



## Retaining Wall Checklist

Address: \_\_\_\_\_

Review Date: \_\_\_\_\_

Project Name: \_\_\_\_\_

Review No. \_\_\_\_\_

DRC or BOP No. \_\_\_\_\_

OK _____	Reject _____	N/A _____	Validate that calculations are included for each proposed retaining wall exceeding 3'-6" in height. Calculations shall be sealed and signed by a Professional structural engineer registered in the State of Kansas.
OK _____	Reject _____	N/A _____	Validate that calculations include applicable soil parameters utilized in the wall design, including but not limited to allowable soil bearing pressure, equivalent lateral fluid pressure (active and passive), surcharge load, internal angle of friction, coefficient of friction and soil density.
OK _____	Reject _____	N/A _____	Validate that Site Plan/Grading Plan shows limits and location of proposed retaining wall(s). Retaining wall(s) must be dimensioned, tied to Property Lines, and if angled or curved, angles and radius are shown.
OK _____	Reject _____	N/A _____	Validate that the material characteristics of steel reinforcement is included with calcs, including ASTM designation, material grade and yield strength.
OK _____	Reject _____	N/A _____	Validate that reinforcing steel is deformed bars conforming to ASTM Grade 40. Wire reinforcing shall conform to ASTM A185.
OK _____	Reject _____	N/A _____	Validate that the 28 day Design Compressive Strength ( $f'_c$ ) of Concrete = 4000 psi (minimum) and the Water/Cement Ratio = 0.45 unless a soils report recommends otherwise.
OK _____	Reject _____	N/A _____	Validate that Masonry Units (all cells filled with grout) shall be Grade A conforming to ASTM C90, and shall be manufactured in accordance with the Concrete Masonry Association ( $F_m = 1500$ psi).
OK _____	Reject _____	N/A _____	Validate that mortar used meets the requirements of ASTM C270.

<b>OK</b> _____	<b>Reject</b> _____	<b>N/A</b> _____	Validate that calculations submitted for each wall proposed demonstrates the walls structural adequacy to resist the applicable design loads within the specified allowable soil bearing pressure, and to maintain a Minimum Factor of Safety against bearing, overturning and sliding. (FS = 1.5 overturning, sliding and FS = 3.0 bearing for reinforced concrete walls; FS = 2.0 bearing, overturning and FS = 1.5 sliding for Segmental walls)
<b>OK</b> _____	<b>Reject</b> _____	<b>N/A</b> _____	Validate the Allowable Soil Bearing Pressure used for design. In the absence of a certified third party "Geotechnical Soils Report", the maximum Soil Bearing Pressure used for design shall be 1500 psf.
<b>OK</b> _____	<b>Reject</b> _____	<b>N/A</b> _____	Validate that Plan shows elevations of top and bottom of retaining wall.
<b>OK</b> _____	<b>Reject</b> _____	<b>N/A</b> _____	Validate that complete structural details are shown for each retaining wall.
<b>OK</b> _____	<b>Reject</b> _____	<b>N/A</b> _____	Validate that typical retaining wall details show materials, wall and footing dimensions, reinforcing (type, size and spacing), concrete design strength, drainage method for relief of hydrostatic pressure (ie: 4" perforated drain line set in gravel), type of backfill material, compaction requirements, and slope of backfill finish grade. (For Modular/Segmental type retaining walls, details shall clearly show and call-out the required types, angles, spacing and embedment length of all geogrid reinforcement and helical anchors.)
<b>OK</b> _____	<b>Reject</b> _____	<b>N/A</b> _____	Validate that retaining wall anchors do not cross Property Lines.
<b>OK</b> _____	<b>Reject</b> _____	<b>N/A</b> _____	Validate that "Guardrails" are provided atop of retaining walls with open-sided walking surfaces that are located greater than 30 inches above the grade below. Validate that guardrails are provided on top of retaining walls which are greater then 30" above the grade below.
<b>OK</b> _____	<b>Reject</b> _____	<b>N/A</b> _____	Validate that calculations and details are included for the design and construction of all proposed guardrail systems. Guardrail system shall resist overturning by a 50 pound per linear foot (plf) load and a 200 pound concentrated load applied to the top rail (42" above top of wall).

**Special Requirements for Retaining Walls Supporting Public Right-of-Way (Street higher than adjacent ground)**

OK _____	Reject _____	N/A _____	All drawings shall be signed and sealed, and design shall be performed by a Professional structural engineer registered in the State of Kansas.
OK _____	Reject _____	N/A _____	Walls that support Public Right-of-Way shall be constructed as reinforced concrete and designed as cantilever or counterfort walls or as rigid, monolithic mass walls. (Mass walls of ungrouted stone, sheet piles, crib walls and mechanically reinforced earth walls that support Right-of-Way except as part of temporary construction.)
OK _____	Reject _____	N/A _____	Sloped embankments are preferable to walls.
OK _____	Reject _____	N/A _____	Additional Right-of-Way, or permanent maintenance easement, shall be provided wherever a right-of-way wall is used. Additional width/right-of-way/easement shall be the greater of: 1) 10 feet, 2) one-half of the retained height, or 3) the edge of the foundation plus five feet.
OK _____	Reject _____	N/A _____	Walls shall be located so that road-side face lies in the additional right-of-way or easement. (Full width of normal right-of-way available for utility installation.) Footers within the normal, unextended right-of-way must have at least 6 feet of cover to avoid utility conflict.)
OK _____	Reject _____	N/A _____	Guardrail Systems shall conform to current AASHTO design guidelines.
OK _____	Reject _____	N/A _____	Culvert Headwalls: Headwalls and wingwalls for box culverts and arches shall be constructed from reinforced concrete and designed as cantilever walls.

**Notes:**