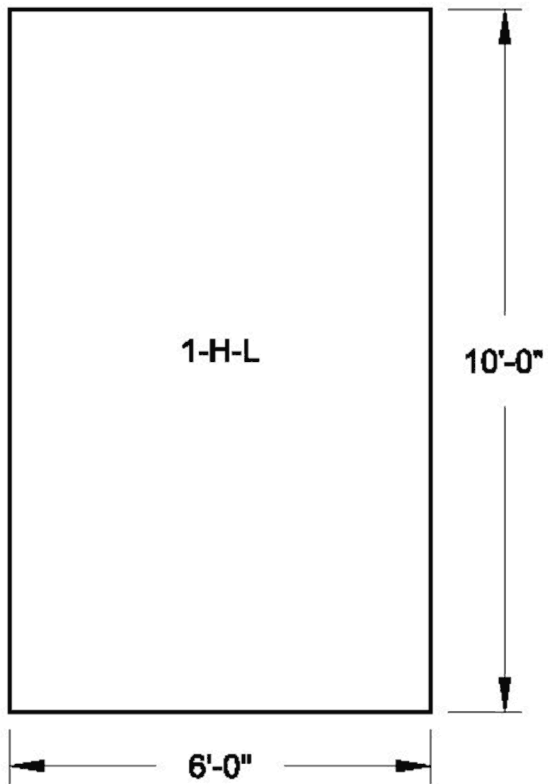


Figure 3H.6-161 Roof 6 Looking Down
Horizontal Reinforcement Zones
Far Side Face

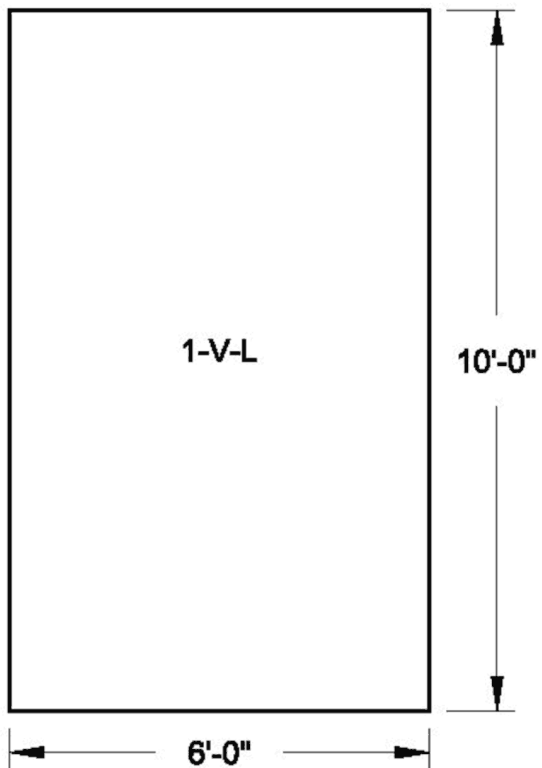


Figure 3H.6-162 Roof 6 Looking Down
Vertical Reinforcement Zones
Far Side Face

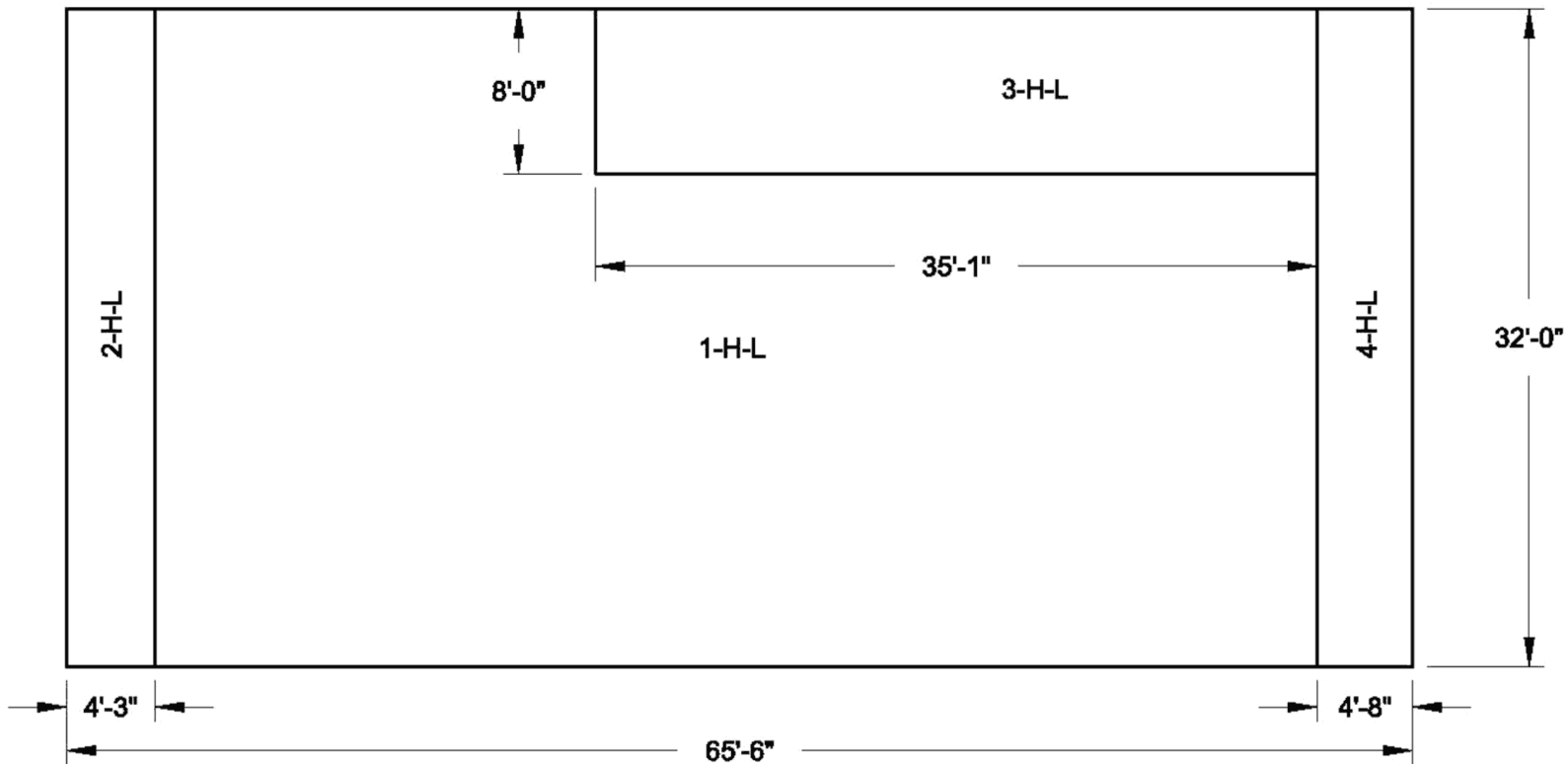


Figure 3H.6-163 Wall 7 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

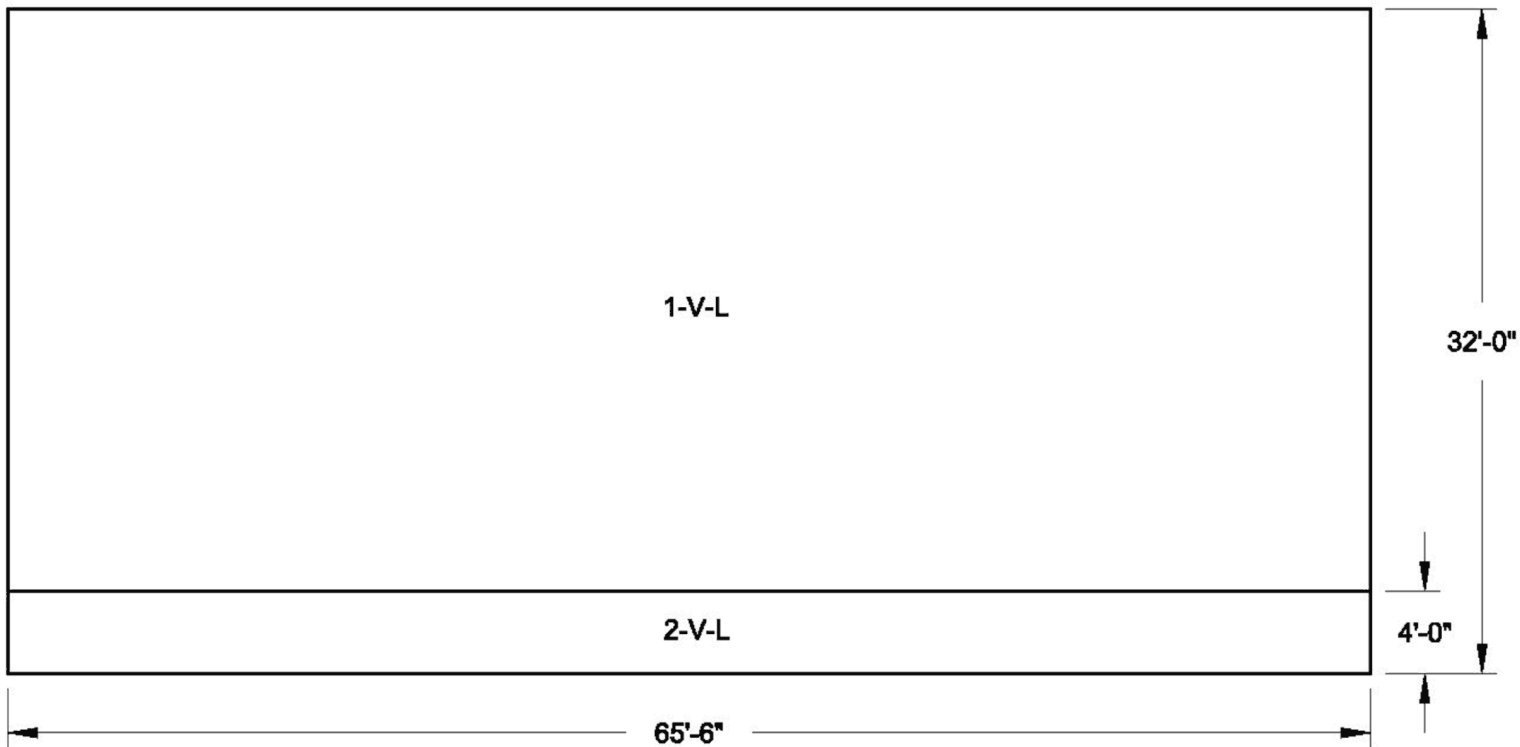


Figure 3H.6-164 Wall 7 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

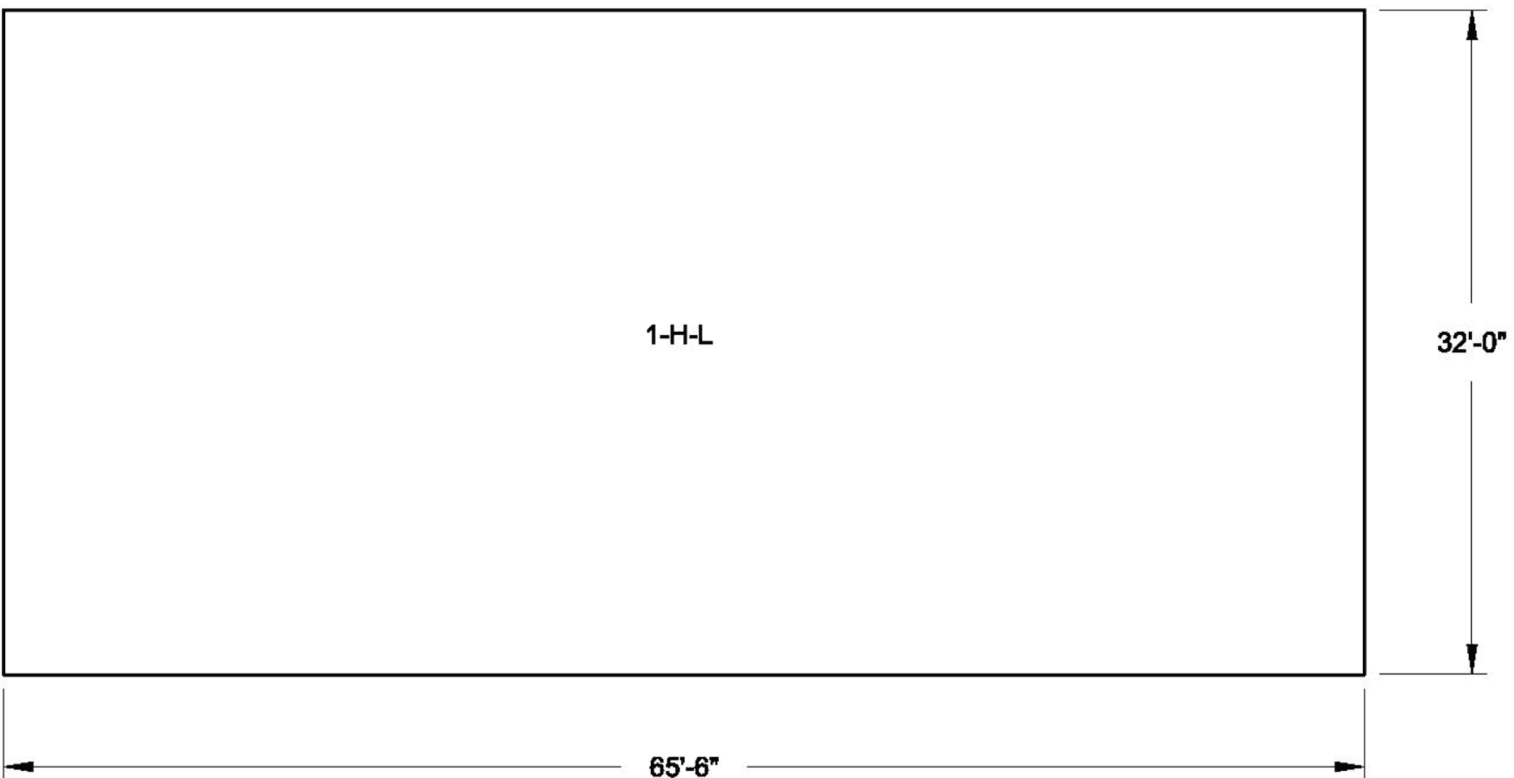


Figure 3H.6-165 Wall 7 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

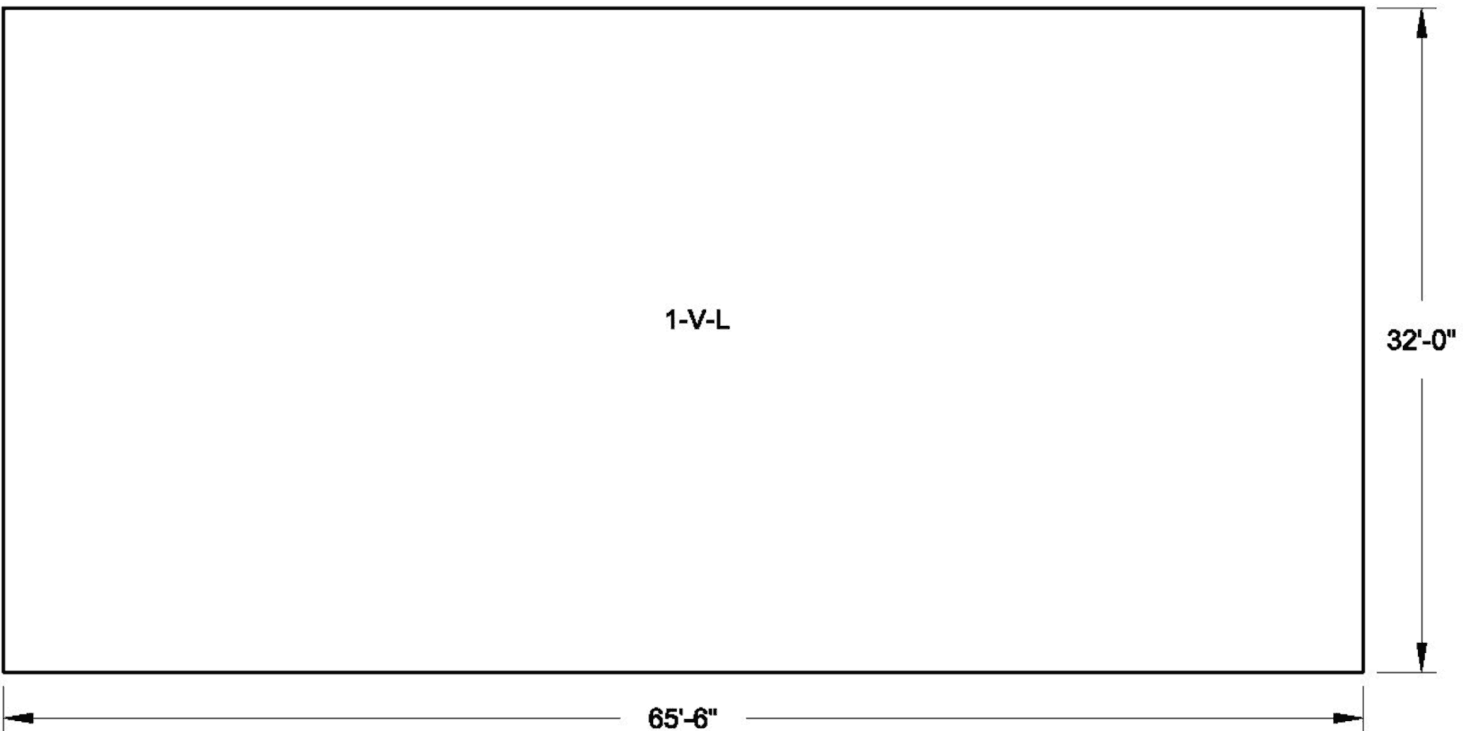


Figure 3H.6-166 Wall 7 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

