STATE ARBITRATION BOARD
5615 23rd Street S.W.
Vero Beach, FL. 32968
Phone (772) 299-3290 **FAX (772) 299-3568**

March 16, 2007

Tim Lattner
Director of State Maintenance Office
Florida Department of Transportation
605 Suwannee Street MS-52
Tallahassee, FL. 32399-0450

Re Arbitration Order 2 / 2007
DOT Fin Project No. 412326-3-72-03
Orange County, FL.

Dear Mr. Blanchard,

Find enclosed Arbitration Order 2 / 2007 for the above captioned project. A copy of the transcript is enclosed, and copies of the Contractors submittal and the Department rebuttal are being kept by Board Member Ananth Prasad for your use.

Sincerely;

State Arbitration Board

John W. Nutbrown,
Chairman and Clerk

Cc: All Board Members

STATE ARBITRATION BOARD

Order No. 2-2007

S.A.B. CLERK

MAR 16 2007

FILED

///**NOTICE**///

In the case of American Water Services Underground Infrastructure, Inc.. versus the Florida Department of Transportation on Financial Project No. 412326-3-72-03 in Orange County, Florida, both parties are advised that the State Arbitration Board Order 2-2007 has been properly filed with The Clerk of the State Arbitration Board on March 16, 2007

John W. Nutbrown
Chairman & Clerk, S.A.B.

Copy of Order & Transcript to:

Tim Lattner, Director of State Maintenance Office
Mike Cannon, Senior Vice President American Water Services Underground Infrastructure, Inc.

STATE ARBITRATION BOARD

Order No. 2-2007

RE: Request for Arbitration
American Water Services Underground Infrastructure, Inc
State Financial Project No. 412626-3-72-03, in
Orange County, Florida

The following members of the State Arbitration Board participated:

John W. Nutbrown, Chairman
Ananth Prasad,P.E., Board Member
John C. Norton, Board Member

Pursuant to a written notice, a hearing was held on a request for arbitration commencing at 1:00 PM January 26, 2007

The Contractor, American water services Underground Infrastructure, Inc. presented a written request for arbitration of its claim in the total amount of $257,286.69 The claim arises out of direction by the Florida Department of Transportation requiring the removal and replacement of a cured-in-place pipe liner for a 43"x 68" Elliptical Pipe in Orange County, Florida. The Department of Transportation presented a written rebuttal and summary of position. The Board has considered the written submissions and the testimony and evidence presented at the hearing on January 26, 2007 and enters this Order Number 2-2007.

ORDER

The Board is unanimous in this decision.

It should be noted that this Order is a bit unusual as it involves a Maintenance Contract which is not usually heard by this Board. This case originated in the Circuit Court of the Ninth Judicial Circuit in and for Orange County, Florida. The Court ordered the case be held in abeyance and returned to the State Arbitration Board for action.

American Water Services, Inc contracted to install Cured-in-Place Pipe Liner in 529 Lineal Feet of 43"x 68" Elliptical Pipe. Prior to bidding the project the EOR requested American Water state the size of liner required. The proposed liner was to be for 56.89" for a pipe of this diameter. The Contract Pay Item used for this contract was 431-1-142 and states that the 54-inch pay item is equivalent to the 43" X 68" Elliptical Pipe.

The Board heard testimony from both parties and asked questions relating to the installation and the later rejection of the material. A number of meetings were held between the Contractor, Design Engineer and the Department trying to work out a settlement and each time the Department position required the liner be removed and replaced.

The Contractor had a flow study completed to show the capacity was not decreased due to the liner installation and it was found the entire system was undersized prior to the start of this project. Finally the Contractor removed and replaced the liner to get the project accepted.

Following the hearing the Board deliberated and discussed the matter and reached the following decision. The Board found errors on both sides of the hearing.

The Board found fault with American Water, who was consulted by the Department during the pre-bid period as to the size liner required for the project, for not notifying that the pay item was not consistent with what information American Water had previously communicated to the Department. Furthermore, American Water submitted documents indicating what the Department had intended but not what the pay item note indicated.

The Board found fault with the Department in that the pay item note was misleading as to the actual size of the liner to be used. There would have never been an issue had the pay item had indicated the actual size of the liner to be used was to have been 56.89".

STATE ARBITRATION BOARD

Order No. 2-2007

The Department is ordered to compensate the Contractor in the amount of $178,610.00 which includes interest at the statutory rate since February 16, 2005.

The Department shall reimburse the State Arbitration Board $578.40 for court reporting costs.

Vero Beach, Florida

Dated March 19, 2007

John W. Nutbrown
Chairman & Clerk

Ananth Prasad, P.E.
Board Member

John C. Norton
Board Member

Certified copy:

John W. Nutbrown
Chairman & Clerk

STATE ARBITRATION BOARD
STATE OF FLORIDA

AMERICAN WATER SERVICES/ UNDERGROUND INFRASTRUCTURES, INC.
- and -
DEPARTMENT OF TRANSPORTATION

PROJECT NO. 412326-3-72-03
LOCATION: Orange County, Florida

PROCEEDINGS: Arbitration in the Above Matter
DATE: Friday, January 26, 2007
PLACE: 1007 Desoto Park Drive Tallahassee, Florida
TIME: Commenced at 12:55 p.m. Concluded at 2:45 p.m.
REPORTED BY: CATHERINE WILKINSON CSR, CP Notary Public in and for the State of Florida at Large

WILKINSON & ASSOCIATES
Certified Court Reporters
Post Office Box 13461
Tallahassee, Florida 32317
(850) 224-0127

APPEARANCES:

MEMBERS OF THE STATE ARBITRATION BOARD:

Mr. John W. Nutbrown, Chairman
Mr. Ananth Prasad
Mr. John C. Norton

APPEARING ON BEHALF OF THE CONTRACTOR:

Mr. Mike Cannon
Mr. Mark Harris
Mr. Rich Nelson
Mr. Tom Robertson
Mr. Tim Schuller
Ms. Lisa Schuller

APPEARING ON BEHALF OF THE DEPARTMENT OF TRANSPORTATION:

Mr. Mike Heffinger
Ms. Pamela Miller

* * *

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PROCEEDINGS

CHAIRMAN NUTBROWN: This is a hearing of the State Arbitration Board, which was established in accordance with Section 337.185 of the Florida Statutes.

Ananth Prasad was appointed by the Board members and the Secretary of the Department of Transportation.

Mr. John Norton was elected by the construction companies under contract with the Department of Transportation.

These two members have chosen me, John Nutbrown to serve as the third Board member and act as the Chair.

Our terms will expire June 30, 2007.

Will each person who will make an oral presentation during the hearing please raise your right hand and be sworn in.

(Whereupon, all witnesses were duly sworn by the Chairman.)

CHAIRMAN NUTBROWN: A request for an arbitration of a claim submitted by the claimant, including all attachments thereto and the administrative documents preceding this hearing are hereby introduced as Exhibit 1.

Does either party have any other information you wish to put into the record as an exhibit?

MR. HEFFINGER: Yes. I was going to bring it up during my presentation.

CHAIRMAN NUTBROWN: If you have anything that w not submitted previously --

MR. HEFFINGER: Pretty much this is based on the rebuttal of my rebuttal that was submitted to their claim.

CHAIRMAN NUTBROWN: Is there enough copies so each --

MR. HEFFINGER: I made five copies.

CHAIRMAN NUTBROWN: Let them look at it. I don't feel there should be any problem. Let them look at it. If everybody is happy, we will proceed from there. That will be Exhibit 2.

(Whereupon, Exhibit Nos. 1 and 2 were received in evidence.)

CHAIRMAN NUTBROWN: I notice on this one sheet that part of it is cut off by the copier.

MR. HEFFINGER: Pardon?

MR. PRASAD: That was just the Web site.

CHAIRMAN NUTBROWN: This is all cut off, even on your original.

During the hearing the parties may offer such

evidence and testimony as is pertinent and material to the dispute being considered by the Board and shall produce such additional evidence as the Board may deem necessary to an understanding of the matter before it.

The Board shall be the sole judge of the relevance and the materiality of the evidence offered.

The parties are instructed to assure that they receive properly identified copies of each exhibit used in the proceedings. You should retain these exhibits. The Board will send the parties a copy of the court reporter's transcript, along with our order. We will not furnish copies of any of these exhibits.

As is typical in arbitration proceedings, this hearing will be conducted in an informal manner. The Board is not required to apply a legalistic approach or strictly apply the rules of evidence used in civil court proceedings.

We are primarily looking for information in regard to the facts and the contract provisions that apply to the case.

The order of proceeding will be for the claimant to present their claim and then for the respondent to offer rebuttal.

Either party may interrupt to bring out a point. However, we will not tolerate talking across the table.

You will come through the Chair if you have anything. We want to keep it as orderly as possible.

Our court reporter, as I said this morning, has ten fingers, two ears, two eyes. If everybody talks at once, that damn thing is a scrambled mess. Just be courteous to both your own people and the opposite. We would appreciate your cooperation.

With that we will go ahead and open the hearing. There are no attorneys present, I assume. We will go ahead and open the hearing. American Water has placed a claim with the Board, even though it was remanded to the Board through the court, they applied for the hearing. So, American Water, go ahead and present your case and give us all the information you have.

