

41" (1030mm) HOLLOW-CORE **DESIGN RESOURCES**

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BLOCK LIBRARY

R-41HC 41" (1030mm) HOLLOW CORE

Face Texture:	Cobble / Limestone	Kingstone / Ledgestone
Block Weight:	1,690 lb (780 kg)	1,620 lb (735 kg)
Block Volume:	11.83 ft ³ (0.33 m ³)	11.33 ft ³ (0.32 m ³)
Center of Gravity:	22.0" (558 mm)	21.3" (540 mm)
Infill Volume	6.53 ft ³ (0	.18 m ³)



- 1. Units for dimensions are inches (mm), typical unless noted otherwise.
- 2. Block production varies with each licensed Redi-Rock manufacturer. Confirm availability before Specifying or Ordering.
- 3. Center of Gravity is measured from the back of block.
- 4. Actual block volumes and weights may vary.

- 5. Weights are based upon a concrete density of 143 lb/ft³ (2291kg/m³).
- 6. Half blocks contain a fork slot on only one side of the block.
- Interface Shear knobs are typically 10" (254mm) diameter by 4" (102mm) tall. Smaller knob diameters are available.

INFILLED UNIT WEIGHT CALCULATIONS



CONCRETE

Design Unit Weight = 143 pcf (2291 kg/m³)

LIMESTONE AND COBBLESTONE FACE TEXTURE

Average Volume (Vc) 11.83 cft (0.33 m³) (From CAD Model) Concrete Block Weight (Wc) Wc = 11.83 cft x 143 pcf = 1,692 lbs (767 kg) Average Center of Gravity (COGc) 22.0 in (558 mm) (From CAD Model) KINGSTONE AND LEDGESTONE FACE TEXTURE

Average Volume (Vc) Concrete Block Weight (Wc)

11.33 cft (0.32 m³) (From CAD Model) Wc = 11.33 cft x 143 pcf = 1,620 lbs (735 kg) Average Center of Gravity (COGc) 21.3 in (540 mm) (From CAD Model)

INFILL SOIL

Design Unit Weight = 100 pcf (1602 kg/m³)

Soil considered as infill includes the soil between adjacent blocks and in the hollow core.

Volume (Vs)	6.53 cft (0.18 m ³) (From CAD Model)
Infill Soil Weight (Ws)	Ws = 6.53 cft x 100 pcf = 653 lbs (296 kg)
Center of Gravity (COGs)	15.1 in (384 mm) (Data from CAD Model)

DESIGN VOLUME

40.5 in x 46.125 in x 18 in = 33,625 in³ = 19.46 cft $(1.03 \text{ m x} 1.172 \text{ m x} 0.457 \text{ m} = 0.55 \text{ m}^3)$

INFILLED UNIT WEIGHT

LIMESTONE AND COBBLESTONE FACE TEXTURE γ_{INFILL} = (1,692 lb + 653 lb) / 19.46 cft = <u>120.5 pcf</u> $((767 \text{ kg} + 296 \text{ kg}) / 0.551 \text{ m}^3 = 1929 \text{ kg/m}^3)$ KINGSTONE AND LEDGESTONE FACE TEXTURE γ _{INFILL} = (1,620 lb + 653 lb) / 19.46 cft = <u>116.8 pcf</u> $((735 \text{ kg} + 296 \text{ kg}) / 0.551 \text{ m}^3 = 1871 \text{ kg/m}^3)$

NOTE: The infilled unit weights shown here are reference values. Several factors can cause the unit weights of both concrete and infill soil to vary. The designer should use sound engineering judgement when assigning an infilled unit weight value for analysis. For overturning analysis, AASHTO recommends limiting the infill soil weight to 80% of its theoretical maximum.

