



April 7, 2023

Steamboat Resort Development Company  
3501 Wazee Street  
Denver, CO 80215

Attn: Mike Schmidt

Job Number: 21-12448

Subject: Stacked Concrete Block Retaining  
Wall Recommendations, The Amble –  
Steamboat Grand Phase II, Steamboat  
Springs, Colorado.

Mike,

As requested, NWCC, Inc. (NWCC) has prepared this report that presents our Stacked Concrete Block Retaining Wall Recommendations for The Amble-Steamboat Grand Phase II in Steamboat Springs, Colorado. NWCC previously completed a Subsoil and Foundation Investigation at the proposed building site under this job number dated December 1, 2021. NWCC also completed a Supplemental Subsoil and Foundation Investigation for the project under this job number in a report dated December 21, 2022.

**Proposed Construction:** Based on our discussions with the client and review of the construction plans prepared by Landmark Consultants, Inc. (Landmark), NWCC understands stacked concrete block retaining walls will be constructed along the east side and south side of the new access road to the site from Mount Werner Circle.

The stacked concrete block wall on the east side of the access road will be approximately 212 feet in length, from approximately Station 1+15 to 3+27, and will consist of a wall with a maximum height of 6 feet above the finished ground surface. The stacked concrete block wall on the south side of the access road will be approximately 132 feet in length, from approximately Station 4+40 to 5+72, and will consist of a wall with a maximum height of 6 feet above the finished ground surface.

**Subsurface Conditions:** No test holes or pits were advanced along the proposed roadway alignment in the area of the proposed retaining walls. However, based on the soil conditions encountered in the investigations completed at the building site and previous work at The West

Condominiums, NWCC has assumed the soils will generally consist of a layer of clay fill materials and/or natural clays.

**Stacked Concrete Block Retaining Wall Recommendations:** Based on the site conditions observed at the proposed building site and soil conditions encountered at adjacent sites, our analysis and discussions with Landmark, NWCC has developed the following recommendations for the design and construction of the proposed stacked concrete block walls to be constructed along the access road.

The proposed retaining walls along the east and south side of the proposed access road can be constructed using a combination of 28 and 41 inch blocks with a crushed stone backfill. For the portion of each wall not greater than 6½ feet above the final grade, the wall should be constructed with one 41-inch base block, three 28-inch mid-blocks and one 28 inch top block. For any portion of the wall that is constructed to a point up to 5 feet above the final grade, the wall can be constructed by removing the 41-inch bottom block and using one 28-inch bottom block, two 28-inch mid-blocks and one 28 inch top block. It should be noted that this report does not address the elevation and layout of the blocks for the retaining wall. Any additional steps in the wall can be accomplished by removing a 28-inch mid block. NWCC understands the final elevation and wall layouts will be completed by Landmark.

The retaining wall systems outlined above will require a leveling pad, consisting of a layer of free draining gravels 12 inches in thickness placed at the base of the wall and keyed into the natural clays. **The bearing soils must be evaluated at the time of excavation by NWCC.** The free draining gravels placed for the leveling pad and wall backfill should be uniformly placed and compacted in 6 to 8-inch maximum loose lifts to at least 80% of the maximum relative density in accordance with ASTM D4353/4354.

The excavations should be drained by the placement of a 4-inch diameter perforated PVC pipe surrounded with at least 12 inches of free draining gravel. The drain should be located behind the wall and at the base of the gravels placed for the leveling pad. The drain should be uniformly graded to a daylighted outfall with at least a 1 percent slope.

The minimum bury depth of the bottom blocks in the retaining walls is 12 inches below the finished ground surfaces. Any backfill materials placed at the base of the walls should be uniformly placed and compacted in 6 to 12 inch loose lifts and be compacted to at least 95% of the maximum standard Proctor density and within 3 percent of the optimum moisture content determined in accordance with ASTM D698.

The walls must be backfilled with crushed free-draining gravels approved by NWCC. The free-draining gravel backfill must be constructed at least 12 inches from the back of the wall. Typical wall sections are presented in Figure #1.

