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McWane Ductile
Dear Readers,

Welcome to another issue of Modern McWane. The fall season is a time for rushing to prepare for another cold winter and also to begin planning for another year. We at McWane are wrapping up activities and projects for 2014 as well as preparing for the new challenges 2015 will present to us and to our customers. Being water/wastewater professionals, much of your and our work in the utility profession often goes unnoticed. In addition, our mission to provide utility customers reliable, iron strong products and services that last for generations is often taken for granted. Yet you, our customers and readers, take great pride in being good stewards of public health and welfare by doing what we do with great anonymity. We revel in the self-realization of a job well done and the recognition of our peers.

This edition showcases both large and small projects and focuses on important aspects of those jobs, such as quality, service and technical support. In these instances, such components were key ingredients in delivering a successful project. The Ditch Doctors answer some common and not-so-common questions regarding proper pipeline design and installation. We hope that their advice will help you deliver a better project.

We are also bringing you additional content in the McWane Pocket Engineer by adding a DI Pipe Thickness Calculator. Additional content and resources are planned for the Pocket Engineer as a result of your requests. Some of these planned enhancements include a Material Thickness Comparison Calculator, a Chlorine Calculator for disinfecting new pipelines and an HDD calculator.

Make sure to register your Pocket Engineer install (pe.mcwane.com) so you don’t miss when these new add-ons become available.

The biggest thing we have taken on recently is our current rebranding project. Many of you responded to our survey request, and your responses have provided us with valuable feedback regarding your expectations of us and how we can better serve you. The next issue of Modern McWane will be part of the unveiling of our new brand. While many people think of branding as simply a marketing activity, we think of it as a much more involved endeavor. Frankly, your input revealed that your priorities are to provide quality products, service, and technical support, in that order. You have also shown us, with the award of your purchase orders, that we are delivering on your priorities and we greatly appreciate the feedback. These priorities will be useful in guiding our activities and improvement efforts.

As the Canadian Thanksgiving holiday has taken place and the US Thanksgiving Holiday is fast approaching, we at McWane give thanks for having you as our readers and customers. You make us better by communicating your expectations and standards of performance to us and by working with us collaboratively. We will continue to strive to exceed these expectations and to work with you, as McWane has for years, to build iron strong utilities that serve customers reliably for generations.

Mark Niewodowski
National Manager
Marketing & Specifications Department
McWane Ductile
DUCTILE vs. CONCRETE: MAKING THE BEST CHOICE

In this article, we’ll take a close look at the differences between ductile iron and concrete pipe. We think after reading it, you’ll agree that ductile iron pipe is the best choice for your next project.

By: Jerry Regula, National Product Engineer, McWane Ductile

**DESIGN**

The design basis for PCCP or BCCP are similar to that of steel. The problem with these products is that the design basis behind them does not match, and isn’t as conservative, as the design basis for ductile iron pipe. The most glaring difference is the safety factor. Let’s put this into perspective using the AWWA C303 Standard. The standard stipulates that the allowable stress of the steel is 50 percent of the yield strength for the working pressure and 75 percent of the yield when surge pressure is included. Let’s use a car analogy to put this concept into perspective. This is like comparing a compact car (concrete) and a race car (ductile). Both can operate safely at the speed limit, but only one can operate safely well above the speed limit.

The design basis behind ductile iron pipe is the most conservative of products on the market today. Design calculations are listed in the ANSI / AWWA C151/A21.51 Standard Design for Ductile Iron Pipe. The safety factor for ductile iron pipe is 2.0, while the safety factor for concrete ranges from 1.33 to 2.0, depending on the percent of yield strength used.

As you can see, there are two different equations used to calculate thickness design. Allowing the stress to escalate to 75 percent of yield strength in effect lowers the safety factor of concrete pipe to 1.33 when including surge. Compare that to the 2.0 safety factor used in the ductile iron pipe design (which is applied to the working pressure rating plus the 100 psi surge allowance concrete pipe does not utilize). The differences in percentages to yield affect the thickness design of the pipe.

