



CITY OF BLUFFDALE STANDARDS

OCTOBER 2019

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Path: G:\Standards\1 - City\Approved Standards\Geotechnical-Wall Standards\GEO-1 RETAINING WALL STANDARD.dwg | plot date: October 10, 2019 | plotted by: tandra

GENERAL

1. A "RETAINING WALL" IS A STRUCTURE DESIGNED TO RESIST THE LATERAL DISPLACEMENT OF SOIL OR OTHER MATERIALS.
2. DO NOT BUILD RETAINING WALLS GREATER THAN 9' OF EXPOSED HEIGHT
3. FOR TERRACED WALLS, DO NOT BUILD HIGHER THAN 18- FEET OF COMBINED EXPOSED HEIGHT (H).
4. RETAINING WALLS ARE CONSIDERED SEPARATE IF THE HORIZONTAL DISTANCE BETWEEN THE SAME POINT ON BOTH WALLS IS $\geq 2H$, WHERE H IS THE LARGER OF THE EITHER WALL. PROVIDE AT LEAST H/2 OF SPACE BETWEEN THE BACK OF LOWER WALL AND FACE OF HIGHER WALL WHEN TERRACING.
5. MEET APPLICABLE UDOT SPECIFICATIONS FOR ALL RETAINING WALL DESIGN. SUBMIT DESIGN STAMPED BY A UTAH PROFESSIONAL ENGINEER TO THE CITY ENGINEER FOR WRITTEN APPROVAL.
6. PROVIDE THE FOLLOWING INFORMATION WITH ALL RETAINING WALL DESIGNS:
 - a. A CONTOUR MAP SHOWING ALL THE WALL LOCATIONS AT SCALE 1:40.
 - b. WALL PLAN, FRONT VIEW AND PROFILE WITH BASE ELEVATION, EXPOSED BASE ELEVATION, AND TOP OF WALL LABELED AT BOTH ENDS AND EVERY 50' ALONG THE WALL, AND AT ALL GRADE CHANGES.
 - c. CROSS-SECTIONAL DRAWING WITH SURFACE GRADES AND STRUCTURES LOCATED IN FRONT OF AND BEHIND THE RETAINING WALL FOR A DISTANCE EQUIVALENT TO 3H OR THE RETAINED SLOPE HEIGHT, WHICHEVER IS GREATER. SHOW EMBANKMENT SLOPE OF THE GROUND RETAINED.
 - d. ALL DRAINAGE FEATURES REQUIRED.
7. PROVIDE A POSITIVE MEAN TO DRAIN THE WATER FROM THE RETAINED SIDE TO THE FRONT OF THE WALL. AT MINIMUM PROVIDE A 4-INCH SLOTTED PIPE ALONG THE BASE OF RETAINING WALL SURROUNDED BY A 6-INCH FREE-DRAINING GRAVEL LAYER WRAPPED IN FILTER FABRIC LOCATED BEHIND THE RETAINING WALL WITH A DRAIN PIPE DAY LIGHTING TO A PROPER OUTLET OR WEEP HOLES PLACED THROUGH THE BASE OF THE WALL. OMIT DRAIN SYSTEM WHEN THE RETAINING WALL IS DESIGNED TO WITHSTAND HYDROSTATIC PRESSURES.

RETAINING WALL DESIGN REQUIREMENTS

1. ENSURE STABILITY AGAINST OVERTURNING, BASE SLIDING, EXCESSIVE FOUNDATION SETTLEMENT, BEARING CAPACITY, INTERNAL SHEAR, AND GLOBAL STABILITY.
2. PROVIDE A GLOBAL STABILITY ANALYSIS DEMONSTRATING MINIMUM FACTORS OF SAFETY OF AT LEAST 1.50 UNDER STATIC AND SEISMIC LOADING CONDITIONS WITH CALCULATION TO THE NEAREST 100TH.
3. USE SEISMIC LOADS BASED ON THE CHARACTERISTIC EARTHQUAKE, WITH SPECTRAL ACCELERATION FACTORED FOR SITE CONDITIONS IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE
4. RETAINING WALL WITH GEOGRIDS - PROVIDE CALCULATIONS FOR PULLOUT, TENSILE OVERSTRESS, INTERNAL SLIDING, FACING CONNECTION, BULGING AND OTHER CALCULATIONS.
5. MECHANICALLY STABILIZED EARTH (MSE) WALLS- MEET ALL FHWA NHI-00-043 REQUIREMENTS.
6. ROCK WALLS (ROCKERIES) - ROCK WALLS ARE NOT AN APPROVED RETAINING WALL SYSTEM. DO NOT USE/DESIGN/PLAN ROCK WALLS GREATER THAN 3- FEET OF EXPOSED HEIGHT (H). FOLLOW FHWA-CFL/TD-06-006.
7. CONCRETE CANTILEVER WALLS OR REINFORCED CONCRETE WALLS - MEET THE SPECIFICATIONS REQUIREMENTS OF THE MOST CURRENT AMERICAN CONCRETE INSTITUTE (ACI) OR AMERICAN SOCIETY OF CIVIL ENGINEERS STANDARDS (ASCE).
8. FOLLOW ALL APPLICABLE ASTM STANDARDS FOR MATERIAL STRENGTH PARAMETERS USED IN THE DESIGN OF THE RETAINING WALL SUPPORTED BY LABORATORY TESTING.