MR. HARRIS: On behalf of American Water, I'm going to start. My name is Mark Harris. For the record I was the president of American Water Services. Just as a point of formality, American Water Services/ Underground Infrastructures, has been recently purchased by the Lane Christiansen Company. We are now a subsidiary of Lane Christiansen.

If you check with the State licensing boards, et cetera, we are in the process of a name change to Inliner American. That is just a technicality. That was Inliner American.

So, anyway, my current position is vice-president of operations with them. I am still the senior person here representing American Water. And we brought Mike Cannon, vice-president of operations and Rich Nelson, who is the regional manager for the Orlando office where this project took place, and Tommy Robertson, the operations manager, project manager for this project.

Other than that, I am going to turn it over to Mike Cannon to start making the presentation.

MR. CANNON: Sure. Thank you, Mark. This was a cured-in-place lining project that American Water Services/Underground Infrastructures subcontracted with Schuller to perform for FDOT.

The plans, the bid item, description, the pay item description and notes all specify that 54 inch by 25.5 millimeter thick liner in an elliptical pipeline. That is the exact liner that was ordered and installed.

The project -- we initially had notice to proceed in August of 2004. That was a pretty active season for Florida. If you will recall, we had four hurricanes between August and the end of September of that year. So, the project was delayed a number of times during that hurricane season.

The initial liners were actually installed in the

October 2004 time frame. There was two liners, a short liner of approximately 90 feet long. Then the second liner, making up a total of 529 linear feet of cured-in-place pipeline that was installed via an over-the-hole wet-out procedure.

Due to the diameter and the massive amount of resin involved, we had to bring our wet-out equipment to the site. The resin was brought in on tanker trailers.

The liners are wet out. As they are being wet out, they are going directly into the pipeline on site. It is a pretty extensive operation to line these pipelines.

The first liner was installed without incident. We were installing the second liner. It was actually completely installed when we were beginning to heat the water when FDOT's inspector came out and noticed a little bit of an annular space between the liner, not making contact with the host pipe.

He directed us to remove the liner at that point. We then instructed them that it would be very difficult to remove the liner once it was completely installed. We proceeded to process the liner out, FDOT noting that we were basically proceeding at our own risk.

After the liner was installed and processed out,

FDOT requested a meeting to talk about the -- that the liner was not as tight fitting as they had anticipated. Instructed that it was a maintenance project, they were trying to eliminate settling above the pipeline.

They were concerned of the thickness on the liner since it did not make full contact with the walls.

MR. HARRIS: Verify where it made contact.

MR. CANNON: When the liner is installed, it is initially making contact in the vertical position, both top and bottom. Once you get the frictional forces on the liner, it usually is tighter fitting in the narrow dimension and a lot harder for the liner to stretch out horizontally to the pipe walls.

Most of the annular space is to the side of the liner, with the liner fitting more top than in the vertical positions.

It was agreed we would go out and take several core samples from the liner to document the actual liner thickness as we were proposing to grout the annular space in accordance with FDOT specifications, which did instruct us to grout any annular space between the liner and the host pipe.

We presented those results back to FDOT. Upon reviewing that information, FDOT responded that basically they were concerned over the reduction in

flow capacity of the pipe system and they instructed us to remove the liner.

So, we had subsequent meetings to discuss the flow capacity issues. Pamela Miller prepared some flow calculations that basically demonstrated the original host pipe has certain capacity. The liner, if installed tight fitting as they anticipated, would have had a capacity. The installed liner had a capacity.

The condition of the pipeline prior to lining, because of offsets and concrete build-up, the joint seals that were in place, we actually increased the capacity of the system by about 20 percent from its prelined capacity, but they were concerned with the overall flow characteristics of the system.

They did suggest that we could do a flow study. The flow study documented that the installed liner was sufficient to handle the capacity of the system, and that they would then consider the grouting proposal that we originally presented and might consider letting us just grout the annular space, even though it was in accordance with the specifications.

We contracted with PEC Consultants, who prepared a flow study of the system. The results of the flow study came back and said the overall system was hydraulically deficient.

Really there was nothing we could do at that point. Even if the liner had not been installed, the system was deficient. And it was at that point that DOT required us to remove the existing liner.

We submitted shop drawing submittals for the reinstallation liner because we still were not sure exactly what size liner it was that FDOT was wanting us to install. The results came back that it was not their responsibility to provide that size, it was the contractor's responsibility to properly size the liner.

We chose the size liner we thought FDOT wanted, installed the second liner. At that point FDOT accepted the second liner installation. We submitted a claim for about $250,000 for the removal of the first liner that was installed in accordance with the plans and the specifications. Basically that represents our claim today.

CHAIRMAN NUTBROWN: Okay. Any other informatio you want to add at this point? You will have an opportunity later to rebut.

MR. CANNON: One of the pictures we submitted, there is a real concern over the sizing of the liner. This is the culvert that is immediately downstream of our liner installation. You will note it is a circular, round 54-inch reinforced concrete storm

sewer.

So, a lot of their arguments have been around the concern over not having the full equivalent elliptical size which is about 56.89 inches. Immediately downstream is a circular 54-inch RCP pipeline.

The other picture you are looking at is the reinstalled liner on the shorter section. I think that's the 90-foot section prior to sealing the ends of the liner.

MR. PRASAD: Did you give that picture out?

CHAIRMAN NUTBROWN: I don't have it.

MR. CANNON: Then you will note there is still an annular space even on the reinstalled liners. It may be a little more tight fitting. Just with these systems -- and particularly as you get larger in diameter, these liners tend to be not as tight fitting as say a smaller diameter liner.

Even though we may have reduced the annular space with the reinstalled liners that were accepted, there is still some annulus that is present.

The other picture is just a representation to show, you know, some of the concrete -- there are joint seals that we removed from the pipelines. That is part of the consideration as to why the pipeline prior to us lining it had a reduced, or a higher coefficient and

reduced hydraulic capacity.

What we did install and what they required to be removed did increase the capacity of the system from its prelined condition of about 20 percent.

We accomplished what they originally set out in their documents, reinforcing the existing structure, sealing off the joints. We actually increased the hydraulic capacity at the same time.

CHAIRMAN NUTBROWN: Okay. Let me interrupt. Cathy, would you make a note in the transcript that the three photographs furnished by American Water will be Exhibit 3.

(Whereupon, Exhibit No. 3 was received in evidence.)

MR. CANNON: Our other concern that we did express to them prior to removing the liner is that we felt their decision to remove the liner constituted economic waste. We did not see any real value in what they were requiring us to do when you considered all the factors.

CHAIRMAN NUTBROWN: Okay.

MR. CANNON: One of the other exhibits I provided were some flow calcs. In the letter I sent on January 23 I expressed a range of flow values using Boyle's original flow calculations. It shows, depending on which Manning friction factor you use and

either the new condition of the pipe, had it been replaced with new pipe, the liner that was installed and removed, and then the unlined condition of the pipeline. You can see the different flow values based on those Manning friction coefficients.

CHAIRMAN NUTBROWN: Anything else, Mike?

MR. CANNON: Just that around February of 2004 Pam Miller did contact our office. I believe she spoke with Rich Nelson. She was, you know, asking for design information on what thickness of a liner would we recommend to be installed in the pipeline.

We did recommend a 25 and a half millimeter thick liner which was the liner specified on the plans. We did provide information that in our opinion the equivalent circular -- circumference of a round pipeline for this host pipe conditions would be a 56.89-inch liner.

The plans were still released with the pay item, bid item. The pay item notes indicate a 54 liner was to be provided. That information was available prior to plan preparation.

CHAIRMAN NUTBROWN: Okay. Anything else? We can come back.

MR. CANNON: Okay.

CHAIRMAN NUTBROWN: Mr. Heffinger, it's your

turn.

MR. HEFFINGER: I'm going to use a lot of the exhibits. So, if you have this handy, I will talk about numerous exhibits as I go through.

I would like to go through in chronological order as to when the process started, when the plans were let, the preconstruction meeting, the initial installation of the liner and the subsequent removal and meetings that occurred.

I would like to start out by letting Pam Miller go over the process by which the Department would consult on issues such as this when coming up with potential solutions to resolve issues out in the field. I will let Pam talk about the process of the consultant.

MS. MILLER: That brings into capacity the whole capacity part. We were contacted by DOT. They have us do a study if there is an issue, a drainage issue. We were under contract to do -- it is a continuous maintenance contract, whatever they needed us to do.

We went out there. We looked at the conditions. We looked at video. We investigated several different options to rehabilitate that pipe.

When we did that, the way the process works is we have to do a report for DOT, cost out things. The

individuals that we work with like a matrix. We provided that in I think the exhibit that has the report, which would be Exhibit 17.

The second page kind of shows you the matrix. What we do is we give a report to those particular individuals. They review our recommendations. When they look at the matrix, they figure out what they feel is best.

Sometimes they go with our recommendation, sometimes they may not.

We had recommended the cured in place as compare to the removal and replacement in that area due to not wanting to disturb people.

They really would like to have removed the whole thing and replaced it because of the fact that, yes, it was leaking, and also they wanted to see, if they were going to spend that kind of money, what does it do to capacity.

In looking at it, for the difference in the price, cured in place was the option to go in that particular area. One of the things is it can increase the capacity.

