Laying the groundwork for the crown on the National Mall

Granite provides a high standard of elegance, subtle security and quiet permanence for a new Washington, DC landmark

BY SCOTT SOWERS

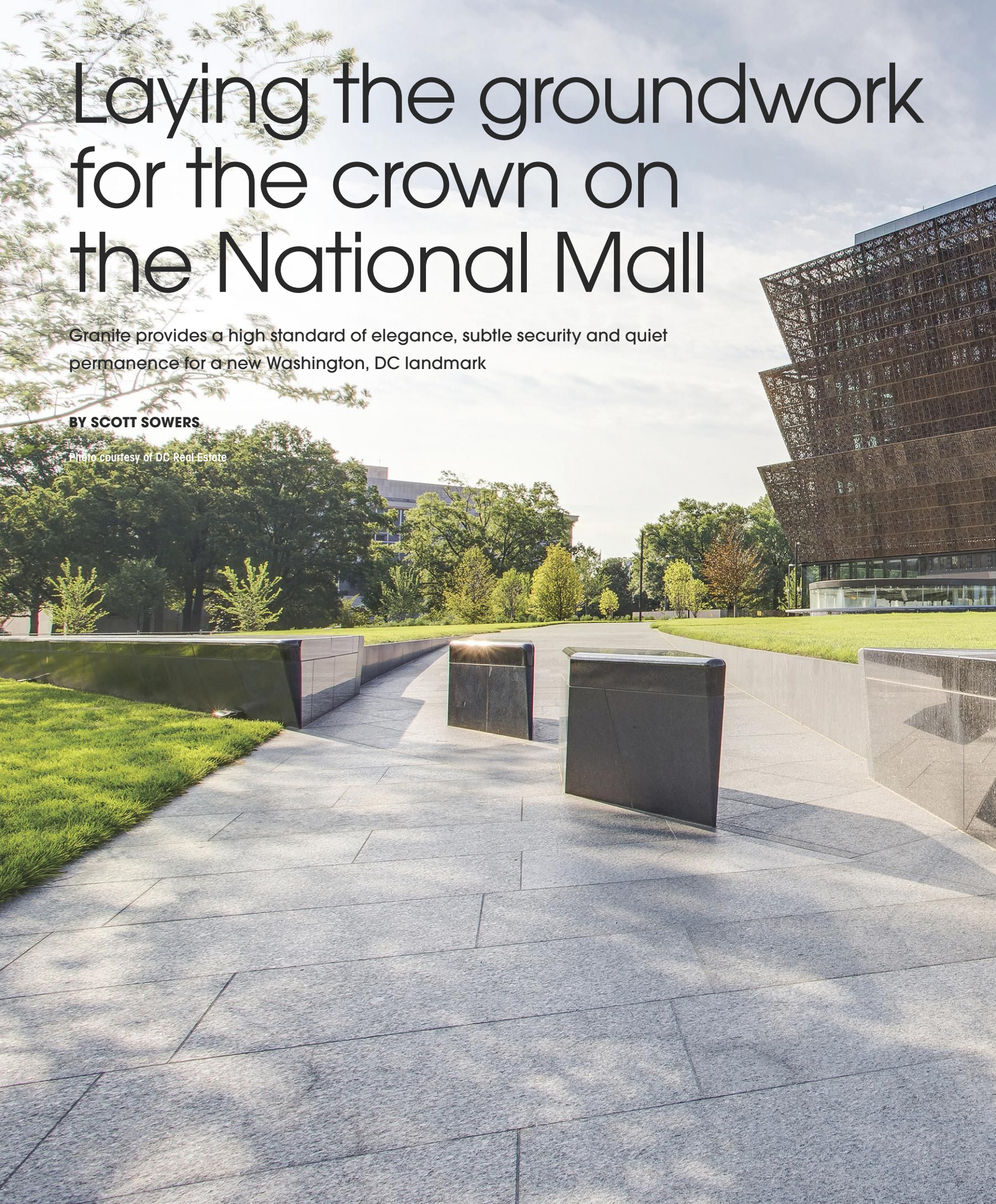

Photo courtesy of DC Real Estate

In 2009, Gustafson Guthrie Nichol (GGN), a landscape design firm with offices in Seattle and Washington, DC, won a design competition for the 5-acre site that would host the National Museum of African American History and Culture. Photo courtesy of Rugo Stone

In 2009, Gustafson Guthrie Nichol (GGN), a landscape design firm with offices in Seattle and Washington, DC, won a design competition for the 5-acre site that would host the National Museum of African American History and Culture. The prestigious plot of land is adjacent to the Washington Monument and is bordered by Constitution Avenue, 12th Street, Madison Drive, and 14th Street in the Northwest quadrant of the city.