**LONG-TERM INVESTMENT**

Some companies claim concrete is a less expensive alternative to ductile iron pipe, but let’s take a look at the facts. Ductile iron pipe is a product that provides a cost-effective transmission line over alternative products. The chart below provides a comparison, using a 36-inch line at 5,280 feet (one mile) operating 24 hours per day.

Choosing ductile results in a one year savings of $6,198.88, which looks pretty good on its own. However, when we apply a 50-year projection, the savings equates to a whopping $245,154.17. Therefore, a concrete line with these parameters would have to be roughly $250,000 cheaper than its ductile counterpart to be cost neutral over a 50-year useful life. This figure does not include the additional installation, trenching and corrosion protection costs associated with concrete. Try out the McWane Pocket Engineer (PE) at pe.mcwane.com to apply the numbers for your own project and compare the difference. The numbers might astounded you!

<table>
<thead>
<tr>
<th>DUCTILE vs CONCRETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Rating</td>
</tr>
<tr>
<td>Actual ID</td>
</tr>
<tr>
<td>Flow Rate (gal / min)</td>
</tr>
<tr>
<td>Velocity (ft/sec)</td>
</tr>
<tr>
<td>Total Head Loss</td>
</tr>
<tr>
<td>Annual Pumping Cost ($/yr)</td>
</tr>
</tbody>
</table>

Annual Savings: $6,198.88
The savings outlined in the PE can be beneficial when realized in the field but can also be useful in projecting costs as part of grant applications. Also notice in this example the resulting velocity of 5 ft/sec. Typically, 50 psi of surge pressure, in addition to the line’s working pressure, is anticipated for each ft/sec of velocity extinguished. Therefore, this pipeline is expected to experience a surge pressure [combined with working pressure] of 400 psi, yet is designed for only half that.

Another benefit of ductile iron pipe is that it is SMaRT certified. Using as much as 95 percent recycled materials, ductile iron is a benefit to our environment. Ductile iron also has no end of use, which basically means that it can be recycled perpetually.

**Installation and Handling**

Death, taxes, ductile iron. Not really, but pretty close. Ductile iron is not affected by heat, cold, frost, rain, or snow. Let’s consider a hypothetical situation: it’s 3 p.m. on a Friday and it starts to rain. This is not an issue for a ductile iron crew that can install another eight to 10 joints by 5 p.m. That equates to 144 to 180 feet of pipe installed. Depending on the amount of rain, a concrete crew may have to abandon the day due to handling concerns and diapering of the joints. A diaper is a wrapper that is strapped around the pipe, which is then filled with a flowable mix of cement mortar. Did I mention it’s raining? Mixing mortar in the rain is not a good idea.

Here’s a real life situation that I experienced on a recent visit to a 36-inch ductile project. Our job was to review installation procedures and begin installing pipe that day.

When I arrived, the superintendent informed me that the project had recently been changed. So, we made the necessary changes on the field drawings, cut the pipe, and installed the new valves and fittings. Now consider these circumstances if the job had involved concrete pipe. The project would have been delayed due to

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> CHOOSING DUCTILE RESULTS IN A ONE YEAR SAVINGS OF $6,198.88, WHICH LOOKS PRETTY GOOD ON ITS OWN. HOWEVER, WHEN WE APPLY A 50-YEAR PROJECTION, THE SAVINGS EQUIVATES TO A WHOPPING $245,154.17.
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the inability to field cut concrete. How often does this happen? Or how often does a crew find a utility that was not supposed to be there? The reality is that both happen all the time. Do yourself a favor and consider these items when looking at bid prices.

Handling in the field is always an issue, whether relative to transportation, loading, installation, etc. Therefore, damage sustained in the handling process can cause delays and increase costs associated with projects. Any attempt to dispute the durability advantage that ductile has over concrete is an exercise in futility.

**INSTALLATION OF TAPS**
The outside diameter (OD) of concrete pipe must be measured prior to tapping, due to variances in the design. This is an issue, even if you are certain of the type of pipe that was originally installed, because of ordering specifications. Consequently, you can have a large-scale problem on your hands if the pipe information is not readily available, which results in the need for line excavation and measurement. In addition, a saddle must be installed to accommodate concrete pipe tapping.

