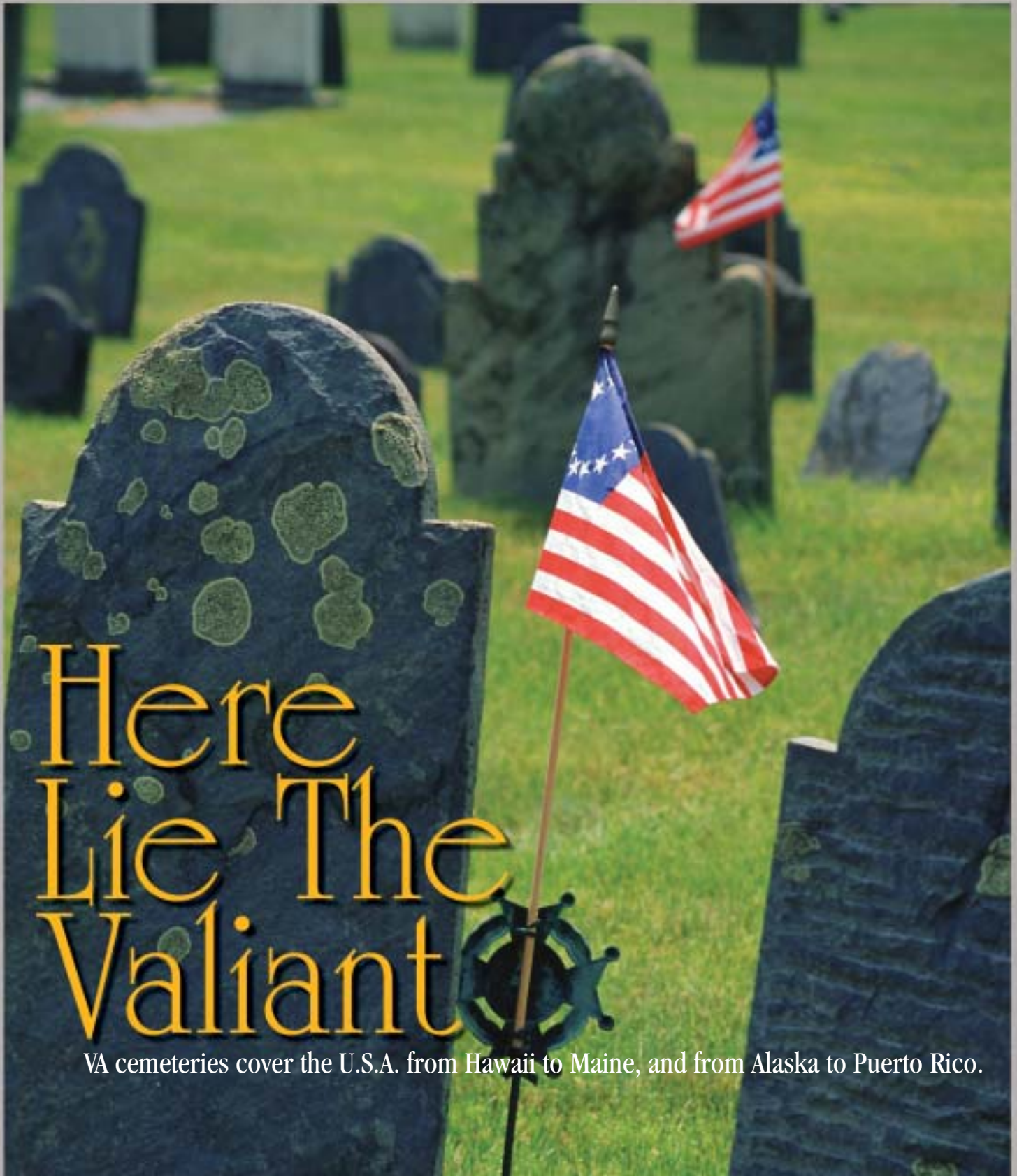


CONCRETE PIPE NEWS



The Magazine of the
American **Concrete Pipe** Association



Here
Lie The
Valiant

VA cemeteries cover the U.S.A. from Hawaii to Maine, and from Alaska to Puerto Rico.

This issue:

Volume 57, Number 4
Fall 2005

Concrete Pipe News is published four times each year by the American Concrete Pipe Association. It is designed to provide information on the use and installation of precast concrete pipe products for a wide variety of applications, including drainage and pollution control systems. Industry technology, research and trends are also important subjects of the publication. Readers include engineers, specifiers, public works officials, contractors, suppliers, vendors and members of the American Concrete Pipe Association.

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American Concrete Pipe Association

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More than 2.5 million Americans, including veterans of every war and conflict—from the Revolutionary War to Iraq—are honored by burial in Department of Veterans Affairs (VA) national cemeteries.

president's message

*Matt Childs, P.E., President
American Concrete Pipe Association*



The search for a new President of the American Concrete Pipe Association is over. Matt Childs, P.E., former Director of Engineering Services with the ACPA officially took the reins from outgoing President, John Duffy, P.E. on August 8. Matt holds a Bachelor Degree in Business Administration from Baylor University as well as a Bachelor Degree and Master Degree in Civil Engineering from the University of Texas at Arlington. He is the fourth generation of businessmen and engineers in his lineage that have dedicated their careers to the precast concrete pipe industry since the 1930s.

