

PANZER GRENADIER Terrain Effects Chart

Movement Cost:							
Terrain Type	Foot	Mot.	Mech.	Entrench	Dig In	Spotting	Other Effects
All Water	P	P	P	No	No	No effect	Only naval, amphibious, and air units
Anti-Tank Ditch	2	P	P	No	No	Limited Terrain	-1 DF; First Fire; ENG remove in 3 turns, other foot 5 turns.
Beach	1	4	3	Yes	Yes	No effect	-1 BF
Cave	+0	+0	+0	No	No	Only adjacent.	No DF/BF, -2 Assault. See rule 16.7.
Clear	1	2	1.5	Yes	Yes	12 hexes	None
Cliff Hexside	All	P	P	N/A	N/A	See Notes	See Notes
Creek	+0	+3	+1	Yes	Yes	No effect	None. Pick side for entrenchment.
Dragon's Teeth	1	P	P	No	No	No effect	-1 DF for personnel
Dug In	+0	+0	+0	No	Yes	No effect	-1 DF, -1 AT, -1 BF, First Fire
Entrenchment	+0	+0	+0	Yes	No	No effect	-2 DF, -2 BF, -2 Assault, First Fire. Only one Entrenchment allowed per hex.
Fields/Brush/ Tall Grass	1.5	4	3	Yes	Yes	Limiting Terrain	See Notes
Heavy Woods/ Heavy Jungle	3	P	P	No	No	See Notes.	-2 DF, -1 AT, -1 Assault, First Fire, Disorientation
Hedgerow Hexside	+0	P	+2	N/A	N/A	See Notes	-1 DF, -1 AT; ENG can breach
Jungle	2	P	4	Yes	No	See Notes	-1 DF, -1 BF, -1 Assault, First Fire, Disorientation
Light Woods/ Light Jungle	1	3	2	Yes	Yes	See Notes	-1 DF in or passes through hex
Major River	2	P	4	Yes	Yes	No effect	See Notes. Can't cross without ENG or bridge/ford. Pick side for entrenchment.
Mangrove	2	5	4	Yes	Yes	See Notes	-1 DF, -1 BF
Minor River	2	P	4	Yes	Yes	No effect	See Notes. Pick side for entrenchment
Orchard/ Palm Grove	1	2	2	Yes	Yes	See Notes	None
Railroad Embankment	2*	4*	3*	Yes	No	Blocks LOS	-1 DF, -1 Assault
Rice Paddy/ Salt Marsh	2	4	3	No	No	No effect	+1 DF, -1 BF
Road	2/3	1/2	2/3	N/A	N/A	No effect	None
Rocky	1	4	4	Yes	No	See notes	-1 DF, -1 BF, -1 Assault
Sandbar	+0	+2	+1	No	No	No effect	Prevents naval unit movement
Sand Dunes	2	3	3	Yes	Yes	See notes	-1 DF, -1AT
Slope	+0	+2	+1	Yes	Yes	See notes	See notes
Smoke	+1	+1	+1	N/A	N/A	See notes	-1 DF and -1 AT into OR out of smoke hex
Steep Slope	+1	+5	+4	Yes	Yes	See notes	See notes
Swamp	2	P	P	Yes	Yes	Limiting Terrain	+1 DF, -1 BF, -1 Assault
Town	1	1	1	Yes	No	See notes	-2 DF, -2 BF, and -2 Assault; -1 AT
Track & Trail	1	1	1	N/A	N/A	No effect	See notes
Village	1	1	1	Yes	No	See notes	Treat occupants as Dug In
Wadi & Gully	2	4	3	Yes	No	See notes	-1 DF, -1 AT, First Fire in Assault
Wire	+1	+2	+1	N/A	N/A	No effect	-1 Assault; may be removed by ENG
Woods	2	5	4	Yes	No	See notes	-2 DF, -1 AT, -1 Assault

AT = Anti-Tank Fire

BF = Bombardment Fire

DF = Direct Fire

N/A = Not applicable; see other terrain in hex.

Terrain Notes

The maps contain terrain types that represent vegetation, elevation changes, and levels of wetness or roughness that may affect movement, visibility, and combat. Unless specified in a scenario's "Other" section, all applicable terrain restrictions apply.

The Terrain Effects Chart lists many types of terrain that prevent seeing units concealed inside that terrain until within a certain distance. Such terrain is called "Limiting Terrain." Not all limiting terrain blocks LOS (8.3). Some scenarios may specify additional limiting terrain types.

If not specified in the table above, LOS-blocking terrain (8.3) is one elevation (20 meters) higher than surrounding terrain to determine LOS.

In some cases special markers may be placed on terrain features designating a change to the terrain type (not applicable, or changing a hill to a depression, woods to an orchard, etc.). These markers should be placed in the center of the terrain feature to indicate its status.

- All Water. Movement cost is 1 MP for naval units. Amphibious units either move as land units or naval, not both in the same turn.

- Cliff Hexside. LOS is blocked from lower unit to higher, but not vice-versa. Only personnel may cross a cliff hexside and only if good order and stacked with an ENG unit that takes no other actions, or if the unit is Commando.

