

Earth Berms vs. Noise Walls- Pros and Cons

Description of Alternative	Noise Mitigation ^{1,2}	Privacy		Security	Safety	Maintenance	Aesthetics	Comments
		From Train or highway	From berm or wall					
Earth Berms located off of Property line	Better. Quieter (1-3 dB) than sound walls.	Better. The closer to the source the harder to see over.	Least. Can stand on top of berm.	Least. Space between berm and property line.	No risk. Playing on berms in ROW is prohibited.	Least. Regular mowing. No graffiti. No replacement cost. Least cost to maintain.	Natural grass berms. Green grasses. No graffiti.	Better noise reduction, closer to the train wheel noise. Provide better privacy from train, least from top of berm. Security issue between berm and property line. No safety risk. Persons within right of way reported to police. Least maintenance. Will be maintained regularly. No graffiti or replacement costs. Aesthetics: Gently sloped natural grass berms. Least cost to install and maintain.
Sound Walls located off of Property line	Less noise reduction than berms but closer to wheel noise source.	Better. The closer to the source the harder to see over.	Better. Can stand behind wall and look over existing fence.	Least. Space between berm and property line.	No risk. Very unlikely to climb on and fall off of wall.	Highest. Graffiti removal both sides. Life cycle replacement cost after 50 years. Highest cost to maintain.	Bare concrete walls. Hard surfaces. Graffiti targets.	Less noise reduction. Similar to berms in privacy from train, not as good from property side of wall. Security issue between wall and property line. Very minimal risk of climbing on or falling off of wall and injury. Highest maintenance. Graffiti target on both sides of wall. Aesthetics: Bare plain concrete walls. Highest cost to install and maintain.
Sound Walls located one foot from Property line	Least noise reduction due to greatest distance from noise source.	Least. The further from the source the easier to see over.	Best. Can not see over wall.	Best. No space between wall and property line. However less security from track side of wall.	Some risk of climbing on and falling off of wall.	Higher. Graffiti removal track side. Life cycle replacement cost after 50 years. Higher cost to maintain.	Bare concrete walls. Hard surfaces. Graffiti targets.	Least noise reduction. Less than berms in privacy from train, best from next to track-side of wall. No security issue between wall and property line, except some security issues from track side of wall. Some risk of falling off of wall and injury. Higher maintenance. Graffiti target on track side of wall. Aesthetics: Bare plain concrete walls 1 foot off of property line. Existing fences left as is. Higher cost to install and maintain.

Definitions:

- Privacy:** The state of being free from intrusion or disturbance in one's private life.
- Security:** Freedom from danger, risk, care, anxiety, etc.; safety. Precautions taken to guard against crime, attack, etc.
- Safety:** The state of being safe; freedom from the occurrence of risk of injury, danger, or loss.
- Maintenance:** The act of maintaining. Care or upkeep.
- Aesthetics:** The philosophy dealing with such notions as the beautiful, the ugly, the sublime. The study of the mind and emotions in relation to the sense of beauty. Aesthetics is a very subjective determination.

Footnotes:

- Per FHWA Highway Noise Barrier Design Handbook a earth berm barrier will typically provide an extra 1 to 3 dB(A) of attenuation verses a wall. Also a general rule of thumb is that each additional 1 meter (3 feet) of barrier height above the line-of-sight blockage between the noise source and receiver equates to 1.5 dB(A) additional attenuation above the typical 5 dB(A) attenuation expected for receivers whose line of sight is just blocked by the barrier.
- Per Section 4.5.2 of the EIS the predicted noise impacts in terms of day night sound levels (Ldn) without noise barriers are as follows: Bangerter to 4800 West (2-5 dBA), 4800 West to 5200 West (2-7 dBA). The amount of noise level is dependant upon the distance from the noise source to the receptor. A 2 dBA noise level impact is considered a moderate impact and a 4 dBA is considered a severe impact. Background noise levels are 62 dBA.