SUBMITTALS

1. ALL MANUFACTURER'S TEST DATA FOR WALL FACING, SOIL REINFORCEMENT, AND CONNECTION PARAMETERS FOR SEGMENTED BLOCK WALLS.
2. UNIT WEIGHT OF RETAINING SOILS, GRADATION OF COHESIONLESS SOILS, ATTERBERG LIMITS FOR COHESIVE SOILS AND SHEAR TEST DATA FOR SOILS, SOIL CLASSIFICATION TESTING.

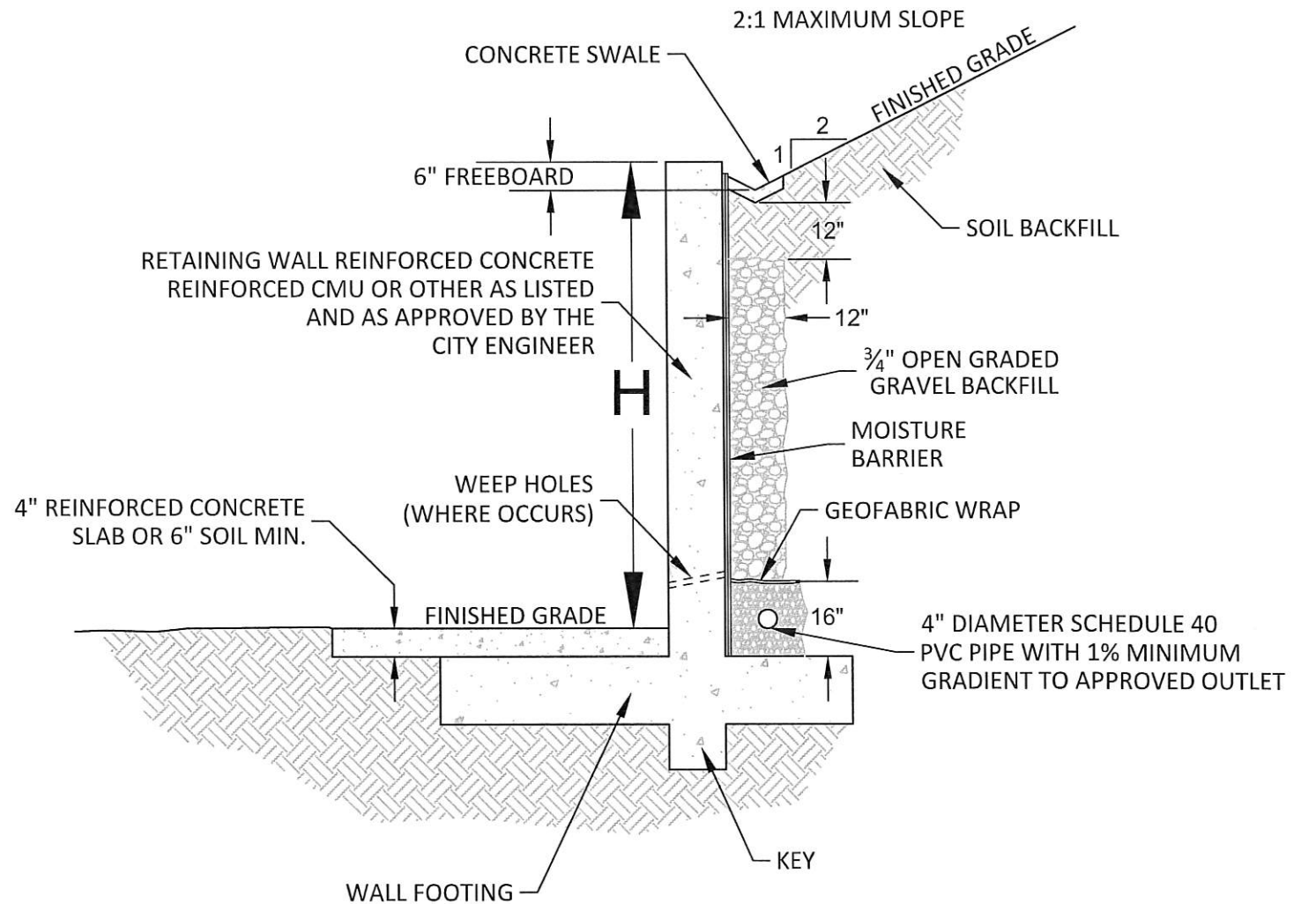


FIGURE 1. TYPICAL RETAINING WALL REQUIRED FEATURES



City of Bluffdale
Engineering Standards
Approved: *Michael [Signature]* 10/11/19
City Engineer Date

STANDARD DETAIL

RETAINING WALLS ON CITY PROPERTY, ROW, & EASEMENTS

DETAIL SERIES:
GEOTECH
DETAIL NO.
GEO-1