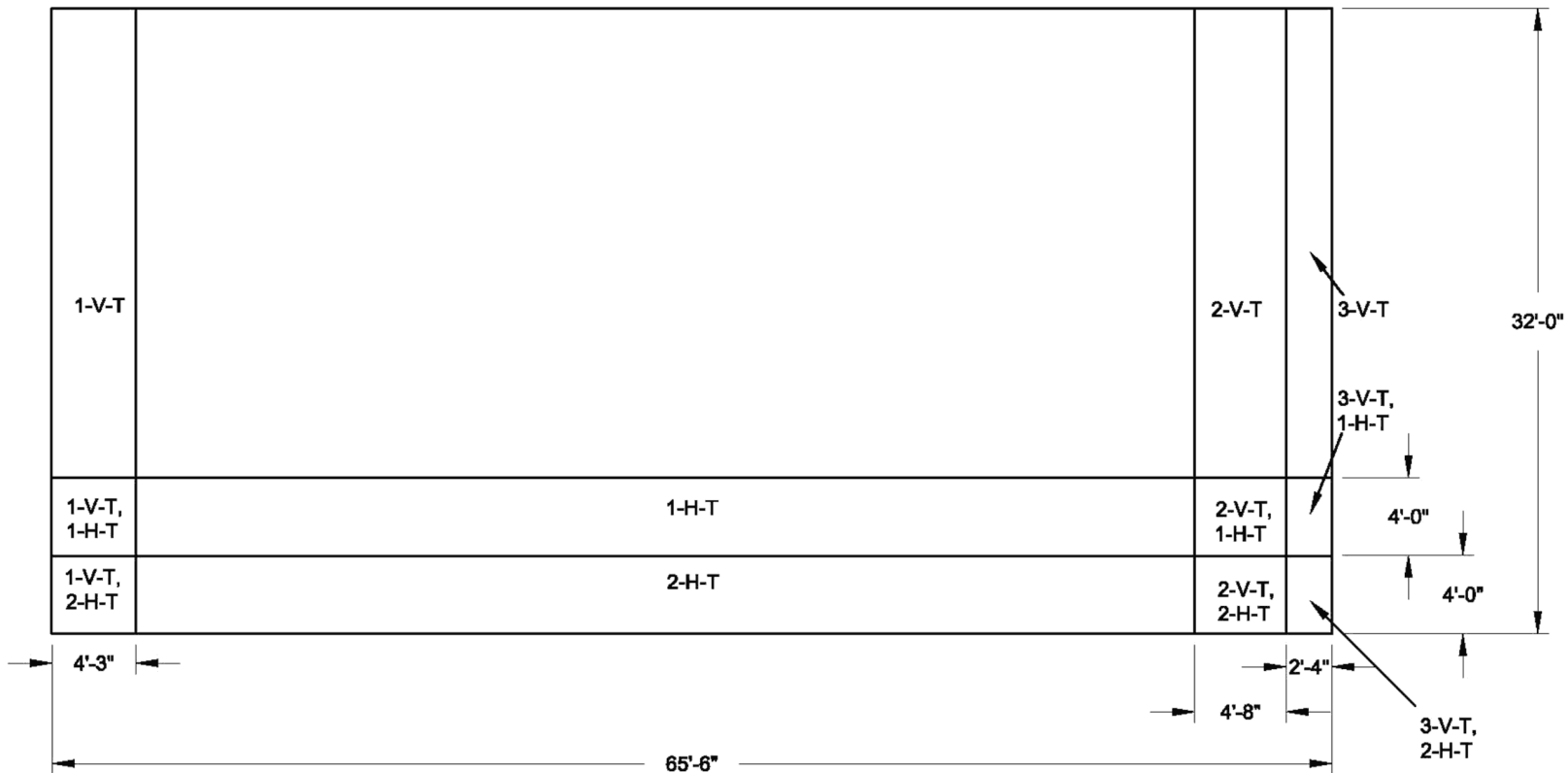


Figure 3H.6-167 Wall 7 Looking From Outside
Transverse Reinforcement Zones

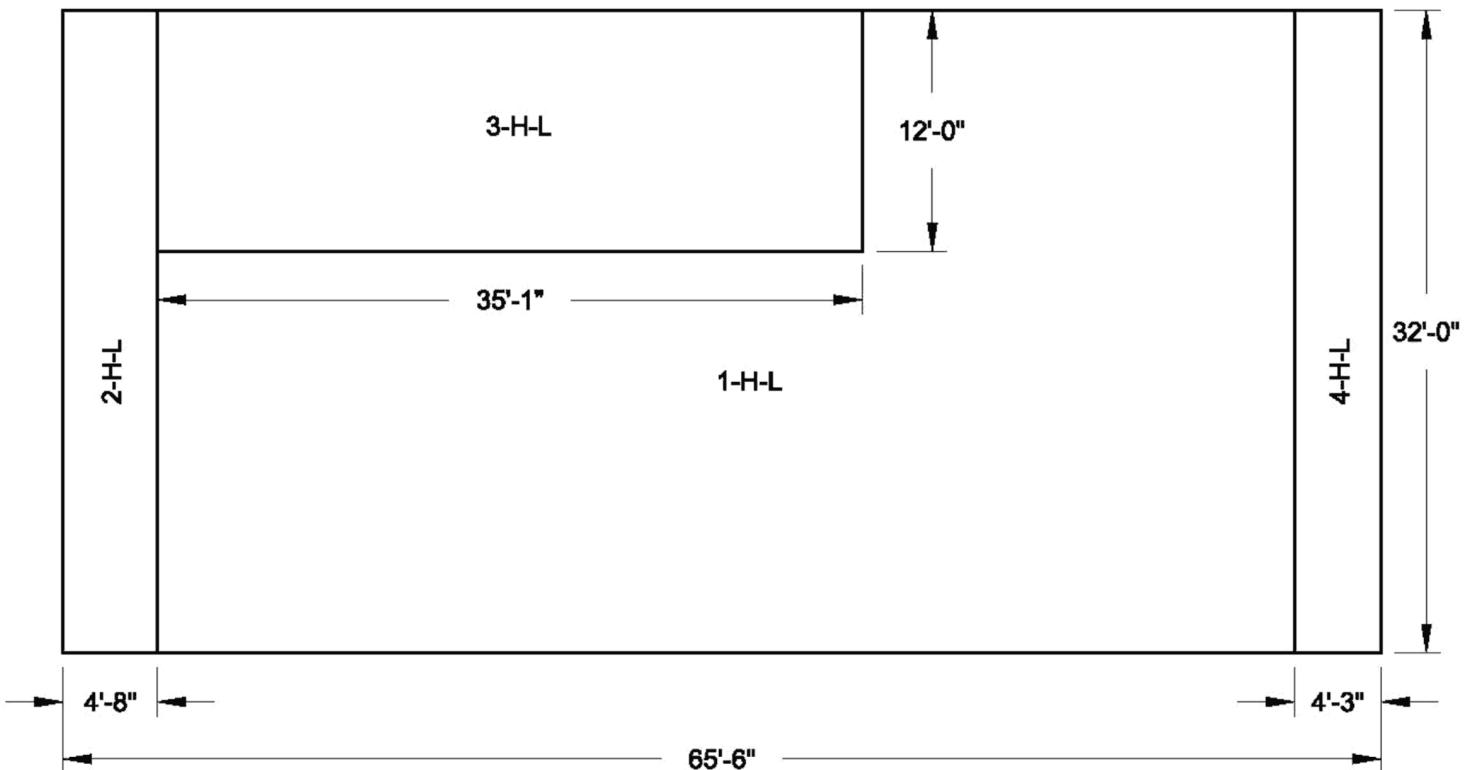


Figure 3H.6-168 Wall 8 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

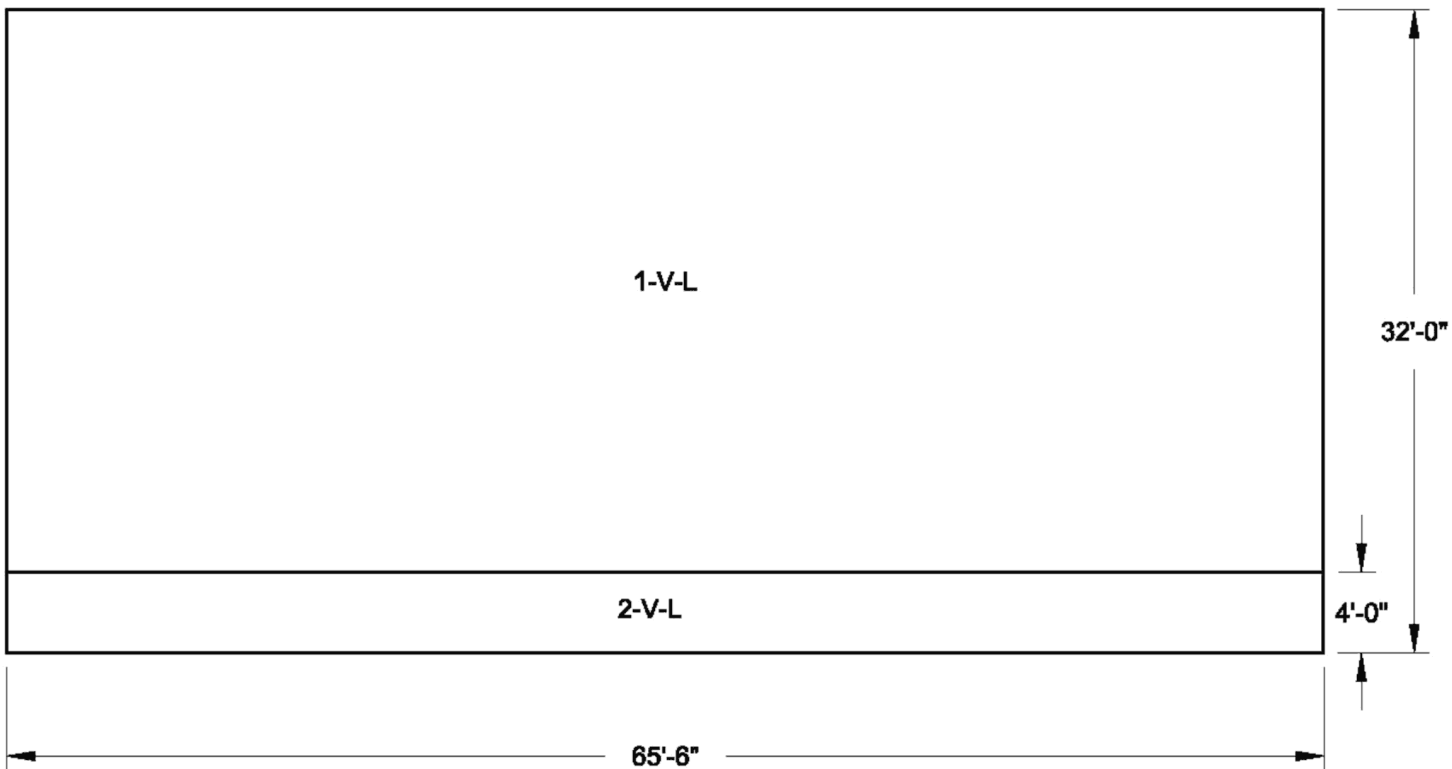


Figure 3H.6-169 Wall 8 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

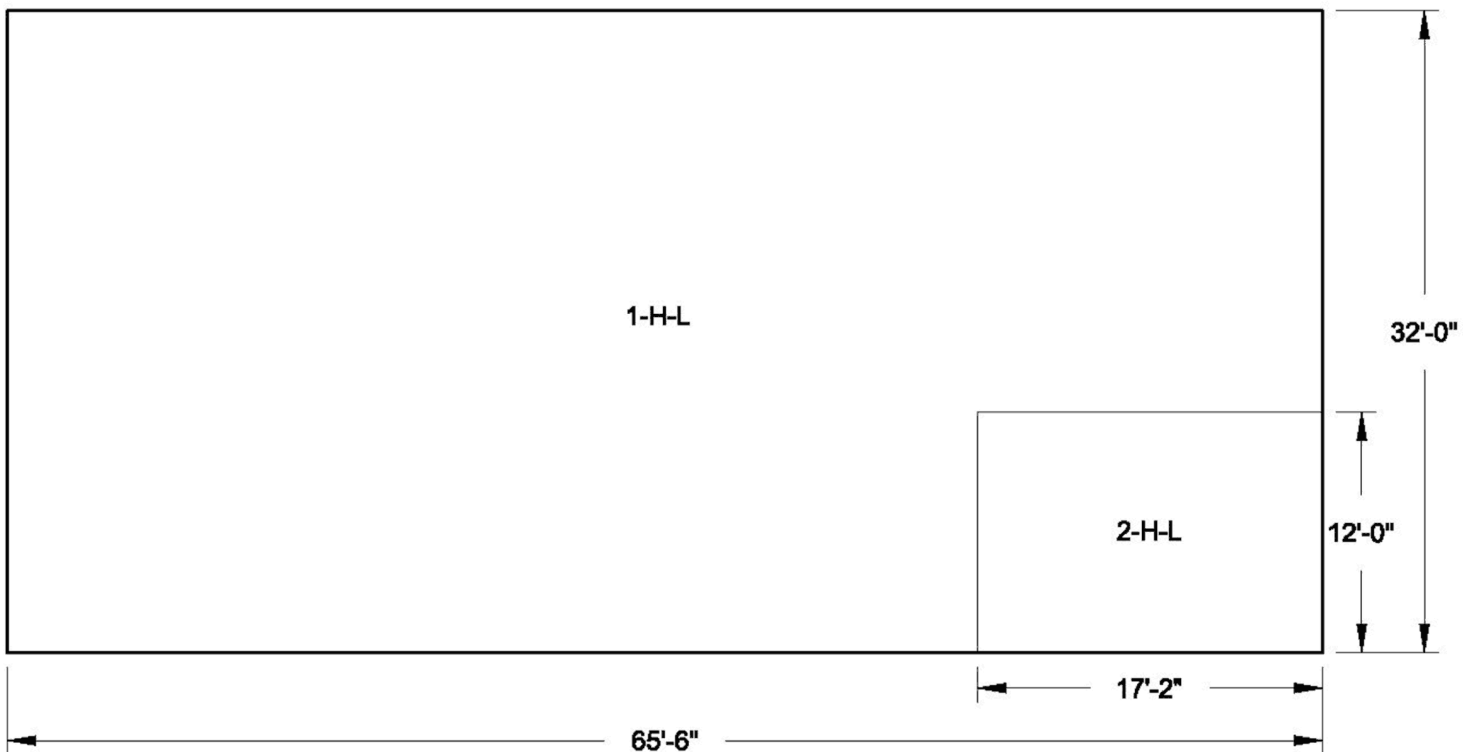


Figure 3H.6-170 Wall 8 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face



Figure 3H.6-171 Wall 8 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

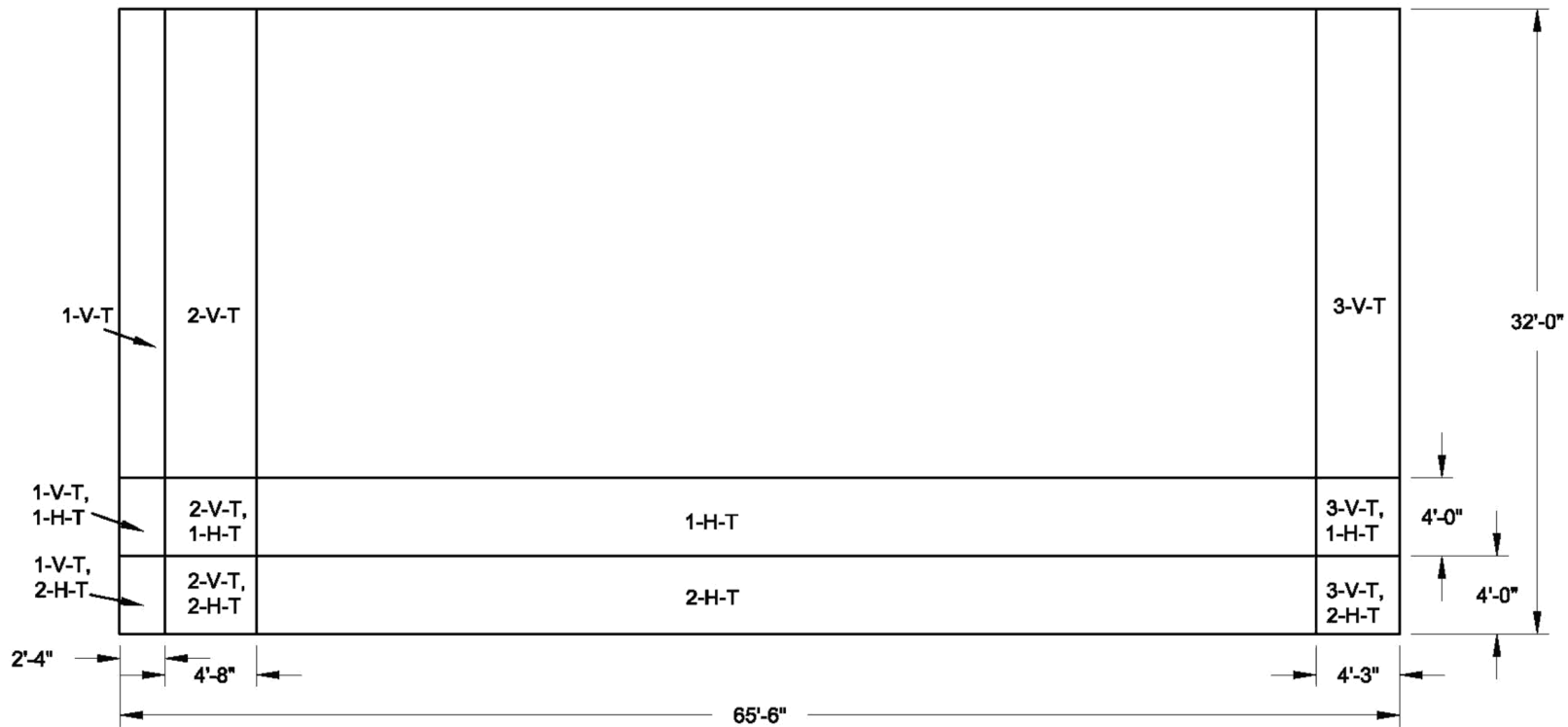


Figure 3H.6-172 Wall 8 Looking From Outside Transverse Reinforcement Zones