The concrete pipe industry is in the midst of a pitched battle for share of the storm drainage and sanitary sewer pipe market throughout North America. The seamless transition between Presidents ensures continued momentum in the implementation of ACPA's very successful marketing campaign. While serving as Director of Engineering Services, Matt worked with all ACPA committees. He helped develop the marketing material for the Association and planned many ACPA training courses. The tra-

dition of strong leadership at the ACPA will continue under Matt's watch.

Over the next few years, Childs' focus will be completion of the goals of the Strategic Plan while maintaining the ACPA's core programs to increase market share. The ACPA is the only entity that can accomplish the coordination of a major marketing effort between the many different companies that manufacture concrete pipe products. As President, Matt will provide leadership in coordinating marketing efforts in geographic regions that are most in need of marketing support. Poorly written concrete pipe specifications in various regions of the Nation need to be rewritten, and local campaigns organized to change such specifications.

Continuous mergers and acquisitions in the industry, and entry of new producers are monitored closely by the ACPA, as it implements plans for attracting new producer and associate members. Childs is personally committed to increasing membership to develop the resources that the ACPA needs to build market share for concrete pipe, without placing undue financial burden on existing members.

Working within a small organization for the past five years, Childs knows that staff and the directors could sometimes communicate more effectively to the membership. He plans to make better use of technology and major speaking opportunities to keep the membership better informed of ACPA initiatives, education opportunities, industry issues, public awareness and marketing events. This space in Concrete Pipe News will be used for provocative and challenging editorials to stimulate interest in concrete pipe and a better understanding of industry issues. Matt plans to be a highly visible and communicative President.

Matt is a member of American Society of Civil Engineers, Transportation Research Board, and Board of Advisors for University of Texas Arlington Civil Engineering Chi Epsilon Honor Society. Married for 10 years, he and wife Nancy have two children, Sarah and Ben. ☺

and now you know...

Our Nation's Highway Drainage Culverts Need Assessing

By Michael W. Beacham, P.E.
American Concrete Pipe Association
402-797-7101

President Eisenhower's commitment to build a national highway system led to its initial construction in the mid 1950s. With a highway system now fifty years old, and just past the threshold of the 21st century, many original bridges, pavements, and culverts are reaching the end of their intended service life. Along with the aging highway system is an increased need to replace and upgrade roadways that are fast becoming functionally

obsolete. State Departments of Transportation (DOT) and municipalities are being asked to resolve these infrastructure issues with fewer resources. They are also receiving pressure from legislators, citizens and bonding companies to account for their resource allocation decisions. Therefore, managing resources and infrastructure assets in much the same way that private enterprise does, is a tactic used by an increasing number of

DOTs and municipalities. Along with asset management tools, the Nation needs a Culvert Assessment Program (CAP).

One of the tools that DOTs are using to manage their assets is the Governmental Accounting Standards Board (GASB) State-



ment 34. Past Director, Madeleine Bloom of the FHWA's Office of Asset Management said in her introduction to the GASB 34 Primer:

"Clearly GASB Statement 34 presents transportation agencies with an unparalleled opportunity to make other government officials and citizens aware of the value of the significant transportation assets that governments own and operate and the maintenance they require. Statement 34 will heighten awareness of the importance of investment in these assets and pinpoint the need to preserve their condition. State transportation officials, therefore, will continue to be interested in the Statement to the degree that it impacts their accountability for these same transportation assets."

GASB 34 requires that state and local governments determine the costs associated with initial construction, subsequent capital improvements and the cost associated with using the asset. Governments can account for these costs by either using a straight-line depreciation method or a modified/preservation approach. National Cooperative Highway Research Program (NCHRP) Report 19-07 states that *"Our research has shown that many transportation and finance officials believe that GASB's depreciation of infrastructure is meaningless because it does not reflect how assets are managed or used."* Therefore, the modified approach appears to be the method of choice. The modified approach requires governments to meet these minimum four requirements:

- Conduct a current inventory of eligible assets.
- Document the condition of those assets via a reproducible assessment procedure.
- Demonstrate that assets are being preserved at a level predetermined by the government.
- Estimate the actual cost to maintain and preserve the assets.

Although GASB 34 is mandated and monitored by an auditing agency, there are no

guidelines that suggest culverts be an integral part of a DOT's asset network. Many State DOTs ignore inserting highway culverts as a line item under "eligible assets". There is also no Federal Highway requirement that culverts with a span less than twenty feet be inspected. Therefore, the inventory, condition assessment and preservation of highway drainage culverts are not being considered on a consistent nationwide level.

The implementation of a culvert management program to determine the physical condition of our highway drainage system is critical to the long-term health of the Nation's transportation infrastructure. Prior to the mid nineteen-sixties our Nation's bridges shared a common malaise that our highway drainage structures are experiencing today—they were not being inspected on a routine basis. In 1967 forty-seven people died in the Silver Bridge collapse because bridge infrastructure had not been assessed. The National Bridge Inspection Program (NBIP) was instituted because of this collapse. A Culvert Assessment Program needs to be implemented nationwide in a proactive manner in lieu of reacting to a catastrophe like the Silver Bridge collapse. Bridges are structures built above ground. Drainage culverts are structures built below ground. Both have the potential for disastrous failures. The structural integrity of drainage culverts is critical to our country's national defense and socio-economic vitality. Millions of dollars, numerous injuries and lives can be saved by implementing CAP.

