	Terrain Effects Chart (TEC)			
	Movement	**MFZ**	**Fire/Asslt Modifier**	**LoS**
Clear	NE	1	+1/0	None
Creek/River/Pond	Prohibited	N/A	N/A	N/A
Slope	NE	2(a)	+1(j)/+1 or -1(k)	Blocks(b)
Abatis(g)/Fence	NE	2(a)	+1(h)/-1(l)	None
Fieldwork (Forts)	Prohibited	N/A	N/A	Blocks
Marsh	Stop(c)(g)	1	-1/Dsrptd(m)	None
Marsh/Run	Stop(c)(g)	1	-1/Dsrptd & -1(m,n)	None
Run	None(d)	1	NE/-1(n)	None
Thoroughfare	Bonus(e)	AOT	NE	AOT
RR Embankment	NE(i)	2(a)	+1(j)/ +1 or -1(k)	Blocks(f)
Woods	NE/Stop(c,g)	1	-1 (3 pts max)	Blocks(b)

Fire limits of a hex:
Clear: 4 points of Small Arms or all Artillery.
Non-clear hex: 3 points, both small arms and artillery.

Assault limits of a hex:
Clear: 5 SPs, or all Arty
Non-Clear: 4 SPs both small arms and Artillery

All units of the same *Higher Organization (HO)* may stack in a hex.

HO Vol1 = Regiment
HO Vol2 = Division

TEC Notes

a. MFZ is two hexes only if firing unit is on RR embankment or sighting down a slope and the hexes fired into are non-embankment or non-crest hexes. Stacks firing through an Abatis, Fence or wall have an MFZ of 2.
b. LOS may be traced into but not through such hexes.
c. Infantry and Cavalry *stacks* moving from one one non-clear hex directly into another non-clear hex must make a *STRAGGLE* check before it exits its current hex (4.6). If it fails the Straggle check it must take an O hit loss or remain in place and terminate its move. The O hit loss is for the *Stack, not* for each unit in that Stack.
d. Artillery must stop when exiting a Run.
e. Thoroughfare bonus: +1 to Movement Allowance. Disrupted units may not use the road bonus. Must spend entire move on Road or Railroad. May not enter EZOC or enemy MFZ. Does not need to check for stragglers in the bonus hex.
f. Embankments block LoS only if both units are on ground level (non-crest hexes) and are sighting through the embankment.
g. Arty may not enter Marsh hexes and must stop upon entering woods. Arty may cross abatis hexsides only along a road.
h. Stack must be adjacent to and firing through the protected side of the fence or abatis.
i. Artillery may enter/exit an embankment from a connected road or RR.
j. When firing from an elevation into a non-elevation hex, only.

TEC Notes (continued)

k. Units assaulting vs. higher elevation, suffer a -1 penalty. Units assaulting vs. lower elevation receive a +1 bonus.
l. Abatis only. USA units assaulting CSA units through an Abatis hexside suffer -1 penalty.
m. Units assaulting from a marsh are Disrupted before the first round.
n. Assaulting units in a run suffer -1 penalty.

All units have 3 MPs per Action Segment.
Leaders and Cavalry have 3 MPs per Horse Segment.
Arty has 1 MP in a Horse segment.

Straggle Table

Avg. Base Morale	Straggler Die Roll (d10)
0-3	**4+**
4-5	**5+**
6-7	**6+**

- A roll equal to or greater than the number specified results in the stack suffering an O hit. A stack cannot suffer more than 1 O hit per check.
- Regardless of modifiers, a roll of 9 always results in a straggle loss.
- Charging/Assaulting units do not check for stragglers.
- A Leader moving with the stack subtracts one from the die roll.
- Subtract 1 from die when exiting/entering an EZOC.
- Stacks moving along a Thoroughfare subtract 1 from die roll.

Morale Modifiers Schedule

Amend the Average Modified Morale of a stack according to the following schedule. All amendments are cumulative.

Negative Modifiers:
- *Out of Command (1).* This also applies to Routed units (they are always out of command). Reduce the morale of the stack by 1.
- *Flanked (1).* A stack fired upon or assaulted through a flank hexside has its modified morale reduced by one for that combat only.
- *Isolated (2).* See 6.8

Positive Modifiers:
- *Stacked with Leader (1).* Small Arms stack can receive the benefits of 1 leader only (Army, Senior, Junior, as appropriate). Artillery receives the benefits of any leader, regardless of affiliation.
- *Execuitng Charge or Assault (1).* Increase the morale of a Charging/Assaulting stack by 1. This applies throughout the assault, even if the relevant units have become disrupted.
- *Arty No LoS Fire (1)* Increase the morale of the target by 1.

Average Modified Morale: The sum of all modified morales (Base Morale – O hits) of each unit in a stack divided by the number of units in that stack. Round all fractions down.

Combat Results Table (CRT)

		Combat Result				
		3(2)	2(1)	1(D)	D	N
F	0	--	--	0	1	2-9
I	1	--	--	0	1-2	3-9
R	2	--	--	0	1-3	4-9
E	3-4	--	--	0-1	2-4	5-9
	5-7	--	0	1-2	3-4	5-9
	8-11	--	0	1-3	4-5	6-9
L	12-15	--	0-1	2-3	4-5	6-9
I	16-20	0	1-2	3-4	5-6	7-9
N	21-26	0	1-2	3-5	6-7	8-9
E	27-35	0-1	2-4	5-6	7-8	9
	36+	0-1	2-5	6-7	8-9	-

$F = S \times R$
F = Fire factor
S = Strength points firing
R = Range factor

*Artillery vs. Small Arms unit at range of
2 hexes or more use parenthesized result (x).*

Range Factor Table

		Range Factor			
		Inf	Cav	Irg(*)	Art
R	Assault	3	3	3	1
A	1 hex	2	1	2	2(+1)
N	2 hexes	1	.5	.5	1.5
G	3 hexes	.5	-	-	1
E	4-8* hexes	-	-	-	.5

Cross-Reference the firing range to the unit-type firing (Inf/Cav/Irg/Art). That value is the multiplier to a unit's fire factor.