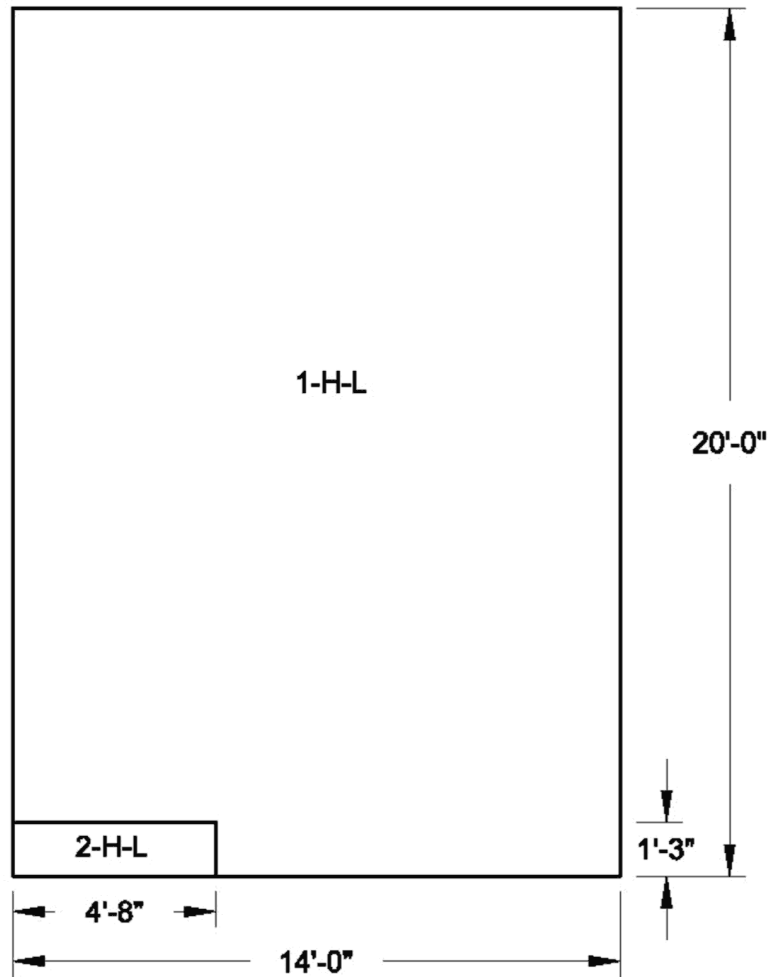


Figure 3H.6-173 Wall 9 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

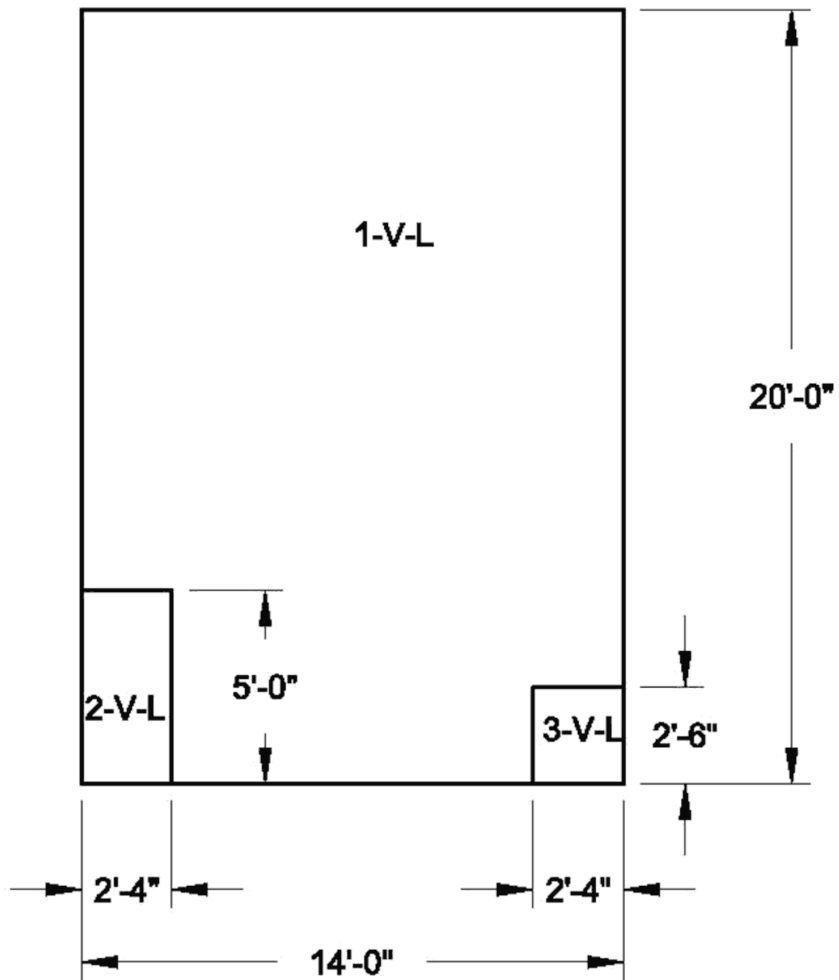


Figure 3H.6-174 Wall 9 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

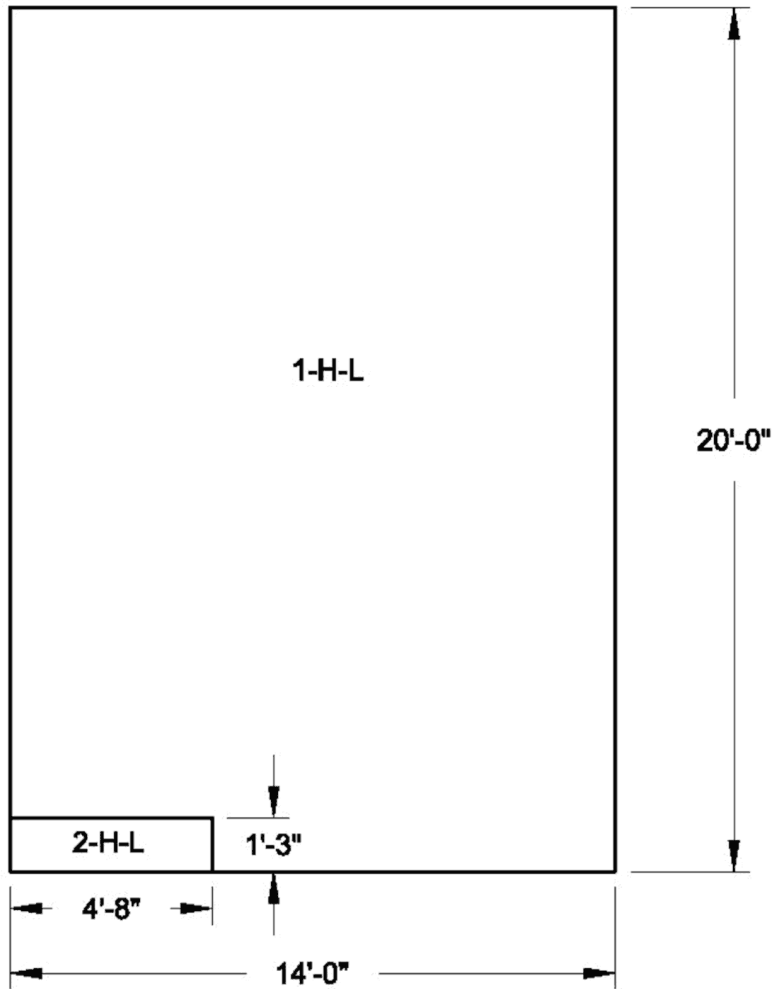


Figure 3H.6-175 Wall 9 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

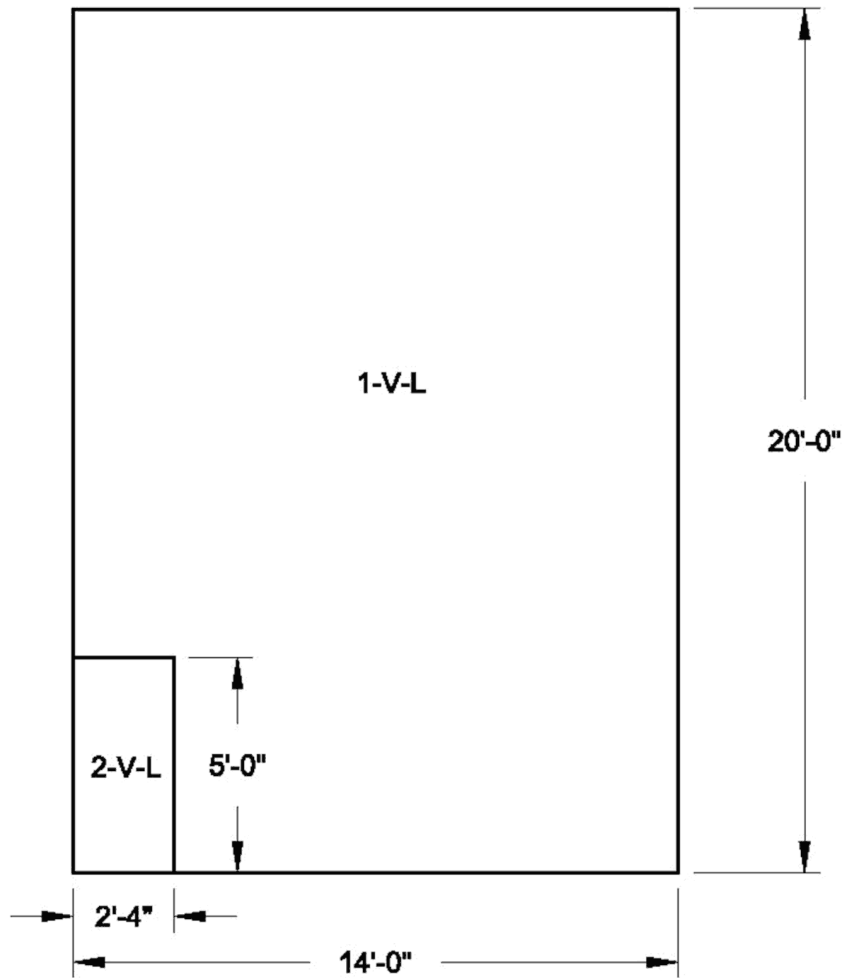


Figure 3H.6-176 Wall 9 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

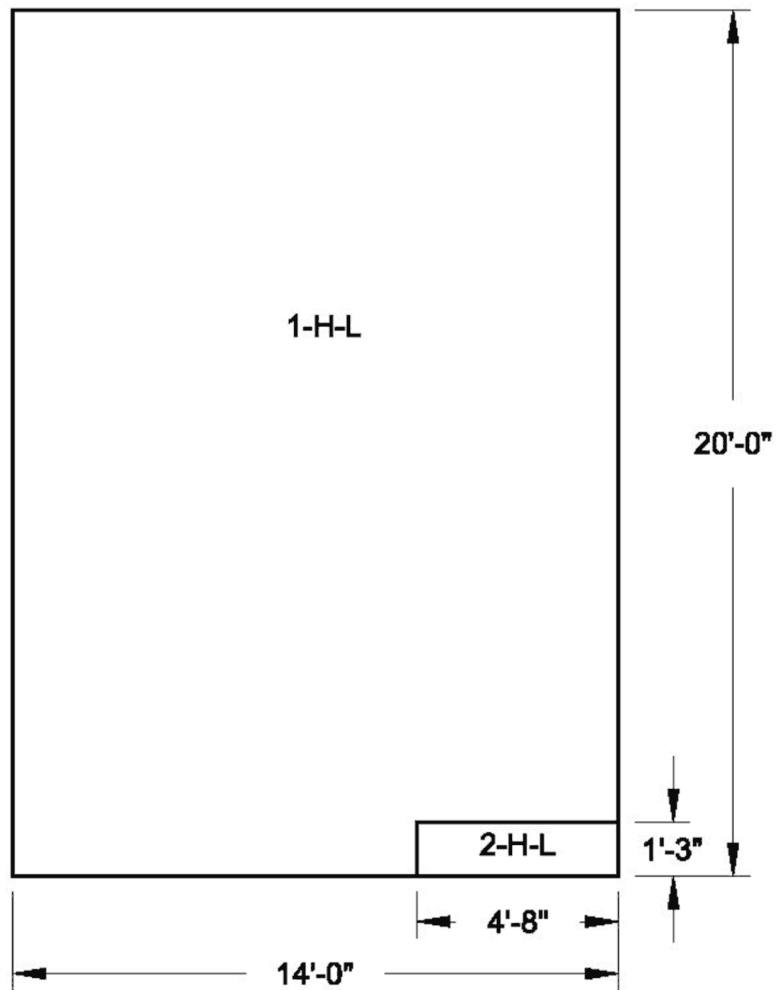


Figure 3H.6-177 Wall 10 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

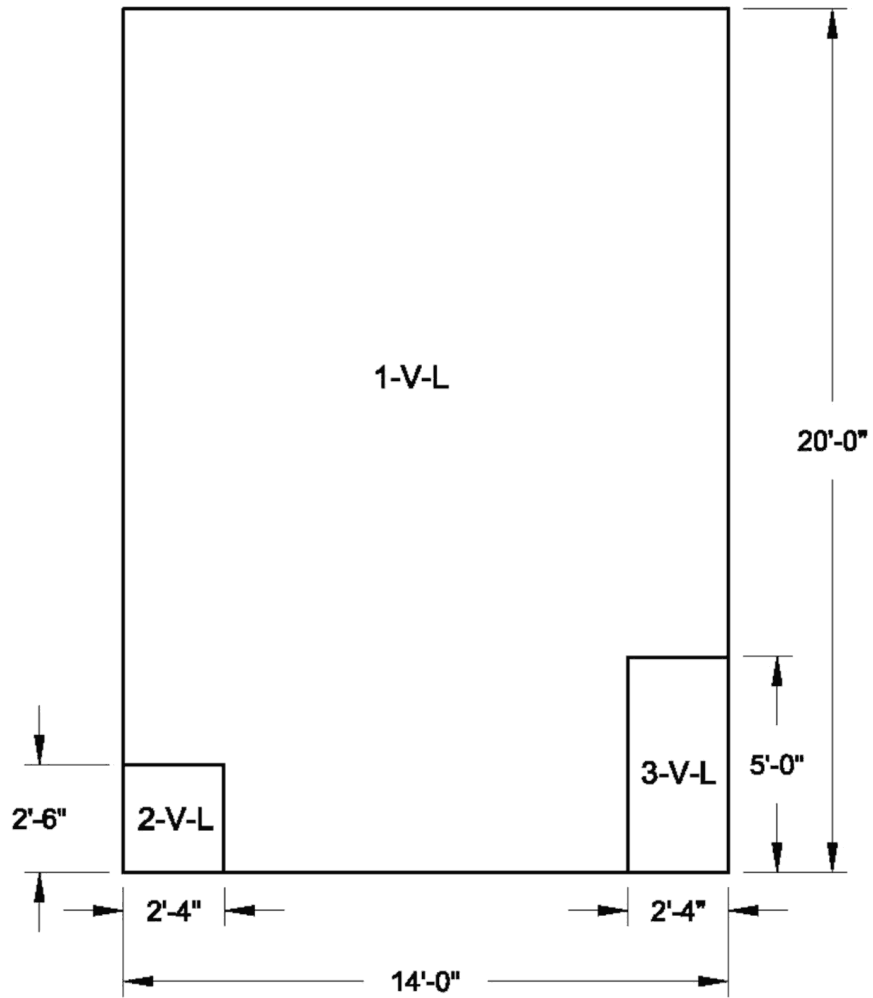


Figure 3H.6-178 Wall 10 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