Most State DOTs lack the discretionary funds to perform this essential work. Therefore, if CAP is to be implemented nationwide, federal funding needs to be secured. The American Concrete Pipe Association is currently working on forming a Coalition of State DOTs that have begun their own culvert inspection programs. This Coalition would author a draft proposal that calls for federal funding to implement CAP. ☺

Feature Story

Here Lie The Valiant

by Robin Woodbury
Premarc Corporation
616-527-7235

George F. Root was completing words and music of the “Battle Cry of Freedom” in the summer of 1862 that would be adopted as an anthem (in different versions) by both the Union and the Confederacy. It was the second summer of a terrible war that few had believed would last more than several months. Places like Wilson’s Creek, Bull Run, Shiloh, and Fort Donelson had already seen the deaths of 43,625 Union and Confederate soldiers.

On July 17 of that year, Congress enacted legislation that authorized the President to purchase grounds to be used as national cemeteries for soldiers. Fourteen cemeteries were established that first year, including one in Sharpsburg, Maryland where 4,476 Union soldiers were laid to rest after the one-day Battle of Antietam.

More than 2.5 million Americans, including veterans of every war and conflict—from the Revolutionary War to Iraq—are honored by burial in Department of Veterans Affairs (VA) national cemeteries. More than 14,200 acres of land from Hawaii to Maine, and from Alaska to Puerto Rico are devoted to the memorialization of those who served this Nation. In November 2001, the VA opened its 120th cemetery. Currently, there are 60 VA cemeteries in 34 states. In 1999 and 2003, Congress directed VA to establish 12 new national cemeteries – one in Oklahoma, one in Alabama, two in California, three in Florida, one in Georgia, one in Michigan, two in Pennsylvania and one in South Carolina. They are located near large populations of veterans who currently do not have access to a burial option.

The new 544-acre Great Lakes National Cemetery located in Holly, Michigan will serve the needs of approximately 460,000 veterans who reside within 75 miles of the cemetery for the next 50 years. These veterans will need approximately 71,000 graves by the year 2030.

In close proximity to Detroit and with access to major high-



Photo: URS Corporation

Public Information Center

ways, Holly was a natural choice for the National Cemetery. The centerpiece of the property is a 70-acre spring-fed lake, which will serve as a backdrop for burial services. An environmental assessment for the site by the VA in October 2001, led to its purchase in September 2002. The design team of URS Corporation and the LA Group was contracted by the VA to produce the Master Plan, Phase I design documents and to provide construction support services.

Design and construction was planned in five phases. The approximate 70-acre Phase I was designed to accommodate approximately 8,000 gravesites and additional columbaria niches. A three to five acre early turn over "fast track" area was developed as part of the Phase I construction. Burials were scheduled to begin in late 2005 in the early turn over area while major construction continued.

The VA stressed that the site was to be held and regarded as solemn and sacred ground during design and construction. With the expectancy of continuous burials and ceremonies being held at the site, below-surface infrastructure could not be disturbed once installed. Reinforced concrete pipe was chosen for this project because of its performance record that extends well beyond 100 years.

Initial soil borings revealed heavy clay with arsenic and high mineral contents. Such difficult soil conditions raised concerns about pipe buoyancy and the ability of flexible pipe products to perform long-term once installed. Concrete pipe is least affected by forces leading to

floatation and was considered the best solution for this application.

Installation of pipe in clay soils also raised concern about water and soil infiltration at the joints. Grinding the spigot groove to accommodate a tight fitting rubber compound gasket after the pipe has cured is one way to guarantee joint performance. The Premarc Corporation grinds all of its pipe joints, thereby ensuring a joint with high resistance to water infiltration and soil fines migration. With diamond-tipped grinding wheels, Premarc is able to produce exact dimensional joint tolerances during the manufacturing of the gasket seating surface. Construction crews are then able to easily and accurately install gaskets and home the pipe.

In addition to the 7,752 feet (almost 1.5 miles) of concrete pipe draining the site, a structure was required on the entrance drive to cross a free-flowing river. The VA considered the installation of a metal arch to cut costs on the project. URS and the VA were provided with documentation detailing corrugated metal pipe culvert failures in Michigan, including the I-75 culvert failure near Prudenville, which cost \$3.14 million to repair. After a two-hour meeting, it was determined an 8-foot x 8-foot x 76-foot box culvert would provide the service life needed for this project.

Established in 1903, URS is one of the largest engineering design firms worldwide, and a leading U.S. federal government contractor. URS employs approximately 28,000 employees in a network of 300 offices and contract-specific job sites in 20 countries. Its broad-based expertise with federal, state and local government agencies made the firm a natural choice for this project. The services of LA Group, located in Saratoga Springs, New York, were retained for the project as it had designed gravesite layouts and provided landscape architectural services for six National Cemetery projects.