If not, we were going to remove the whole thing, knowing that we are going to get back to the original capacity it was designed for.

Everything we compared later on in our rebuttal is based upon what it would have been if we had removed and replaced. That was the option, remove and replace or cure in place so you can get that capacity and still cure the problem that they were having with the leaking and the asphalt driveway having problems.

We gave that to them. They told us to go ahead and do a removal and replace on one portion of the project and we were going to do the CIPP lining, then do the plans accordingly.

When we were working on the plans, initially we -- and in that process of the study, we did contact American Water. They did say that based on the groundwater conditions that they would recommend the 25.5 millimeter thickness. They did talk about 56.89. However, we are not specing in our plans and specs that it's American Water that is going to be doing the project.

So in order to make the generic that any other company who does lining, who may have a different expansion ratio of their product -- I don't know their products, they know their products.

We wanted them to line the 43 by 68 with whatever liner it takes for you to line it and get it close and tight fitting per manufacturer's specifications, which

is what we have in the plans.

That was the direction. We gave a thickness, minimum thickness. It could have been more than that, which is the reason for the cores.

If they had a problem that it was tight fitting and they had a little bit more of a thickness, then because we just specified a minimum thickness, that would have to be acceptable.

We did the plans. When we -- I presented the Department with the set of plans on March 15, the final set of plans. That had on there 43 by 68-inch pipe liner. That pay item has been obsolete. There is no such thing as a 43 by 68 pay item.

Pay items are on plans. That's exactly what they are. It's only how the contractor gets paid. The plans that are behind the pay item supersede and so do the specifications anything that a pay item note has, a pay item or pay item note.

I was instructed the contractor would be paid for it with a 54-inch liner. That is the pay item.

The note on there said that the 54-inch pay item is equivalent to the 43 by 68-inch liner to be provided. That means you provide the liner for 43 by 68. You get paid for it as a 54.

If I was going to ask someone to put in there a

54-inch liner, there is no need for a note. I will then put a 54-inch liner.

We did not specify the liner size because that is up to the manufacturer because someone may have something different. That is not our position to put it. It is a thickness. It is this liner is to be -- this pipe is to be lined, however way you get paid for it.

There are several examples. If you are regrading an area you could have an item called shoulder rework. You may not be on a shoulder, but that's how a contractor will get paid for it.

Pay items and pay item notes are a means of payment, not a means for design and construction. That's what the plans are for.

MR. CANNON: I would like to just add --

CHAIRMAN NUTBROWN: Wait a minute. Let them finish first.

MR. HEFFINGER: Anything else?

MS. MILLER: That's why --

CHAIRMAN NUTBROWN: One of the Board members a question.

MR. PRASAD: Go over that pay item, 43 by 68 but equivalent to 54.

MS. MILLER: It specifically says 54-inch pay

item is equivalent to the 43 by 68-inch liner to be provided.

MR. HEFFINGER: That will be Tab 9.

MR. PRASAD: Why would -- I am just asking a question. Why would it not be -- why would you not come to the deduction that maybe American Water came to that you were looking for a 54-inch liner, not a 54.89 liner.

MS. MILLER: If it was a 54-inch liner I wouldn't have had a pay item note. I would have said 54-inch liner is what I wanted them to provide.

By putting the note and looking at the plans, you will see all that is to be provided -- do they have a complete set of plans? It says 25.5 millimeter thickness per manufacturer's instruction. So, what is your manufacturer and what do you have to provide to give me this thickness.

MR. PRASAD: What is the pay item description for 431.1142?

MS. MILLER: That pay item is a 54-inch liner. There is no pay item for an elliptical liner in the DOT system.

MR. PRASAD: That pay item says 54-inch liner?

MR. HEFFINGER: If you look on Tab 12 I have a copy of the obsolete pay item list that was made in the

letting in 2004. It shows there is no pay item for a 43 by 68-inch liner but it does have liner for optional material 54.

MR. PRASAD: You actually, I guess -- I guess I shouldn't put words in their mouth. I guess it says 44-inch storm sewer? Is that what it said? Is that what I am looking at? 431.142. Okay. Pipe liner, optional material, 54 inch. Okay.

MR. HEFFINGER: If you look on the page before that, that is our district maintenance, pretty much takes care of all our pay items.

MS. MILLER: He is the person who instructed me to remove from the March 15 drawings the pay item that said 43 by 68 and to put the 54 inch and to put the note so they knew that is how they would get paid for that 43 by 68.

MR. NORTON: If you knew that in theory a 56.89-inch round pipe was needed to fill this, why then didn't you say in this pay item note that it's to meet the ASTM spec which says it will be tight fitting, et cetera?

MS. MILLER: That's why we put the per manufacturer's instructions, which would be tight fitting.

MR. NORTON: You have this note that could be

construed to say we want a 54-inch round pipe. Why couldn't you have said right there that you need the AS -- needs to meet ASTM 12, whatever it is, to be tight fitting within the pipe, something to that effect, which would then tell you that maybe the 54 didn't work?

MS. MILLER: I don't normally specify things in the pay item notes like that. It's normally a pay item note.

MR. NORTON: But you are telling us -- go ahead.

MR. CANNON: Can I just interject. According to Webster, equivalent means equal in value. You know, if you read that by a strict definition, the 54 inch is equal in value to the 43 by 68-inch liner size to be provided.

CHAIRMAN NUTBROWN: Go ahead, Mr. Heffinger.

MR. HEFFINGER: Pretty much what I want to start out is I will be representing some issues in here.

I would like to go to Tab 5. What this is is when Pam Miller -- Pam was looking to get some information about this process. She actually contacted American Water. American Water in their package that they talk about, in their discussion, that they submitted to Pam Miller the National Liner design sheet, which she used to format her thickness.

They specified it was 56.89 inches. So right then American Water knew that it would take an equivalent pipe of 56.89 inches to actually line the 43 by 68-inch pipe.

The project was bid. Plans were put together. Schuller Contractors was the winner of the bid letting.

Now on Tab 6 we had our meeting on July 13. American Water submitted to Schuller this exact National Liner copy that states that they are aware that it would take an equivalent diameter of 56.89 inches to line this pipe.

What they did is they sent it to Tim Schuller. Tim's representative signed off. If you will notice on the front of this, there is a stamp that says, "It has been determined and hereby certified that in all respects this submittal is in full compliance and conformance with the contract specifications."

Drawings, specifically it states drawings. If you will look it says you will have to line a 43 by 68-inch pipe in the intent and scope of the plans.

So, Tim Schuller Contractors, Incorporated actually approved this and said -- they approved these standard specifications in these drawings.

So, what I'm saying is that American Water knew that they had to put in the 56.89 liner. Tim Schuller

said thank you very much. I know you are going to put in a 56.89-inch liner, but American Water signed a contract, their proposal for a 54-inch liner.

So, in reality they signed -- they knew they had to put in a 56.89-inch liner. Schuller Contractors knew they needed to put in a 56.89-inch liner. They signed a contract for a 54-inch liner.

So in reality Schuller should probably be on this side and American Water should be on this side because it is a contract issued between the contractor and the subcontractor.

MR. CANNON: The 54 inch in our proposal to Schuller comes off of your bid item description. Basically what we proposed was the same bid item description that is in the contract plans.

There again, there was no requirements for submittals on this project. We just provided the same information that we had previously provided to Boyle. There was no approval of those documents.It came back to American Water.

We installed the liner per the plans and contract documents.

MR. HEFFINGER: There was an issue that Schuller Contractors approved this bid and approved the National Liner sheet.

What I would like to do now is forward to Tab No. 13. This is a letter from Tim Schuller -- from their attorneys representing Tim Schuller Contractors. I have some highlights.

It starts, "When you submitted American Water's proposal to Schuller it was done with the representation that the proposal was in conformance with the subject plans and specifications.

"If there was ambiguity in the plans, it was your responsibility to request additional information.

"Furthermore, once you began the installation of the liner and realized installing such liner required grouting in space, you should have immediately suspended the installation work and requested direction."

That didn't happen. So, when we get past this right here, we let the contract. American Water moved forward to put in the liner. They put in the first liner. Obviously they said it was without any issues.

The first liner was approximately 90 feet. There was no openings in which to see that there was any problems with that when they put it in.

So when they put in the second one -- we couldn't go inside the pipe because it was currently curing. The second liner they put in, my people were on site.

They noticed that there was some large annular spaces that they could see not only when they -- where they had the water tower where they input the initial liner but further down in another inlet it was open where you could see there was gaps.

We had our inspector and project manager Mike O'Riley, and he asked Mr. Robertson -- this isn't working, what is the problem. Mr. Robertson stated that, as in our dailies that is on Tab No. 15, just for reference, he stated they put in a 54-inch round liner in a 43 by 68-inch elliptical pipe. It doesn't add up.

At that point we called Tim Schuller. We requested -- we have an issue, there's spaces that shouldn't be anticipated in a cured-in-place liner. The annular spaces should not be anticipated. According to ASTM standards it conforms with the host pipe and is tight fitting.

We called Tim Schuller. He in turn contacted American Water as to -- our thing was you need to stop. What you have in there now is not working.

Whatever that conversation was between them and Tim, they called us up and said we will pursue, move forward. We will meet on Monday to discuss our options.