INTERFACE SHEAR TEST SUMMARY

Test	Nor	mal	Pe	ak	Observed
No.	Lo	ad	Sh	ear	Failure
	lb/ft	(kN/m)	lb/ft	(kN/m)	
1	5,993	(87.5)	12,620	(184.2)	Failure through face
2	6,039	(88.1)	14,209	(207.4)	Failure through face
3	472	(6.9)	7,552	(110.2)	Failure through face
4	2,064	(30.1)	8,644	(126.1)	Failure through face
5	3,991	(58.2)	10,715	(156.4)	Failure through face
6	8,019	(117.0)	12,146	(177.3)	Knobs sheared
7	6,000	(87.6)	10,414	(152.0)	Knobs sheared
8	10,016	(146.2)	15,243	(222.5)	Knobs sheared
9	5,998	(87.5)	12,221	(178.3)	Knobs sheared

INTERFACE SHEAR DATA^(a)





(a) The average compressive strength of concrete blocks as-tested ranged from 2,865 psi (19.8 MPa) to 3,872 psi (26.7 MPa), with an average of 3,323 psi (22.9 MPa). The data reported represents the actual laboratory test results. No statistically-significant correlation between block strength and interface shear resistance was found.

(b) The equations for peak shear envelope represent the slope of the trend line of the raw data, offset to pass thorugh the lower 95% confidence limit for the repeatability values, with no increase in shear capacity for normal load values above those tested. No further adjustments have been made. Appropriate factors of safety for design should be added.

The information contained in this report has been compiled by Redi-Rock International, LLC as a recommendation of peak interface shear capacity. It is accurate to the best of our knowledge as of the date of its issue. However, final determination of the suitability of any design information and the appropriateness of this data for a given design purpose is the sole responsibility of the user. No warranty of performance is expressed or implied by the publishing of the foregoing laboratory test results.

PRELIMINARY HEIGHT GUIDES

Preliminary Height Guide





A combination of Redi-Rock 28" (710 mm), 41" (1030 mm) HC, and 60" (1520 mm) wide blocks with the standard 5° wall batter are used to provide the most efficient cross-section available in the different conditions.

Several assumptions have been made in preparation of the guide. They are listed in the notes below. If these assumptions do not match the wall section under consideration, block selections and achievable heights may vary from the sections shown in this guide. All wall sections for construction must be designed by a registered Professional Engineer using the actual conditions of the site.



Notes:

This preliminary guide has been prepared for four different soil types, three different load conditions, and with three different width blocks to give an indication of the performance of Redi-Rock walls. A wall batter of 5° was used for this preliminary guide. Redi-Rock walls are not limited to these conditions. Specific wall sections can incorporate different block setbacks and can be designed for different soil and loading conditions.

Unit weight of soil is assumed to be 120 lb/ft^3 (18.85 kN/m³) or 130 lb/ft^3 (20.4 kN/m³) as noted for each section of this preliminary guide.

Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity, and 1.3 for global stability. Other factors of safety will result in changes from the wall heights and block selections shown in this guide.

No seismic or hydrostatic loads were included in this preliminary guide.

Ledgestone texture blocks were used to prepare this preliminary guide. Wall heights and block selections for other textures and blocks may vary.

Independent barrier design at the top of the wall must be performed for site specific conditions. Barrier requirements may result in changes to available wall heights and block selections from those shown in this guide.

Wall stability needs to be verified in the final design for site-specific conditions.

The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.

Backfill material to be compacted to 90% modified proctor density (ASTM D1557).

All Redi-Rock International Wall System Specifications and installation recommendations should be followed.

Construction oversight should be provided on all walls to ensure proper construction according to your detailed design drawings.

Not tall enough? Greater wall heights are achievable with select backfill, increased wall batter, and/or mechanically stabilized earth Redi-Rock walls.

Redi-Rock products are manufactured by independently owned, licensed manufacturers. Product offerings will vary between manufacturers. Contact your local manufacturer to determine what products are available for your job.

