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New Entry With Old World Charm

Goals

The Cincinnati Zoo & Botanical Gardens, the second oldest zoo in the United States, opened a new \$19.6M entrance designed to make the park more visitor friendly. With attendance on the rise and parking becoming increasingly difficult for visitors, the Cincinnati Zoo purchased additional land with plans to relocate the entrance and add space for additional parking and exhibits.



Design

ME Company designed a 25,000 sq ft (2323 sq m) AB Europa segmental retaining wall which raised the site and created enough useable real estate to build an expanded entry plaza and the Historic Vine Street Village. The design also included a pedestrian bridge to get visitors from the new parking lot, across busy Vine Street, into the Zoo which sat 22 ft (6.7 m) above the parking lot area.

The pedestrian bridge is supported by two, cast in place, piers that extend more than 40 ft (12.2 m) deep into sloping bedrock.

One of the construction challenges was to incorporate the AB Europa wall with the piers that support the pedestrian bridge. At the pier locations, a portion of the wall rests on the pier footing while the remainder of the wall resides on compacted granular base. Extra care in subsoil and base compaction needed to be taken to prevent differential settlement at these locations. Higher levels of compaction were achieved by decreasing the lifts to 4 in (100 mm) and performing multiple passes with compaction equipment.

See continued story next page.



Manufactured by:
Reading Rock, Cincinnati, Ohio

Product Used:
AB Europa® Collection, AB Abbey Blend Patterned Walls

Contractor:
OEI (phase 1), Mainline Bridge (phase 2), Performance Site (phase 3)

Engineer:
ME Company



AB® Goes Green With Style

LEED® Certification

This new, green entrance complex helped make the Cincinnati Zoo the greenest zoo in the country. The Cincinnati Zoo is now the first zoo in the country with multiple LEED projects and the 2nd zoo in the country to receive LEED Platinum Certification.

The AB Europa segmental retaining wall contributes directly and indirectly to LEED points by providing the following:

- Recyclable product
- Recycled content of product
- Minimal product waste
- Regional material
- Development density (enable efficient use of small sites)
- Pollution prevention (reduced soil erosion)

Stormwater Issues

The Cincinnati Zoo partnered with the Metropolitan Sewer District to design the new entry as a zero storm water discharge facility. This required the storage and infiltration of large quantities of water. However, the performance of most retaining walls is based on minimizing the amount of water in the reinforced zone. Careful planning and sound engineering were required to satisfy these two competing goals.

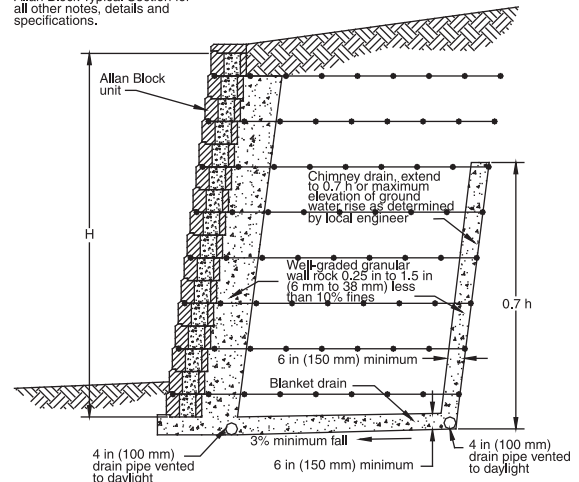


Over 30,000 sq ft (2887 sq m) of permeable pavers were installed to capture rainwater in the entry plaza area. The permeable paver system can store a million gallons of rain water which is then utilized to provide irrigation for landscaping adjacent to the plaza. Additionally, roof down spots route water from buildings at the site to underground tanks which store the water for use in irrigating the landscaping as well.

Potential impacts to the wall from excess storm water were mitigated by proper grading, installation of a clay cap above the reinforced zone of the wall and installing a chimney drain system.

This project is a great example which illustrates that storm water retention and maintaining a coherent reinforced soil structure do not have to be mutually exclusive.

* Refer to design details Section 1: Allan Block Typical Section for all other notes, details and specifications.