Contrarily, ductile iron pipe is simple to tap. The steps are easy as one, two, three: excavate, direct tap, and back fill.

**PUSH-ON JOINTS AND DEFLECTION**
Ductile iron is also the most convenient of products to install. Gasket installation is simple and quick — the joint is just pushed together. Deflection is achieved after the joint is complete. The following is a deflection comparison:

<table>
<thead>
<tr>
<th>Size (inches)</th>
<th>Ductile Iron Pipe</th>
<th>Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>5</td>
<td>3.10</td>
</tr>
<tr>
<td>16</td>
<td>5</td>
<td>2.40</td>
</tr>
<tr>
<td>20</td>
<td>5</td>
<td>1.93</td>
</tr>
<tr>
<td>24</td>
<td>5</td>
<td>2.18</td>
</tr>
<tr>
<td>30</td>
<td>5</td>
<td>1.76</td>
</tr>
<tr>
<td>36</td>
<td>4</td>
<td>1.49</td>
</tr>
</tbody>
</table>

As the chart demonstrates, ductile iron pipe deflections are much greater than those of concrete, which allows increased design options for those who use it. Another benefit of this disparity is that using ductile results in increased flexibility, relative to making adjustments in the
CORROSION AND PROTECTION

Concrete pipe is more susceptible to damage during handling and installation than ductile iron pipe is. However, additional issues arise with concrete when the reinforcement wires become brittle, dramatically increasing the potential for catastrophic failure. To combat corrosion, bonded coatings may be specified. However, special precautions must be taken when handling bonded coated pipe. In addition, using bonded coated pipe increases the cost substantially.

Ductile iron pipe is unique in terms of its corrosion control. An oxide layer is formed on both the inside and outside of all ductile iron pipe during the manufacturing process. This oxide layer provides adequate corrosion protection in many circumstances. Utilization of the 10-Point Soil System will determine if there is a need for additional corrosion protection. The next step in corrosion protection for ductile iron pipe is polyethylene encasement, which is better known as V-Bio.

V-Bio is formed by bonding three layers of coextruded linear low-density polyethylene into one. The inside surface contains an anti-microbial biocide to control microbiologically influenced corrosion and a volatile corrosion inhibitor to control galvanic corrosion. V-Bio is cost effective and easy to install. In fact, V-Bio can be installed in virtually any weather condition. Polyethylene encasement has been proven to control corrosion in aggressive soils for more than 50 years. In fact, polyethylene encasement has been proven so effective that it is sometimes required on concrete pipe.

THE CHOICE IS CLEAR

After comparing many aspects of ductile iron pipe vs. concrete pipe, the result is that there is no comparison. As always, you can clearly see that there is no other material as strong as iron, so build your utility iron strong with McWane Ductile Iron Pipe.

TO TRY IT OUT TODAY, VISIT

pe.mcwane.com

OR DOWNLOAD THE MOBILE APPLICATION FROM THE APP STORE. BOTH OPTIONS ARE EASY TO USE AND 100 PERCENT FREE.

MCWANE PE GETS BETTER

In response to customer demand, we’ve made an exciting enhancement to the McWane Pocket Engineer™ (PE).

We recently rolled out the Thickness Calculator, which, with minimal input, quickly computes the appropriate pipe wall and classes for all five standardized trench types in full accordance with the ANSI/AWWA C150 Thickness Design Standard for Ductile Iron Pipe’s latest revision. Designs are performed for internal pressure, bending stress, and barrel deflection, with the worst of these three structural considerations declared the ruler for selecting the pipe wall.

We realize that enhancements to the PE are important to do our customers’ jobs better, so we’re planning a series of additions to its functionality. And we welcome input from you, so please let us know if there are changes we can make that would be helpful. We cannot guarantee that every suggestion will be implemented; however, we will certainly listen to your thoughts and do our best to provide solutions.
In 2014, Congress passed legislation that supports the jobs of thousands of hard-working Americans. This legislation requires that all iron and steel products used in water infrastructure projects funded by the State Revolving Funds, Water Resources Reform and Development Act and Water Infrastructure Finance and Innovation Act for federal Fiscal Year 2014 must be made in the United States. McWane stands ready to help you help our fellow Americans. McWane is your go-to source for the high-quality domestic products that comply with these requirements.