These block selection and height guides were prepared by Redi-Rock International for estimating and conceptual design purposes only. All information is believed to be true and accurate; however, Redi-Rock International assumes no responsibility for the use of these preliminary guides for actual construction. Determination of the suitability of each preliminary guide is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

Preliminary Height Guide



$\phi = 34^{\circ}$ DENSE WELL-GRADED SAND or SAND AND GRAVEL

Standard batter gravity walls	SECTION 1 OF 4
Assumed retained and foundation soils for this Section	SW, GW
Internal angle of friction	$\phi = 34^{\circ}$
Unit weight	γ = 130 lb / ft ³ (20.4 kN / m ³)
Cohesion	c = 0 lb / ft ² (0 kPa)



Preliminary Height Guide

 ϕ = 34° | DENSE WELL-GRADED SAND or SAND AND GRAVEL

LOAD CONDITION A

NO LIVE LOAD SURCHARGE, NO BACK SLOPE, NO TOE SLOPE





= 41" (1030 mm) HOLLOW-CORE BLOCK







Preliminary Height Guide



φ = 30°	FINE TO MEDIUM SAND or SILTY SAND	
Standard batter	gravity walls	SECTION 2 OF 4

Assumed retained and foundation soils for this Section	SW, SP, SM
Internal angle of friction	$\phi = 30^{\circ}$
Unit weight	γ = 120 lb / ft ³ (18.8 kN / m ³)
Cohesion	c = 0 lb / ft ² (0 kPa)











= 28" (710mm) BLOCK

= 41" (1030 mm) HOLLOW-CORE BLOCK

= 60" (1520 mm) BLOCK

Preliminary Height Guide



$\phi = 28^{\circ}$ SILTY SAND or CLAYEY SAND	
Standard batter gravity walls	SECTION 3 OF 4
Assumed retained and foundation soils for this Section	SM, SC
Internal angle of friction	$\phi = 28^{\circ}$
Unit weight	γ = 120 lb / ft ³ (18.8 kN / m ³)
Cohesion	$c = 0 \text{ lb } / \text{ ft}^2 (0 \text{ kPa})$





(1) 60" (1520 mm) Block

0'-6" (152 mm)

0'-6" (152 mm)

5'-6" (1.68 m)

Preliminary Height Guide $\phi = 28^{\circ}$ SILTY SAND or CLAYEY SAND LOAD CONDITION B 250 lb/ft² (12 kPa) LIVE LOAD SURCHARGE, NO BACK SLOPE, NO TOE SLOPE **2 BLOCK HIGH SECTION 3 BLOCK HIGH SECTION** 250 lb / ft² (12 kPa) (1) 28" (710 mm) Block (1) 28" (710 mm) Block 250 lb / ft² (12 kPa) (1) 41" (1030 mm) HC Block (2) 41" (1030 mm) HC Blocks 1111 4'-0" (1.22 m) φ = 28° 2'-6" (0.76 m) φ = 28° 0'-6" (152 mm) 0'-6" (152 mm) 0'-6" (152 mm) 0'-6" (152 mm) **4 BLOCK HIGH SECTION 5 BLOCK HIGH SECTION** (1) 28" (710 mm) Block (1) 28" (710 mm) Block 250 lb / ft² (12 kPa) (2) 41" (1030 mm) HC Blocks (2) 41" (1030 mm) HC Blocks

(2) 60" (1520 mm) Blocks

0'-6" (152 mm)

0'-6" (152 mm)

7'-0" (2.13 m)

250 lb / ft² (12 kPa)

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φ = 28°



SEE NOTES AND RECOMMENDED DETAILS AT START OF PRELIMINARY HEIGHT GUIDE.

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φ = 28°





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Preliminary Height Guide



= 40° over 26°	CRUSHED STONE BACKFILL REPLACEING SILTY or CLAYEY SAND
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Standard batter gravity walls	SECTION 4 OF 4
Assumed select backfill / retained soil for this Section *	GW, GP
Internal angle of friction	$\phi = 40^{\circ}$
Unit weight	γ = 130 lb / ft ³ (20.4 kN / m ³)
Cohesion	$c = 0 \text{ lb } / \text{ ft}^2 (0 \text{ kPa})$
Assumed native / foundation soil for this Section	SM, SC
Internal angle of friction	$\phi = 26^{\circ}$
Unit weight	γ = 120 lb / ft ³ (18.8 kN / m ³)
Cohesion	c = 0 lb / ft ² (0 kPa)

* This analysis assumes native material is removed to a 1 on 1 slope or flatter from the back of the proposed retaining wall blocks and replaced with compacted crushed stone.







