Using u and v as the parameters, $x = u$, $y = v$, $z = u + 1$ where $0 \leq u^2 + v^2 \leq 1$. Also, since the plane intersects the cylinder in an ellipse, the surface is a planar ellipse in the plane $z = u + 1$. Thus, parametrizing with respect to s and θ , we have $x = s \cos\theta$, $y = s \sin\theta$, $z = 1 + s \cos\theta$ where $0 \leq s \leq 1$ and $0 \leq \theta \leq 2\pi$.