Detentions Basins

To address a site's water management requirements, many projects utilize detention basins and holding ponds. Allan Block has a long history of being used on such applications throughout the world. Contact the Allan Block Engineering Department or see our website at allanblock.com for more information on using Allan Block for your next detention basin project.



Visit allanblock.com for more information.

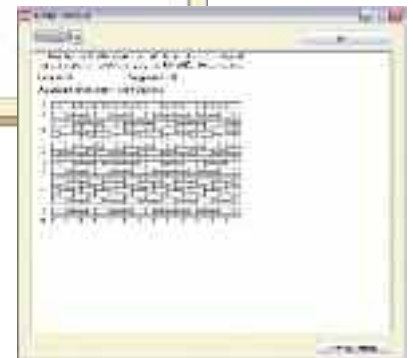
Estimates Made Easy

This year was a big year around Allan Block. As we have already detailed in previous Allan Block Technical Newsletters, **AB Walls 10** has been a huge success in the engineering community. It is easier to use, with output capabilities that were designed to make more efficient use of your time. **AB Walls 10** was designed by engineers for engineers to save you time and money on your next retaining wall project.

This past summer, we released the new **AB Estimating Tool**. The target audiences for this new tool were landscape and commercial contractors. The launch of this new estimating tool could not have been more successful. Feedback from contractors, homeowners, AB sales reps, and dealers were all incorporated to make this the best estimating tool available. Some of the key features are:

- Combines all the Allan Block products into one easy to use tool
- Works on both a PC and Mac
- Intuitive screens with pictures
- Help files are available online
- Beginning screen notifies you if a software updated is available
- Your logo and contact information can be added to the estimate
- One file can contain many retaining walls, AB Courtyard seating walls, and AB Fences
- Accurate estimates for the materials you will need on your job
- Print a retaining wall elevation view and typical cross section
- Print an AB Fence panel showing the AB Ashlar Blend pattern used for the estimate

Be sure to visit allanblock.com to download your free copy today. Contact us at engineering@allanblock.com for help or questions.



| Material Estimate | | Quantity | Unit | Overlap % | Total Quantity | Cost | Total Cost |
|-------------------|-------|-----------------|------|-----------|----------------|------|------------|
| AB Block | 402 | Block | 0 | 0 | 402 | 0 | 0 |
| AB Jumbo Juniper | 199 | Block | 0 | 0 | 199 | 0 | 0 |
| AB Side Stone | 398 | Block | 0 | 0 | 398 | 0 | 0 |
| AB Juniper Side | 398 | Block | 0 | 0 | 398 | 0 | 0 |
| AB Cap | 303 | Cap | 0 | 0 | 303 | 0 | 0 |
| Typical Gravel | 398.1 | yp ² | 0 | 0 | 398.1 | 0 | 0 |
| Base Rock | 5.6 | yp ³ | 0 | 0 | 5.6 | 0 | 0 |
| Wall Rock | 42.3 | yp ³ | 0 | 0 | 42.3 | 0 | 0 |
| Grill Soil | 150.6 | yp ³ | 0 | 0 | 150.6 | 0 | 0 |
| Chain Pipe | 300 | ft | 0 | 0 | 300 | 0 | 0 |
| Gravel Adhesive | 3 | Tubes | 0 | 0 | 3 | 0 | 0 |

| Labor and Engineering Estimate | | Quantity | Productivity | Cost | Total Cost |
|--------------------------------|-------|-----------------|--------------|------|------------|
| Base Crew | 0.8 | hr | 0 | 0 | 0 |
| Wall Crew | 650.7 | ft ² | 0.8 | 0 | 0 |
| Engineering | 745.8 | ft ² | 0.8 | 0 | 0 |

| Estimate Summary | | Material Cost: | 0 |
|-------------------------------|----------|----------------|---|
| Engineering / Labor Cost: | 0 | 0 | |
| Overhead: | 0% | 0 | |
| Profit: | 0% | 0 | |
| Total Cost: | 0 | 0 | |
| Cost / ft²: | 0 | 0 | |



Visit allanblock.com for more information.

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Visit allanblock.com for more information.

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Cincinnati Zoo, Cincinnati, Ohio



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