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41" HC INSTALLATION INSTRUCTIONS

1. PURPOSE

This manual is intended to serve as a guide for the proper installation and construction of a Redi-Rock retaining wall. The recommendations and guidelines presented here are intended to supplement detailed construction documents, plans, and specifications for the project.

2. RESPONSIBILITIES

Redi-Rock supports a Total Quality Management approach to Quality Assurance and Quality Control (QA/QC) in the planning, design, manufacture, installation, and final acceptance of a Redi-Rock wall. This approach requires the responsible party at each stage of the project, from start to finish, ensure that proper procedures are followed for their portion of the work. The responsible parties during the construction phase of a Redi-Rock wall include the Contractor, Engineer or Owner's Representative, and Redi-Rock licensed manufacturer. Their specific responsibilities for compliance are as follows:

CONTRACTOR

The Contractor is responsible for providing construction according to the contract documents, plans, and specifications for the project. The Contractor shall ensure that employees engaged in construction of the Redi-Rock wall understand and follow the project plans and specifications, are familiar with construction methods required, and have adequate safety training.

ENGINEER OR OWNER'S REPRESENTATIVE

The Engineer or Owner's representative is responsible for construction review to assure that the project is being constructed according to the contract documents (plans and specifications). The representative shall fully understand the project plans and specifications and shall perform adequate field verification checks to ensure construction is in conformance with the project requirements. The presence of the Engineer or Owner's representative does not relieve the Contractor of their responsibilities for compliance with the project plans and specifications.

REDI-ROCK LICENSED MANUFACTURER

Redi-Rock blocks are produced by independently owned licensed manufacturers. The manufacturer is responsible for the production and delivery of Redi-Rock units to the job site in accordance with published material quality, size tolerances, construction documents, plans, and specifications. The licensed manufacturer is responsible for adherence to any project specific QA/QC requirements for the production of precast concrete retaining wall units. Often, additional services, such as installation training classes, are available through the Redi-Rock manufacturer.

3. PRE-CONSTRUCTION CHECKLIST

Before you start construction of a Redi-Rock wall, take the time to complete necessary planning and preparation. This process will help insure a safe, efficient, and quality installation. It will also help avoid costly mistakes.

]SAFETY

Safety is of primary concern to Redi-Rock International. Redi-Rock walls must be installed in a safe manner. All local, state, and federal safety regulations must be followed. In addition, Redi-Rock International greatly encourages installers to set up company programs to help their people stay safe at work. These programs should address items such as: personal protective equipment, maintaining safe slopes and excavations, fall protection, rigging and lifting, and other safety precautions. Safety-training materials specific to your company can be found at www.osha.gov or by calling 1-800-321-OSHA (6742).

BINGINEERING AND PERMITS

Obtain necessary engineering and permits for your project. Your local building department is an excellent resource to help determine the requirements for your project.

This installation manual is intended to supplement a detailed, site-specific wall design prepared for your project by a Professional Engineer. The construction documents for your project supersede any recommendations presented here.

REVIEW THE PROJECT PLANS

Take the time to review and understand the project plans and specifications. Make sure that the plans take into account current site, soil, and water conditions. Pay close attention to silty or clayey soils and ground water or surface water on the site as these can significantly increase the forces on the wall. A pre-construction meeting with the wall design engineer, construction inspector, wall contractor, and owner or representative is recommended.

CONSTRUCTION PLANNING

Develop a plan to coordinate construction activities on your site. Make sure your plan specifically addresses how to control surface water during construction.

UTILITY LOCATION

Make sure to have underground utilities located and marked on the ground before starting any construction. Call 8-1-1 or go online to **www.call811.com** to schedule utility marking for your project site.

MATERIAL STAGING

Store Redi-Rock blocks in a location close to the proposed wall. Blocks should be kept clean and mud free. Blocks should also be stored in a location which will minimize the amount of handling on the project site.

Store geogrid in a clean, dry location close to the proposed wall. Keep the geogrid covered and avoid exposure to direct sunlight.