PROJECTS COVERED:
• ALL water treatment works projects funded by a CWSRF, WRRDA and WIFIA assistance agreement signed January 17, 2014, or thereafter;
• ALL public water system projects funded by a DWSRF assistance agreement signed January 17, 2014, or thereafter;
• The ENTIRE project, not just the portion funded with SRF assistance; and
• The ENTIRE project, no matter when construction begins or ends.

THE BUY AMERICA REQUIREMENT DOES NOT APPLY TO:
• “Manufactured goods” excluded from the AIS requirement are those components, equipment and systems that are mechanical and/or electrical. Examples include pumps, motors, actuators, compressors, and sensors and systems such as membrane filtration systems, bioreactor systems and disinfectant systems.
• Coatings
• Non-iron and steel components of an iron or steel product
• Raw materials such as iron ore, limestone and iron and steel scrap
• Materials subject to waiver, such as fasteners included in valves and hydrants

“IRON AND STEEL PRODUCTS” COVERED:
Products “primarily iron and steel” (must be 50 percent iron or steel, measured by cost); Defined to include:
• Lined or unlined pipes or fittings
• Manhole covers
• Municipal castings
• Tanks
• Flanges and flanged pipe
• Pipe clamps and restraints
• Valves
• Hydrants
• Structural steel
• Reinforced precast concrete
• Construction materials

IRON AND STEEL PRODUCTS MUST BE “PRODUCED IN THE UNITED STATES”
• “Produced in the United States” means that all manufacturing processes related to a product, including application of coatings, must take place in the United States, with the exception of metallurgical processes involving the refinement of steel additives.
• “All manufacturing processes” include “melting, refining, forming, rolling, drawing, finishing, fabricating, and coating.”
• Domestic iron and steel products taken abroad for additional processing and then imported into the United States become foreign source material.
• Raw materials such as iron ore, limestone, and iron and steel scrap are not covered by the Buy America requirement.

THE DE MINIMIS WAIVER
The EPA has granted a “nationwide” waiver of the Buy American requirements for de minimis incidental components of eligible water infrastructure projects. It applies only to:
• “Incidental” components that are:
  • Miscellaneous, low-cost individually and in total
  • Typically procured in bulk
  • Country of manufacture not always identifiable in normal course of business

Examples of incidental items cited by EPA: “small washers, screws, fasteners (i.e., nuts and bolts), miscellaneous wire, corner bead, ancillary tube, etc.”

Examples cited by EPA as non-incidental: “[S]ignificant process fittings (i.e., tees, elbows, flanges, and brackets), distribution system fittings and valves, force main valves, pipes for sewer collection and/or water distribution, treatment and storage tanks, large structural support structures, etc.”

Other non-incidental components that must be made in the USA include components that are:
• High-cost;
• Described in project specific technical specifications;
• Exceed, individually, one percent of a project’s total materials costs.

GENERAL ISSUES
• The nationality of manufacturer is irrelevant — the location of the manufacturer determines compliance. Thus, a product made overseas by a U.S. manufacturer DOES NOT comply.
• The trade agreements exception only applies if the state or municipality receiving the SRF funding has signed NAFTA or WTO — go to www.ustr.gov/sites/default/files/REVISED%20Appendix.pdf.
• Only U.S. EPA can issue project-specific waivers, which are only applicable to specific product for a specific project.

COMPLIANCE
• Get certification letter from manufacturer documenting location of manufacture in United States and specific information related to the products.
• Conduct due diligence.
• Maintain documentation.

BUY AMERICAN — SUPPORT AMERICAN INDUSTRY AND JOBS

The McWane family of companies manufacturers a full line of American-made cast and ductile iron waterworks products.

Contact your McWane sales representative today!
www.mcwane.com
Gateway Commons in East Lyme, Connecticut, is a proposed mixed use retail and residential development. The project is approved for over 400,000 square feet of retail space and 400 residential units. Construction has begun on the first phase of the residential portion, with over 200 apartments expected to be built in 2014. This development is located just west of the Route 95/395 junction at Exit 74 (from Route 95). The project, when finished, will provide visibility, access and convenience for both retailers and residents.