Combat Result Summary

NE: The fire has had no effect.
D: the stack is DISRUPTED. A stack may attempt to take an Organization (O) Hit in lieu of the Disruption by checking its modified morale. If it passes this check it takes the O Hit and remains in good order. If it fails the check it remains Disrupted.

Note: The only time a unit may attempt to take an O hit instead of the Disruption is when it receives a "D" combat result. If it is Disrupted for any other reason, it must take that Disruption. A Disrupted or Routed stack that receives a D combat result treats that result as 1 O hit.

1: The stack suffers 1 Organization Hit. Check for Disorganization. If the roll is less than, or is equal to, its average modified morale, then there is no additional effect. If the roll exceeds its morale it is Disrupted or Routed, depending upon its previous state of disorganization.
2: The stack suffers 2 O Hits. As (1) above.
3: The stack suffers 3 O Hits. As (1) above.

Note: Flip a unit at full effectiveness to its reduced effectiveness side when it suffers its third O hit. Remove a unit at reduced effectiveness when it suffers its third O hit (it is destroyed). See 3.3.5 about apportioning losses in a stack.

Fire Line Modifiers Schedule, Fire Combat Only

Modify the Fire Line according to the schedule below. All modifications are cumulative. Make all positive adjustment before negative ones.

Terrain. Make these modifications for the terrain in the target's hex.
   Woods/Marsh (-1) Target unit in a woods or marsh hex, DECREASE the fire line by 1.
   Clear or target using Thoroughfare (+1). Target in a Clear hex or using Thoroughfare, INCREASE the fire line by 1. Modifier does not apply when artillery firing range is 2 hexes or more.
   Low Terrain (+1). Target on a lower elevation than the firing unit, INCREASE the fire line by one. *EXCEPT Arty firing a 7-8 range (No LoS fire: 0)*
   Unit behind Abatis or Stone Wall (-1). Target protected by Abatis or Stone Wall, DECREASE the fire line by 1.

Target Status. Make these modifications for the status of the target.
   Target Flanked (+1). Target fired at through a flank hexside, INCREASE the fire line by 1.
   Target Advance/Pre-Assault (+1). Firing unit is resolving Advance or Pre-Assault fire INCREASE fire line by 1
   Target charge (+1). Target is Charging, INCREASE the fire line by 1. This is in addition to any modifiers for advance or pre-assault fire.
   Small-Arms vs. Artillery (-1). Small arms unit vs. artillery, DECREASE the fire line by 1.
   Target Density (+1). Target contains 5 fire factor points, INCREASE fire line by 1.

Firing Unit Status. Make these modifications for the status of the firing stack.
   Firing Unit Disrupted (-3). Firing stack Disrupted, DECREASE fire line by 3.
   Advance Fire Marker (-2). Firing stack has advance fire marker, DECREASE fire line by 2.
   Firing unit behind an Abatis, Fence or Stone Wall (+1). Unit stacked directly behind an abatis, wall or fence and fire is directed through the protected hexside, INCREASE fire line by 1.
   Artillery vs. Small Arms at 1 hex range (+1). Artillery firing into an adjacent hex against a small arms stack, INCREASE fire line by 1.
   Artillery No LoS fire (0 Max fire line) Artillery firing down a slope and which does not have a clear LoS to its target. The target adds 1 to their morale.

*Artillery must be sighting down a slope to have a range of 7 or 8 and the target must be on a lower elevation. 0 Fire Line, MAX. See Artillery No LoS Fire, 8.3 for restrictions.

Fire Line Modifiers Schedule, Assault Combat Only

Modify the Fire Line according to the schedule below. All modifications are cumulative. Make all positive adjustment before negative ones.

Terrain. Make these modifications for the terrain in the target's hex.
   vs. Hi Elevation (-1). Defender on a higher elevation than the assaulting units, Attacker DECREASES the fire line by 1.
   Stream (-1). Attacker on a stream hex, DECREASE, fire line by 1.
   vs. Lo Elevation (+1). Assaulting unit on higher elevation than defender, Attacker INCREASES the fire line by 1.
   Attacker in Marsh (Dsrptd). Assaulter Disrupted before the first round if occupying Marsh hex.
   Stone Wall, Abatis(-1) Defender behind a stone wall or Abatis, Attacker DECREASES the fire line by 1.
Target Status. Make these modifications for the status of the target.
   Target Flanked (+1). Target flanked by assault, Attacker INCREASES fire line by 1.
   Density (+1). Target hex contains 5 SPs INCREASES the fire line by 1.
Firing Unit Status. Make these modifications for the status of the firing stack.
   Disrupted (-3). Assaulting stack Disrupted (attacker or defender), DECREASE the fire line by 3.
   Leader (+1). Stack includes leader, INCREASE fire line by 1. Attacker or Defender.
   Charge (+1). Assaulting unit executing Charge, Attacker INCREASES the fire line by 1.