Be careful where you stockpile excavation and backfill material. Do not stockpile material over buried utility pipes, cables, or near basement walls which could be damaged by the extra weight.

MATERIAL VERIFICATION

Material planned for use as drainage aggregate between and behind Redi-Rock blocks and structural backfill material proposed for use in the reinforced soil zone of mechanically stabilized earth walls must be inspected and verified to comply with requirements of the construction documents, plans, and specifications.

] EQUIPMENT

Make sure you have the proper equipment to handle Redi-Rock blocks and install the wall. Redi-Rock blocks are quite large and heavy. Make sure excavators and other construction equipment are properly sized to handle the blocks safely.

Hand operated equipment should include, as a minimum, shovels, 2' (0.6 m) level, 4' (1.2 m) level, broom, hammer, tape measure, string, spray paint, laser level, pry or Burke bar, walk behind vibratory plate compactor (capable of delivering a minimum of 2000 lb (8.9 kN) centrifugal force), and a 16" (400 mm) concrete cut-off saw.

Personal protective equipment should include, as a minimum, appropriate clothing, steel toe boots with metatarsal protection, eye protection, hard hat, gloves, hearing protection, fall protection rigging, and other items as necessary to insure a safe working environment.

4. SUBGRADE SOILS

Proper base preparation is a critical element in the construction of your retaining wall. Not only is it important to provide a stable foundation for the wall, but a properly prepared base will greatly increase the speed and efficiency of your wall installation. Proper base preparation starts with the subgrade soils.

Existing soils must be removed to the bottom of the leveling pad elevation for the retaining wall.

The base and back of excavation should expose fresh, undisturbed soil or rock. Remove all disturbed soils which "fall-in" along the base of the wall or the back of the excavation. Always provide safe excavations in accordance with OSHA requirements.

The subgrade soil (below the leveling pad) should be evaluated by the Engineer or Owner's Representative to verify that it meets the design requirements and to determine its adequacy to support the retaining wall. Any unsuitable material shall be excavated and replaced as directed by the on-site representative and per the requirements of the contract drawings, plans, and specifications.

Subgrade soils must be compacted to a density as specified in the contract documents, plans, and specifications but not less than 95% maximum density as determined by a standard proctor test (ASTM D698).

5. LEVELING PAD

Base preparation continues with proper leveling pad construction. Redi-Rock retaining walls can be designed with an open-graded crushed stone, dense-graded crushed stone, or concrete leveling pad which supports the bottom row of blocks. The choice of which type of leveling pad to use is made by the wall design engineer and depends on several factors including the bearing capacity of the native soil, location of the drain outlet, and conditions at the base of the wall.

Open-graded crushed stone is typically used in cases where the wall drain can outlet to daylight (by gravity) somewhere below the elevation of the bottom of the leveling pad. The material should be 1" (25 mm) diameter and smaller stone. A crushed stone meeting the gradation requirements of ASTM No. 57 with no material passing the No. 200 (74 mm) sieve is preferred. The leveling pad thickness shall be as designed by the wall design engineer. A minimum thickness of 6" (150 mm) or 12" (300 mm) is common. The leveling pad should extend at least 6" (150 mm) in front and 12" (300 mm) behind the bottom block. Make sure to check your construction documents for details.

Dense-graded crushed stone or graded aggregate base material is typically used in cases where the wall drain can only outlet to daylight somewhere above the bottom of the leveling pad. The material should be dense-graded crushed stone with between 8 and 20% "fines" which will pass through a No. 200 (74 mm) sieve. The leveling pad thickness shall be as designed by the wall design engineer. Minimum dimensions are the same as those for an open-graded crushed stone leveling pad.

The leveling pad material should be placed and compacted to provide a uniform, level pad on which to construct the retaining wall. Proper elevation can be established with a laser level or transit. You can also set two 20' (6 m) long grade pipes to the desired grade and screed the crushed stone material between the pipes.