The basic landscape plan appeared as a simple and elegant design providing walkways, retaining walls and benches, while also satisfying multiple reviews, oversight, and security requirements. From there, things became more complicated, but the notion of using natural stone was already etched onto the design boards.

Rodrigo Abela, a principal at GGN said, "It's an institution, so the ideas of permanence and longevity are foremost. If you look at all the other museums in DC, there's a standard this one had to live up to." The stakes were high and the national stage beckoned as the design team submitted a pallet of material choices to the Commission of Fine Arts (CFA), who holds sway over the aesthetics and design of coins, medals, buildings and museums that are sited on the National Mall.

Mesabi Black® granite, quarried in Babbitt, MN, was an early choice. Abela said, "We wanted something that was uniform and fairly quiet. We wanted a stone that didn't call too much attention to itself, but it's a big space, so we wanted to also create character and contrast."

Selling the CFA on Mesabi wasn't that hard, but there were other factors that had to be weighed. "We didn't have to

defend specific choices, but we had to make a compelling case for an overall composition," explained Abela. "But at the same time, these materials come at a premium; there's a budget and we had to be strategic. Even though it was a big-budget project, it was not an infinite budget."

As GGN worked their way through the bidding and approval process they leaned on several partners they had worked with in the past, including Coldspring, based in Cold Spring, MN. The firm was selected as the source and fabricator for the 37,000 square feet of Mesabi Black granite used in the project.

Kayla Strand, Sales Coordinator for Coldspring, said, "Black is a color that is currently 'in.' Coldspring's Mesabi Black is a popular choice because it is one of the darkest blacks that we quarry and it is a domestic color. Mesabi also looks great in many different finishes, so you can get a contrast in color without using a different stone."

As everybody knows, there are many shades of gray, even in stone, and another material stepped up to play a starring role based on a suggestion from the installation team. Abela said, "Rugo Stone, who did the installation, are fantastic craftsmen — we reached out to them when we were looking for stones that would be appropriate and they helped us find Impala." Impala, quarried in South Africa, has a similar grain structure and crystal scale as Mesabi.

Brett Rugo, owner of Rugo Stone based in Lorton, Virginia, and promoter of Impala granite, said, "Any time you get to work on Constitution Avenue, it's a thrill. There was a tremendous commitment to doing a really high-quality job. It was a demanding design with subtle, graceful geometry in the site that doesn't look complicated, but it was actually extremely challenging with a lot of large radiuses and tight tolerances."

The pathway up on the north side takes you past massive trapezoids of black granite bollards topped with bullnose corners, a design detail that kept the team on its toes. Photo courtesy of DC Real Estate

Wide benches — also rendered from Mesabi — offer the weary a place to rest. Abela said, "We made these twice as wide and in various lengths, using the same stone, but we polished the benches and expressed them as floating planes, then sculpted the supports down to a thinner leg." Photo courtesy of DC Real Estate

The stonework on the site includes a mix of thin and thick retaining walls, benches, bollards and pavers, rendered in two kinds of granite in four different finishes. Photo courtesy of DC Real Estate

As you get closer, rows of Mesabi pavers laid in a rectangular running bond form a hard surface around the museum's combination oculus and water feature that channels sunlight down into the structure's lower levels. Photo courtesy of Rugo Stone

The stonework on the site includes a mix of thin and thick retaining walls, benches, bollards and pavers, rendered in two kinds of granite in four different finishes. Underneath all the natural stone is a lot of concrete. Rugo said, "A structural concrete slab on grade is typical throughout the site. There's a 6-inch slab with a 2- to 3-inch setting bed of dry pack mortar. And then 2-inch stone paving throughout, 3 inches in some cases."

The design team speaks about the project by breaking it down into discussions about the north and the south sides of the museum and grounds. The north side faces Constitution Avenue with two diagonal walkways to the museum intersecting the corners of the block. One diagonal walkway is concrete; the other is Mesabi. The pavers were finished in Coldspring's Diamond 10® configuration, which makes it suitable for exterior application.

