

## Brian Lee

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**From:** Brian Lee <brianlee@suddenlink.net>  
**Sent:** Monday, September 14, 2015 5:11 AM  
**To:** Brian Office  
**Subject:** Fwd: parking lot  
**Attachments:** FullSizeRender.jpg

Brian Lee, Sr.  
903-466-6666

----- Original Message -----

Subject: parking lot  
From: daniel Apperson <[daniel@4thosewhoknow.com](mailto:daniel@4thosewhoknow.com)>  
To: Brian Lee <[brianlee@suddenlink.net](mailto:brianlee@suddenlink.net)>  
CC:

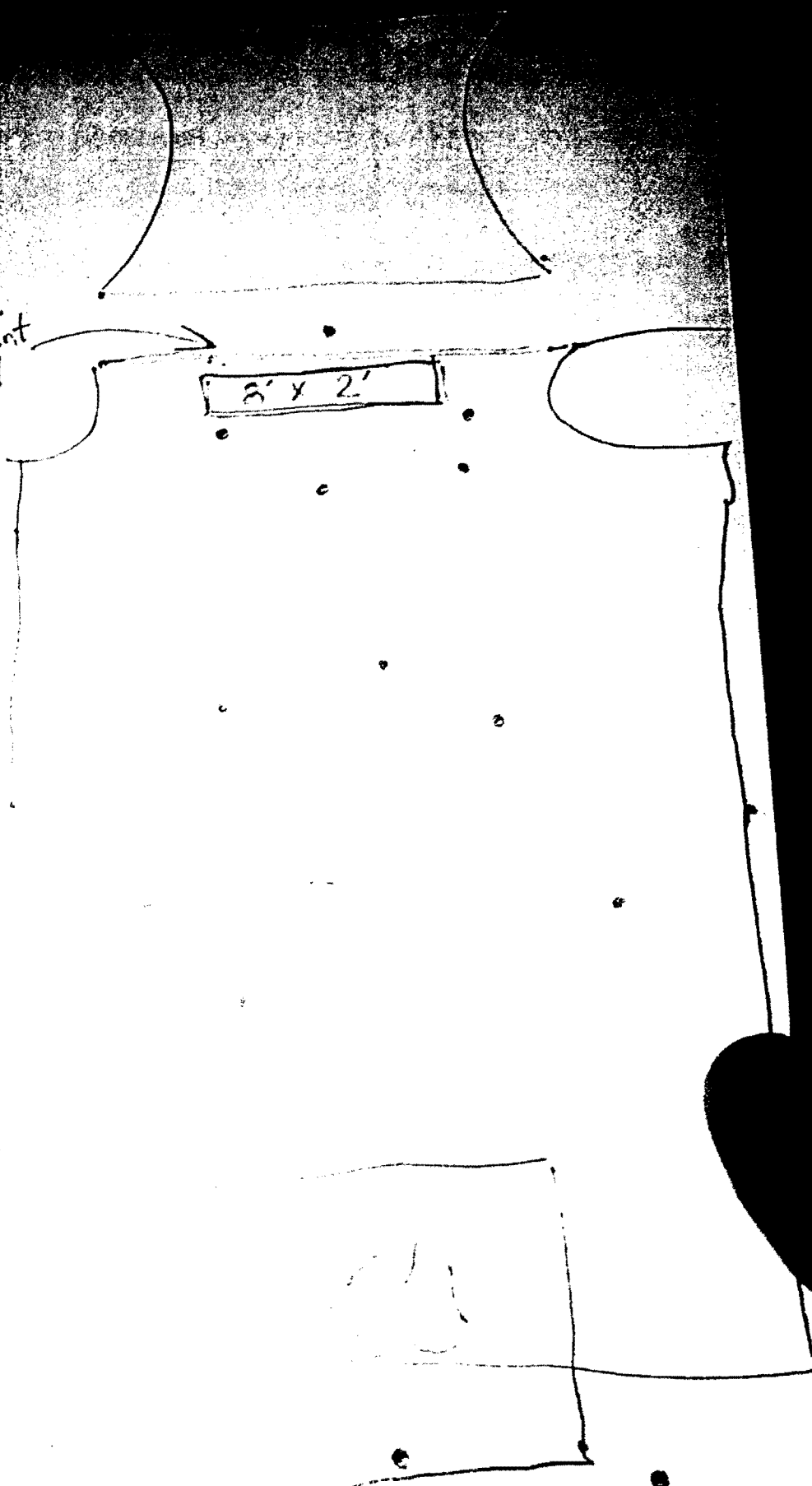
Brian,

To follow up on your question regarding the size of the areas with sub grade separation. two areas of concern are located at the south most approach at the degraded expansion joint. This is an area aproxamantly 2 feet either side of the expansion joint and eight to fifteen feet wide. This area showed as much as 4 to 6 inches of separation and to the north up to within ten to twelve ft north of the hole that is coned off. This area is about ten by ten either side of the hole at 5 to 6 inches and extending out further to twenty feet 2 to 3 inches down to 1 inch at 25 ft. The first area would have 60 to 80 sf of severe separation and another sixty to eighty ft of minor separation. The second area has 150 to 200 sf of severe separation and another 100 sf of minor separation. The flowable fill material is designed to extend beyond the areas cut out and close the separation between sub grade and the underside of the paving. A stinger vibrator and flowable fill at 7 to 9 inch slump should allow the material to flow to 25 to 30 ft. Brian let me know if you need me to do anything else.

Exp Joint  
#1

8' x 2'

Pg 1



## Mt Pleasant parking lot

August 29, 2015

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Walk, field measure, observe, document, and recommend action, for Parking lot bordered by hwy 271 1<sup>st</sup> Street w Alabama and Van Buran in Mount Pleasant Texas See enclosed photo.

At the request of the Honorable Brian Lee pleased find the documentation for the project above.

### Observation

The parking lot is approximately 39,000 square feet young to mid life in appearance with three approaches and two sets of tree islands. There is a section in need of immediate repair \* several of the expansion joint's water proofing has failed to a point that it allows surface water to migrate under the paving surface. Overall the existing hot pour joint seal is intact at the saw cuts. 27 small cores were made and measured to see the extent of any separation from the subgrade and measure overall pavement thickness.

This report addresses the extent of subgrade migration and evacuation around the area visually in need of repair and the potential causes that led to the failure.

### Conclusion

It is possible that irrigation pipes have leaked under the paving in the past resulting in initial subgrade migration down hill to the south approach on Alabama. The failure of several expansion joint's water proofing methods has continued this process by allowing surface water from heavy late spring and early summer rains to be introduced under the paving in larger volumes. Once the small area opened and even larger volumes of surface runoff were introduced the migration and evacuation process of