Editor's note: Below is a letter from Davenport's own Bill Ashton of Ashton Engineering, detailing his concerns, relative to flooding, with the Isle of Capri's (IOC's) proposal for building a casino hotel on downtown Davenport's riverfront. The letter is addressed to Davenport City Engineer Pat McGrath. Ashton is considered a preeminent engineering authority for activities on Davenport's Mississippi River.

Ashton has vigilantly monitored the proposal from an engineering perspective, at his own considerable expense, and candidly shared his analysis with city, state, and Army Corps of Engineers officials, as well as with Stanley Engineering, the firm representing IOC. To date, there has been no response from either the city or IOC, as required by the Corps of Engineers relative to its public-comment process.

Thank God for Bill Ashton and his colleagues for their civic courage and willingness to confront the issue with such superior professionalism and forthrightness. Ashton's concerns are well-researched, and supported with thorough documentation. Davenport businesses and residents upstream of IOC's proposed project site have reason to be not only concerned, but also alarmed that this project is even being entertained. The potential financial damage/property destruction due to increased flooding for properties upstream of this location is unquantifiable.

All those affected by this potential travesty must immediately join in one loud and clear voice to the city to cease and desist. Make no mistake: The city is still in green-light mode, operating on a flawed hydraulic study from IOC. The consequences to the public in terms of lawsuits, lost business, damaged property, and perhaps the financial ruin of Davenport's municipality cannot be stressed enough. Please let aldermen, the mayor, city administrator, and the city's corporate counsel know your thoughts. It couldn't hurt to share the same with our state representatives, the governor, Vision Iowa officials, and Iowa's Department of Natural Resources. Time is of the essence because the City of Davenport is in the process of approving the necessary floodplain construction permit for construction to begin.

13 March 2006

Per directive from the meeting at the Corps of Engineers offices in the Clock Tower on 1 March 2006, I have reviewed the Stanley Consultants Inc. (SCI) “Floodplain Development Permit/Application, Isle of Capri Casinos, Inc. (IOC) for the Rhythm City Casino/Hotel” proposed for construction on the Davenport riverfront between Perry and Brady streets. It is noted for the record that this analysis is dated October 2005, but at the 1 March 2006 meeting the majority of the attendees were not aware of its existence nor had I ever seen it. In addition, I have reviewed the letter from Michael Knott, Principal Scientist at SCI, dated 17 February 2006, to Mr. McGrath which I understand to be SCI’s rebuttal of my written concerns provided in December 2005 in response to the request for public comment of the Corps of Engineers permit application currently being reviewed. It is noted that there has been no response to other equally critical concerns raised by the public pertinent to life safety, ADA, 50-foot unrestricted setback of the hotel, alternatives, etc., even though we are now approximately 90 days after the closing of the 30-day public-comment period.

Before I summarize our detailed review, let me state that we conclude that SCI’s work contains errors and is based upon inappropriate river profiles. In order to reach this conclusion, I sought the assistance of the following knowledgeable hydraulic engineers:

1. My twin brother, Dr. George D. Ashton, who has a Ph.D. in hydraulics from the Iowa Hydraulic Institute, was the former Chief Scientist at the Corps of Engineers Cold Regions Laboratory, and is recognized worldwide for his hydraulic expertise. George is familiar with Davenport and has previously studied this reach of the Mississippi River. Dr. Ashton’s technical review of the same documents is attached as Exhibit A.

2. Mr. S. K. Nanda, Chief of the Hydraulics Branch, Rock Island District Corps of Engineers. Mr. Nanda is always extremely helpful in response to my inquiries and in carefully explaining the many Mississippi River flood profiles. Mr. Nanda holds an advanced degree from the Iowa Hydraulics Institute and has worked many years on this reach of the Mississippi River.

3. My staff Hydraulic Engineer, Mr. John Schliekelman. Mr. Schliekelman worked for the Corps of Engineers and assisted in the development of pertinent river profiles. In the past, Mr. Schliekelman has prepared flood forecasts that have been relied upon by the City of Davenport and private businesses, such as Iowa American Water Company. Mr. Schliekelman has 40 years of engineering experience. In the past SCI has requested his assistance on hydraulic engineering analysis. Mr. Schliekelman’s memorandum to me is enclosed as Exhibit B.

SCI October 2005 Analysis

First let us examine the October 2005 SCI analysis. This analysis I assume was used by Mr. William Cappuccio, State of Iowa Water Section, when they concluded that the State had no objection.

The SCI analysis is based upon a river profile that results when 45,000 cubic feet per second (cfs) is removed from the main channel and allowed to flow down Sylvan Slough. Dr. Ashton questioned this routing since water has never been allowed to go down the slough in a major flood event. Use of this profile with 45,000 cfs going down the slough and 245,000 cfs going

through Dam No. 15 results in lower water stages at the points being analyzed.

Mr. Nanda informs me that the correct 100-year river profile to use for design at Davenport is the river profile that is published on the Corps Web site and which has been approved by all agencies.

The profile used by SCI results in a river stage at the hotel which is approximately 0.5 foot lower than results when using the correct river profile agreed to by the Corps of Engineers and FEMA for design at Davenport. It is my professional conclusion that the permit application shows the hotel floor at Elevation 566, which is 0.5 foot lower than that allowed by FEMA regulations.