As Mike said before, we proceeded at our own

accord. And on that Monday we had a meeting. We discussed various things, issues about what we could do. It was American Water's decision let's go out and core to see what our thickness is. Let's see what our depth is. That will give us an idea of grouting.

They moved forward at their own discretion in order to attempt to mitigate the issue that the liner was sizeably smaller than what was proposed.

So, then what we want to do is move forward. They submitted their grouting plan. It was reviewed by our district office.

It was reviewed by our district drainage engineer who determined it was not in conformance with the plans and specifications. It did not meet the intent of the contract, which was to line a pipe according to ASTM standards, 43 by 68 inch.

What we did then was during that meeting we decided to have them take that out. Now as soon as we decided that, we sent a letter saying you must remove the pipe.

Issues of pay items had never come up before. Issues of flow had never come up before. Issues of shrinkage had never come up before, and there had been no discussion to Manning's.

Initially there was an issue with the pay item.

I think we discussed the pay item. There's been questions already asked. That was part of my presentation.

As stated by Ms. Miller, who was the engineer of record, item ten of that pay item says 54-inch liner pay item is equivalent to a 43 by 68-inch liner which was an attempt to use that pay item because the 43 by 68 wasn't available. The State office decided not to create a new pay item.

Then we get to number two, the part of the flow. Pam Miller described that during the design of this project, it was determined that because the liner would be of increased capacity that we would use the cured-in-place liner. In order to bring our previous design up to as close as the original, which was approximately 72 cubic feet, that liner would bring it up to 70.817.

The liner in place pretty much only had 55.38 cubic feet of surface.

If you look on the Tab No. 11, Tab No. 11 is American Water. They went out -- these are American Water's measurements. They measured the initial liner run.

What they did, if you see in about the middle of the page, after lining 61.46 by 39.39 inches, that is

an average of all those numbers they took from measurements, which is really not a good representation of the pipe.

The most restrictive measurement is going to result in the least amount of flow. The most restrictive measurement flow-wise is highlighted in this page. It's 61 inches by 37 inches.

When you compute the flow capacity of 61 by 37 the flow capacity is 55.383 cubic feet per second.

Essentially instead of the claim of increasing the flow by 20 percent, flow has really only been increased by 8 percent, which is pretty much a 21.8 percent reduction in what was inspected with the liner, if they had lined -- used appropriate size liner instead of a 54-inch liner for the 43 by 68-inch pipe.

So, flow was a consideration. We used that. Therefore, because they didn't achieve that flow, because they didn't conform with ASTM standards, they did not achieve what our expectation was, nor did they achieve what was expected from the plans. They didn't meet the contract requirements.

Then the issue came up. Now, like I said, these issues never came up before. The issue came up about the pay item, about the flow. Then another issue was brought up about shrinkage.

Now I have passed out two papers. They are both from Net Composites. The first one has a graph on it. As you will notice, on the highlights -- as you have noticed on the highlighted area -- American Water presented this to us as justification for shrinkage. Vinyl esters can show shrinkage up to 8 percent.

Now prior to this, in our November 18 meeting we were discussing the issues of the liners. Mr. Cannon stated the topic of this is not the fact that we are wrong. We already know that. The issue is that we have provided you a product that is acceptable for industry standards.

This was sent to us as a justification for industry standards, vinyl esters should show shrinkage of up to 8 percent.

I went on the same Web site, Net Composites. On the same Web site they have a vinyl ester resin that states point one six percent after two hours post curing at 80 degrees centigrade.

So on the same Web site that was chosen to show the industry standard, there are products and industry standards showing shrinkage is really a nonissue.

If you look at Tab No. 21. On Tab 21 this is the In-Situ forms patent that they initially put out in 1977. They actually state, "It is known that

thermosetting resins in general shrink when they cure or are cured. This has affected the cheaper liner form, may come away slightly from the surface which it lines. This has no dilatorius effect because the shrinkage is small."

As stated in the Net Composites, that shrinkage is point one six percent. We had shrinkage from 66 inches, which was expected, to actually in one dimension was 59 inches. More than 8 percent. We had shrinkage on the height. What was expected was 41. It actually went down to 37, which exceeds 8 percent.

It highly exceeds the point one percent of the same Web site where industry standard was determined by American Water.

The industry standard -- there are chemicals out there that you can use that would shrink point one six percent. Therefore, shrinkage really is not a factor.

Then we get down to the fourth category that was brought up. We have the use of Manning's number. One step back on Tab No. 19. Appendix A was submitted by American Water in one of their submittals to us. It actually points out that brass and glass have a Manning's number of point zero zero nine.

Now, there are pictures, the next page, that show portions of the removed liner still in place, that show

wrinkles, that show an uneven surface. They do not show a smooth surface that resembles glass or brass whatsoever.

So, for them to assume that it would be acceptable to use a Manning's number of point zero zero nine, which is essentially perfect flow with no friction, is unacceptable.

If even if you look at this pipe in these pictures, point 01 is probably -- it is probably a stretch to use that as a Manning's.

So in our eyes the issue of a smaller Manning's coefficient is not an argument that can be presented to use because the pipe supplied was not equivalent to glass. It wasn't equivalent to brass.

The reason that American Water used to justify that we need to keep the liner in for flow, for volume, for shrinkage and for a Manning's number, the ultimate reason that the pipe did not fit was because they used a 54-inch liner and they were not -- they did not properly prepare the pipe in accordance with specification 431, which is on Tab 8.

Tab 8 specifically says, on Section 431-3, "Ensure that the host pipe is clean, dry and stable."

The pipe was not clean. It says to remove silt and other debris and dewater the hose pipe.

In the following pictures that we have, I've got I think 14 pictures, it shows multiple areas where resin has actually fused and adhered to debris, silt and pipe clamps that were left in the pipe.

This liner was essentially flowed in through the host pipe with this material intact because it wasn't desilted, wasn't removed. There was silt present. When you move forward, there were bands that were left in the pipe. There were connecting bands left in the pipe.

If you look in the middle on the pages, specifically this one right here, there's actually bedding stone from where the pipe work was being constructed upstream.

Gentlemen, if you will look at this one specifically, those show where bedding rock actually washed down into the host pipe during construction of the concrete pipe upstream. Even that wasn't removed.

I will go back and readdress the issue when I finish my presentation. I would like to go step by step and address their rebuttal to my rebuttal for their claim.

So, essentially the reason that the pipe didn't -- the liner did not work wasn't because of flow, Manning's, shrinkage or any of the other

materials. It was because they did not meet their contract requirements.

ASTM Standard 1216 specifically states the liner will adhere to the host pipe. It specifically states it will be tightly fit. It cannot be tightly fit if the pipe is not desilted, debris is not removed and silt is not removed.

These pictures show that the resin that was initially placed in the liner adhered to the material -- rocks, bands, steel metal plates and silt to create an -- a barrier that actually made a tight fitting fit impossible.

So ultimately the claim was sent to the Department. This Department was sent to the District 5 under Alan Highman.

They reviewed this claim with our district drainage engineer and district construction personnel. They determined this claim should be denied because they did not meet their contractual requirement.

The claim was then forwarded as a second phase to Tallahassee, which was reviewed by Sharon Holmes and two other members that she chose to be on the review committee. They in turn denied based on the fact that Schuller Contractors did not meet the intent of their contract.

Now on Wednesday I received a rebuttal to the Department's rebuttal to American Water's claim. What I would like to do is address each one of these issues, since we haven't really had a chance to discuss these and address each one of these issues. Then I will conclude my presentation.

I would like Pam to talk about the first paragraph that regards section two of her engineering study.

MS. MILLER: That's just reiterating what I said in the very beginning about the fact that when the Department makes -- they take the matrix that I give them and they make their decision. Their decision was made to cure in place as opposed to removing the pipe in that area. They were removing the pipe in the other area.

Both of them were so that they could get back to the original capacity that the pipe had or as close to it. That is basically the first paragraph.

MR. HEFFINGER: The next paragraph I have already discussed, the 20 percent capacity increase was the use of the average liner dimensions.

Instead, the most restricted dimensions should have been used which was 61 by 37. Therefore, only the flow would result and it would be 55.383 cubic feet per

second. Therefore, it would be an increase of only 8 percent.

In reality there was no increase. There was actually a decrease of approximately 22 percent from the design that was initially stated for the appropriate liner to be installed.

I have already talked about the issue of American Water takes issue with Mr. Heffinger's statement that they knew this was incorrect.

Mr. Cannon did say the issue here is not that we are wrong, we know that. The issue is we have supplied a product that is acceptable by industry standards. I have already described that issue.

On the next page there is discussion about the pay item. Pam Miller has discussed the pay item.

There's also as far as the contractor's responsibility to provide the proper liner size, which is true.

Tim Schuller approved the first liner. American Water approved it from their National Liner. National Liner was the material supplier for American Water.

There is really no way that the Department can approve a specific specialized product from a material supplier to a subcontractor to a contractor.

Tim Schuller approved the first one. He did

approve the 56.89-inch round liner. American Water in turn supplied the incorrect 54-inch liner.

So, the reason that we said that they need to have their manufacturer -- the manufacturer is the one that designs the liners for these pipes.