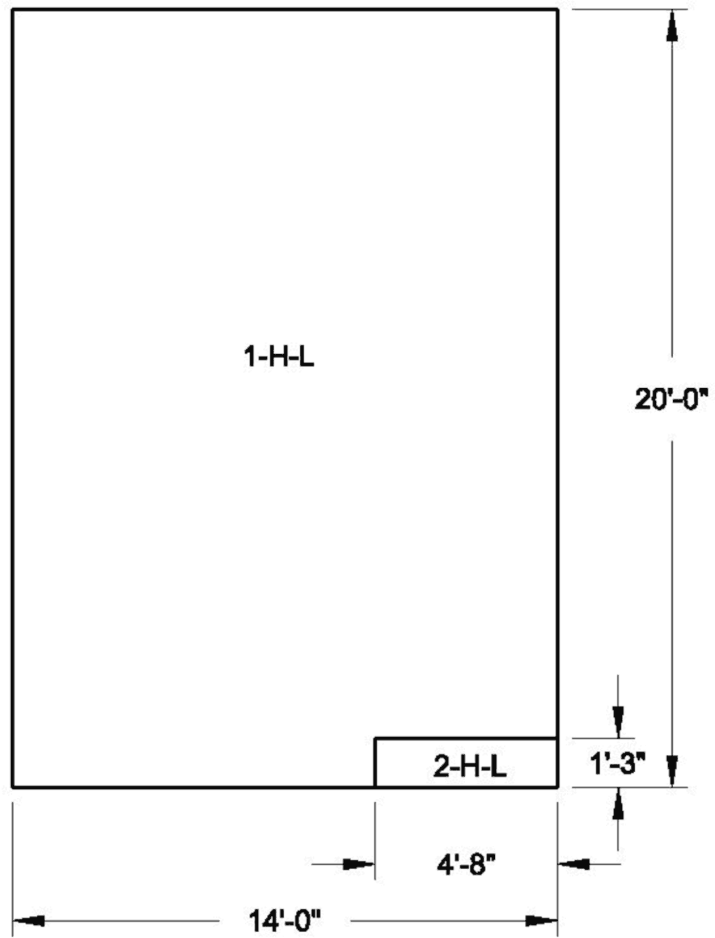


Figure 3H.6-179 Wall 10 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

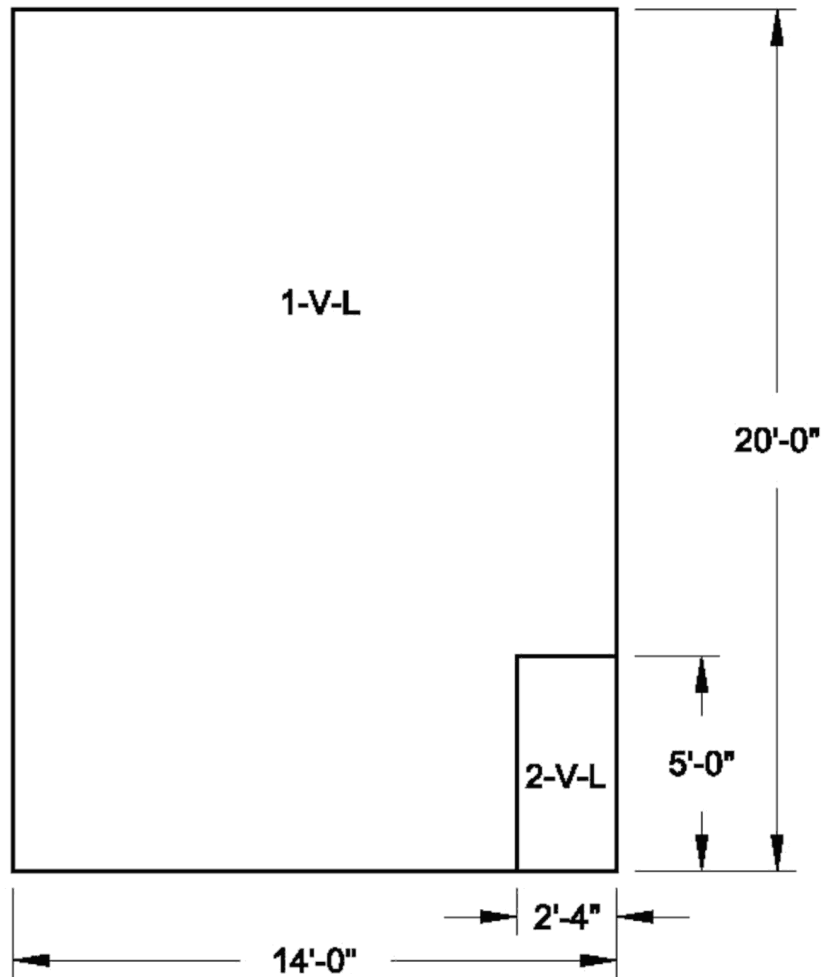


Figure 3H.6-180 Wall 10 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

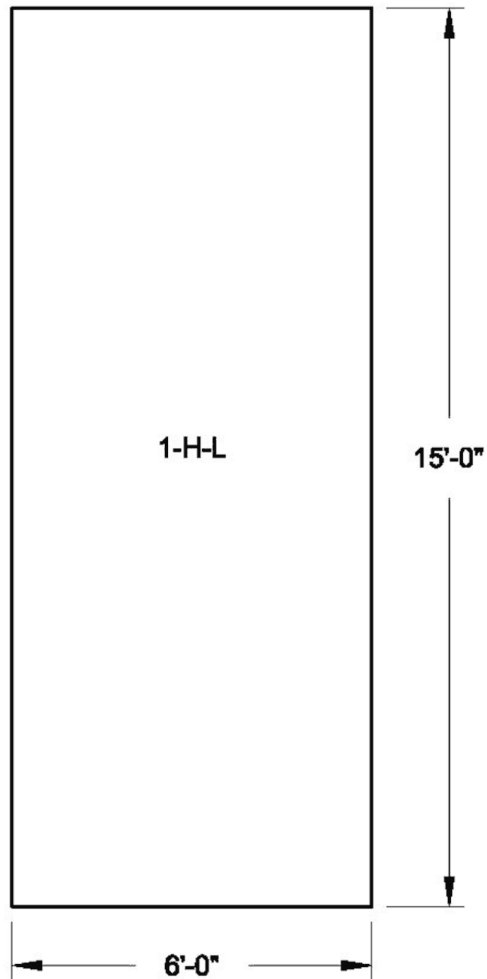
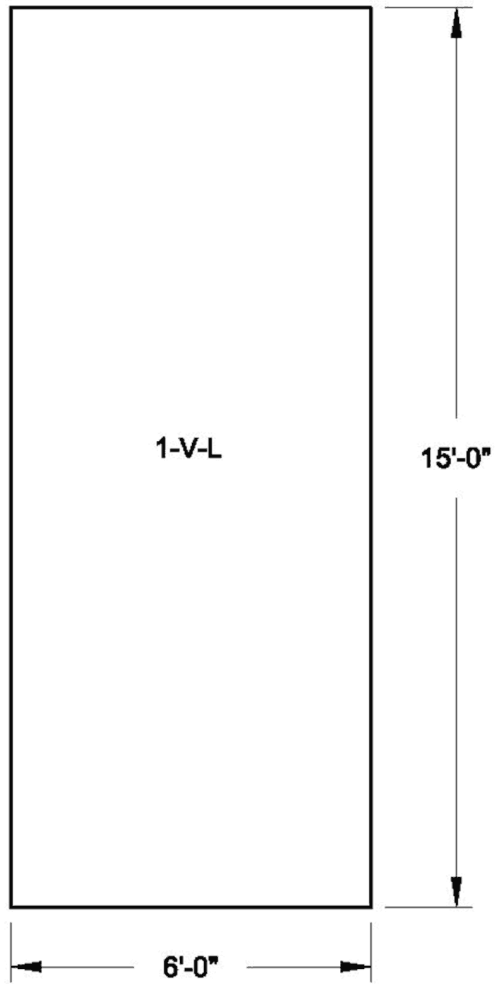


Figure 3H.6-181 Wall 11 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face



**Figure 3H.6-182 Wall 11 Looking From Outside
Vertical Reinforcement Zones
Near Side Face**

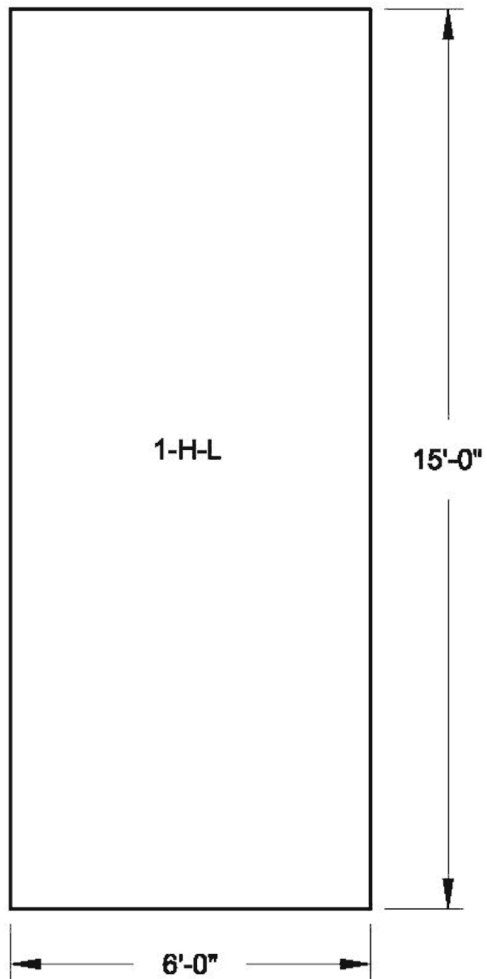
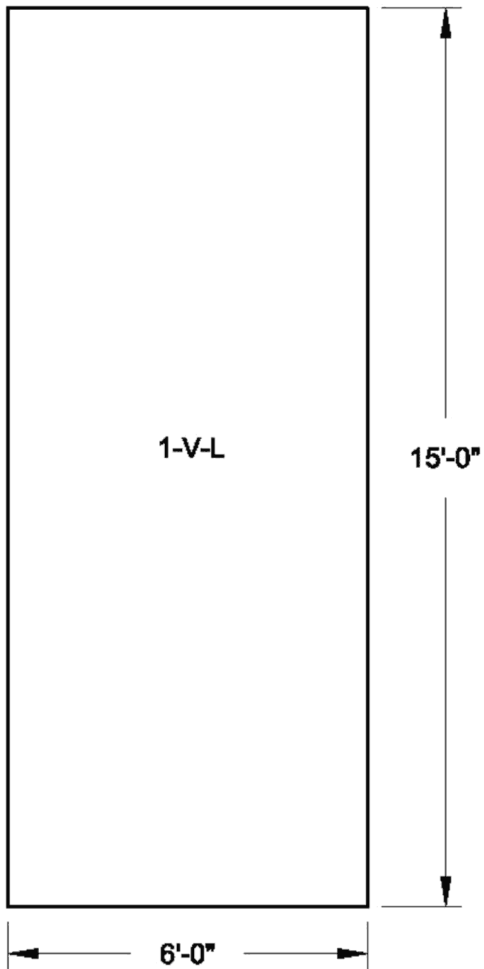


Figure 3H.6-183 Wall 11 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face