Edge Construction of Southfield, Michigan was awarded the \$8.7 million Phase I construction contract in September 2004. The ETA (early turnover area) phase includes the early turn



er for the Great Lakes National Cemetery

Feature Story

Photo: The Premarc Corporation



Concrete pipe installed with rubber compound gaskets to resist water and fines infiltration at the joints.

over burial area, the entrance, a temporary administration/maintenance complex, temporary committal service shelters, full-casket gravesites, and in-ground burial sites. The total Phase I contract will include the ETA along with a Public Information Centre, the final administration/maintenance facility, additional in-ground burial sites and above ground columbaria niches for cremated remains.

The groundbreaking ceremony was held October 14, 2004 with numerous state and federal dignitaries in attendance. Construction of the infrastructure for the ETA was started in January and completed by April 2005. Phase I work is under construction.

Joint design, competitive prices, as well as the ability to provide on-time deliveries prompted Edge Construction to choose the Premarc Corporation of Durand, Michigan to supply various sizes of reinforced concrete pipe, box sections for the entrance culvert, and manholes.

When construction is completed in the fall of 2006, the veterans in southeast Michigan will have a final resting place that also serves as a memorial to their National service. Use of reinforced concrete pipe at the Great Lakes National Cemetery means that the infrastructure servicing the site will perform out of sight and out of mind as expected. ☺

Project:	Great Lakes National Cemetery Holly Township, Oakland County, Michigan
Owner:	Department of Veterans Affairs
Engineering:	URS Corporation, Farmington Hills, Michigan The LA Group, Saratoga Springs, New York
Contractor:	Edge Construction, Southfield, Michigan
Quantities:	3,696 feet of 12-inch diameter Class IV RCP 992 feet of 15-inch diameter Class IV RCP 928 feet of 18-inch diameter Class IV RCP 1,336 feet of 24-inch diameter Class IV RCP 800 feet of 30-inch diameter Class IV RCP 76 feet of 8-foot x 8-foot precast concrete box sections Four 24-inch diameter manholes Thirty-four 48-inch diameter manholes Five 60-inch diameter manholes
Producer:	Premarc Corporation Durand, Michigan

The Premarc Corporation is Michigan's largest precast concrete pipe manufacturer. Founded in 1927 in Durand, Michigan by the Marsh family, the company operated primarily in the Flint and Lansing area. In the past 15 years, it has expanded its sales territory with facilities in Cadillac, Grand Rapids, Clarkston, and Durand. Premarc's delivery fleet supplies the entire lower peninsula of Michigan and extends into Indiana.

Premarc's product line includes all shapes and sizes of precast reinforced concrete sanitary and storm sewer pipes, manholes, catch basins, wet wells, and pump stations. Bridge products include concrete box culverts, prestressed bridge beams and CON/SPAN. For more information, see www.premarc.com.

Photos: Independent Concrete Pipe Company

BUILD A RAILWAY WITH PRECAST CONCRETE BOXES —

AND THEY WILL COME by Tony Russo Independent Concrete Pipe Company 314-842-2900

Michael Cimino's 1978 film epic, *The Deer Hunter* continued the American reverence for the White-Tailed Deer. Much like the American buffalo, this animal provided sustenance for Native Americans including tribes like the Sac, Fox, Osage and Missouri, as well as frontiersmen and explorations such as the Lewis and Clark expedition that traveled up the Missouri River in 1804. Missouri's dependence on its deer herds continues to this day, as deer hunters add hundreds of millions of dollars to the state's economy annually. Much of the forests are now privately owned, and some landowners have adopted the next level of conservation of the deer by introducing controlled hunts on their lands. One entrepreneur and conservationist in Crawford County near Steelville, Missouri has introduced rail technology and precast concrete boxes into his management plan to sustain a herd of white-tailed deer on his 2500-acre tract.

As an active member of the

National Rifle Association, Mr. John Woods Sr. understands the value of a place where firearms can be enjoyed, and is building a hunter's dream after he purchased a train and track system from an amusement park in California.

Two hundred foot long "S" curve box culvert tunnel constructed with 8-foot x 8-foot x 6-foot precast reinforced concrete box sections.



The tunnel sections had to be cut and blasted through rock to maintain the level grade for the train and rail system.

Maintenance and hunter access to deer stands is provided by a system of approximately four miles of railway that includes two precast concrete box tunnels. In addition to the railway, a roadway and reinforced concrete pipe (RCP) storm sewer service the land. The speed by which precast concrete box sections (some with special base designs) could be stored, delivered and installed was a deciding factor in the use of precast products over cast-in-place. Use of native soil and blasted rock material for backfill was also an attractive option, as the tunnels had to meet safety and local structural codes for transporting people underground. Located within 100 miles of the site, Independent Concrete Pipe Company was able to deliver pipe and boxes using its own fleet of trucks. This was important to the contractor, as it was difficult to keep long stretches of trench stable and safe between re-occurring rainfalls. Box sections had to be on site when the contractor had an excavation ready for installation.

Independent Concrete Pipe supplied 1,000 feet of 8-foot x 8-foot x 6-foot reinforced con-

crete box sections with a 12-inch haunch for the two culverts. The first tunnel that was completed is a 200-foot "S" curve with a portion that had to be cut and blasted through rock to maintain a level grade. The boxes were designed to carry 25 feet of fill. The second tunnel is 808 feet in length, also designed for deep bury. Since the train locomotive and cars do not perform well over steep grades considering traction and pull-power, the rail system had to be maintained over a level grade requiring the two sections of tunnels to be constructed through hilly topography.

