Problem 1

There are surely many different possible paths for this problem. The path in the figure is:

\[ CBAABDEBAADEDCAACEEDBBCCDEBCDDEDCBAF \]

See Figure 1.

Problem 2

See Figure 2. 'X' represents a diffusion-metal1 contact. 'O' represents a metall1-metal2 via. The inverter is not included.

Problem 3

See Figure 3. Again, 'O' represents a metall1-metal2 via.
Figure 1.
Figure 3.