DOGM / DRAINAGE STUDY
SEDIMENTATION POND

Kaiser Steel Corp.
ACT/007/007
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MANSHAFT AREA / GRASSY TRAIL CREEK Rev

Direct Rainfall Runoff Estimation- SCS Method/Sec.4, Engr Hndbk.
CN from fig.9.6,pg.9.11; sage-grass complex(soil group unknown), so use composite: $CN=\frac{60(B)+77.5(C)}{2}$ = 69 w/20% ground cover.

from relationship $S=\frac{1000}{CN}-10$, use table 10.1,pg.10.7: S=10.0(AMC-I).

P = 1.9" from NOAA Utah Atlas (range 1.8" to 2.0").

$Q=\frac{(P-.2S)^2}{P+.8S}$ (from eq.10.10,pg.10.5): $Q=\frac{(1.9-.2x10.0)^2}{1.9+.8x10.0}$ = 0.001".

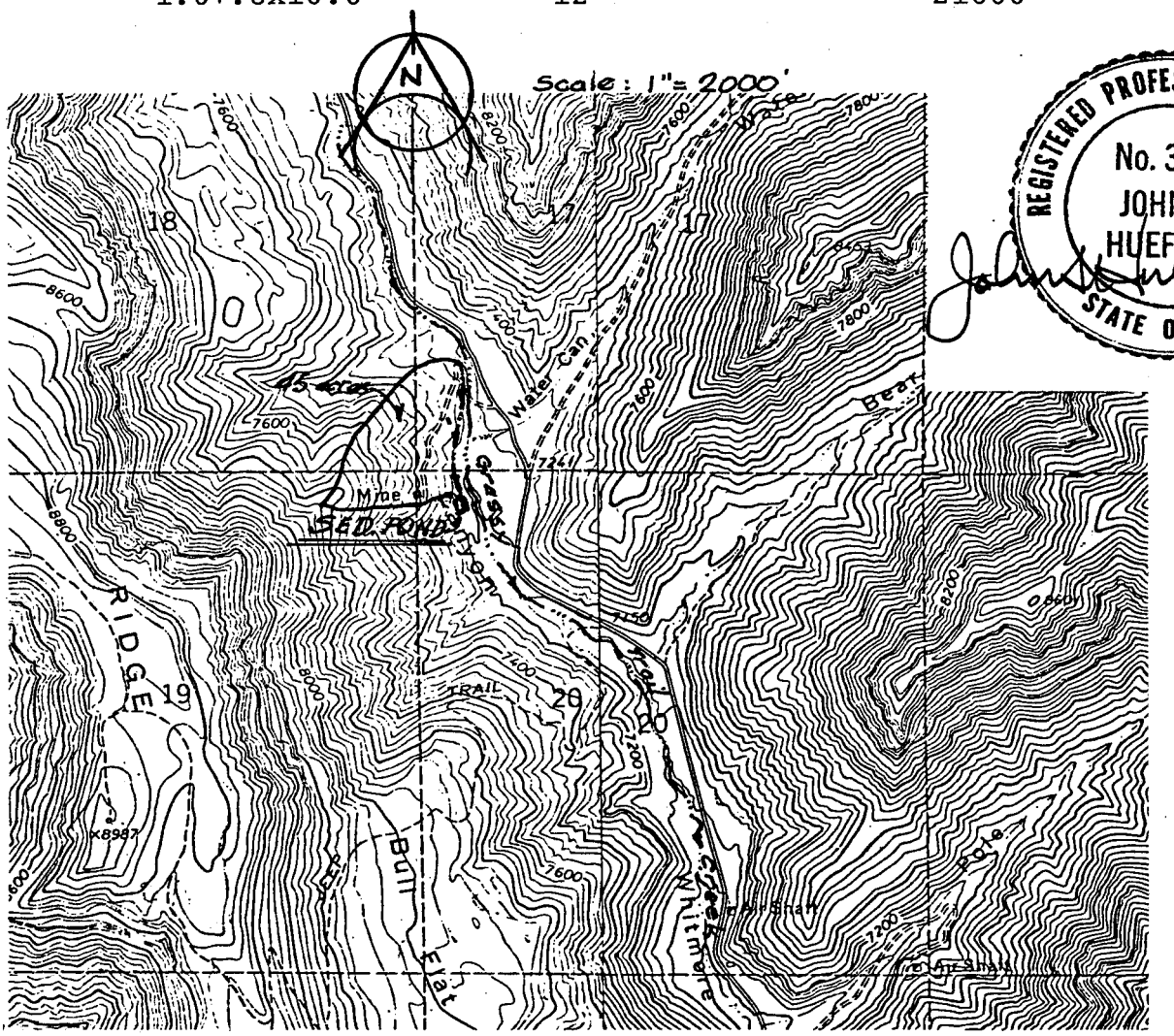
Volume = $\frac{.001}{12}$x43,560x45ac = 165cf, say 200cf.

therefore min. pond size req. is 2'd x 10'w x 20'l = 670cf.

size of pond constructed & existing is 3'd x 45'w x 115'l = 18,500cf (OK).

Univ. Soil Loss Eq.(USLE) per SCS/TR-51; A=RKLSCP-
where R=20; K=.30; LS=.80; C=.70; P=.65,
therefore A=20(.30).80(.70).65= 2.18tons/acre/year.
Sediment volume = 2.18x45x2000/115pcf= 1710cf/yr
(pond will have life of 5yrs before being ½ full)

Spillway Design-
for 25yr/6hr storm total rainfall is 1.6" per NOAA Ut Atlas,
so $Q=\frac{(1.6-.2x10.0)^2}{1.6+.8x10.0}$ =.017" /12x43560x45=2780cf /21600=0.13cfs.



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