Pam Miller is the design engineer for the Department. She designed the project. It was American Water's responsibility to assure that their material supplier gave them the correct liner.

When they put in the correct liner, the correct liner -- I will get to that in a moment.

The next topic talks about the analysis was applicable, the rebuttal contained reference to liner pinch points. They don't reference pinch points. Pretty much if the pinch points were a problem in the initial liner, they should have been a problem in the second liner.

The first liner actually had the smallest dimension was 59 inches for the width and the height. The smallest dimension was 37.

In the second liner submitted and placed by American Water the smallest dimension was 65 inches. That was only in one spot.

The smallest dimension for the height was only 40 inches. That was only in one spot.

These are dimensions that American Water took themselves. So, if there was a problem, they took dimensions at the same spot. The pinch point is really irrelevant.

If there had been a problem in the first installation, it would have been a problem in the second installation.

We have already discussed the Manning's, point zero zero nine issue.

I have showed you pictures that showed you that the liner is not like a piece of glass. It's contrary. It's exactly the opposite.

The issue with using the appropriate Manning's number is irrelevant.

I state that the pipe was improperly prepared for the -- prior to the first installation. All desilting work was performed. The CIPP liner removal, they left one seal in place. It was obvious by the picturing in Tab 8 that the joint seals were not removed.

If a -- if one joint seal was left if place, it would have resulted in actually two seals with a rubber gasket as shown in these pictures.

Each seal would have had -- it would have been symmetric in form when they pulled out the lining material. It would have been adhered to that lining

material. It would not have been adhered to the back of the liner material, would have been in disarray.

Now, the comment does say remove bands as necessary for installation. In order for you to have a tight fit with a host pipe, you've got to have -- you've got to remove those bands. It doesn't say have a tight fit with the appurtenances inside the pipe. It says have a tight fit with the host pipe.

To leave bands inside without Department approval is contrary to ASTM standards. Therefore, it's not per contract requirements.

The pictures that are shown, it's -- it is claimed that the silt came in through groundwater penetration. The silt, the rocks came in from flow from downstream that would have been a fact, when all of the liner material was pulled out, contrary to the pictures in Tab 8, they are actually fused by the resin to the liner material.

The bands are fused to the resin. The silt is actually fused to the resin. The rock bedding used in the pipe upstream is fused to the resin.

So, the infiltration did not cause -- the result of these pictures is not cause for infiltration or flow. It's caused because it was there initially when the pipe liner was initially placed.

There is references that there was -- the Department did do some grouting out there. The Department did everything they could to try to alleviate the infiltration process and stop the leaks. That's why we have experts to do it because we couldn't figure it out.

Now they make reference to there is build-up of concrete because we tried to fix it. The build-up of concrete left -- resulted in the dimensions that were reduced from 66 -- should have been 66 by 41, and the smallest dimension was 59, smallest dimension was 37.

If that concrete had been built up, it would have been present in the final installation -- the final installed liner.

Like I said before, the smallest dimension in the final installed liner, the smallest dimension for 529 feet was 65 inches. The smallest dimension for 529 feet as far as the height was 40 inches.

There is no build-up. It would have shown in these last measurements. These measurements -- the first measurements were conducted by American Water. The second measurements were conducted by American Water and one of my inspection staff.

If American Water had noticed that they would have been smaller, they would have obviously taken

measurements where it would have shown to be the worst. That did not occur.

They make issue about the equipment charges. That was a generic statement. There may have been some that were concerned with the Blue Book. The DOT department of claims process says they must use Blue Book prices. I agree with Mr. Cannon there was some specialized equipment that they could use that would have to be investigated to determine if anything were to be awarded would need to be investigated.

They take issue with the flow study. The flow study was taken solely on American Water's discretion in order to mitigate their mistake of using the improper liner size and not complying with specification 431-3, properly cleaning and preparing the host pipe.

So, even -- that should not be paid for because it is an attempt at mitigation because they did not perform as the contract required.

I would like to address the 54-inch pipe. American Water submitted a drawing that shows a 54-inch pipe downstream. Yes, there is a 54-inch pipe downstream.

If you look in the roadway standards and specifications, it states specifically in the piping

diagram that flow of a 43 inch by 68-inch pipe is equivalent to the flow of a 54-inch round. The reason for that being the fact that in a 54-inch pipe there is less of a wetted perimeter. There is less friction.

Even if there is a -- now if we lined a 54-inch pipe, there would be some reduction. We did not line the 54-inch pipe that is further downstream.

So the fact that there is a 54-inch pipe downstream is really irrelevant now. The 43 by 68-inch pipe is equivalent in flow to a 54-inch round.

American Water submitted a diagram that shows -- this was the second replacement installation that shows -- in 431 it states in general about grouting procedures. This is where they would have been grouted.

It was determined that this one was not placed adequately. In order to proceed, we negotiated with Tim Schuller to accept this at a reduced rate.

The lining was better, material was better. There was not as many stretch marks or anything.

Even though we could not use a point zero zero nine, there was the potential for this to use a point zero one.

In order to, like you said, to work with contractors -- it is our job to work with contractors.

We are not here to cause material waste or anything as such.

What we did is based on reduced price, I think it was 10.72 percent reduction. That was the actual deduction as far as flow capacity, which was still acceptable. We decided to accept this pipe. This pipe was 62.5 by 40 inches. So, we accepted that pipe.

So, I guess ultimately what we are looking at is the District V people have actually said that the claim had no warrants. Our State maintenance office, along with other State representatives, have said this claim bases no warrant. Tim Schuller signed a good faith estimate that said American Water would supply a 56.89-inch liner. American Water did not supply a 56.89-inch liner. They supplied a 54-inch liner.

They did not properly prepare the host pipe. I think the SAB should come to the conclusion it was in the best interest of the Department to increase the flow by 22 percent and requiring the removal of a liner that did not meet the specifications and was not installed per contract.

CHAIRMAN NUTBROWN: Does the Board have any questions?

MR. PRASAD: Do you want to ask now?

CHAIRMAN NUTBROWN: Go ahead.

MR. CANNON: I do have some rebuttal comments.

CHAIRMAN NUTBROWN: Go ahead and make your rebuttal comments, then we will ask our questions.

MR. CANNON: In the January 23 letter that I provided, I did provide a copy of a memorandum to Christine Webb from Dan Hobblet and Pam Miller.

In item number four --

MR. HEFFINGER: Excuse me, which letter is that?

MR. CANNON: That's the rebuttal letter to yours.

MR. HEFFINGER: Okay.

MR. CANNON: It talks about the existing pipe prior to its lined condition. Let's see. "In consideration given for the pipe and its condition prior to installation, offset pipe sections, bands at joints, grout at joints."

It's pretty much confirming that a lot of those other factors existed in the pipeline prior to us lining it.

Then further on the back of it she did prepare some of her calculations. I have highlighted where, you know, based on the dimensions and areas that we looked at, it was calculated that the liner capacity as installed was 61.79 cubic feet per second.

They confirmed that their opinion of the capacity of the pipe prior to lining it was 51.26 cubic feet per

second.

So, just as, you know, they stated in their initial design document curing pipe lining can increase the capacity of the existing pipe. That's pretty much what they are saying in this document, that we did in fact do that.

In our claim request that was submitted on November 16 under Tab 6, is DOT's standard specification for pipe liners, Section 431.

Under general, in the installation methods, it states, "To seal or grout the annular space between the interior of the host pipe and the exterior of the liner."

So, you know, that would seem to imply that, yes, there is going to be an annular space and grouting is an acceptable method within the FDOT specifications, post liner installation,

Later reference, cured in place, one of the problems I have with DOT's approach is they pick certain sections of the spec they want to use and they don't pick the other sections.

This was a bid plan -- a planned bid project. It wasn't performance based specification. There was no intent to clarify the specifications in the contract document. The only specifications refer back to the

FDOT standard specifications.

On the resin items, I would like to note that they have provided information on the vinyl ester resin. It was a polyester resin that was utilized.

When the whole discussion of shrinkage came up, it was only for the purpose of trying to show that there's other factors that were going on here other than just the liner sizing.

The liner was installed, a 54 inch per plans and specs.

There's other components that add to that annular space, such as resin shrinkage.

If it was really the intent to minimize those factors, the epoxy resin as indicated on this sheet has the lowest amount of shrinkage.

Epoxy resin could have been specified for this project. However, epoxy resins are typically about three times the cost of polyester resins.

There's other things that could have been done to have limited the amount of shrinkage in the annular space, but that was not done.

We did talk about earlier the fact that we did go out post liner installation and perform core samples of the liners. They were inspected with Boyle on site. There was no indication of the debris on the back side

of the liner or any of those concerns.

We have had core samples immediately after the liner, and they were inspected, and none of those issues were raised at that point in time.

As I explained, we had a very active weather season with four hurricanes hitting Florida prior to lining. This liner remained in service with unsealed ends, leaking joints from October into January when the liner was removed. There was a lot of debris and sediment that could build up during that time period.

There was never an issue until after they directed the liner be removed.

Schuller did submit our National Liner information submittals. They specifically requested the Department approve that information. Mike Heffinger told Tim Schuller he refused to approve those documents. Once again, there were never any approved documents that were submitted back to American Water.

The 54 inch in the bid item, in the pay item descriptions, the liner that was installed was per plans and was per specs. They could have clarified specifications, could have put a performance specification in.