**Figure 3H.6-184 Wall 11 Looking From Outside
Vertical Reinforcement Zones
Far Side Face**

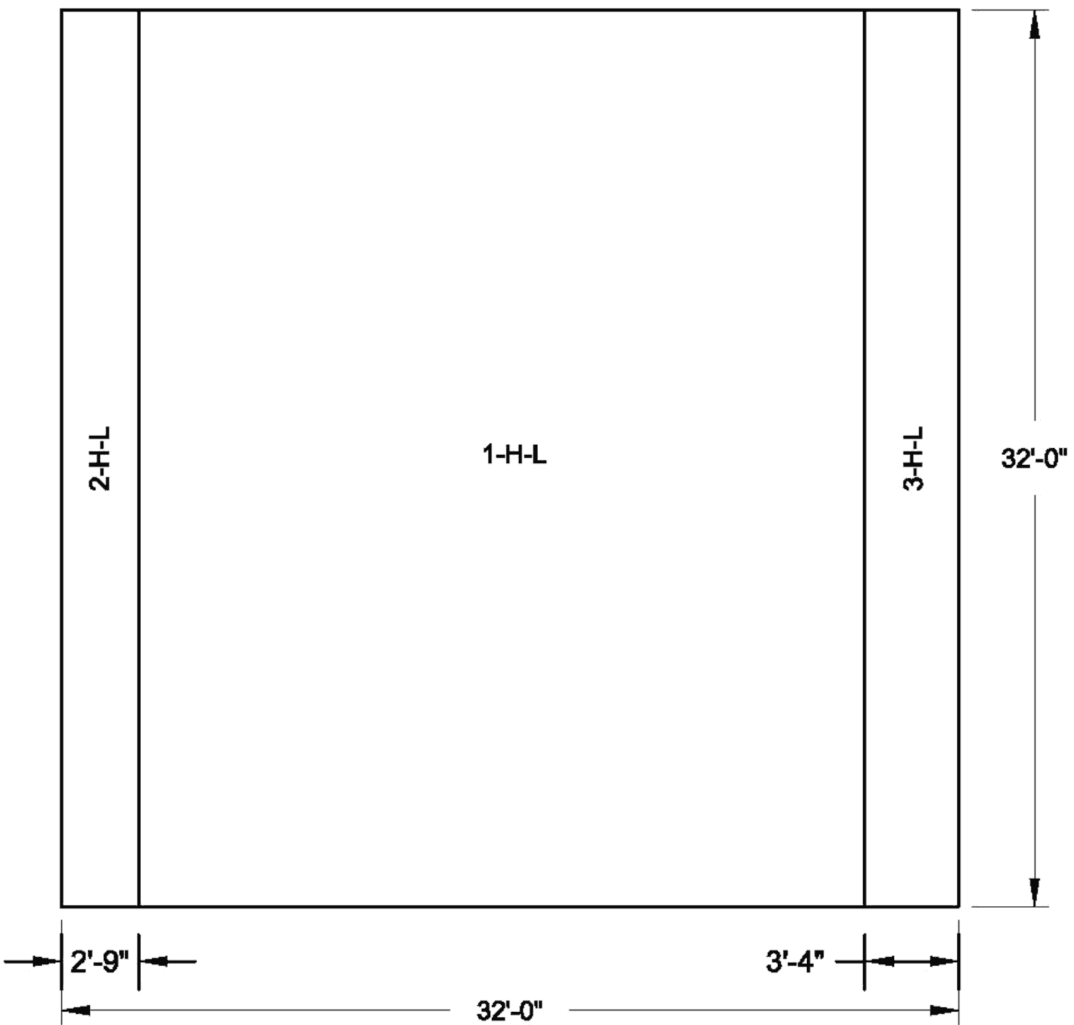


Figure 3H.6-185 Wall 12 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

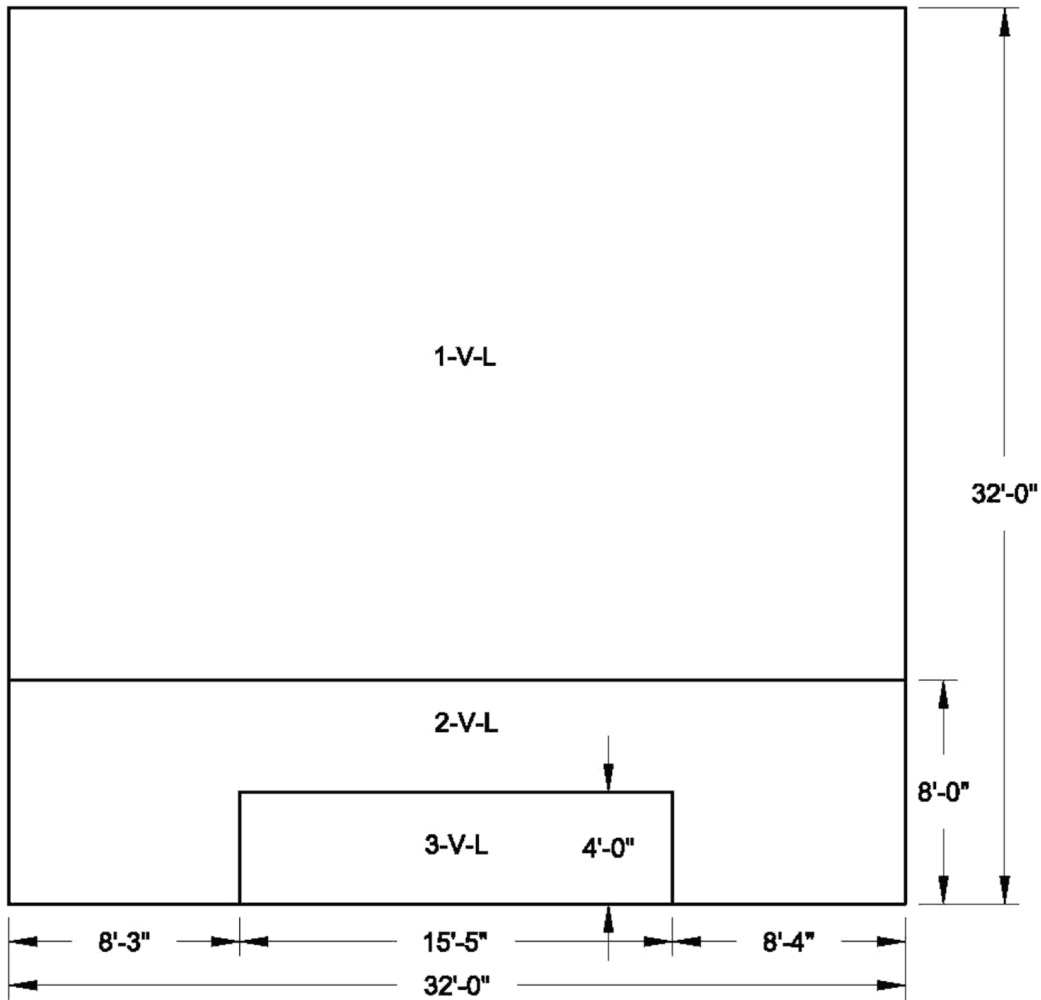
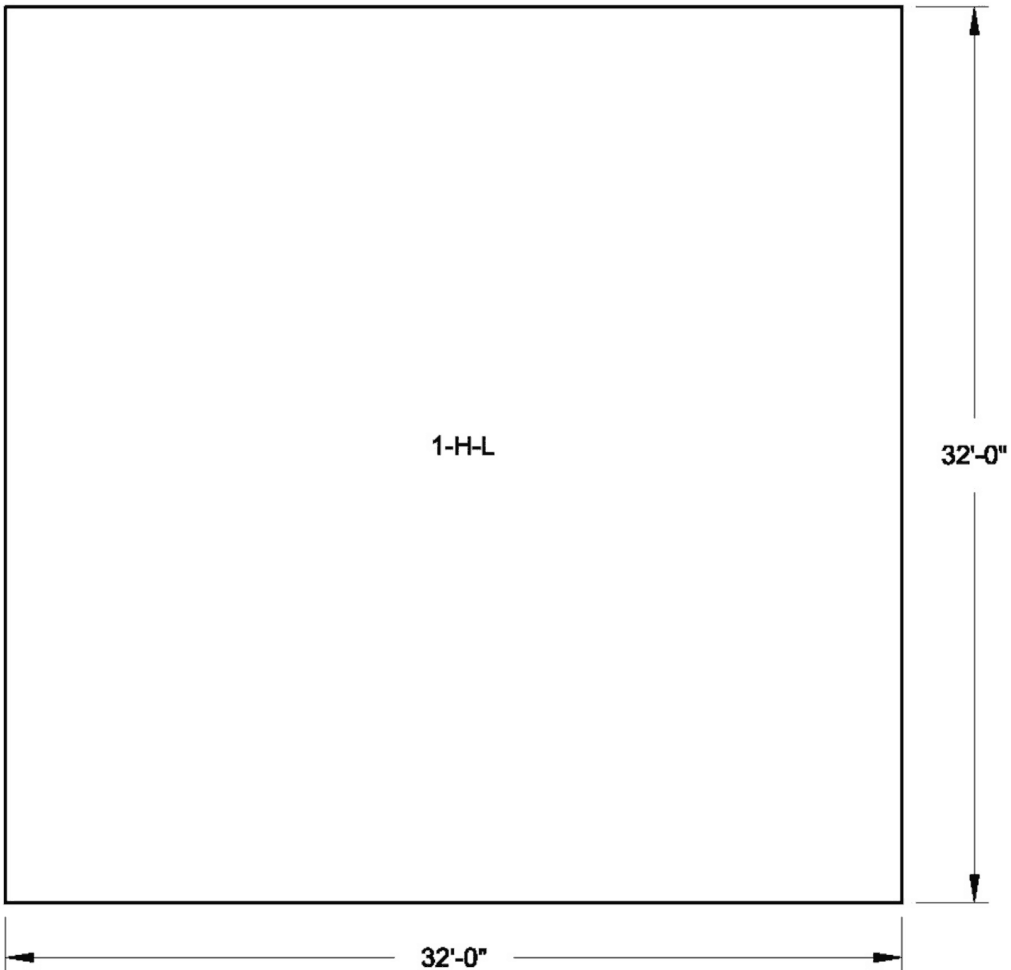
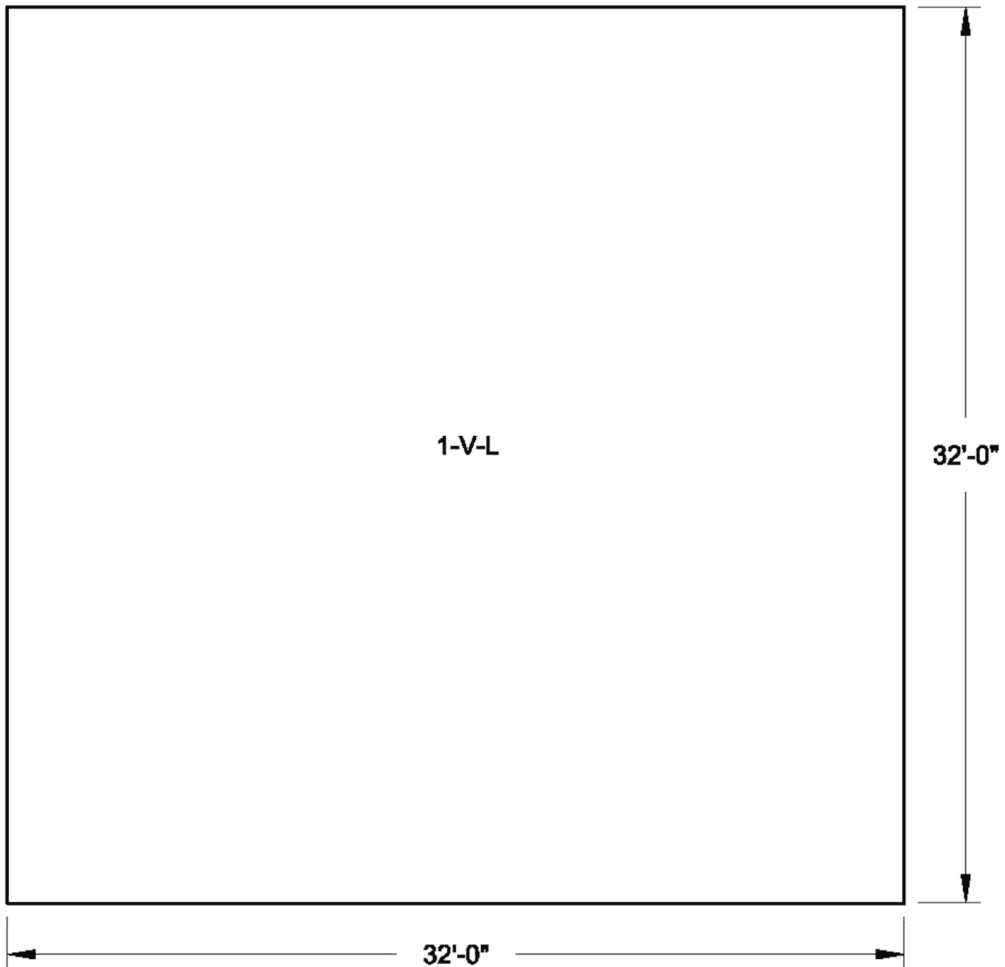


Figure 3H.6-186 Wall 12 Looking From Outside
Vertical Reinforcement Zones
Near Side Face



