

## PLANNING PHASE COST ESTIMATE (DD 1391) – SMALL ARMS RANGES

General: Tab A of a DD Form 1391 has been developed for this range type using the standard layout and associated ROCA. The “Fort Example” DD 1391 can be found in the Appendix of this document.

The following assumptions were used in determining quantities and cost of the range. The designer/cost engineer will have to adjust accordingly for their specific site and project.

- a. Area cost factor = 1
- b. Each building is on a 0.5m thick embankment.
- c. 30% of the range footprint is cleared and grubbed.
- d. 30% of the range footprint is seeded.
- e. Demolition of miscellaneous slabs, foundations, utilities, poles, etc., is entered as \$6000.
- f. 0.2m-grading depth over entire range footprint and ROCA
- g. A “table top” flat surface is assumed for the range with all targets placed above ground.
- h. The roads have no undercutting.
- i. A 0.4m-diameter culvert is installed for every 400m segment of the Service Roads.
- j. The soil type is assumed to be a “medium soil,” requiring no blasting.
- k. No water or sewer service is provided for the range site.
- l. Structural Design Loads
  - 1) Wind speed: 110 mph
  - 2) Seismic zone: 3
  - 3) Soil bearing pressure: 3 ksf
  - 4) Frost penetration: 1 ft