The second tunnel required a specially designed box to accommodate a low flow drainage channel and to anchor 4-inch x 4-inch x 3-foot railway ties. The structural design and joints also had to take into consideration any vibration from the passage of the locomotive and cars. The low flow channel was required to keep any storm water from flooding the tracks. The reinforcing steel in the base of the box sections had to





be reconfigured to maintain the 1-inch cover of concrete required in the design specification while at the same time accommodating the low flow channel. In addition, some box sections were delivered with scored ceiling vents to house a 24-inch PVC rim for ventilation and lighting. The box sections with vents were installed every 100 feet.

All boxes delivered to the site were equipped with neoprene omniflex gaskets. The top joints received a "Miratex" joint sealant and all joints were gasketed and wrapped with a geotextile material to reduce the possibility of water and fines infiltration, as the tunnels were used for transporting people and had to be free of any leaks of water or fines.

The storm sewer for the access road comprised 500 feet of 12-inch diameter, 1,000 feet of 18-inch diameter, 100 feet of 21-inch diameter, and 600 feet of 24-inch diameter Class IV gasketed RCP. In some locations, the roadway crossed the box culvert tunnels, and pipe outfalls were installed with flared end sections.

Design of the rail system began in April

2003 with shop drawings at Independent Concrete Pipe Company. With the drawings approved in June, construction of the "S" curve tunnel began in October 2003. The project was placed on hold over the winter months and then resumed in the spring. By August 2005, both tunnel sections had been completed.

Safe hunting tracts are becoming treasured recreational assets in many states. The *Arborway T.T. and Northwestern Railroad* is an innovative approach to moving people and firearms safely. The hunting reserve offers enjoyment and the thrill of a successful deer hunt while maintaining important aspects of America's heritage. ☺

Project: Arborway T.T. and Northwestern Railroad
Crawford County, Steelville, Missouri

Owner: John Woods Sr.

Engineering: Stack Design and Consulting Group,
St. James, Missouri
Contact: Corky Stack, P.E.

Contractor: CE Contracting, Inc.,
Ste. Genevieve, Missouri

Quantities: 500 feet of 12-inch diameter Class IV RCP
1000 feet of 18-inch diameter Class IV RCP
100 feet of 21-inch diameter Class IV RCP
600 feet of 24-inch diameter Class IV RCP
1008 feet of 8-foot x 8-foot x 6 foot precast
concrete box sections

Producer: Independent Concrete Pipe Company
St. Louis, Missouri

Independent Concrete Pipe Company has seven plants located in Kentucky, Indiana, Missouri and Ohio. Established in 1912, the St. Louis, Missouri Plant supplies reinforced concrete pipe and manholes, precast concrete box sections and Hy-Span™ bridges to the growing metropolitan area of St. Louis. For more information, see www.hyspanbridge.com/icpc.htm.

Innovative Manhole Drop Structure Used To Construct Storm Water Outfall

by Albert Wissa, P.Eng.