**Figure 3H.6-187 Wall 12 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face**



**Figure 3H.6-188 Wall 12 Looking From Outside
Vertical Reinforcement Zones
Far Side Face**

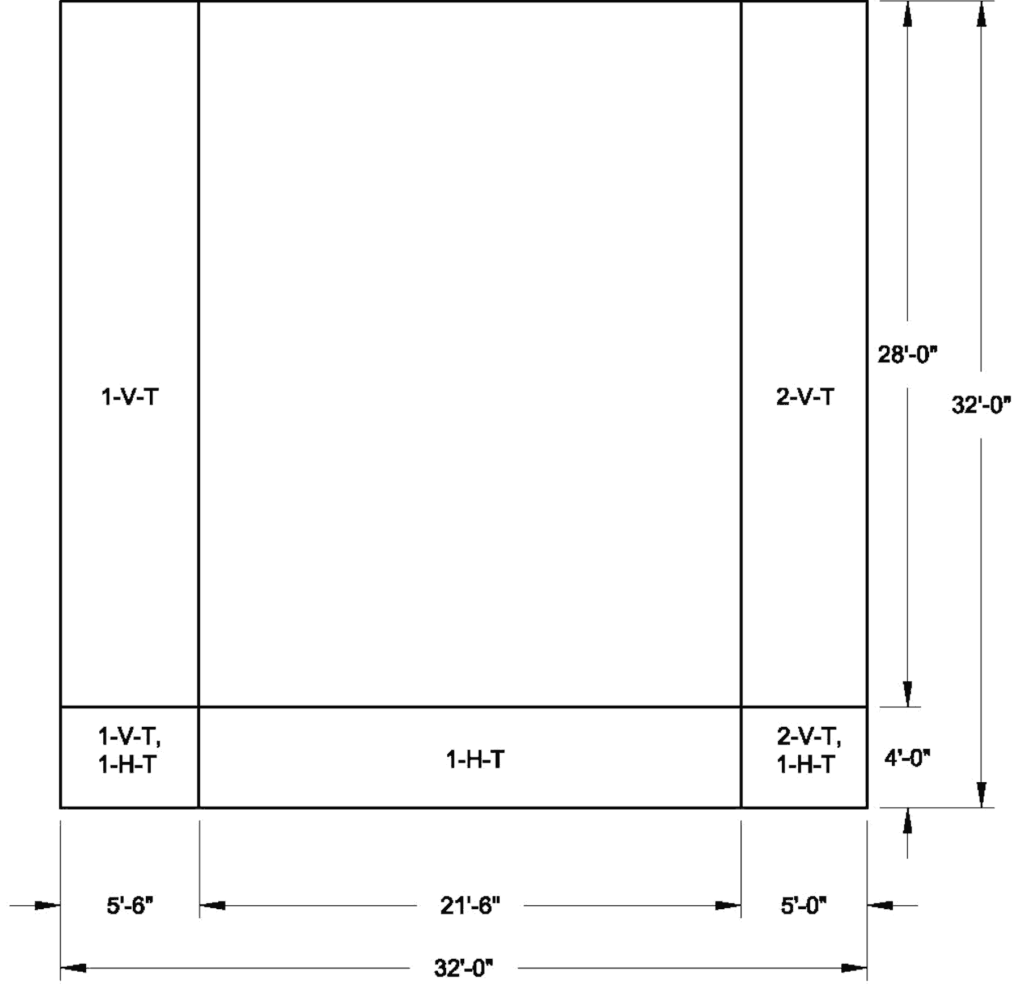


Figure 3H.6-189 Wall 12 Looking From Outside
Transverse Reinforcement Zones

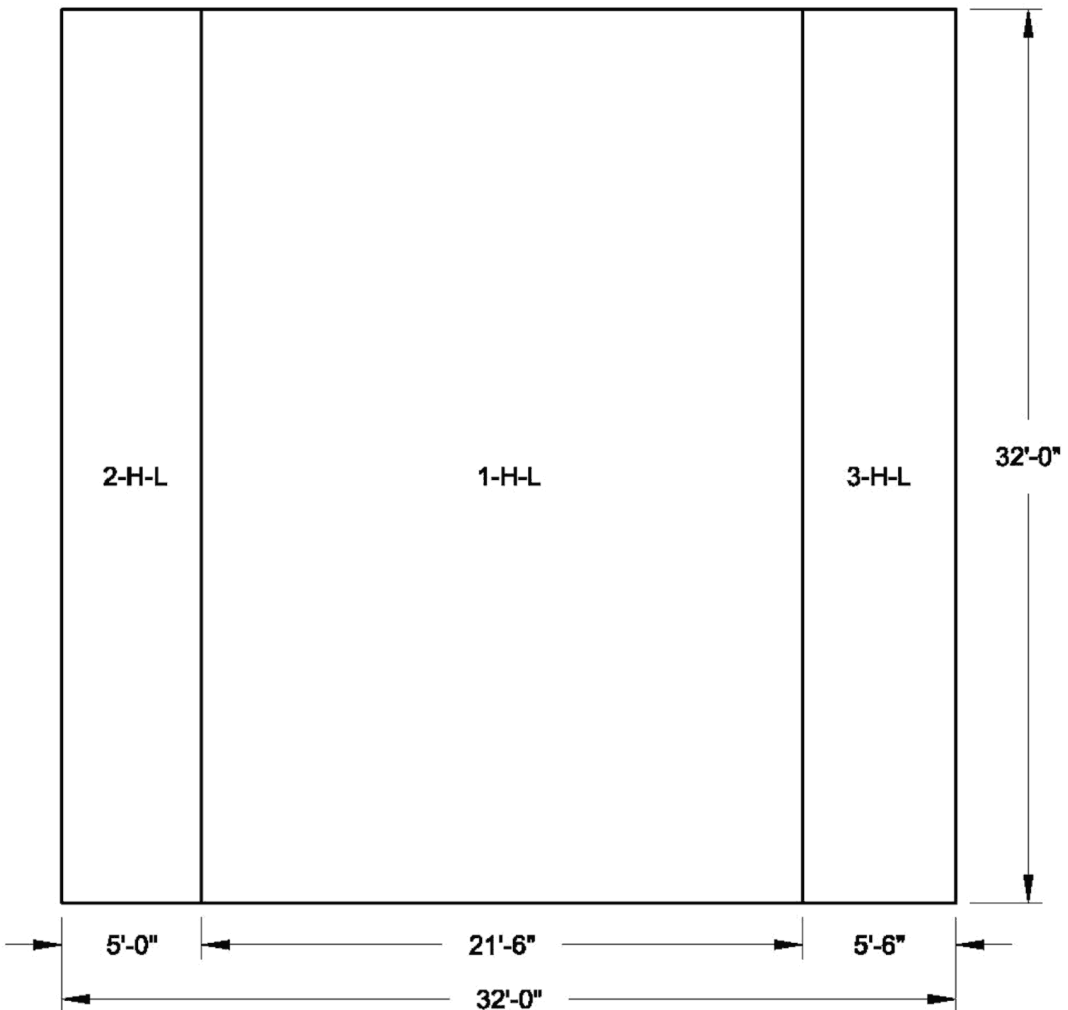


Figure 3H.6-190 Wall 13 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

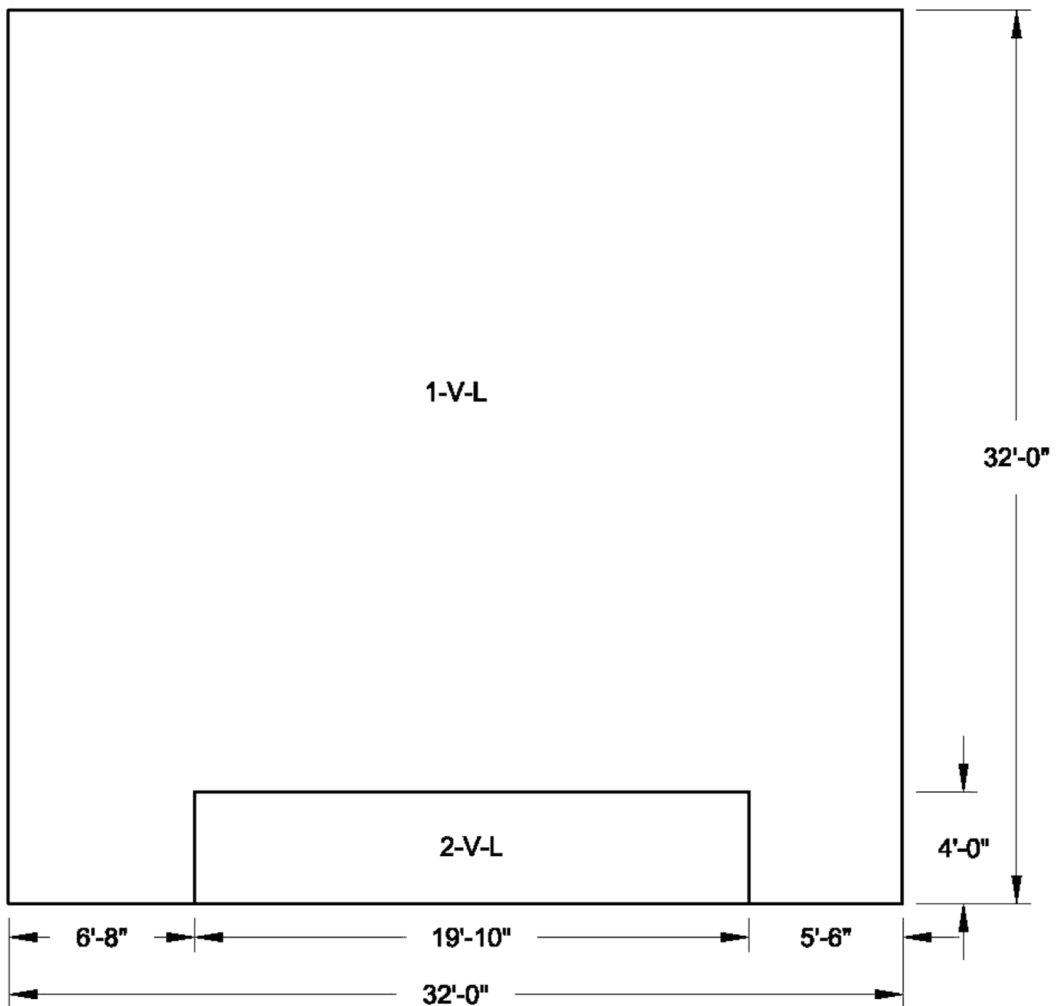


Figure 3H.6-191 Wall 13 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

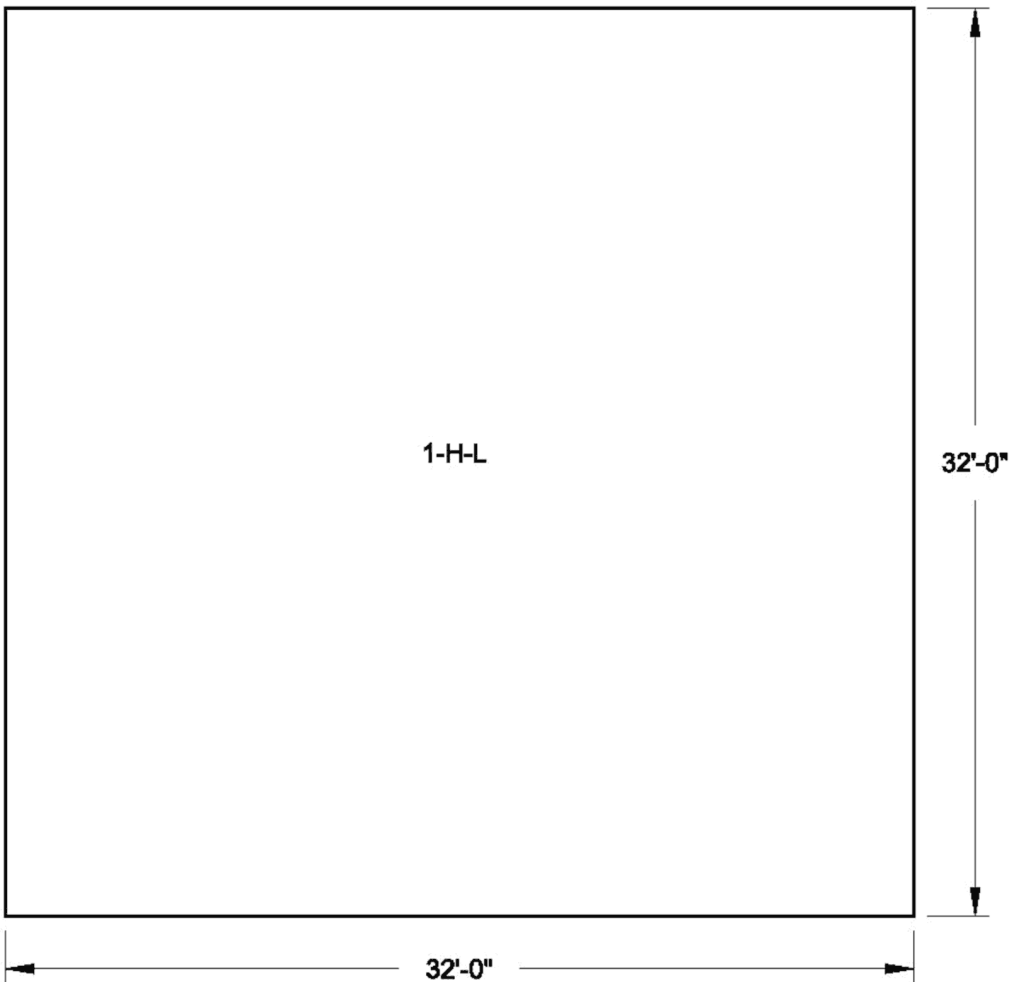


Figure 3H.6-192 Wall 13 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

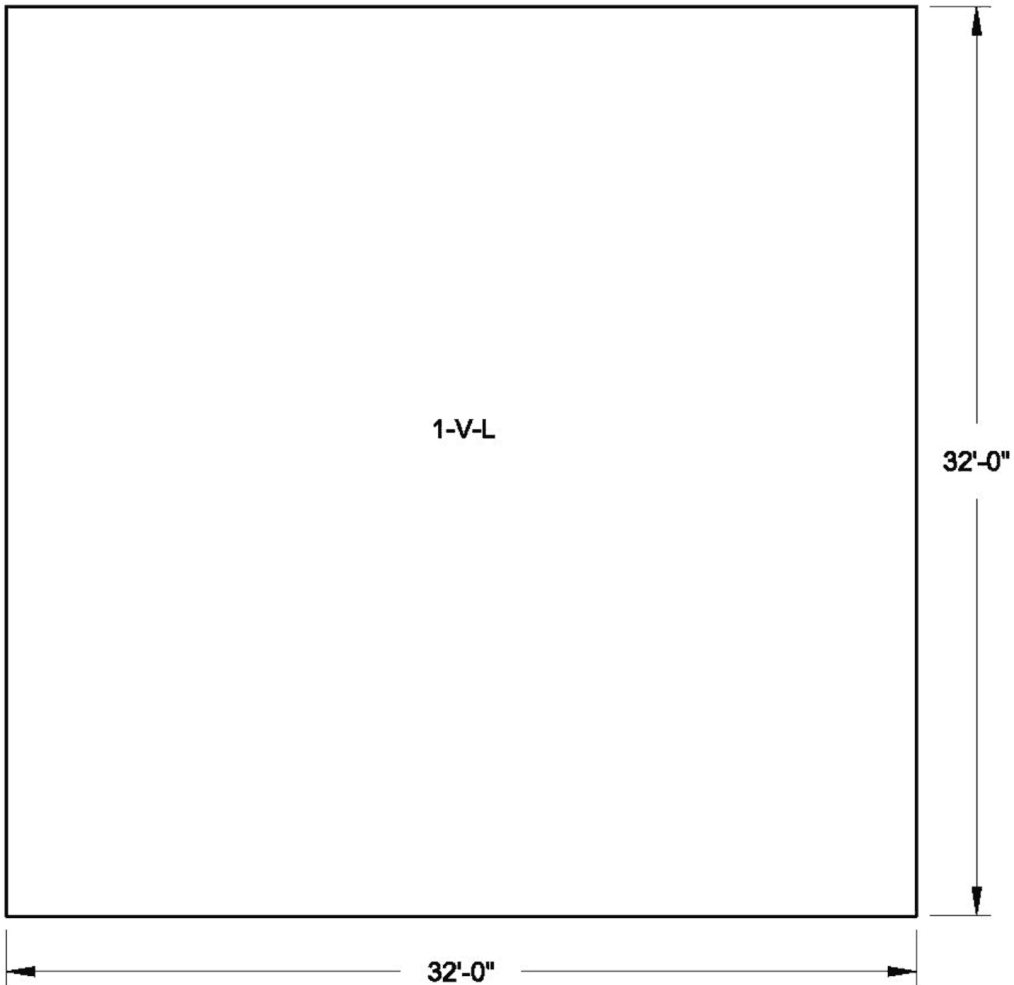


Figure 3H.6-193 Wall 13 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

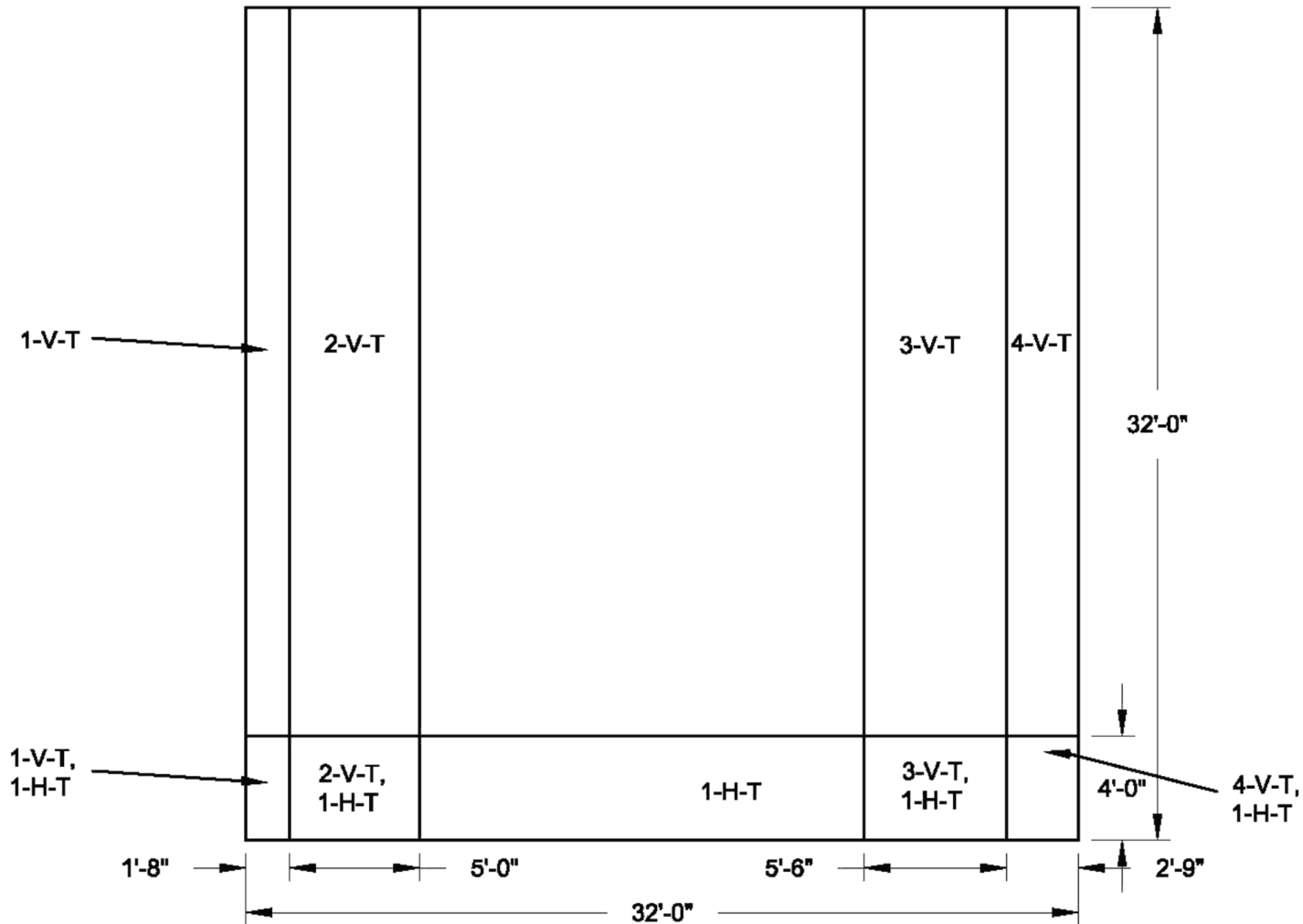


Figure 3H.6-194 Wall 13 Looking From Outside