If it was really the intent to have a certain requirement on the liner that was installed, and once

again we just -- it is our opinion that the liner that was installed was per plans and specs. It is our opinion that its removal constituted economic waste.

We are requesting that the Arbitration Board review our claim in the amount of approximately $250,000.

MR. HEFFINGER: I would like to rebut some of those statements if possible.

CHAIRMAN NUTBROWN: How about us asking some questions and then we will give you that opportunity. Jack?

MR. NORTON: You read specification 4-3 I believe it was?

MR. HEFFINGER: 431-3?

MR. NORTON: Yes. You neglected to leave out here that -- you said clean and dry and stable?

MR. HEFFINGER: Can I find that?

MR. NORTON: Yes.

MR. HEFFINGER: I'm there.

MR. NORTON: You said remove silt, other debris and dewater the host pipe?

MR. HEFFINGER: Yes.

MR. NORTON: It also says to the satisfaction of the engineer. Was the engineer not satisfied with the cleaning of the pipe prior to them installing the

liner?

MR. HEFFINGER: I guess I was the engineer. I wasn't present at that point. I think it is -- as the subcontractor, it is the responsibility of Tim Schuller to ensure that they perform the inspection.

MR. NORTON: No. It says to the satisfaction of the engineer. It's real specific.

MR. HEFFINGER: It says they are supposed to clean it. Now, I didn't go out there and inspect it physically myself.

MR. NORTON: And you were the inspector on the job?

MR. HEFFINGER: I had an inspector.

MR. NORTON: Did he go into the pipe?

MR. HEFFINGER: I don't think he did.

MR. CANNON: Another factor, on this project there were large voids on the outside of this pipeline. It was not the intent of the documents to correct those deficiencies until post liner installation. They came back and pressure grouted those voids after the fact.

So the one joint seal that was left in place, you know, we had this large void outside this one joint. It wasn't our requirement to seal those. It was the post grouting.

As per the plan notes in the section nine of their document and as stated in our letter, it does say remove bands as necessary.

It was felt, given the extent of the voids on the outside of that pipeline, that it was better to leave that band in place than to have to deal with the large voids on the outside of that joint. That would have been detrimental to the pipe lining.

MR. NELSON: I would like to say something on the inspector. The inspector they had out there, PSI Consultants, I was not there on site but our cleaning crew was. He was there with our equipment when the inspection was done.

MR. CANNON: PSI was out on the second one.

MR. SCHULLER: Stan was the one.

MR. HEFFINGER: Stan Gainey did the second inspection and made sure it was completed. I think they did an excellent job of cleaning the host pipe on the second installation.

MR. SCHULLER: The inspector did see the video of this pipe after it was cleaned.

MR. HARRIS: The first time.

MR. CANNON: It was a beautiful looking liner. The surface condition of the first liner actually looked better than the second liner.

MR. HEFFINGER: If a pipe clamp was left in place, it wouldn't be embedded in multiple pieces on the bottom of the removed pipe liner.

CHAIRMAN NUTBROWN: Wait a minute. Go ahead, Jack.

MR. NORTON: I guess for the contractor, you had National's information that said it was a 43 by 68 elliptical. It was a 56.89 inch. Why then use a 54? I guess I will ask Mr. Schuller or American Water if you want.

MR. CANNON: That is what the plans and specs required to be installed. It was per plans and specs.

MR. HARRIS: Can I say something? I hope this might answer your question. The cured-in-place liner is not rocket science. It is a pretty simple system when you get down to it.

Like anything, it's a repair method. It's not like you dig and put in a brand new product. It is a repair of an existing system. You work within the confines of an existing system in an environment you can partially control but you cannot a hundred percent control.

That is the nature of the beast. Anybody that thinks you are going to go in there and put a liner in a pipe and have it look like a rifle barrel at any one

time is not realistic.

In an arch pipe, you have a shape that is like this, wide around the bottom, arched at the top. We are installing a round, circular tube. You can imagine a balloon being blown up in an area like this. It is just a regular balloon in this elliptical arch-shaped pipe.

As it increases in circumference -- and it is a 54-inch diameter, when it reaches -- starts to reach this diameter, this pipe is 40 some inches at the top.

As it expands, the top portion and the bottom portion of the liner, it hits the bottom and the top of the pipe first. You do get a friction involved in this. This is a felt material. That is like your socks saturated in resin.

It is a woven felt material. It is -- especially in a concrete pipe, there is a lot of friction involved in it.

As that pipe is starting to expand, and it hits the top and the bottom, it's -- the stretch that you would normally associate -- and is common in a cured-in-place product pipe, is inhibited at the top and the bottom.

What you are looking now as it is going out, the portions that are trying to get in here, into the side

areas, is to almost overexpand in order to completely fill an arch pipe like this.

In this particular case, it didn't quite make it to the ends. This is what we are dealing with.

When we are talking about loose fitting and annular fit here and everything, and the spaces we are talking about, we are talking about, for the record, this little drawing here, is the lower haunches of the pipe is what caused all the concern and the problems and is first what was brought to the DOT's attention when they saw this was the lower haunches of the pipe.

This is the area we are discussing. In this type of an installation, in an arched pipe, it is very common in our industry, in our business, that you do end up having a void in this area.

That void can be half inch. That void can be two or three inches depending on the specifics of that given installation because there are things in there that we just cannot control, no matter what you do and how much you do it.

One way of totally eliminating this is now to put in a larger or oversize or more material so that you have more material that can now fold into these corners here as it expands.

You talk about a 56 or a 58 or a 60-inch liner.

The larger you get in diameters like this, when you are filling in an arched pipe, the more chance you have of creating folds in the middle of the pipe where you have so much material it can't expand all the way.

What has happened is in this second liner, we have actual folds in the pipe. I believe one of these pictures that was passed out shows it.

Now you have so much excess material to try to get out into the haunches of the arched pipe that you have actual folds in the pipe like this (indicating).

It is very common for us and our customers -- exactly (indicating on photograph).

MR. HEFFINGER: That's the 54-inch round, isn't it?

MR. HARRIS: He has the right picture. That is a section of the lined pipe there. That is the rib in the existing pipe looking down into the 54 inch.

That is a good example of what is in there now that wasn't in there before. A lot of times -- we install almost a million feet of pipe a year.

MR. HEFFINGER: Can I get a copy of that picture?

CHAIRMAN NUTBROWN: I thought you had one.

MR. CANNON: There's a couple of different versions of it.

MR. HEFFINGER: I just want to see what we are

talking about.

MR. HARRIS: There is no hiding it. Everybody saw it on the finals in the last installation.

The point I'm getting at is we have a lot of customers, and quite often in situations like this we are specifically asked to undersize a pipe so these folds and wrinkles don't wind up in the inverts of the pipe.

We do grant annular spaces. It is quite common in what we do. It is the preference of the owner and the engineer as to what they want.

Theoretically, if you went right by the drawings that were submitted and the total calculations that we did, I will admit here right now to do that, yes, the inside circumference should have been 56 point something inches. I'm looking at this, everybody picking out specs, he is doing it, we are doing it, but we are not reading the paragraph up top.

All the time, for a lot of customers, we will undersize the bags to ensure that the flow line, which is important, and the inside cosmetics -- and again affecting flow. We don't have these wrinkles and these voids.

Mistakes I think are mistakes on both sides here. All right. It would have been a lot easier if it

hadn't been a 54-inch liner on the plans. Regardless of whatever the note said, and refer to this note here, and what we really meant is here, et cetera, at the same time we really should have looked at it and said maybe we should call them, if we had picked it up.

In putting in the job, with the hurricane delays, and there's lots of things we can use as excuses. And I'm not making excuses, I'm stating facts. The point is when the pipe was ordered, when it came time to do it, somebody looked at the plan and it said 54-inch bag.

There wasn't anything that was that odd about it that would trigger and say, oh, that's a mistake, I've got to call somebody.

It's not like it said a 36 inch or we are not putting in a 64 or 72 where somebody might look at it and say that doesn't make any sense. A 54-inch bag in this specific case is not uncommon. It does make sense.

Whatever the intent was of the DOT -- and I'm sure their intent was proper and fine -- it's not something that we would have easily picked up.

If someone had really sat down and went back all through it, we might have said maybe we can squeeze an extra two or three inches in there in a bag. But the

end result that we did -- when we did it exactly by the book the second time, with the DOT inspectors crawling all over us, with people from National Envirotech crawling all over us and everybody going do it this way, do it this way, raise your head on your towers -- we were under complete direction of a bunch of masters.

We have a product in the end that has an annular space and ribs and folds on the inside of the pipe.

That's the first time I heard that the second liner was negotiated at a reduced price. I am totally not aware of that. The only thing Mr. Schuller didn't pay us for the liner installation was the liquidated damages that was charged.

So maybe he just wanted to end the process. That's fine. That's between Mr. Schuller and the DOT.

We weren't aware of that. I probably wouldn't have stood for it other than the fact that I will say this now, in an effort to try to end all of this way back when, on the first liner we offered to reduce our price -- just grout it and reduce the price.

The point we are trying to make is what you had may not have been exactly what you wanted, what your intent was, what you thought you understood that we understood.