Niran Construction

Kent Campbell

Hanson Pipe & Products Canada, Inc

519-622-7574

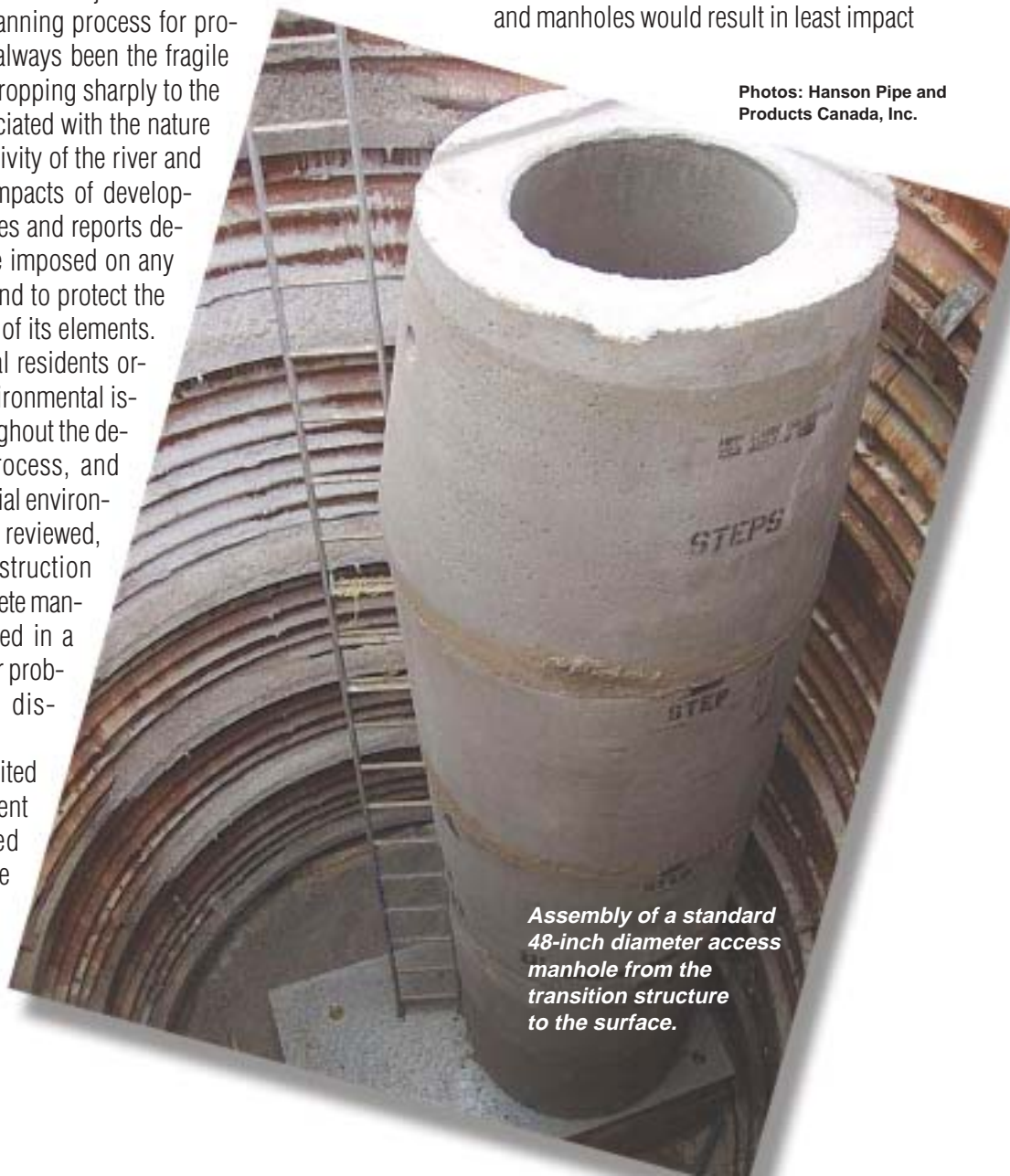
Development of tableland in the Scarborough Community Council Area of the City of Toronto has been planned for residential use for decades. A major concern addressed throughout the planning process for proposed developments had always been the fragile nature of the steep bluffs dropping sharply to the Rouge River. Closely associated with the nature of the bluffs was the sensitivity of the river and valley ecosystem to the impacts of development. Environmental studies and reports detailed the constraints to be imposed on any development of the tableland to protect the Rouge River Valley and all of its elements. Proactive citizens and local residents organized to be sure that environmental issues were addressed throughout the development application process, and solutions to mitigate potential environmental damage thoroughly reviewed, before approvals for construction were granted. Precast concrete manhole components were used in a special way to solve a major problem associated with the discharge of storm water.

Mattamy (Rouge) Limited was one of the development applications that required approvals to discharge storm water from its site to the Rouge River. Storm water is collected from the housing development in

a network of storm sewers and discharged into a stormwater management pond. From there, the water drains to a 36-inch diameter concrete pipe outlet and is conveyed by a 103-foot deep drop structure comprised of 36-inch diameter reinforced concrete manhole risers to the base of the slope. At this point, the flow is directed from a specially engineered energy dissipater box, through a jacked 48-inch diameter concrete pipe to the Rouge River. By the time the storm water reaches the river, its velocity is minimized to prevent any erosion of the riverbanks.

Niran Construction of Toronto was awarded the contract for sewer and watermain services. The contractor immediately proposed an alternative to the design of the drop structure that would comprise a system of precast concrete manhole components readily available from Hanson Pipe & Products Canada, Inc of Cambridge. Using a precast concrete system of standard gravity pipe, jacking pipe and manholes would result in least impact

Photos: Hanson Pipe and Products Canada, Inc.



Assembly of a standard 48-inch diameter access manhole from the transition structure to the surface.

on the environment and construction cost savings to the client.

The concept for the drop structure included the following major elements:

- 15-foot diameter metal plated working shaft extending vertically 103 feet to accommodate an access manhole shaft, transition box, manhole risers housing the drop structure, and an energy dissipater at the base connecting to a jacked outfall to the river;
- 21-foot access manhole section from ground level on the tablelands to the top of a transition box;
- 96-inch x 48-inch transition riser with specially designed, benched elliptical pipe connected to the riser and 36-inch diameter inlet pipe from the stormwater pond; complete with precast weir;
- maintenance shaft comprised of eight 96-inch x 48-inch risers, incorporating drop structure comprised of 36-inch diameter reinforced concrete pipe risers cast integrally to the 96-inch x 48-inch risers; and,
- 120-inch diameter riser, transition slab and base with energy dissipater sump box, and connection to 48-inch diameter jacking pipe.

Niran Construction commenced excavation of the 15-foot diameter working shaft in mid February 2004. The silty clay till did not present any major obstacle to construction and there was very little groundwater seepage. The process for the dig involved an open pit excavation of about 40 inches to 60 inches per day. A steel liner plate was constructed each day as the pit progressed. The first section of liner was about 13 feet deep with 39 inches raised above ground level to provide a safety barrier for workers and any visitors to the site. At one point in the dig, small amounts of explosives were required to loosen the soil. A Bobcat was lowered into the shaft and used for excavating the earth. Once the invert elevation of the shaft was reached, the Bobcat was removed and replaced with tunnel jacking equipment. Throughout the dig, all safety precautions were taken including the use of fans for ventilation, ladders, safety platforms, and lighting.