Transverse Reinforcement Zones

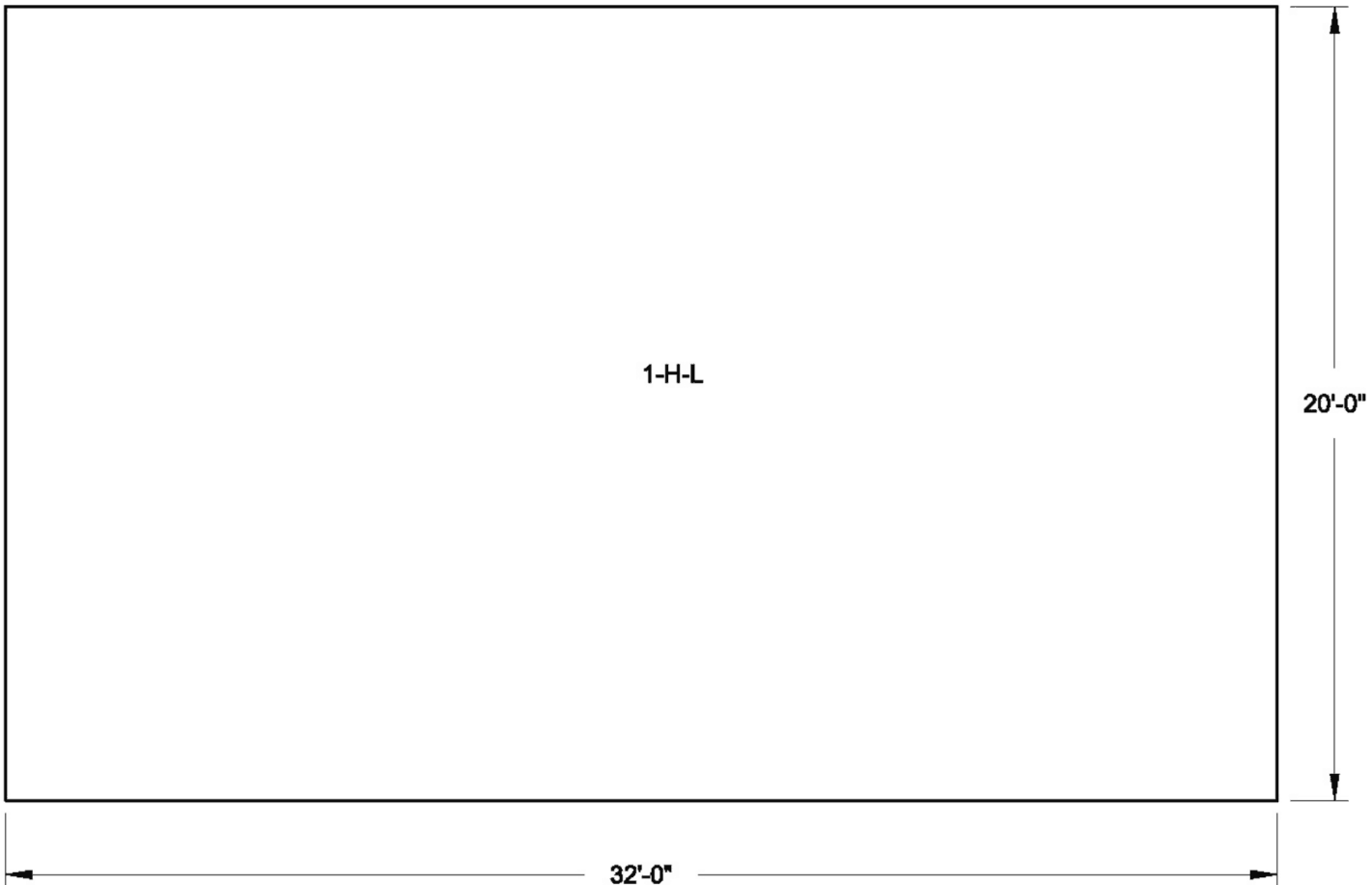


Figure 3H.6-195 Wall 14 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

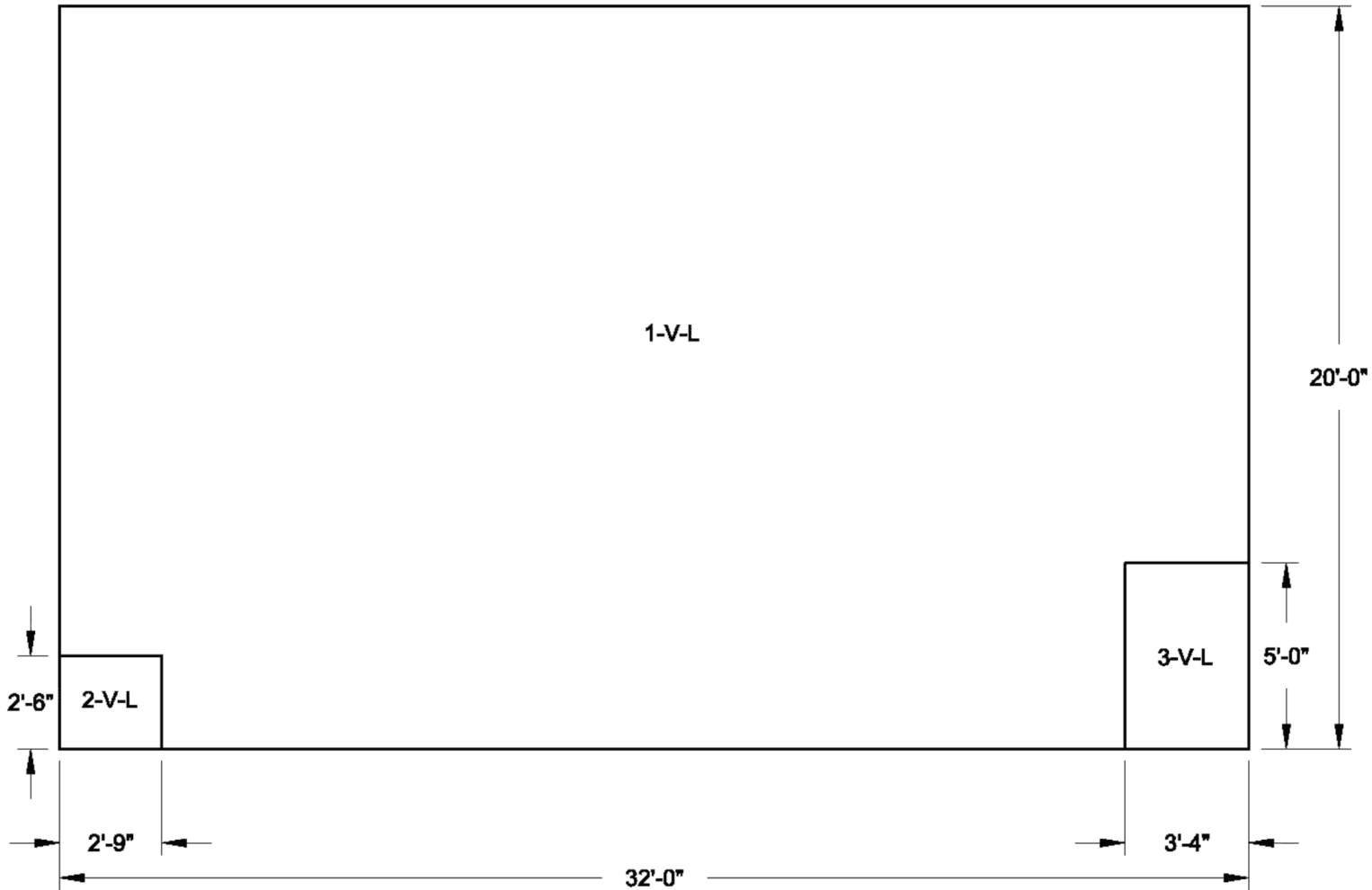


Figure 3H.6-196 Wall 14 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

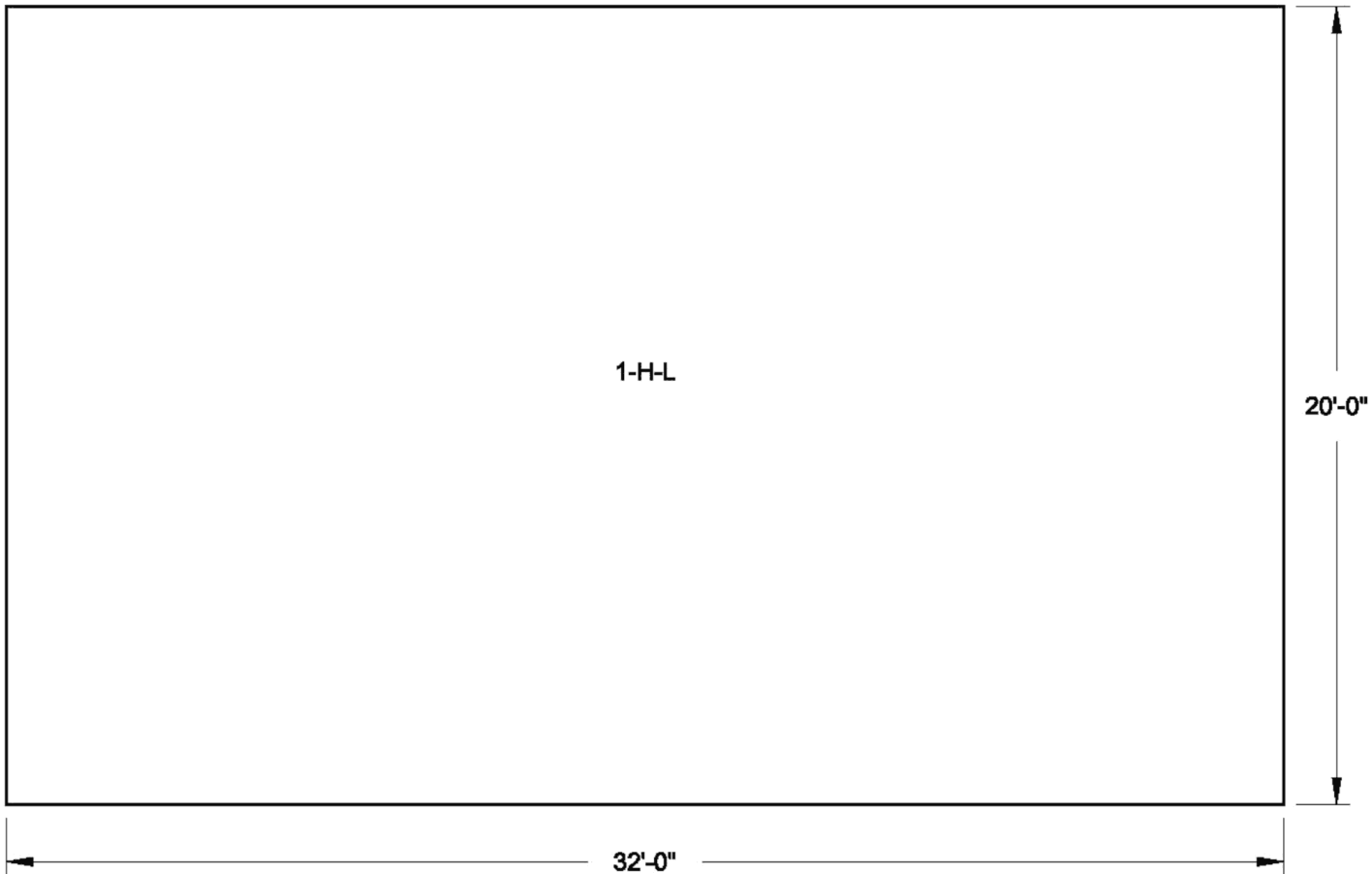


Figure 3H.6-197 Wall 14 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

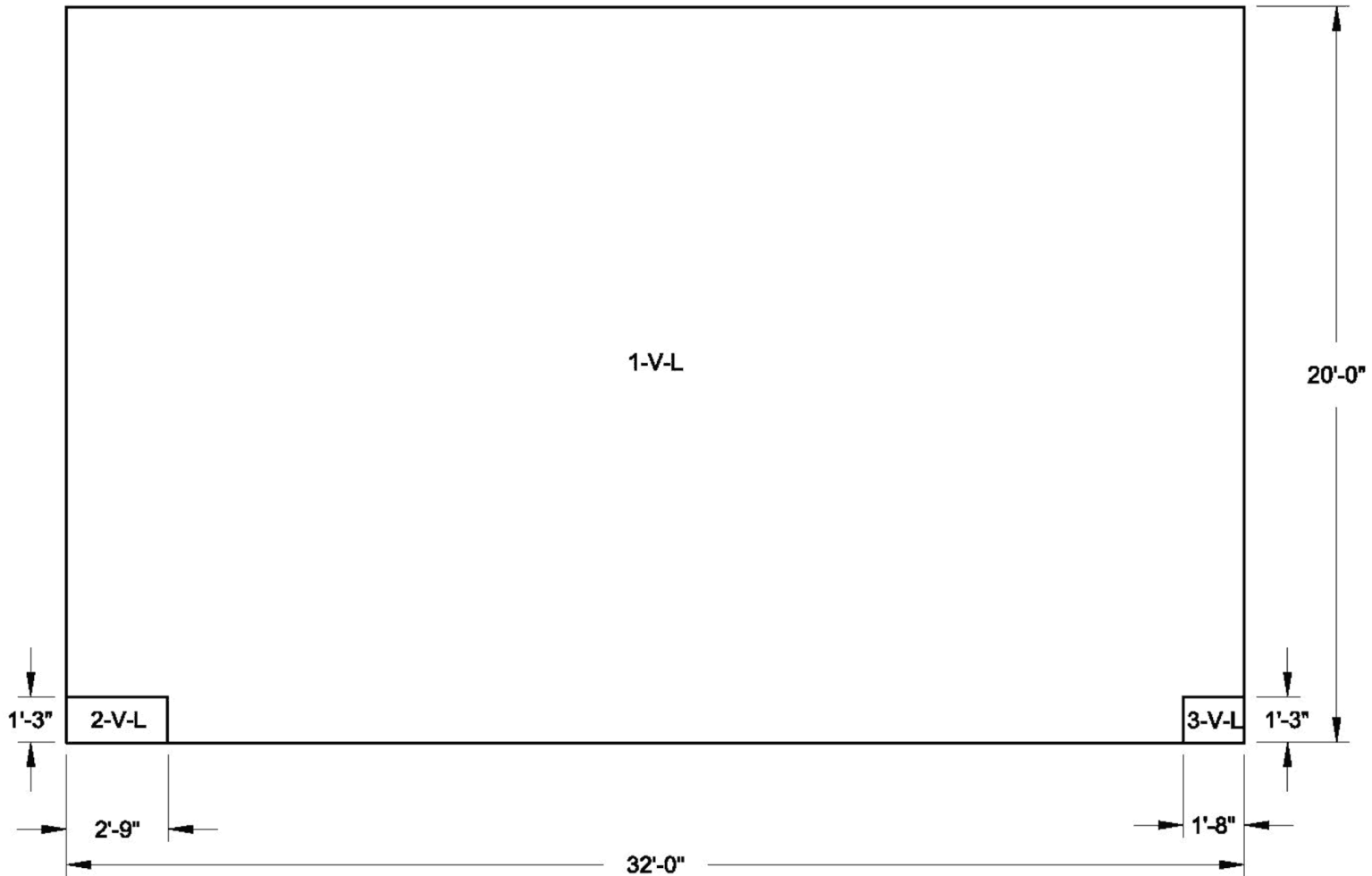


Figure 3H.6-198 Wall 14 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

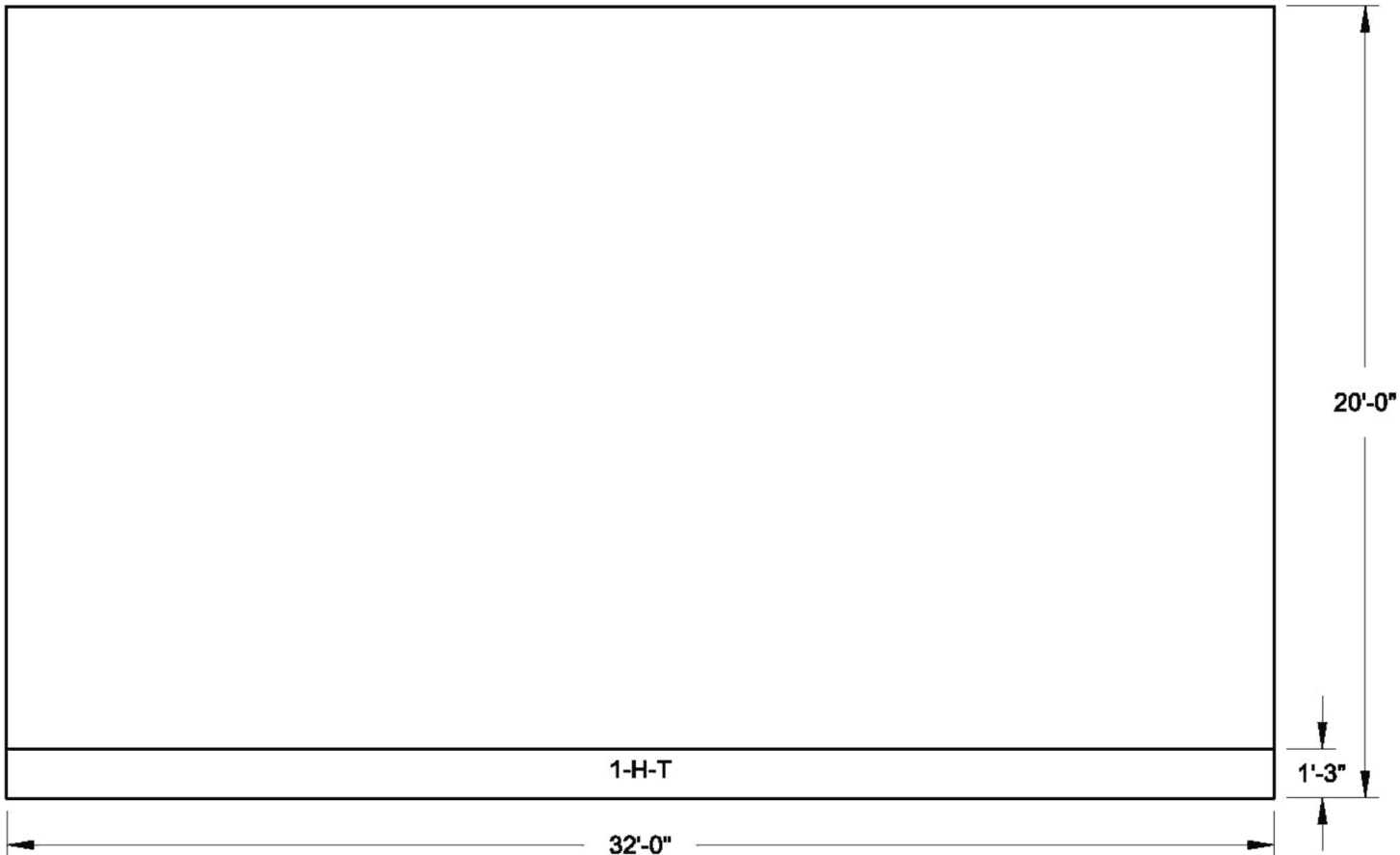


Figure 3H.6-199 Wall 14 Looking From Outside
Transverse Reinforcement Zones

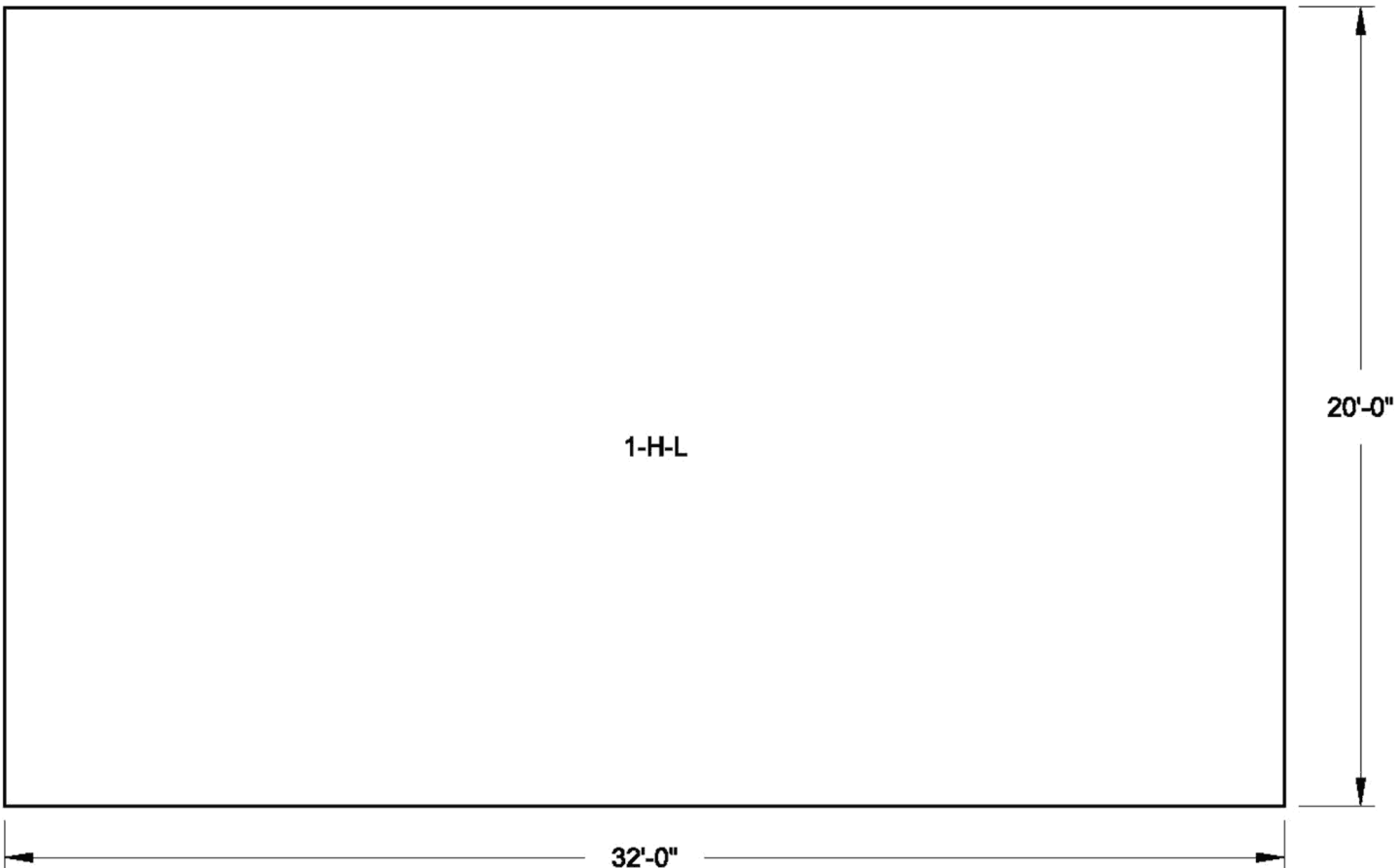


Figure 3H.6-200 Wall 15 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

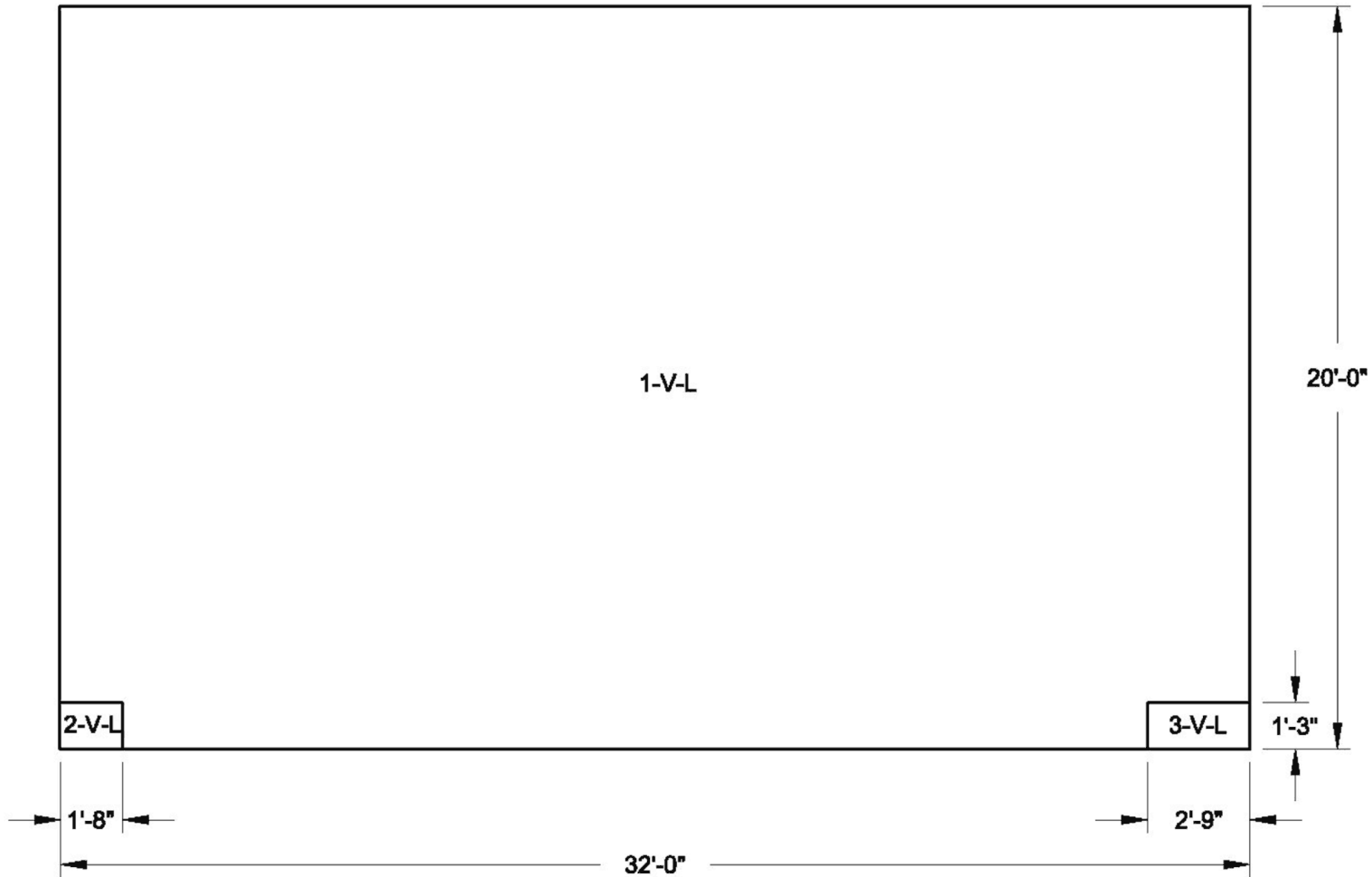
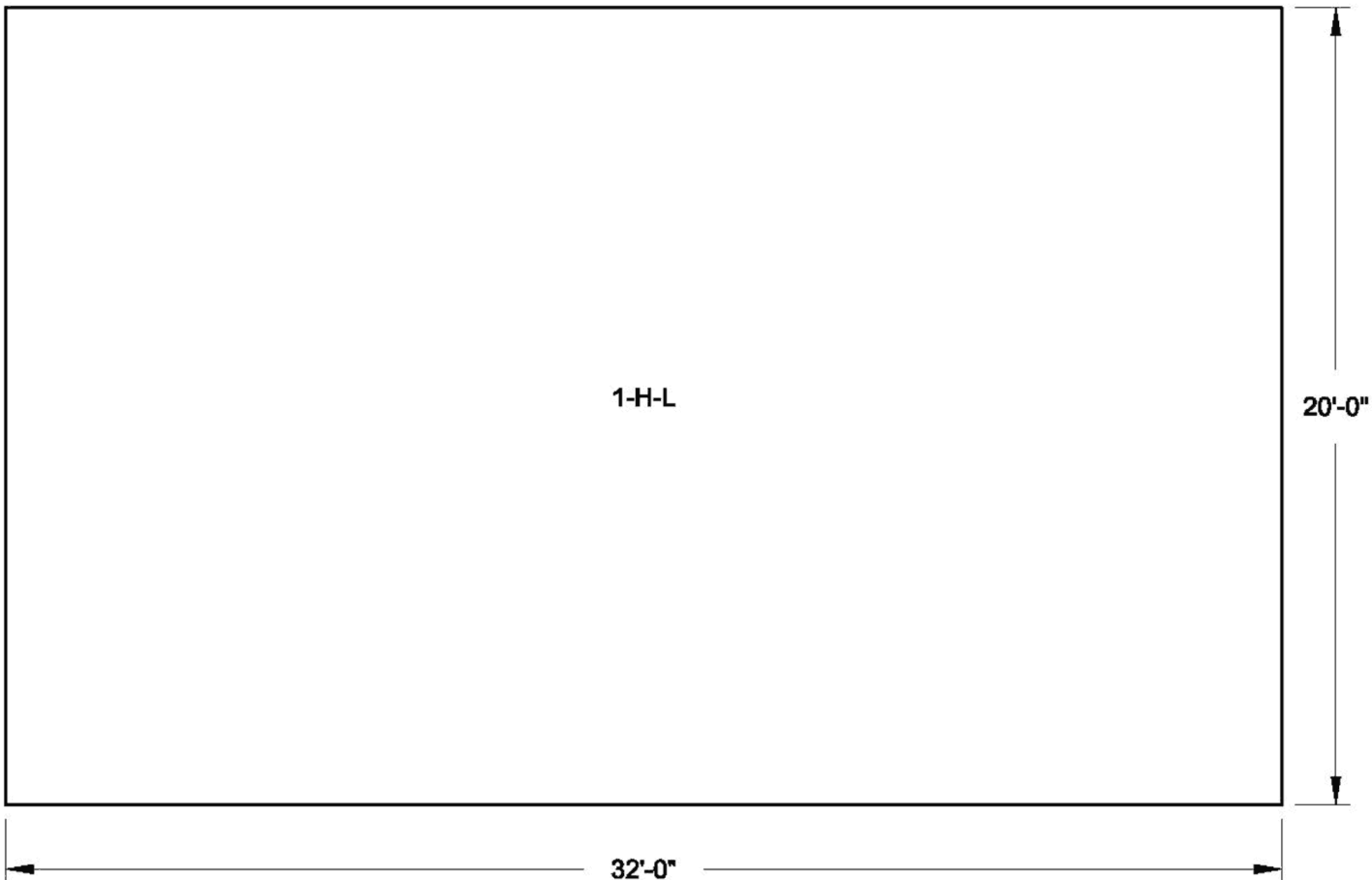


Figure 3H.6-201 Wall 15 Looking From Outside