Place the stone leveling pad in uniform loose lifts a maximum of 6" (150 mm) thick. Consolidate the stone with a minimum of three passes with a 24" (610 mm) wide, walk-behind, vibrating plate compactor capable of delivering at least 2000 lb (8.9 kN) of centrifugal force. This should achieve 90% relative density of the stone determined in accordance with ASTM D-4253 and D-4254. In place density of the stone fill should be confirmed using ASTM D-6938. If you don't achieve a minimum of 90% relative density, place the stone in smaller lifts or apply more compaction effort until you do achieve desired density of the stone.

Do NOT place a thin layer of sand between the leveling pad and bottom block. This layer will reduce the sliding resistance between the leveling pad and bottom block.

In some cases, the wall design requires the construction of a concrete leveling pad. Construct the leveling pad according to the detailed plans for your project.

Some designs require a shear key in the bottom of the footing and/or a lip in front of the Redi-Rock blocks. These items would be shown in the project plans.

If steel rebar is to be placed in the footing, secure the bars together with wire ties in the pattern shown in the construction documents. Use rebar supports to hold the rebar structure in the proper position in the footing.

Place wood formwork at the front and back of the concrete leveling pad or footing. The top of the formwork should be placed at the elevation of the top of the concrete footing so you can screed the top smooth in preparation for block placement. It is important that the top surface be smooth and level for full contact of the retaining wall blocks.

Place concrete as specified in the wall design. Once the concrete has been allowed to cure to the minimum specified strength, place the bottom blocks and continue construction of the retaining wall.

6. SETTING THE BOTTOM ROW OF WALL BLOCKS

Redi-Rock blocks are typically delivered to the construction site using a flatbed trailer or boom truck. Rubber tired backhoes, loaders, skid steers, or excavators are used to set the retaining wall blocks. Make sure to use the proper sized equipment to handle the large blocks. All lifting chains, rigging, or slings must be OSHA compliant and safety rated for proper working loads.

Properly mark the location of the retaining wall. A string line or offset stakes are typically used to establish horizontal and vertical alignment. If offset stakes are used, the stakes should be placed at least 5' (1.5 m) but no more than 10' (3 m) in front of the face of the retaining wall. A stake should be provided at every elevation change and at a maximum of 50' (15 m) apart.

Wall construction should start at a fixed point such as a building wall, 90° corner, or at the lowest elevation of the wall.

Place a complete row of blocks on the prepared leveling pad. Blocks shall be placed in full contact with the leveling pad and other immediately adjacent block units. Block alignment should be established by lining up the "form line" where the face texture meets the steel form finished area at the top of the block, approximately 5" (130 mm) back from the front face.

Check all blocks for level and alignment as they are placed. Small adjustments to the block location can be made with a large pry or Burke bar. Proper installation of the bottom block course is critical to maintaining the proper installation of all subsequent block courses within acceptable construction tolerance. It also makes installation of the upper rows of blocks much easier and more efficient.

Place and compact backfill in front of the bottom block course prior to placement of subsequent block courses or backfill. This will keep the blocks in place as drainage aggregate and backfill are placed and compacted.

Place an 18" x 12" (457 mm x 305 mm) piece of non-woven geotextile fabric in the vertical joint between the blocks to prevent the drainage aggregate and backfill material from migrating through the vertical joints between blocks.

Place washed drainstone or open-graded crushed stone backfill into the hollow cores of the hollow-core blocks and between blocks in lifts of no more than 9 inches (230 mm) deep. A stone meeting the gradation requirements of ASTM No. 57 with no material passing the No. 200 (74 mm) sieve is preferred. Compact each lift by tamping until no further consolidation occurs with a soil tamper or other similar method. Strike off the top and sweep the upper surface of the blocks so the next row will sit cleanly on the lower row.

Though the cores of the blocks contain a significant percentage of open-graded stone, a stone drainage column is required. Not only does this zone of uniform stone prevent build-up of water pressures behind the wall, it also helps with compaction immediately behind the wall blocks. Place washed drainstone or open-graded crushed stone backfill between blocks and at least 12" (300 mm) behind the wall. Place the stone in uniform loose lifts a maximum of 6" (150 mm) thick. Consolidate the stone with a minimum of three passes with a 24" (610 mm) wide, walk-behind, vibrating plate compactor capable of delivering at least 2000 lb (8.9 kN) of centrifugal force. This should achieve 90% relative density of the stone determined in accordance with ASTM D4253 and D4254. In place density of the stone fill should be confirmed using ASTM D6938. If you don't achieve a minimum of 90% relative density, place the stone in smaller lifts or apply more compaction effort until you do achieve desired density of the stone.