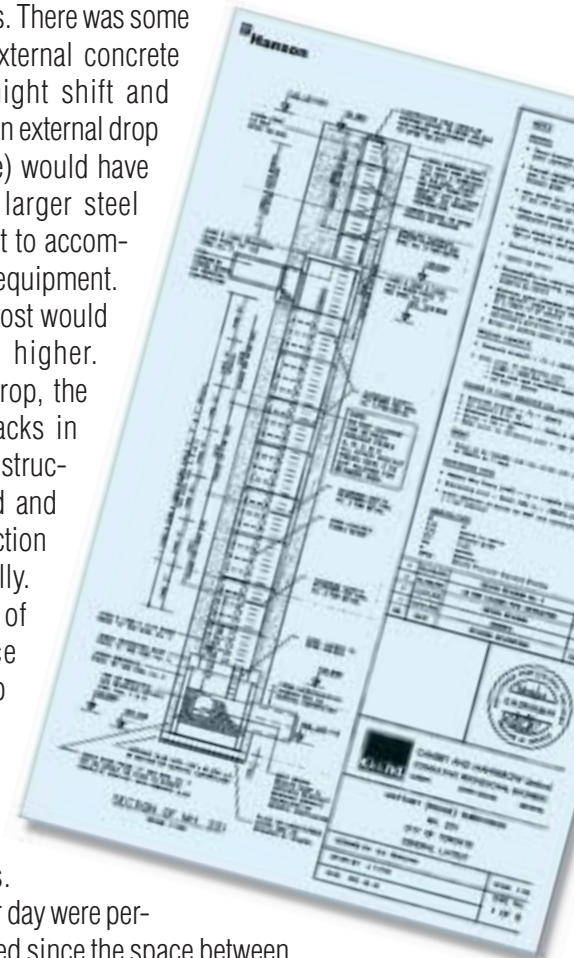
The shaft was required so that 313 feet of 48-inch diameter jacking pipe could be jacked from the 120-inch diameter manhole riser at the base of the drop structure. The jacked pipe connects to the manhole by means of a "doghoused" opening in the first 120-inch riser at the base of the shaft to provide an outlet to the creek. An internal granite box was specially designed by Niran to accommo-

date the velocity and weight of freefalling storm water and dissipate its energy. Once the outfall pipe had been jacked into position and the 120-inch diameter riser installed, the base of the drop structure was ready for construction of the maintenance shaft that contained the 36-inch diameter concrete pipe drop structure.

The idea for the internal drop structure came from Hanson's engineers. There was some concern that an external concrete drop structure might shift and crack. In addition, an external drop structure (concrete) would have required a much larger steel lined working shaft to accommodate pipe and equipment. The construction cost would have been much higher. With an internal drop, the concern about cracks in the concrete drop structure was alleviated and the cost of construction reduced dramatically.

Construction of the maintenance shaft and drop structure took two weeks, as all parts were precast concrete manhole components.

Only two pieces per day were permitted to be installed since the space between the precast concrete structure and the metal-lined wall of the shaft was filled with non-shrink fill, and proper time was required for the fill to set. The entire shaft was made accessible by a combination of aluminum safety platforms and steps built into the risers at the Hanson plant. The design engineer for the unique structure was Dave Grahlman of Gamsby and Mannerow Limited. When work reached the elevation where the inlet pipe from the pond entered the vertical drop shaft, a special transition structure comprised of a weir and benching was specially designed by the Hanson engineering team. The challenge was to provide benching that did not cause turbulence of the storm water as it entered the structure, and reduced the entrant coefficient for the flow transitioning from the 36-inch hori-



zontal pipe to the 36-inch vertical pipe. Hanson engineers used a unit of elliptical pipe with convex benching at the base as a reducer to direct the flow into the drop shaft. The reducer was placed between the outlet of the 36-inch concrete pipe extending from the stormwater management pond and a 96-inch x 48-inch riser constructed with a weir (designed for a 100-year storm event) that prevented normal flows from the pond from entering the maintenance access shaft that paralleled the length of the drop structure. Once the transition structure including reducer and weir were in place, the contractor was able to continue with the construction of a standard 48-inch diameter manhole to the surface.

Jacking the outfall pipe from the structure at the bottom of the shaft, and construction of the headwall took 50 working days. The process was described by the contractor as a traditional jacking job through silty clay till. Since the cylinders of the jacking machine required more space than was available in the working shaft, the contractor built a 10-foot "tail tunnel" that extended beyond the circumference of the working shaft. The tail tunnel accommodated the cylinders of the jacking equipment. Once the pipe jacking was completed, the metal lined tunnel was completely filled and covered by steel wall plates. The 48-inch diameter jacking pipe was supplied by Hanson.