**Inspections of the stacked concrete block walls, as they are constructed, will most likely be required as a special inspection by the Routt County Regional Building Department.**

**Therefore, NWCC must be retained by the client to observe the construction of the stacked block walls to verify that they are being constructed in accordance with details provided in this report and the typical sections provided in Figure #1, as well as plans completed by Landmark. Contractor must be made aware of these special inspections and contact NWCC when the construction of the walls is started.**

If you have any questions regarding this report or if we may be of further service, please do not hesitate to contact us.

Sincerely,  
**NWCC, INC.**

Timothy S. Travis, P.E.  
Senior Project Engineer

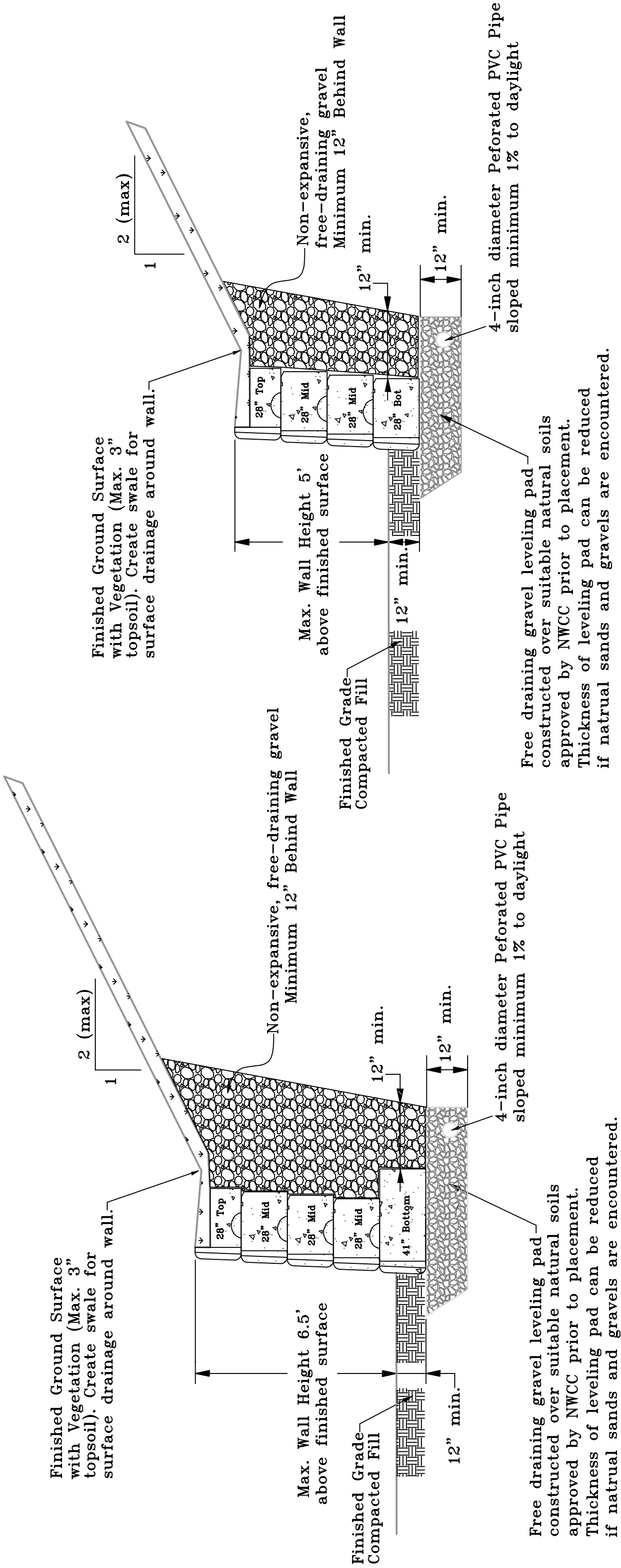
Reviewed by Brian D. Len P.E.  
Principal Engineer 3-10-2023



cc: Erik Griepentrog-Landmark Consultants, Inc.

”NOT-TO-SCALE”

# Unreinforced Wall Sections



			Title: <b>Unreinforced Wall Sections</b>	
			Job Name: <b>The Amble</b>	
			Location: <b>Steamboat Grand Phase II, Steamboat Springs, Colorado</b>	
Job No.: 21-12448		Date: 4/3/2023		Figure: <b># 1</b>