Place non-woven geotextile fabric between the drainstone and the remaining backfill material if specified.

Backfill behind the drainage aggregate with material as specified in the project construction documents. Place the lifts as specified, but not to exceed 9" (230 mm) maximum. Granular backfill shall be compacted to a minimum of 95% maximum density as determined by a standard proctor test (ASTM D698). Use proper equipment to insure complete compaction of the backfill material. It may be necessary to wet or dry the backfill material, place the material in smaller lifts, and/or apply more compaction effort to reach 95% maximum density. Do not use any organic, topsoil, frozen, soft, wet, or loose soils when backfilling the wall.

Re-check all units for level and alignment and sweep the top of each course of blocks clean before starting construction of the next course.

7. INSTALLING THE WALL DRAIN

A drain is placed behind the Redi-Rock wall blocks at the lowest elevation where the pipe can safely outlet to daylight. Drainage aggregate should be placed to the bottom of the drain as shown in the construction documents. A 4" (100 mm) perforated sock drain is commonly used for the drain pipe. Often the drain is encapsulated with drainage aggregate and wrapped with a non-woven geotextile fabric. The drain should run the entire length of the wall and needs to have proper outlets on the ends and at regularly spaced points along the wall. Solid pipe should be used for weep hole outlets through the face or under the retaining wall.

Care needs to be taken during installation to avoid crushing or damaging the drain pipe or outlets.

8. SETTING UPPER ROWS OF WALL BLOCKS

Once the backfill is fully placed and compacted for the block course below, place the next row of blocks in a running bond configuration with the vertical joint of the lower block units centered under the midpoint of the block units above. If needed, a half block can be used at the end of every other row to maintain a running bond.

Push the Redi-Rock blocks forward until the groove on the bottom of the block comes in full contact with the knobs on the blocks below.

Place non-woven geotextile fabric in the vertical joint between the blocks, and place and compact the core infill and drainage aggregate and backfill material the same way you did for the bottom row.

Never install more than one course of blocks without placing and compacting drainage aggregate and backfill to the full height of the block units. Placing multiple courses of blocks without backfill will prevent the proper placement and consolidation of the drainage aggregate between the blocks.

Repeat these steps with each course of blocks until the planned elevation is achieved.

9. SPECIAL FEATURES

Some walls require special features such as curves, corners, top of wall details, details for elevated groundwater applications, and other details. Refer to the construction documents, plans, and specifications for details to construct these features. Additional general reference construction details are available on the Redi-Rock website, **www.** redi-rock.com.

10. IMPORTANT NOTES

Best practice dictates that wall construction should continue without interruption or delays. This will help expedite construction and minimize the time the excavation is open.

The construction site should be graded and maintained to direct surface water runoff away from the retaining wall throughout the entire construction process.

Do not exceed the allowable construction tolerances specified in the contract documents, plans, and specifications. At no time should tolerances at the wall face exceed 1° vertically and 1" in 10' (1:120) horizontally.

Immediately report the following site conditions, if encountered, to the Engineer or Owner's representative to determine the corrective action needed:

- Any observed groundwater seepage.
- Surface water run-off directed toward the retaining wall during construction.
- Erosion or scour of material near the wall.
- Ponded water near the wall.
- Wet, soft, or easily compressible soils in the foundation zone.
- Existing rock that differs in location from that shown on the project plans or rock located above the elevation of the bottom of the leveling pad.
- Existing or proposed toe or crest slopes that differ from typical cross-sections shown in the project plans.
- Any other items not specifically mentioned which raise questions or cause concerns during wall construction.

Immediately implement any corrective action before resuming wall construction.

CONSTRUCTION DETAILS



NOTES

