KEYSTONE RETAINING WALL SYSTEMS

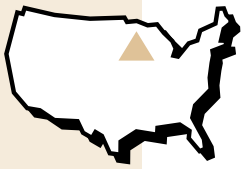
CASE STUDY: RESIDENTIAL DEVELOPMENT

City Approves Keystone For Use In Conjunction With Protected Wetlands.

The Normandale Lakes Development Project began when developer, David Carlson Companies, Inc. looked at a challenging parcel of land in Bloomington, Minnesota which had previously been undeveloped due to difficult site conditions. The piece of land was rather tight, because of confinement by wetlands to the north and east, with various ponds restricting the site throughout it's mid-portion. Retaining walls were needed to develop separation from the wetlands and allow for built up land areas creating buildable sites. After extensive consultation, the City of Bloomington approved the site development. The retaining walls required on this project range from 4 feet to 34 feet (1.2 - 10.3m) in height and incorporate the use of the KEYSTONE Standard and Compac units as well as Mirafi 5T, 7T, and 10T geogrid soil reinforcement material.

The 34 foot high (10.4m) wall is constructed in two tiers. The lower tier begins just a few feet away from marked wetlands and rises 24 feet (7.3m).

The second tier begins approximately 10 feet (3m) back from the top of the lower wall and rises an additional 10 feet (3m). Atop this structure will lie the foundation of a 9 story condominium complex. With a high profile project such as this, the owner did not want to take any risks with unproven systems; he wanted the original KEYSTONE. The developer was confident from previous uses that Keystone



PROJECT:	Normandale Lakes
LOCATION:	Bloomington,MN
PRODUCT:	Keystone Standard and Compac Units
SQUARE FOOTAGE:	25,000 s.f.
CONTRACTOR:	Meadowood Inc. Plymouth, MN
SPECIFIER:	City of Bloomington Engineering Dept.
KEYSTONE REPRESENTATIVE:	Aggregate Industries Eagan, MN

A high profile, residential development received approval from the City of Bloomington, Minnesota to use KEYSTONE in and around protected wetlands within the city limits.

could perform and that the benefits and features of its' high quality system would enhance his unique complex.

The contractor, Robert Swanson, owner of Meadow Wood, Inc., stated that "...my crew of 4 men averaged approximately 800 square feet per day." Bob admitted that getting around the site was a bit difficult because of the tight access constraints and wetland conditions. Even with this difficulty of movement, he was pleased with the good installation rate due to the rapid assembly that is a primary feature of Keystone.

Construction is easily accomplished in tight confines.

The Keystone Retaining Walls at the pond location have 2 feet (0.6m) of 3/4" (75mm) crushed stone that is wrapped in filter fabric in the drainage zone. This was needed to handle the effects of two underground springs under the base of the pond walls. Also in these areas, several layers of geogrid were placed in the crushed rock zone to stabilize the foundation.

Keystone flexibility allows conformity to site constraints and soft subbase soils.

This project started out with the intent of using 18,000 to 20,000 square feet of KEYSTONE, but with the City of Bloomington re-evaluating sidewalk locations etc. and the owner making a few design changes, the total project used approximately 25,000 square feet of KEYSTONE.

The result was a great success. Walls were built to allow for the site development without negative effects to the wetlands, while handling the soft soil conditions which are inherent with the wetland pond proximity.

KEYSTONE® RETAINING WALL SYSTEMS
A CONTECH COMPANY

4444 West 78th Street • Minneapolis, MN 55435 • **www.keystonewalls.com** • (952) 897-1040 • (952) 897-3858 FAX • (800) 747-8971

Reprinted 1/02