The point is that it was a perfectly fine product

that served the purpose, that really the main issue there was to close off the voids, to stop the leaking, to stop the sand from running in the pipe and having the parking lots cave in.

We did increase the flow over the existing pipe that was there, maybe not to extent of the new pipe.

The point is that liner was good looking. It had a smooth invert in it. The point is that we had to spend $250,000 because it was -- to close the inch on the corners of the -- the bottom corners of the arch which to us was totally ridiculous. We did everything we could to try and solve this problem.

I think that's -- the DOT can say whatever else they want to say about it. We are done with our arguments here.

Whatever the Board decides on this is what is going to stand. That's going to be the end of it for us.

They can say whatever they want. We can go back and forth picking out little different pieces of the specifications or whatever. It was not what they wanted. It worked perfectly fine.

You know, we were willing to spend an extra $50,000 to grout it and a pipe deduction. But 250,000 plus dollars to do this, plus all the delays and the

liquidated damages I feel was uncalled for. That is why we are here.

Now the decision is up to you and whatever they want to say. We are done.

CHAIRMAN NUTBROWN: Mark, I have one question. When this liner is installed, how does it come out? Is it folded in half then slid in and expanded?

MR. HARRIS: If you can imagine your sock. It is a tube, your flat tube like your sock. On the outside in this case it has a polyurethane coating. The inside is layered felt in order to get up to the thickness of the wall.

Now it is coming out flat, with the intent to open it up like this. Probably the easiest way to do it is to do this (indicating).

Liner, felt, you pump your resin in here. You saturate the inside of the felt so that now your felt is actually just a medium to hold the resin.

Then you twist the ends, invert it basically inside out. Then it goes down in the pipe like this with a head of water.

So it comes out where the PU coating is now on the inside of the pipe. The saturated felt is on the outside. That is the inversion process for cured-in-place pipe.

CHAIRMAN NUTBROWN: Okay.

MR. HEFFINGER: Did his question get answered before I proceed?

CHAIRMAN NUTBROWN: Did you get an answer to y what you wanted?

MR. NORTON: My question was on the satisfaction of the engineer. I guess I got an answer to that.

I've got one more. Specification 431-4.1. You said that the grouting was not normally done on these things, that that spec was a general spec for all types of pipe?

MR. HEFFINGER: Yes.

MR. NORTON: If that is the case, and it wasn't to apply to this pipe, why didn't you remove it from the specifications?

MR. HEFFINGER: It's a general spec because it actually -- it's the installation method. I didn't take out 431. That's included in the entire pipe liner section.

MR. NORTON: I agree, but if this doesn't apply to the type of pipe you put in, why didn't you take that particular section out of the specification?

MR. HEFFINGER: I think as they stated before, there was some irregularities on the ends that they may need to grout to actually make a smooth flow, to make

their pipe correct.

I would like to say that this is a general specification. When you do slip lining, they put those in, you grout slip liners --

MR. NORTON: We are not talking about slip liners. We are talking about this particular type of pipe. You have said in your presentation that grouting was not proper.

MR. HEFFINGER: Not expected --

MR. NORTON: Not expected.

MR. HEFFINGER: -- in a cured-in-place pipe.

MR. NORTON: If it is not expected, why leave that section in the specification?

MR. HEFFINGER: In a maintenance contract you put the whole specification in there. That's all I can tell you there.

CHAIRMAN NUTBROWN: Jack, do you have anything else?

MR. HEFFINGER: I would like to say a few things when you all are finished.

MR. CANNON: We do have some CDs in the car. We filmed the whole wet-out installation. I could go get those if you think it would be helpful to look at them. It would give you a better idea of the process.

CHAIRMAN NUTBROWN: Might help. When we are

through.

MR. HARRIS: Make sure you give one to the DOT.

MR. NORTON: You talked about the intent of the specifications being to increase the flow of that originally expected.

MR. HEFFINGER: Yes.

MR. NORTON: Where does it say in the specification that is what you are going to do?

MR. HEFFINGER: It doesn't. That was part of the process where that method was chosen, that it more closely brought the final product to the design flow volume.

MR. NORTON: At one point you went looking for all the design calculations on the original pipe and you could never find them is my understanding.

MR. CANNON: Our consultant PEC went downtown and looked for them.

MR. NORTON: I don't know how old that pipe is --

MR. HEFFINGER: It's 1977.

MR. NORTON: Would the specifications for that pipe at that time have had a higher Manning's or would there have been a difference in the design pipe at that time for flow?

MS. MILLER: Unless the DOT ever changed their Manning's, their design manuals always said point 012.

MR. CANNON: We provided in Tab 11 in our initial claim toward the back a flow study that was done by In-Situ Quorum. It was actually Sverdrup Corporation who did this. That was on an installed liner in the field. It's titled "Research Demonstrates That The In-Situ Form Process Increases Flow Capacity In Gravity Flow Sewers."

CHAIRMAN NUTBROWN: Which tab?

MR. CANNON: It's Tab 11 in our claim document. It's right before the flow calculation for PEC.

This was conducted by ADS and Sverdrup Corporation. The In-Situ Quorum, the inventor of the process, they went out in the field, did it on existing concrete in the field, did it on existing installed cured-in-place liners.

Basically the results of their flow studies comparing existing concrete and cured in place compares an average for the cured in place of point zero one zero Manning, friction coefficient, and that of clay and concrete to point zero one five.

This is not design information from a manual or anything else. This is actual in the field studies.

It was always DOT's impression that the storm water drainage manual specifies you have to use a point zero one two Manning for concrete pipe. That is the

Manning that will be used. We have no leeway to use any other Manning friction coefficients.

That's why in my letter -- I didn't really look at any one value. I looked at the range. I thought that was more representative to say there's a bunch of different reported values from low to high, so let's look at the range of the values.

I didn't want to sit there and say any one value was right or wrong, if you did compare, you know, the range of those values over those full ranges. I think I prepared in my letter. It's in the rebuttal document, how those values were -- would come out. They are very comparable.

Depending on which Manning value you used -- it's on page two of the January 23 letter. We have reported Manning values for cured in place of point zero zero nine which is lightly cleaned and in the In-Situ Quorum document up to point zero point two.

You can see the flow based on Boyle's calculations would have been anywhere from 75.52 cubic feet per second, using the lower range, and 56.4 if you use the higher of the range.

You take the same values. I'm looking at the installed concrete, the existing concrete pipe.

The point 012 DOT drainage manual value, the

72.62 cubic feet per second is all the way up to the known condition of the pipe with the offset joints and the joint seals of 51.26.

In comparison, the installed liner which was removed versus -- the range of, you know, the flows, all the Manning reported values are very consistent.

I wasn't about to, you know, try to figure out which one is the best one but show you the ranges are very similar.

MR. NORTON: Okay.

MR. HEFFINGER: Speaking of the Manning's flow, if you can turn to Tab 18. I did a spread sheet for flow, which is similar to what American Water did with their sheet. You will see where it says using the designs, we did. It's highlighted at 55.383.

Even if we used the Manning of point zero one, it's still roughly 61 cubic feet per second, which is unacceptable.

Even if we used Manning of point zero zero nine, which is zero friction and perfect, it's still -- still doesn't meet.

So, there was an effort made to consider the acceptance of the first initial installation. Because we couldn't get to -- 60 is just unacceptable.

MR. CANNON: It doesn't meet their unexplained

intent which was never clarified in the documents. I have gone over Mr. Harris' recommendation.

MR. PRASAD: I have some questions.

CHAIRMAN NUTBROWN: Let Mr. Heffinger finish with his.

MR. HEFFINGER: I want to address the installation requirements. I think we addressed the general. Under the grouting, that's a general statement that encompasses not only slip lining but inverting. It encompassing pushing, pulling, spiraling, paneling, coating, bursting.

Like I said before, a cured-in-place liner it is not assumed there will be any annular space. However, as your question asked before, we left that in there.

The sediment pile-up that was referenced before, the pictures in section eight clearly document that pipe was not clean and the bands were not removed. The bedrock was not removed.

So I just want to state for the record that pipe --

MR. NORTON: Didn't you have an inspector watch the videos?

MR. HEFFINGER: The video was given after the fact when it was put in. It was provided at a later date.

MR. NORTON: Was it a video of the pipe as cleaned?

MR. HEFFINGER: I can't recall if we have that video or not. I would like to think that we did.

MR. HARRIS: If the video is asking the question, one of you guys needs to answer it. Who looked at the pipe on the first time cleaning prior to the liner installation?

MR. SCHULLER: Was an inspector on the site all the time cleaning the pipe?

MR. NORTON: He watched the video after the pipe was cleaned?

MR. SCHULLER: He didn't go in the pipe. He did shine lights as we were cleaning. It was an extensive cleaning process.

MR. HEFFINGER: The second one for sure. I can attest my inspector was there. It took three or four days to actually prepare the host pipe. I know Mark was saying there was a one-inch gap. The largest gap in there, the smallest dimension was 59 inches. That left seven inches of gap which is a three and a half inch space gap.

It is very significant in our eyes. I think when we are looking at control factors, when they put in the second liner, my inspectors were there. My inspectors

are observers. They are not -- Tim Schuller is the contractor. He directs his prime. The manufacturers did come down. During the second phase, whatever they did different, that liner came out almost perfect.

