UNI-GROUP U.S.A.

Mickel Field and Highlands Park

PROJECT:
Mickel Field/Highlands Park
Wilton Manors, Florida

PROJECT DESIGNER:
Robert S. Walters, A.I.A., P.A.
Ft. Lauderdale, Florida

GENERAL CONTRACTOR:
Ditocco Construction, Inc
Ft. Lauderdale, Florida

PAVER CONTRACTOR:
CSE Paving, Inc.
Delray, Florida

CONCRETE PAVER MANUFACTURER:
Paver Systems, Inc.
West Palm Beach, Florida

PAVERS:
UNI Eco-Stone®
3 1/8 in. (80mm)
Natural Gray and Charcoal
Mickel Field - 30,505 sq ft
Highlands Park - 6,660 sq ft

Case Study

Mickel Field utilizes over 30,000 square feet of permeable UNI Eco-Stone® concrete pavers

In November 1990, the Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) stormwater regulations became effective, requiring counties and municipalities over a certain size to create and maintain stormwater systems to regulate the quality and amount of stormwater discharges.

With increasing pressure to comply with these mandates, state agencies, municipalities, and regional authorities are looking for new options in stormwater management.

As open land is developed and covered with impermeable surfaces such as asphalt roads and concrete parking areas, there is increased potential for downstream flooding, streambank erosion, and excessive strain on existing drainage facilities. In addition, recent studies indicate stormwater runoff is also the primary source of pollutants found in surface waters and often contains a toxic combination of oils, pesticides, metals, nutrients and sediments.

Engineering professionals, conservation commissions, and public works agencies are now exploring alternative development practices and are working with developers and contractors to limit impervious surfaces and reduce the amount of stormwater runoff.

In response to these environmental concerns, the nation's leading interlocking concrete producer organization, UNI-GROUP U.S.A., has developed the UNI Eco-Stone® Paving System. An innovative, environmentally-beneficial pavement system, UNI Eco-Stone® is designed to mitigate stormwater runoff by utilizing infiltration, as well as provide a method for increased groundwater recharge and/or storage.

The city of Wilton Manors, Florida, chose UNI Eco-Stone® for two renovation projects installed in the spring of 1995 as an alternative to impervious paved surfaces for municipal parking areas and walkways.

Stormwater runoff can easily overwhelm existing drainage facilities

For several years, the parking lots and walkways for Mickel Field and Highlands Park were prone to standing water after rain storms due to lack of drainage systems at the site. City officials wanted to provide their citizens with a durable, cost-effective permeable pavement that would address aesthetic considerations, drainage, and environmental concerns. The UNI Eco-Stone® Paving System offered the ideal solution, with its attractive design, permeability, high load-bearing capabilities, and pedestrian-friendly surface.

Joe Moss, public works director for the city of Wilton Manors in 1995, worked closely with UNI® paver manufacturer Paver Systems, Inc. of West Palm Beach, FL, and the project architect Robert S. Walters, A.I.A., P.A. of Ft. Lauderdale, FL. Mickel Field features 30,505 square feet of natural gray UNI Eco-Stone® for the main parking areas, with charcoal units for parking lines. Another 6,660 square feet of UNI Eco-Stone® is installed at nearby Highlands Park.

Charcoal UNI Eco-Stone® units delineate parking lines

CSE Paving, Inc. of Delray, FL, installed the pavers using Optimas mechanized screeding and paver installation equipment. Although there was excessive rainfall during much of the construction phase, CSE averaged 6500 square feet installed per eight hour shift.

Mechanical installation of UNI Eco-Stone® speeds construction

The 3 1/8" (80mm) UNI Eco-Stone® pavers are installed on a 1" bed of gunite sand over a Florida DOT crushed rock base. "P-rock" aggregate was used to fill the drainage voids. In many cases, coarser gradations of aggregate materials are recommended for base and bedding layers for maximum runoff infiltration and groundwater recharge. However, a wide variety of materials may be used depending on project objectives, design storm requirements, and local environmental and soil conditions.

UNI Eco-Stone® pavers are manufactured to meet or exceed ASTM C-936 specifications of minimum 8000 psi, maximum 5% absorption and freeze-thaw testing per section 8 of ASTM C-67.

The UNI Eco-Stone® pavement continues to infiltrate the heavy rainfall amounts experienced in South Florida, including two tropical storm systems in October 1995 that dropped over 10 inches of rain in a 24-hour period and Hurricane Wilma in 2005.

"The City of Wilton Manors is very pleased with the performance of Eco-Stone® permeable pavers after 13 years," said David Archacki, director of public services for the city. "We use them in all parking and driveway areas where drainage calculations are hard to meet."

For detailed information to formulate design procedures and specifications, please contact your local UNI Manufacturer for design guidelines. A qualified engineer or design professional should be consulted for applications utilizing the UNI Eco-Stone® Paving System.

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