Vertical Reinforcement Zones
Near Side Face



**Figure 3H.6-202 Wall 15 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face**



Figure 3H.6-203 Wall 15 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

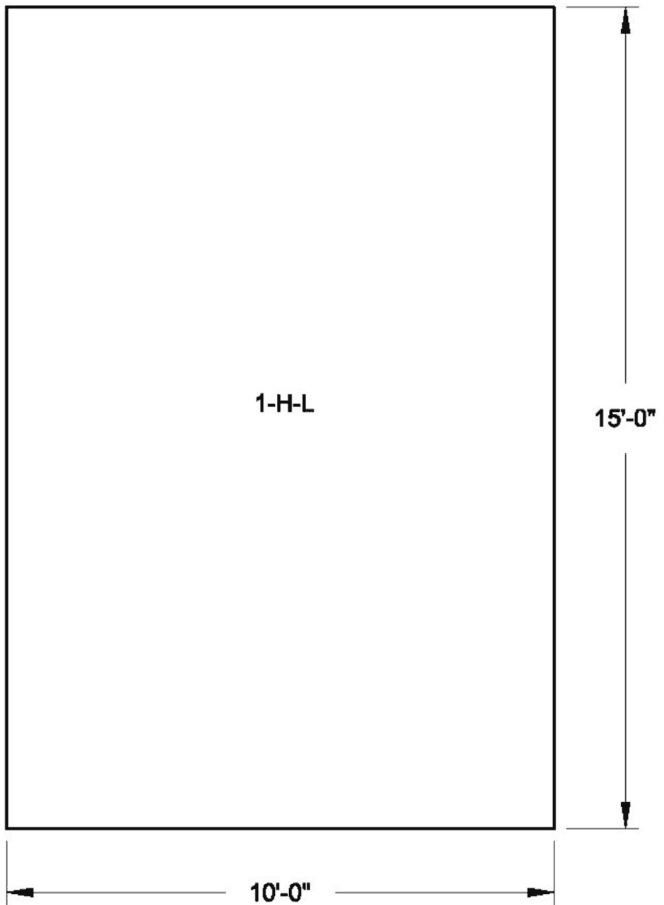


Figure 3H.6-204 Wall 16 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

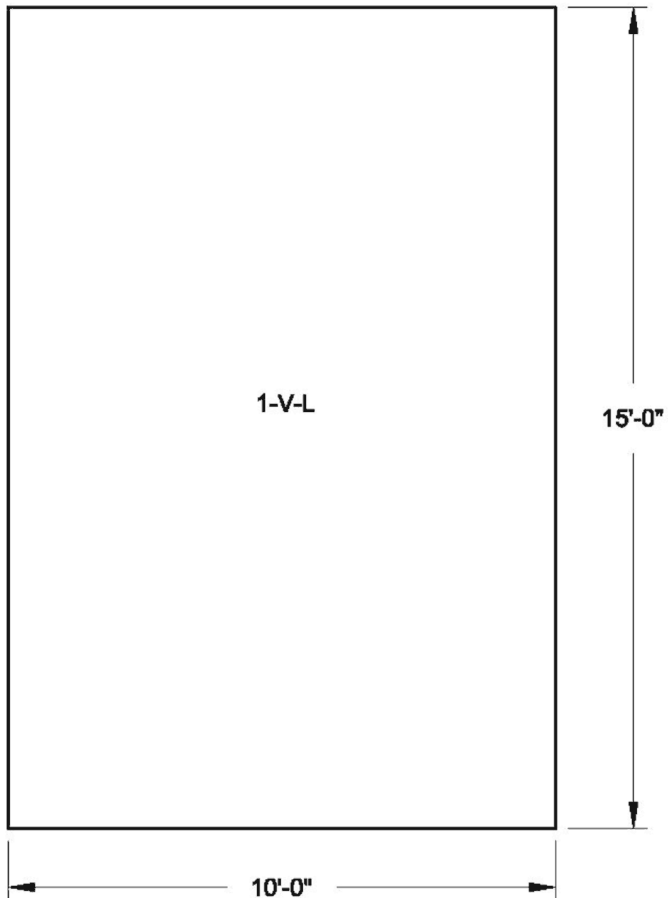
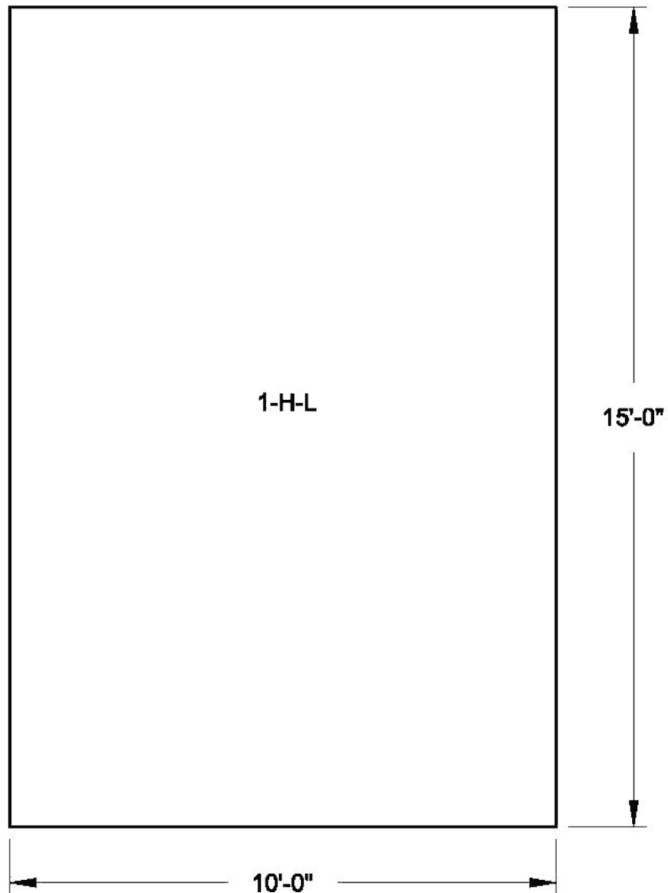
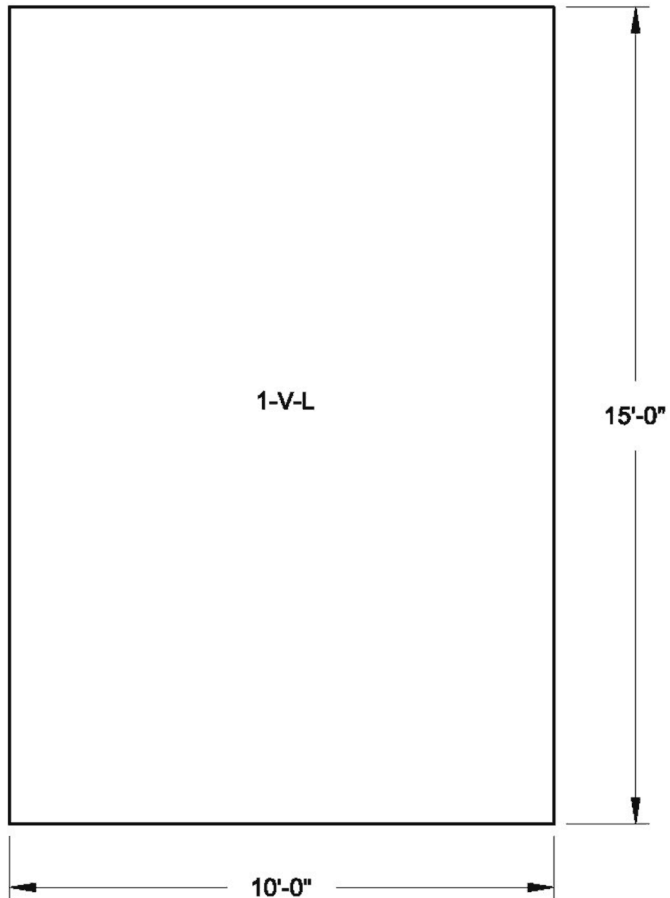


Figure 3H.6-205 Wall 16 Looking From Outside
Vertical Reinforcement Zones
Near Side Face



**Figure 3H.6-206 Wall 16 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face**



**Figure 3H.6-207 Wall 16 Looking From Outside
Vertical Reinforcement Zones
Far Side Face**

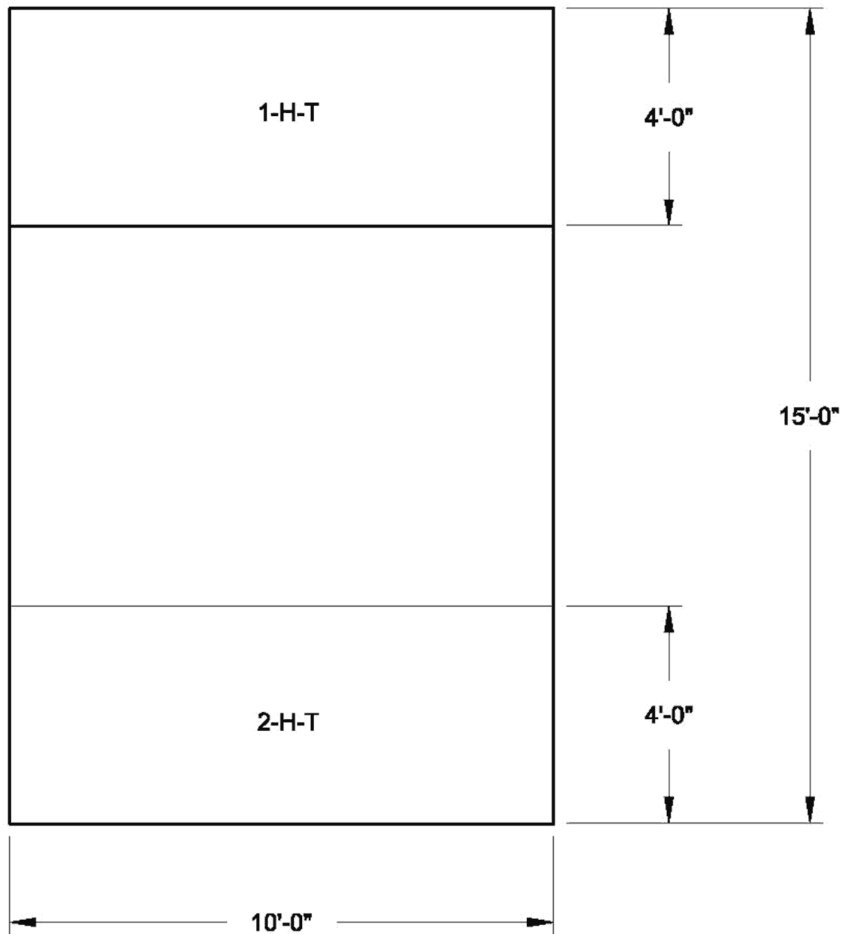


Figure 3H.6-208 Wall 16 Looking From Outside
Transverse Reinforcement Zones

