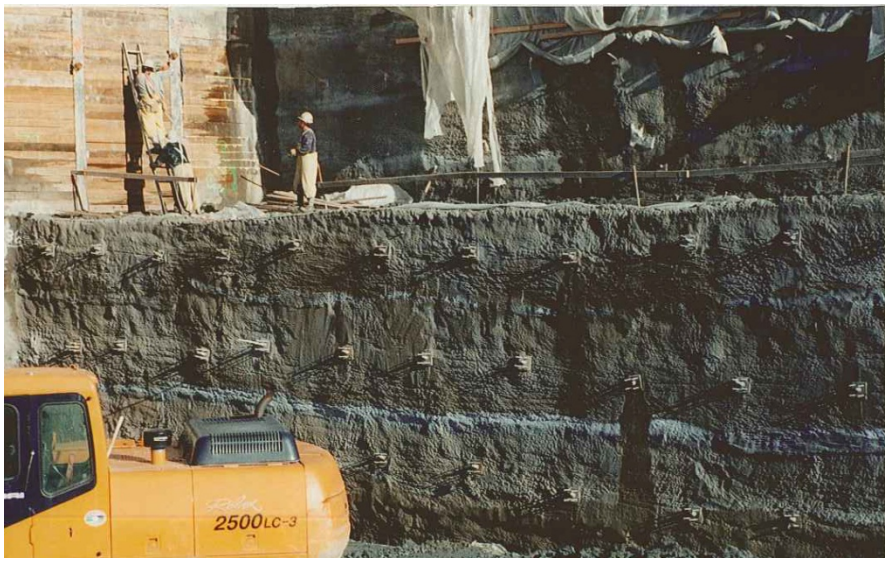
This is a small soldier pile wall with tie backs. The vertical elements are the “soldier piles” spaced about 6 feet on center here. They are steel “H” sections weighing 30 lbs per foot. The two rows of horizontal elements are whalers. Between every other soldier pile notice the square plate with the road sticking out of it. These rods extend into the soil about 20 feet.

This wall is similar to the soldier pile wall except it uses small diameter “pin” piles spaced at 4 feet on center. It still uses tie backs and whalers. Styrofoam “fill” was used behind the wall to reduce the horizontal force of the soil on the pin piles.

This is a cantilevered soldier pile wall. It does not use tiebacks. Often tiebacks cannot be used because the walls are on or near the property line and the tiebacks would extend beyond the property line. The wall in the back is about 16 feet high. The soldier piles are spaced 6’ on center and weigh about 120 lbs per foot. the higher the wall the heavier the steel sections need to be.



The vertical soil face in the foreground is being stabilized by a technique called soil nailing. You can see the ends of the rods spaced about 6 feet on center in each direction. These rods extend back about 30 feet. Th wall is about 12 feet tall. Below you can see that reinforcing has been placed and concrete is being sprayed onto the wall with hoses. Running the hose is similar to using a fire hose; it has a big kick. By the end of the day, these guys are tired. It is a very stiff mix and is called the shotcrete method.

The wall in the background is a tied back soldier pile wall and is 45 feet tall at the corner. Above the wall is Yesler avenue in downtown Seattle.

This is one of a class of walls that uses precast concrete elements generically referred to as Mechanically Stabilized Earth (MSE) walls. These walls typically use a geogrid reinforcing matt that ties to each block and extends back into the earth 10 or 15 feet. This wall is about the height we would need at Copalis (8 to 10 feet).