This project included special environmental considerations due to the local wildlife that call this property home. The water main’s elevation had to be lowered to install a bridge to accommodate the local turtle and salamander populations. In addition, the contractor on this job, Mastrobattisto, encountered some challenges during the excavation process because of the composition of the indigenous terrain. However, they moved ahead undeterred and ultimately emerged from the project unscathed, with some quality results to show for their efforts.

With such capable folks involved and a quality product to use, it’s no wonder that the Ductile Iron Pipe installation went quite well on this project.
Sales Representative: Robin Hazlett
Project Location: Kansas City, Missouri
Project Owner/Utility: City of Kansas City, Missouri
Project Engineer: Burns & McDonnell
Project Contractor: Redford Construction
Project Distributor: Winwater in Blue Springs

Types of DIP used on the project:

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Joint</th>
<th>Class</th>
<th>Footage</th>
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</thead>
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<tr>
<td>6”</td>
<td>Tyton®</td>
<td>52</td>
<td>2200</td>
</tr>
<tr>
<td>8”</td>
<td>Tyton®</td>
<td>52</td>
<td>1600</td>
</tr>
<tr>
<td>12”</td>
<td>Tyton®</td>
<td>52</td>
<td>8700</td>
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<tr>
<td>16”</td>
<td>Tyton®</td>
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<td>4650</td>
</tr>
<tr>
<td>30”</td>
<td>TR Flex®</td>
<td>54</td>
<td>150</td>
</tr>
</tbody>
</table>

KANSAS CITY UTILITY LINE RELOCATION

The city of Kansas City, Missouri, needed to relocate some utility lines for new light rail tracks in the downtown area. They enlisted the help of Burns & McDonnell and Redford Construction for engineering and contracting services, respectively. McWane Ductile Iron Pipe was the easy choice for pipe material.

This project required open cutting in streets that are over 100 years old and comprised of three different layers of paving material: asphalt, brick and granite cobblestone. Also present were two layers of old street car tracks, dating back to the 1910s and the 1930s. In addition, the job site involved numerous utility lines and more than 100 tie-ins. Polyethylene encasement was used to protect the pipe from stray current potentially emanating from the light rail lines.

Further complicating the issue is the fact that Redford Construction had the burden of maintaining a constant traffic flow in downtown Kansas City without being able to leave any material on the job site overnight, due to lack of storage space.

Needless to say, the task at hand presented a number of different factors and challenges for the group to navigate. However, Redford Construction took the challenges in stride, with three crews working on the job. Upon the project’s completion, all parties said they were pleased with the outcome.
SOUTH — MCWANE PIPE

Types of DIP used on the project:

<table>
<thead>
<tr>
<th>Diameter</th>
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<th>Class</th>
<th>Footage</th>
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</thead>
<tbody>
<tr>
<td>10”</td>
<td>Tyton®</td>
<td>350</td>
<td>400</td>
</tr>
<tr>
<td>12”</td>
<td>TR Flex®</td>
<td>350</td>
<td>650</td>
</tr>
</tbody>
</table>

HANCEVILLE, ALABAMA, NEW BRIDGE CONSTRUCTION

The Hanceville, Alabama, Water and Sewer Board had a challenging project on their hands as a result of a new bridge constructed on State Road 91. The construction required that an existing water line be relocated, but it wasn’t a simple move. Complicating the issue was the fact that the new bridge stood very high above the ground, high enough that installation from the ground wasn’t an option. It was time to get creative.

The engineer and the Department of Transportation considered a couple of different installation methods to address the challenge. They ultimately determined that hanging the line on the bridge was the most economical method of installation. The original water line, which also happened to be McWane Ductile Iron Pipe that had been in effective service for more than 20 years, had been hung from the original lower bridge that was being replaced.