There is a slight slope to the site, with the subtly curved retaining walls ringing the boundaries. Straight lines on the project are few and far between. The concrete pathway up on the north side takes you past massive trapezoids of black granite bollards topped with bullnose corners, a design detail that kept the team on its toes.

Strand said, "Fabrication of the granite pieces for the north wall proved particularly challenging because of the wall's slight radius and continuous bullnose. We had to produce each of these stones at precisely the same thickness to ensure an exact alignment at installation. Our CNC technology helped tremendously in the precision of these pieces. Once the pieces were cut to size, the polish finish was applied by hand to the bullnose. A lot of time was spent on hand finishing by our stone craftsmen which definitely showed in the final product; which to me is a classic and timeless design."

The thicker retaining walls are anchored by poured-in-place concrete walls. Rugo explained, "The open cavity walls are supported on stainless steel clips, top and bottom, with each stone backed to a poured-in-place structural steel wall. There is an offset dimension on most all of the federal buildings that has a security berm built in place. Creative architects have been able to turn those from just

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blocky bulky walls into elegant pieces of art that provide a perimeter and also give definition to the limit of the property."

Rugo continued, "We did all the shop drawings and shop tickets for those very complex walls. Two-inches-thick wall cladding; monolithic, massive copings and caps cover the concrete walls, and then at the end, very large pointed buttresses 7 to 8 feet long by 4 or 5 feet wide. These are very large, shaped pieces. Those were all manufactured using computer numerically controlled (CNC) technology by Coldspring."

The components of the complex wall systems were first modeled using software that provided 3-dimensional representations of what the pieces would look like and how they would fit together. A 5-axis CNC router was used to produce the pieces. The design team used a polished finish on the tops of the wider walls and a honed finish on the wall veneers.

Thin-profile retaining walls cut into the slope and provide a border on the pathways up toward the museum on the north side. As you get closer, rows of Mesabi pavers laid in a rectangular running bond form a hard surface around the museum's combination oculus and water feature that channels sunlight down into the structure's lower levels.

Wide benches — also rendered from Mesabi — offer the weary a place to rest. Abela said, "We made these twice as wide and in various lengths, using the same stone, but we polished the benches and expressed them as floating planes, then sculpted the supports down to a thinner leg."

The walkways around the building leading to the south side of the museum are also bordered by a series of stunning yet simple stone retaining walls that frame the site, and landscaping elements.

The south side of the structure faces Madison Drive, a smaller-gauge side street that's perfect for unloading bus-

es full of visitors. Guests find themselves walking toward the porch — a large, sheltering cantilevered-roof section that shields a reflecting pool and large-format scale pavers carved from Impala, the other stone on the job.

Although the site appears to be simple and straightforward, the devil, as always, is in the details. Abela said, "Simplicity takes work. Indoors, everything is level and straight. When you get outside, everything has a slight slope because it has to drain water, and then you add a curve to that. Stone guys work to the 32nd of the inch, so the biggest thing on this project was accuracy. When laying out these curves there's not a lot of tolerance."

President Obama officially opened the museum in September of 2016 and it currently requires a timed entry pass for admittance — which means it's a hit with visitors and the teams who helped bring it to life.

The camaraderie of the team members comes through. Abela said, "I really enjoy the process of building and interacting with the trades. The drawings get you a good ways there, but that final five percent is built on the understanding of what everyone is trying to do."

Complex designs that look easy brought out the best in the team members. Strand said, "My favorite part about this project was the complexity of the design. It posed challenges for us at times, but the collaboration between GGN and Rugo Stone allowed us to hit this one out of the park."

Rugo concluded, "our mission is promotion of the use of natural stone and we are very pleased that our help in bringing both Impala and Mesabi to the project as well as our craftsmanship and experience have helped create a spectacular result."

The National Museum of African America History and Culture received an MIA+BSI 2016 Pinnacle Award of Merit in the category of Commercial Exterior. ■

National Museum of African American History and Culture
Washington, DC

Landscape Architect: Gustafson Guthrie Nichol (GGN), Washington, DC

Stone Supplier/Fabricator: Coldspring, Cold Spring, MN (Mesabi Black® granite); Rugo Stone LLC, Lorton, VA (Impala granite)

Stone Installer: Rugo Stone LLC, Lorton, VA

General Contractor: Clark/Smoot/Russell Joint Venture