If they had done the same thing the first time using the correct liner size, cleaning the host pipe adequately, the same result would have occurred.

MR. HARRIS: I know I said I wouldn't say anything. I will reiterate we think the first liner was better. That it would be better in the long term because the inside conditions of the pipe were better. We weren't happy with the second liner, but we did as we were directed.

MR. HEFFINGER: You realize I'm 180 degrees from that viewpoint. These are the same pictures. This is not a picture of the second liner installed.

MR. PRASAD: Let me ask American Water a second You did the preliminary work for Boyle Engineering. You sent information back and forth. At the time of bid did you know it was the same project you were bidding?

MR. HARRIS: No, we didn't. I will take that back. Who did the calculations?

MR. ROBERTSON: I did.

MR. HARRIS: I will ask you both. Did -- when

you got the information for the arched pipe and the size dimension and the water depth, did anybody specify this was for a DOT project number so-and-so at Grove Apartments? Did they do that to you?

MR. ROBERTSON: I don't recall they named the project. We talked on the phone.

MS. MILLER: I talked to Gordon Anthony, isn't that his name?

MR. HARRIS: He might not have transferred the information.

MS. MILLER: It was always told it was the Grove Park Apartments. It's -- the bands were described, all the methods that DOT had used to try --

MR. HARRIS: How long before the project was that?

MS. MILLER: It was just a couple of months.

MR. HARRIS: A couple of months. Do you know how many liner calculations we do on a daily basis?

MR. PRASAD: I am the one asking the question. Let me ask the question and you can answer.

MR. HARRIS: I apologize.

MR. PRASAD: My question was were you aware it was the Grove Park Apartments. You don't think so. She thinks she told somebody.

At the time of bid, when you have them coming to

you, and they say you know I sent something on Grove Park. It's 56.89 and DOT is asking 54. Wouldn't you think you would knock on the door and ask DOT, are you sure you want 54-inch liner or you want 56.89?

MR. HARRIS: You would hope that would happen. Like I said, we put in ten offices, a million feet of pipe --

MR. PRASAD: That's a good excuse. We have a thousand projects, too.

MR. HARRIS: I would hope it would have happened. Obviously the connection was not made.

MR. CANNON: I would like to point out that I did not become involved in the project until after the liners were installed. I had no prior involvement in it.

Mr. Nelson our manager has access to our software programs. He can run the design calculations. We make it available to most of our employees based on the information that is provided.

After I became involved in the project, I became very concerned with the design because we design for ground water buckling forces. This project had post pressure grouting of the voids around the liner and was not designed for the post grouting pressure conditions. The existing 25 and a half millimeter thick liner that

was specified was marginally adequate to support the post grouting pressure conditions that were specified.

Throughout the project I raised concerns because I think Tim Schuller pointed out at one time I asked for what grouting pressure are you going to grout with, and he said 50 psi. And I said, whoa, and had they proceeded to grout with that kind of pressure they would have buckled this liner.

With those comments provided post, they did a very good job of very carefully grouting the second liner to avoid the possibility of buckling.

MR. PRASAD: The other --

MS. MILLER: I can answer your question earlier. In their submittal, if you go to Tab 2 it is a transmittal from me to Gordon Anthony specifically citing the Grove Park Apartments job prior to the contract documents being prepared along with the geotechnical investigation which clearly talks about what the project is. It is called the elliptical pipe replacement at Grove Park Apartments.

Yes, they did know about the project.

MR. PRASAD: When you submitted -- I saw the submittal. It was stamped. It also said 56.89 inches. I am assuming whoever signed the documents thumbed through it and saw that 56.89 inches, and you get a bid

tab for 54 inches. Shouldn't that have triggered a question?

MR. CANNON: As Mr. Harris stated previously, it's not uncommon to undersize these liners. You try to improve the interior finish of the liners. That is not necessarily atypical. I would concur it is something that probably should have been raised at that point.

MR. PRASAD: The grouting of the annular spaces. You said it is normal to undersize the pipe. Even in the second installation did they have to grout the annular spaces?

MR. HEFFINGER: No.

MR. PRASAD: The specs allow for incidental grouting? You can't have a 50-inch liner in there and grout for four inches on either side, right? There is an optimal size for an elliptical pipe. That entails some amount of grouting.

MR. CANNON: The DOT specs actually say seal the ends, which we did, or grout in accordance with the specs.

If you don't grout the voids, what is going to happen is we know we have known leaking joints. Over time you are going to, with infiltration and exfiltration you are going to get movement of ground

water and soil regardless of however big that gap is. You may see some additional settlement above the lined pipeline to the extent those voids exist if they are not grouted.

MR. PRASAD: You brought up the issue about economic waste. Did I hear correctly in the first installation one of the inspectors saw something and said this doesn't look right?

MR. HEFFINGER: Yes.

MR. PRASAD: American Water said they will continue to do that at their own risk?

MR. HEFFINGER: Well, American Water did. We talked to Tim Schuller, who discussed the issue with American Water. It's not my place to direct a subcontractor. I deal directly with the prime. He let Mr. Schuller know. He talked to them, said they are going to proceed and we will meet Monday and discuss the issue.

MR. PRASAD: Between that time Monday to Monday what happened?

MR. HEFFINGER: They went through their process.

MR. PRASAD: Finished the whole process?

MR. HEFFINGER: Yes.

MR. HARRIS: At what point was the liner in the ground when they told us to stop?

MR. NELSON: I don't remember what time it was. Maybe lunch or one o'clock, I got a phone call to be out on the job site. I go out. There is an inspector from DOT, Michael O'Riley directing me to remove the liner because there is an annular space at the tail end of the pipe.

I walked down there with him to tell him the liner has shifted a little bit. It's a big liner. Water is going to go where it wants to go.

The liner has moved a little bit. It dropped off. We have a little bit bigger space over here than here. He says you have to remove it.

I said, Mike, we've been cooking. The water is hot. This is a thermal reaction resin. There's no way we can get this out right now.

MR. HARRIS: The liner was already inverted?

MR. ROBERTSON: Yes.

MR. HARRIS: We had already started to heat the water. The resin, when we do this, and fill it with water during this inversion process, you heat the water. That is what starts to make the resin hard. Once you start putting heat to the water, there's already a reaction started.

If we had started to pull that liner out and maybe got it halfway pulled out and that resin kicked,

then what we would have had would be a solid plug of resin in the pipe.

MR. PRASAD: You are saying you could not have stopped?

MR. HARRIS: Not at that point in time.

MR. PRASAD: What do the specs say about designing the size of the liner? You both have said the pay item says it is 54 inches, up to the contractor to design -- where does it say that?

MR. HEFFINGER: If I'm not mistaken, Florida 948 on pretty much Tab No. 4 it gives you the specs for a cured-in-place pipe liner. It says a cured-in-place pipe liner shall be contiguous resin flexible tubing and meet ASTM 58.13 and 1216.

And 1216 is in that tab, states finished pipe fitting, pipe is found, takes the shape and fits tightly in the pipe.

That is where we gave the contractor direction to line that pipe. He contracted a sub who used National Liner to determine the size that would be appropriate to line a 43-inch pipe given the required thickness of 24.4 millimeters.

So, ASTM gives you the direction that you have to make a tight fitting.

National Liner, American Water would -- we

discussed that with their material suppliers and their design engineer. They would format the correct size.

That's why we didn't specify a specific size. And maybe Pam can allude to the fact that different materials may expand at a different rate. One might need a 53-inch liner to expand to reach an elliptical 56.89 equivalent. Another material might need other things.

ASTM by saying that it is tight fitting takes the shape of the host pipe, is dictating the dimension that needs to be supplied by the material.

MR. CANNON: If we had grouted it in accordance with the same specs, it would have been tight fitting. It was tight fitting at some sections, other sections it was not.

I would like to reiterate this was not a design built project, not a performance specification project. It was a plan and inspect-type project. The plans clearly showed the 54 inch.

Install the 54 inch, process it in accordance with ASTM 12.16. I believe we did that. We met the intent of the contract.

MR. HEFFINGER: I would like to state that the plans specifically state that is a pay item with the liner. It shows it numerous places, the 43 by 68-inch

pipe to be lined. If the host pipe would have been cleaned and as dictated by 431-3 they would have achieved the result of the second liner.

MR. PRASAD: That's all I have.

CHAIRMAN NUTBROWN: Do you have anything else?

MR. NORTON: No.

CHAIRMAN NUTBROWN: Do you have anything to add?

MR. HARRIS: We are done.

CHAIRMAN NUTBROWN: Okay. Mr. Heffinger?

MR. HEFFINGER: I think that's it.

CHAIRMAN NUTBROWN: The hearing is closed. The Board will issue an order approximately one month after receiving the transcript for the hearing. We will proceed from there.

Gentlemen, thank you for your time.

(Whereupon, the deposition was concluded at 2:45 p.m.)

CERTIFICATE OF REPORTER

STATE OF FLORIDA)

COUNTY OF LEON)

I, CATHERINE WILKINSON, Court Reporter, do hereby certify that I was authorized to and did stenographically report the foregoing proceedings; and that the transcript is a true record of the testimony given.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel in connection with the action, nor am I financially interested in the action.

Dated this _____ day of January, 2007.

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