This is another example of a situation in which designs call for the retiring and replacing of McWane Ductile Iron Pipe well before the pipe itself has completed its useful life.
COMMUNITIES COLLABORATE TO CONNECT WATER SYSTEMS

In northwest Washington along Puget Sound, two communities are working together to connect their water systems. The Silver Lake Water and Sewer District located in Mill Creek and the Alderwood Water and Wastewater District of Lynnwood will use McWane Ductile Iron Pipe to complete the project, including the installation of a water main comprised of approximately 950 feet of 12-inch pipe.

Other key features of the collaborative effort include a meter vault, an electrical rack and canopy structure, a flow control vault, valves, electrical controls and new storm drainage.

We’re confident that the communities working together will be glad they went with McWane Ductile Iron Pipe and are excited to see the tie that develops between them.
CITY OF STRATFORD, ONTARIO, MARKS A FIRST FOR TR FLEX® IN CANADA

Stratford, Ontario, is a beautiful city located a little more than an hour’s drive west of Toronto. Situated on the Avon River, Stratford is home to the annual Shakespeare Festival, which features many famous actors from Canada, the United States and Britain and attracts visitors from around the globe.

Preserving Stratford’s natural beauty was top of mind for McWane and partners as they planned and implemented a horizontal directional drill (HDD) application under O’Loane Avenue, a major city roadway. The job represented the first use in Canada of McWane Ductile TR Flex® ductile iron restrained joint pipe for HDD.

Sierra Construction, the lead contractor on the job, utilized the services of Extreme Drilling, who received the pipe on the job site and had the full 126 feet assembled and ready to pull in less than an hour. They reported being impressed with how quickly the joints on the TR Flex® ductile iron pipe assembled. The pull went smoothly, taking only about 15 minutes.

Not only did horizontal directional drilling help preserve the natural beauty of the Stratford location by not disturbing the surface or roadway, but it also helped minimize road closures and traffic diversions, which are both vital to an economy driven largely by tourism.

Types of DIP used on the project:

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Joint</th>
<th>Class</th>
<th>Footage</th>
</tr>
</thead>
<tbody>
<tr>
<td>8”</td>
<td>TR Flex®</td>
<td>350</td>
<td>126</td>
</tr>
</tbody>
</table>

Sales Representative: Ron Siddique
Project Location: Ontario
Project Owner/Utility: City of Stratford Utilities
Project Contractor: Sierra Construction
Project Distributor: CORIX Water Products in London, Ontario
Try the latest McWane Pocket Engineer™. We have taken our innovative application to the next level.

- Peruse the entire family of McWane waterworks companies
- Access product information, submittal data, installation guides and more
- Calculate volume, tonnage, thrust restraint, energy savings and more
- Search and view sales support listings
- Submit photos and information for field support
- Watch informational videos
- Review frequently asked product and installation questions
- Receive ongoing feature and calculator updates

The one tool you never want to be without.

Built on the back of more than 90 years of industry experience, the McWane Pocket Engineer™, the first of its kind in the industry, solves your complex calculations in seconds. Whether it’s tonnage, radius, volume or flow, you get the numbers you need quickly and accurately.

Download the McWane Pocket Engineer™ and put it to work on your next project.

Go to the App Store or Google Play to download the FREE app today, or access it online at pe.mcwane.com.
Dear Ditch Doctor,

After making a field-cut, a 24-inch diameter pressure class 200 gauged-full-length pipe had to be (field) rounded to fit into a fitting. Both the onsite inspector and the governing engineer expressed concern that the rounding procedure is putting stress on the pipe, which will cause a leak or failure in a year or two. Please help me calm their fears, if you can!

Signed,
Rounded in Redondo, California

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Dear Rounded,

There is no cause for concern on your part. Additionally, neither the governing authorities (whom you mention in your inquiry) nor the end users of this pipeline should have any concerns. The fact is, while this is a relatively uncommon occurrence, it is not without precedent across the ductile pipe industry. Also, this circumstance does not impugn the long-term integrity of the pipe joint or the pipe itself. Ductile means flexible, repeatedly flexible in fact, without rupture and with the reliable ability to return to original form without diminished quality or strength. That's one of the primary advantages of using ductile iron pipe.