It is my professional opinion that the permit application to the Corps of Engineers is so full of errors that as a minimum it should be rejected, the application corrected, and the process started over again. In addition, the State of Iowa approval of construction in the flood plain should be withdrawn since by copy of this letter, they are being informed that the October 2005 SCI analysis is based upon an inappropriate flood profile.

SCI Letter 17 February 2006

Now let us examine the SCI letter dated 17 February 2006. In order to ensure everyone understands the water that is of concern and which I contend will result in successful litigation against the City of Davenport and the hotel owners if the project is built as proposed, let me establish a basic understanding of the river as it rises to the flood levels of interest. This reach of river is complex with Dam No. 15 at the bottom of the original Rock Island Rapids.

As the flow increases toward flood stage the rollers in the dam are raised keeping the pool elevations constant even though the downstream tailwater rises. At flood stage (15 feet), the water creeps across LeClaire Park. The rollers are raised above the river surface and essentially the river returns to its original wild uncontrolled state flowing down a very steep profile.

Once the roller gates are raised, the river surface both upstream and downstream of the dam rises as the flood flow increases. This flow is confined above the dam by the seawall upstream of the dam. The surface profile shows what we call a headloss – or drop in surface elevation caused by the concrete dam piers that remain in the river obstructing the flow.

At approximately a 17.5 foot stage the water in LeClaire Park starts to flow backwards into the railroad viaduct and soon the pumps are overwhelmed and the viaduct is flooded and River Drive is closed to traffic. The water levels landward of the seawall are at the same level as the river level at the Dock restaurant even though the water in the river upstream of Dam No. 15 is higher. The seawall, as an integral part of Dam No. 15 project, does its job of confining the higher river. This water that flows backwards around the dam near the Dock restaurant even shows up in East Davenport as it backs up the Government interceptor sewer and floods the Mound Street-River Drive intersection. The water level in this intersection is at the level of the river at the Dock restaurant even though the water in the river at the Lindsay Park Marina is

much higher.

As the flood increases the river rises and the river surface upstream of the dam rises above the top of the seawall and water from the main channel spills over the seawall. This water finds its way back to the main channel downstream of the dam by flowing out over the parking lots and LeClaire Park or down River Drive and out across Centennial Park. Ashton was engaged by the city (Hargreaves) and prepared a certified memorandum to guide construction on the new Centennial Park so there would not be increased flood stages caused by blocking the flow across Centennial Park. This water that the city was concerned about at Centennial Park is the same water that IOC wants to block by construction of a floodwall.

It is this water flowing over the seawall upstream of Dam No. 15 that is in dispute. SCI calculates the volume to be 668 cfs flowing over the wall in the first 6,500 feet above the dam. Dr. Ashton computes 2,500 cfs in the first 3,000 feet, and Mr. Schliekelman computes approximately 3,500 cfs. In fact, Mr. Schliekelman computes a possible 8,000 cfs of total flow over the wall that has the potential to flow down River Drive and across the riverfront. In addition, I need to point out that any rainfall on the bluffs in East Davenport must also exit down this River Drive channel. Furthermore, the flow over the wall dramatically increases at higher flood events.

Here is where SCI is making their error. Everyone agrees the Mississippi River Main Channel profile shows a water surface elevation that is 0.05 foot above the seawall at Dam No. 15. SCI uses 0.1 foot of water flowing over the entire length of seawall in their calculations. A plot of the river profile and top of wall elevation clearly shows the steep natural river surface is rising rapidly while the seawall is essentially level. The water surface in the river is approximately 0.75 foot above the seawall at the Davenport Sailing Club. SCI ignores the water above 0.1 foot of depth, but the only place this water can go is over the wall.

SCI assumes that the water landward of the wall has risen so that there is not real spillage over the wall. Mr. Schliekelman shows that the SCI assumption is not valid. Dr. Ashton also refutes this SCI assumption repeatedly. I have seen flood flows spilling over the wall and know from personal observation that SCI's assumed conditions are incorrect.

There are other theoretical problems with the SCI analysis as described in Dr. Ashton's letter to me, but it is not necessary to understand these theoretical issues to get a clear understanding that SCI's water-volume calculation is in error.

A significant volume of water will spill over the seawall upstream of Dam No. 15. Furthermore, this water must go back to the river. When you block the exit with a hotel, parking garage, and floodwall, it's analogous to building a dam across the River Drive channel and you get higher water levels upstream. If the fences become clogged between the parking garage and the Dam abutment, there would be no exit and the stages could equal or exceed the main channel profile. In the 1 March 2006 meeting SCI now states that they will devise a system to enable the fences to be removed. You should be asking how they are proposing to remove the floodwall blocking the River Drive flow.

It is my professional opinion that owners of property upstream of the hotel/floodwall will litigate against the city and the hotel and most likely will win huge settlements for increased flood damage, loss of business, and everything else attorneys can associate with these higher flood stages.

I conclude that the SCI analysis dated October 2005 is based upon an inappropriate river profile and is therefore incorrect. I also conclude that the SCI letter dated 17 February 2006 is in error. I ask you not to issue a flood plain construction permit.

William D. Ashton
Professional Engineer