Niran Construction Limited of Toronto, under the supervision of David Schaeffer Engineering Limited (consulting engineer for Mattamy Development Corporation), constructed the drop structure, inlet, and outfall to the Rouge River in approximately four months. The precast concrete drop structure is believed to be the deepest in Canada for

completing a stormwater management system for a residential development. Precast concrete manhole components and standard concrete drainage and jacking pipe proved to be an easily installed, economical, long-term solution. Engineers at Hanson, Gamsby and Mannerow, and David Schaeffers were able to design a stormwater management system that protects the sensitive environment of the Rouge River valley while maximizing the use of the tableland for development. The City of Toronto acquired an asset that adds long-term value to its massive inventory of buried infrastructure, while contributing to the improvement of the quality of storm water entering its urban watersheds. ☺

Project:	Mattamy (Rouge) Subdivision MH 201 Toronto, Ontario, Canada
Owner:	City of Toronto
Contractor:	Niran Construction, Toronto, Ontario Albert Wissa, P.Eng
Producer:	Hanson Pipe & Products Canada, Inc., Cambridge, Ontario, Kent Campbell
Quantities:	Thirty-one, 36-inch diameter reinforced concrete manhole risers Five, 48-inch diameter reinforced concrete manhole risers Eight, 96-inch diameter reinforced concrete manhole risers One, 120-inch diameter riser, transition slab and base with energy dissipater sump box 96-inch x 48-inch transition riser 313 feet of 48-inch diameter jacking pipe



Assembly of 96-inch x 48-inch transition riser with specially designed elliptical pipe connection.

Hanson Pipe & Products, Inc. is a diversified manufacturer of concrete drainage pipe, concrete pressure pipe, steel pressure pipe, and a variety of supporting products including manholes, drainage structures, precast boxes, bridge components, retaining walls and concrete block. Its plant locations throughout North America enable the company to serve the most rapidly growing parts of the U.S. and Canada. Hanson is an international building materials company. It is one of the world's largest producers of construction aggregates, concrete gravity and pressure pipe, precast concrete, and is the leading manufacturer of facing bricks in Europe. See www.hansonconcreteproducts.com for details.

DOT AWARD 2006 LAUNCHED

The ACPA has issued letters to its members, DOT officials and consulting engineers announcing its first annual Project Achievement Award. The winning project will be honored during the AASHTO Bridge and Structures subcommittee meeting in June 2006.

The award was established to recognize state Departments of Transportation and leaders that have demonstrated creative and innovative accomplishments through projects which have been designed using precast concrete pipe or boxes. It was also established to promote public awareness of the activities and contributions of state DOTs, the ACPA and

its members.

Any state DOT may compete for the award. State DOTs and ACPA members may submit projects jointly or separately. ACPA members submitting projects separately must obtain the signature of the state DOT on their Entry Form.

General Criteria:

- All entries must be submitted in accordance with the rules of the competition.
- A state DOT or ACPA member may enter multiple qualified projects.
- Projects that have received awards from other organizations may be entered.
- All projects which are submitted for an award during our inaugural year, must have been completed and in use between January 1, 2001 and February 1, 2006.
- Entries must comply with Submission Guidelines. Failure to comply may disqualify an entry.
- The ACPA Award Committee reserves the right to determine entry eligibility.

Judges will evaluate and compare projects based on the following:

- Overall aesthetics and incorporation into surrounding infrastructure
- Public involvement and education
- Use of innovative materials
- Use of new technologies
- Complexity
- Cost effectiveness
- Environmental benefits

A plaque will be presented to the award winners during a special breakfast held by the ACPA in conjunction with the AASHTO Bridge and Structures Subcommittee meeting in June 2006. The winning project will be featured in an upcoming issue of Concrete Pipe News, and a press release issued to publicize the awards program and the award-winning project. The due date for submissions is February 1, 2006. Contact Matt Childs at mchilds@concrete-pipe.org or 972-506-7216 for details. ☺



WINNING THE LONGFELLOW IS A GREAT TRIBUTE



Jeff Hite of Rinker Materials
– Hydro Conduit Division

Every year, a Concrete Pipe News author is honored with the Richard C. Longfellow Award. The tribute is presented to the author of an article that most effectively demonstrates innovative and effective use of concrete pipe. The award is presented in memory of Richard Longfellow who had an outstanding career with Cretex Companies, Inc. based in Elk River, Minnesota. He

significantly influenced the philosophy and goals of the ACPA, and played a leading role on technical matters. He was responsible for drafting a new concrete pipe design manual and initiated Concrete Pipe News. As a director of the association, he was the force behind the establishment of the \$1million concrete pipe test program at Northwestern University to establish industry-wide standards for product quality. For more than 20 years, Dick Longfellow was the spirit of the ACPA.

Our most recent winner of the award was Jeff Hite of Rinker Materials – Hydro Conduit Division in Miami, Florida. The 2004 Longfellow recipient reported on lessons learned about making the right choice for culvert pipe. Residents of the River's Edge Street Subdivision in Jupiter Florida banded together to replace a failing high density polyethylene pipe installation with a reinforced concrete box culvert. Residents had taken a contractor's advice to install HDPE pipe instead of concrete because of a lower initial cost of the culvert material. Residents fully realize that they would have saved considerable money in the end had they gone along with the original specification for a concrete culvert that could withstand the loads of local traffic and service vehicles, as well as the demands of a maritime climate and aquatic environment.

The ACPA continues the tradition started by Mr. Longfellow by presenting Concrete Pipe News as the industry's journal that documents the science, technology and standards that go into the application of concrete pipe for a wide variety of uses across the Nation. ☺



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