Cyclic loads, whether from internal pressure or external loading of any sort, have no adverse effect on ductile iron pipe over any period of time, including decades and centuries. Rounding of ductile iron pipe following a field cut is a simple procedure outlined on every ductile iron pipe manufacturer’s website. Of those, McWane Ductile’s recommendation is perhaps the easiest and safest, as it outlines a procedure that is performed from the outside of the pipe. A “gauged” pipe merely indicates that its dimensional measures are manufactured consistent with AWWA and industry standards along and around the entire barrel (from the beveled end to within two feet of the bell face). Therefore, in the rare and random event of a pipe “springing” when field-cut, field-rounding techniques can return it quickly and reliably to within assemble-appropriate congruence with its bell companion, whether it is in a pipe or in a fitting.

The AWWA conformant rubber gasket is designed and proven to seal the annular space between the pipe barrel and the fitting, or companion pipe, even if minor ovality exists. As for “down-the-road” consequences or adverse reactions within the finished joint, this is certainly a valid inquiry, yet not a viable concern. Whether it’s the single temporary load of pipe rounding, or the continual cyclic loads over the pipe’s life, the beauty of ductile iron pipe is its innate strength and lasting flexibility. Once you pass a short-term AWWA conformant post-installation hydrostatic test of 200 psi or greater, your pipeline is proven to hold whatever operating pressure you desire for centuries, without surprises or concerns of any kind. This includes leaks or failures, from any aspect of its manufactured and installed condition. That’s called a lifetime warranty. Or in simpler terms, quoting Packers quarterback Aaron Rogers, “R E L A X!”

Sincerely,
The Ditch Doctor

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Dear Ditch Doctor,

The inspector on our jobsite told us that the trench we are using will hurt our pipe. He claims it is too thin and needs more clean fill above the pipe to protect it properly. He says this trench is weak and adds no support to the pipe when it’s buried. I have attached a sketch of our trench detail. Can you provide us with a letter stating that the trench we are using will not hurt the pipe?

Signed,
Perplexed in Pacoima, California

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Dear Perplexed,

Ductile iron pipe does NOT need a trench to be strong or resilient. Not to brag, but we manufacture and deliver it that way — strong, in and of itself. That’s the true beauty of ductile iron pipe.

The trench types and generalized dimensions shown in the AWWA C150 standard are guidelines for safe trench workability and workers movements, not a mandate of need toward product protection. With rare circumstantial exception, when ductile iron pipe is utilized, the trench is about supporting or protect what’s to come directly above the pipe, such as a roadway or other structure, not to add strength to the pipe. The inspector must be confusing ductile iron pipe with weaker alternative materials that require strength from the trench to survive even normal loads. Yes, the trench type and backfill contents do contribute to the appropriate section of the pipe wall class, but they do not necessarily govern the survival of the pipe once manufactured and installed appropriately.

The trench sketch you provided meets or exceeds the Type 3 outline seen in the AWWA C150 Thickness Design of Ductile Iron Pipe and in the AWWA C600 Installation of Ductile Iron Pipe standard. This trench type is perhaps the most commonly used type across the utility industry today and will not in any way be detrimental to the pressure class 350 pipe involved in your project. The width of any trench is and remains a local consideration, based upon the overall trench depth and the working-within-it safety concerns or related issues thereof. So be it fat or skinny, as long as it’s safe, that’s the overriding issue with decisions involving any utility trench. To learn more, visit the McWane Ductile mobile website, known as the McWane Pocket Engineer™, at pe.mcwane.com or download it to your devices for free from the App Store or Google Play. There’s even a brand new C150 Thickness Calculator that enables you to quickly compute the best ductile iron pipe wall for all five trench types! Have fun computing and remember … in ductile we trust.