- Dragon's Teeth. May be placed in any hex except Water. May be destroyed by Anti-Tank fire (armor value of 6 with two steps) or ENG.

- Fields/Brush/Tall Grass. In winter (Dec-Feb turns in any but tropical climates) treat this as clear terrain (not limiting terrain for anything).

- Heavy Woods & Heavy Jungle. Blocks LOS; units occupying heavy forest/heavy jungle may not be spotted by enemy units more than 1 hex away. Leaders in heavy jungle only affect units in the same hex. Heavy Woods replaces former Dense Forest or Heavy Forest.

- Hedgerows. Hedgerow blocks LOS except that units adjacent to a hedge hexside can see through the hedge without restriction; and units not adjacent to a hedge hexside can see the hex immediately behind the hedge and no further if they are within three hexes. LOS traced down a hex spine is unaffected by hedgerow hexsides. A good order ENG unit that spends two activations adjacent to a hedgerow hexside can "breach" the hedgerow--treat that hexside as unobstructed for the remainder of the game.

- Jungle. Blocks LOS. Units in jungle can't be spotted by units more than one hex away. Leaders only affect units in the same hex.

- Light Woods & Light Jungle. Limiting Terrain (8.2). Units can trace LOS through one light woods or light jungle hex but cannot trace LOS through two or more light woods or light jungle hexes.

- Major and Minor River. +1 DF and +1 AT vs. units crossing river with assistance of ENG. -2 attacker first round of Assault if neither side has ENG. Amphibious units may cross or move along rivers using naval movement rates. Minor rivers are Prohibited to naval units but not amphibious units. Major rivers are navigable by naval units and amphibious units.

- Mangrove. Limiting Terrain, Blocks LOS.

- Orchard & Palm Grove. Limiting Terrain (8.2) for personnel and weapon units who may not be spotted beyond five hexes. Units can trace LOS through one orchard/palm grove hex but cannot trace LOS through two or more.

- Railroad Embankment. Movement cost shown is only paid when unit enters hex from non-railroad hex; treat as Track otherwise.

- Rocky. Limiting Terrain for personnel. Replaces former Broken Rock terrain.

- Sand Dunes. Elevated Terrain, Blocks LOS.

- Slope. A slope hexside is any hex with an elevation line running through it, representing the transition from a lower elevation to the higher. The elevation line indicates an elevation of 20 meters or more above the adjacent terrain. If one set of elevation lines encircle another, the smaller of the two is one level higher than the larger if not indicated on the board. Slope movement costs are paid only when entering the hex with the elevation line. A unit that moves along an elevation line also pays the slope cost. The hexes in the interior of elevations that have no markings upon them are also of the same elevation as the slope, but are not slope hexes. Instead, they are treated as normal Clear terrain unless filled with other terrain markings.

A slope is Elevated terrain and blocks LOS. Units/leaders add six hexes to their spotting range for every 20 meters above spotted unit. -1 DF and -1 AT fire if firing unit is on lower elevation; +1 defender in first round of Assault if assault hex is higher than all hexes from which attacker entered.

- Smoke. Limiting Terrain, Blocks LOS at any elevation.

- Steep Slope. Some slopes are particularly steep, usually reflecting elevation changes of 40 meters per hex or more rather than 20. A Steep Slope is Elevated terrain and blocks LOS. Units/leaders add six hexes to spotting range for every 20 meters above spotted unit. -1 DF and -1 AT fire if firing unit is on lower elevation; +2 defender in Assault and First Fire if assault hex is higher than all hexes from which attacker entered.

- Town. Limiting Terrain. Adds 20 meters elevation to hex and six hexes to spotting range of units in town. Blocks LOS.

- Track & Trail. Adds one to the Movement Allowance of foot units that start and remain on track/trail throughout their activation.

- Village. Blocks LOS, Limiting Terrain.

- Wadi & Gully. Represents a depression in the ground or a dry river bed that is one elevation (20 meters) below adjacent terrain. Limiting Terrain.

- Wire. May place in any hex except Water.

- Woods. Limiting Terrain, Blocks LOS

LoS Chart

Unit Height Differential	Height of Intervening obstacle relative to lower unit			
	20 meters	40 meters	60 meters	80+ meters
20 meters	Blocks	Blocks	Blocks	Blocks
40 meters	½ D	Blocks	Blocks	Blocks
60 meters	⅔ D	⅔ D	Blocks	Blocks
80 meters	¾ D	½ D	¼ D	Blocks
100 meters	¾ D	⅔ D	⅔ D	¼ D

Unit Height Differential = height of HIGHER unit - height of LOWER unit

Height of Intervening Obstacle, See rule 8.4

xD = the fraction (x) multiplied by the whole distance (D) yields the furthest number of hexes (rounded down) an obstacle can be from the higher unit and still allow a clear LoS. Obstacles must be equal to or less this distance in hexes to have a clear LoS.

Notes:

- 1) Movement costs listed at left are in addition to other terrain in hex, and are paid only when unit enters hex with an elevation line from lower elevation.
- 2) Movement cost are for when entering along a contiguous road or trail hex, otherwise movement cost is per other terrain in hex.
- 3) Requires ford, bridge, or ENG assistance to cross river.