Focus of this Issue: Box Culverts, 3 Sided Bridges

Complete Installation In One Snowy Day

Seven boxes and two cut off walls were erected in one snowy day by E & R Construction, using a 200 ton crane, for the Town of Royalton in Niagara County. The cut off wall placement required very careful positioning in order to get the elevation and location of the seven box culverts correct. Each half of the cutoff wall was set and gravel backfilled in preparation for the box culvert placements. Note the seals on the wall bearing surface, along with the grout keys on the horizontal and vertical surfaces.

Each of the boxes was 10’ high and 14’ wide, making them too high to ship upright; so Kistner Concrete Products rotated them 90 degrees for shipping. Using additional inserts, two lift lines, equalizer blocks, and edge protectors, each piece was lifted from the truck and rolled back 90 degrees for installation. The shear keys cast into the outer two tapered sections match with keys in the cutoff wall wings, allowing a grouted connection to tie them together. The outer culvert sections were made with preformed holes in the base where they will be set over the cut off walls. (These are visible in the photo of the end section being rotated.) After the pieces were set, the contractor drilled down into the cut off wall, and grouted in dowel connectors. The project engineer was PCANY Member TVGA, Elma, NY. The jobsite representative for the precaster was Mike Kistner.
Sure, We Can Make That!

Only 11.75 tons — a piece of cake. This double angled headwall, measuring 24'-8" out-to-out and 8' high, was part of a drainage improvement project in Cortland Manor, NY. The oversized openings are 54" x 62", to accommodate 48" pipe coming in on an angle. The wall is 8" thick, and widens to a 16' foot at the base. A & R's biggest challenge was stripping it from the casting bed and getting it out of the building using two forklift trucks. Paleen Construction Corporation was the GC. [Steven Osler is demonstrating how stable the piece is, by trying to push it over.]

Precast Concrete Chosen To Replace Old Deteriorated Bridges

Three-Sided Units Span Allen Creek

Clover Street has a new bridge over Allen Creek in Brighton, NY, almost in front of the Harley School (as seen in the background). The Fort Miller Company supplied 8 of their Hy-Span rigid frame three-sided units, each spanning 11.14 m, for this 11.8 m wide structure skewed 40 degrees. The vertical leg/wall sits on a simple notched concrete footer, gets grouted to lock it in place, and serves as both support wall and retaining wall.

Precast three sided rigid frames install quickly and provide maximum headboard

PCANY Member Barton & Loguidice, P.C., Syracuse, NY has forwarded information on the following three recent projects. Their Transportation Engineering group was engaged by Onondaga County DOT to replace a single span stone masonry arch originally built in 1900, and widened in 1967 with the addition of three steel girders supporting a concrete deck on one side. Emergency repairs had to be made in 2002, in the form of concrete buttresses, to stabilize the disintegrating stones, and concrete barrier placement to prevent traffic from driving over the most deteriorated portion of the arch.

Final design of the replacement structure included the precast arch, cast-in-place headwalls, and cast-in-place concrete substructure. To maintain the aesthetics of the Town of Marcellus village setting, all exposed parts received an architectural treatment. The total length of the structure is 10.35 m (span is 9.75 m), and the width is 14 m, which includes 1.2 m shoulders and 1.7 m sidewalks on both sides of the bridge. Completed in 2004 at a total cost of $98,000, this works out to under $63 / sf. All precast units were supplied by Kistner Concrete Products, Lockport; Slate Hill Constructors built the project.

CR 41 over Nine Mile Creek, Town of Marcellus

Bardwell Mills Road over Baker Brook, Town of Remsen

(continued on page 3)
The bridge replaced was a 14.6 m single span steel multi-girder structure with a concrete deck and asphalt wearing surface. The deck was badly cracked and leaking, and the masonry gravity abutments with structural concrete facing had been undermined in places by scour and erosion. After removal of the superstructure and portions of the abutments, a three-sided precast concrete structure was constructed on strip footings founded on bedrock. Wingwalls were anchored back into bedrock on one side and into concrete deadmen on the other. This bridge has a 9.754 m span (total length 10.365 m) and a total width of 9.43 m, which allows two travel lanes and two shoulders.

Precast was chosen because the site conditions allowed for installation of the units between the existing abutments thereby minimizing impacts to adjacent properties and minimizing the construction duration and detour time. Stephen Miller General Contractors, Inc. was the GC.

New Member
Collins Engineers

We are pleased to welcome Collins Engineers Inc., Albany, NY as our newest Professional Member. For those of you who attended the January PCI Bridge Design Manual Seminars, you will surely remember the fine teaching of Eric Thorkildsen, who is Regional Manager for Collins Engineers.

Architects Get Recognition

Professional Member LaBella Associates was named a winner in the Rochester Chapter, AIA, 2006 Design Excellence Awards, receiving a New Construction Merit Award for Port of Rochester Ferry Terminal, and an Addition/Renovation Merit Award for Sacred Heart Cathedral. Congratulations.

Membership Renewals

We will be printing the annual Membership Directory next month, so if you have not already sent in your 2006 dues, please do so in order to be included.

Lehigh University
Precast Concrete Bridge SCC Research Report Completed

The final report comparing the performance of high early strength and self consolidating concretes in some prestressed test beams cast at Schuylkill Products in partnership with Lehigh is now available at http://www.lehigh.edu/~cjn3/scc.shtml. Look for “PITA Project PIT-457-04 Comparative Performance of High Early Strength and Self Consolidating Concrete for Use in Precast Bridge Beam Construction – Final Report”. There will be two follow up reports issued, for the bond strength characteristics and for the durability aspects of the SCC mixture. The follow up report for the bond strength characteristics will contain recommendations for testing to replace the Mustafa test currently recommended in the PCI SCC Interim Guidelines.
PCI Precast Design Awards

Deadline for entry in the 44th Annual Design Awards Competition is May 19, 2006. For entry forms in this prestigious program of design excellence in precast concrete structures recognition, go to www pci org, or contact PCANY.

Septic Tank Group Meeting

Septic Tank Group Meeting - May 11: Meet at Nucor Steel Auburn Plant, 25 Quarry Road, Auburn, NY at 10:30 am for a plant tour of reinforcing bar production; lunch at 12, Iverson Conference Room @ Nucor, meeting to follow. Tour and lunch reservations needed.

PCANY Website

All PCANY members now have access to the Members Only Page, where varied reports, communications, meeting notes, etc. will be posted. There is also a new category listing, Complimentary One Year Membership, which will be given to every attendee at a PCANY seminar or workshop; or it may be requested simply by visiting www pcanyorg.