Sincerely,
The Ditch Doctor
## NORTHEAST SALES TEAM

**GENERAL SALES**
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fran.tone@atlanticstates.com

**CANADA SALES TEAM**

**NORTHEAST SALES TEAM**

<table>
<thead>
<tr>
<th>State</th>
<th>Contact Person</th>
<th>Phone</th>
<th>Email</th>
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<tbody>
<tr>
<td>Ontario</td>
<td>Paul Stringer, Sales Manager</td>
<td>705-799-7667</td>
<td><a href="mailto:paul.stringer@canadapipe.com">paul.stringer@canadapipe.com</a></td>
</tr>
<tr>
<td></td>
<td>Run Siddique, Sales Representative</td>
<td>289-244-9714</td>
<td><a href="mailto:run.siddique@canadapipe.com">run.siddique@canadapipe.com</a></td>
</tr>
<tr>
<td>Western Canada</td>
<td>John Braun, Sales Manager</td>
<td>406-737-1279</td>
<td><a href="mailto:john.braun@canadapipe.com">john.braun@canadapipe.com</a></td>
</tr>
<tr>
<td></td>
<td>Colin Turner, Sales Representative</td>
<td>604-360-0980</td>
<td><a href="mailto:colin.turner@canadapipe.com">colin.turner@canadapipe.com</a></td>
</tr>
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**MIDWEST SALES TEAM**

<table>
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<tr>
<th>State</th>
<th>Contact Person</th>
<th>Phone</th>
<th>Email</th>
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</thead>
<tbody>
<tr>
<td>General Sales</td>
<td>Scott Frank, General Sales Manager</td>
<td>740-202-3094</td>
<td><a href="mailto:scott.frank@clowwater.com">scott.frank@clowwater.com</a></td>
</tr>
<tr>
<td></td>
<td>Geoff Guss, Assistant Sales Manager</td>
<td>352-208-5709</td>
<td><a href="mailto:geoff.guss@clowwater.com">geoff.guss@clowwater.com</a></td>
</tr>
<tr>
<td></td>
<td>Dan Flagg, District Manager</td>
<td>814-407-6007</td>
<td><a href="mailto:dan.flag@clowwater.com">dan.flag@clowwater.com</a></td>
</tr>
<tr>
<td></td>
<td>Bill Stich, Sales Representative</td>
<td>630-779-1347</td>
<td><a href="mailto:bill.stich@clowwater.com">bill.stich@clowwater.com</a></td>
</tr>
<tr>
<td>Illinois</td>
<td>Dan Flagg, District Manager</td>
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<td><a href="mailto:dan.flag@clowwater.com">dan.flag@clowwater.com</a></td>
</tr>
<tr>
<td></td>
<td>Robin Hazelit, Sales Representative</td>
<td>816-898-5016</td>
<td><a href="mailto:robin.hazelit@clowwater.com">robin.hazelit@clowwater.com</a></td>
</tr>
</tbody>
</table>

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**SOUTHERN MICHIGAN, NORTHERN INDIANA & NORTHWEST OHIO**

**SALES REPRESENTATIVES**

<table>
<thead>
<tr>
<th>State</th>
<th>Contact Person</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona, New Mexico, Southern Nevada &amp; Texas (El Paso only)</td>
<td>Wes Casier, District Manager South</td>
<td>Cell: 800-380-5432</td>
<td><a href="mailto:wes.casier@pscipco.com">wes.casier@pscipco.com</a></td>
</tr>
<tr>
<td>Colorado, Wyoming &amp; Montana</td>
<td>Nick Koncar, General Sales Manager</td>
<td>303-623-4296</td>
<td><a href="mailto:nick.koncar@pscipco.com">nick.koncar@pscipco.com</a></td>
</tr>
<tr>
<td>Northern California &amp; Northern Nevada</td>
<td>Paul Diamond, Sales Representative</td>
<td>Cell: 916-628-2872</td>
<td><a href="mailto:paul.diamon@pscipco.com">paul.diamon@pscipco.com</a></td>
</tr>
<tr>
<td>Oregon</td>
<td>Carrie Stephene, Sales Representative</td>
<td>503-577-4377</td>
<td><a href="mailto:carrie.stephene@pscipco.com">carrie.stephene@pscipco.com</a></td>
</tr>
</tbody>
</table>

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| Carolyn Lopez, District Manager | 951-371-1440 | carolyn.lopez@pscipco.com |

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| Barnes Ray, Marketing 1201 Vanderbilt Road, Birmingham, AL 35224 | Office: 205-241-4309 | barnes.roy@mcmwancne.com |
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