the subgrade escalated. Observed on August 29<sup>th</sup> separation of as much as 10 inches in some areas, especially down grade from the "mini sink hole" observed. Note my first observation on the 1<sup>st</sup> of August at this area showed increased separation levels of up to 13- 15 inches, and a greater area overall of separation. Than that observed on the 29<sup>th</sup>. This is likely due to swelling of the subgrade these areas from the plasticity increase of the soil with the high volume of water introduced through expansion joints, cracks opening, and eventual hole that opened. Subgrade material in the form of sand was observed at the most southern approach "boiling up through the expansion joint that has experienced water proofing failure. As the summers heat and lack of rain has allowed the subgrade to shrink back, the paving is left in the most extreme places suspended above the subgrade by the combination of migration/evacuation and the swelling/shrinking combined. Unfortunately the paving does not follow the shrinking subgrade/evacuation all the way and therefore does not rest on it in some areas.

**Mt Pleasant parking lot**

**August 29, 2015**

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Depending on this separation, traffic weight causes the paving to flex up and down introducing and grinding cracks open and escalated overall failure.

**Suggested methods for repair and correction**

1. Irrigation lines under the paving should be checked for leaks especially if areas show high moisture levels after they are turned off. These areas would reveal themselves where pressure from irrigation water would boil up through cracks. Water pressure levels when the irrigation is on would also be decreased behind a leak. Seek an irrigation professional for work in the area.
2. Expansion joints that show separation of water proofing material from the concrete should be removed and replaced. Note, not all of the expansion joints show separation now, however with age periodical observation on at least 6-12 month intervals is recommended.
3. An area located at southern most approach 8ft X 2ft should be removed and replaced with 3000 psi concrete doweled with #3 rebar drilled 6-8 inches into existing concrete and 12 inch minimum left into new concrete, these should be placed on 12 inch centers.
4. In addition an area 10ft X 10ft minimum around existing failed area should be removed and replaced utilizing the same procedure as above. This area should also include #3 rebar on 12 inch centers each way. Note this area should be increased according to subgrade separation observed at the perimeter. A mix designed with reduced large aggregate and increased sand should be placed at a high slump and allowed to flow under and replace void in additional areas adjacent to the removed concrete to be replaced. This procedure should be used for both areas to be replaced and a surface vibrator or sting vibrator, should be used to increase the flow potential of the concrete used to replace any voids beyond that of the area removed. Follow with replacement concrete mix design for pavement replacement and do not use any material other than the two mix designs. No sand shall be used to decrease depth of paving.

End of report

Daniel Apperson

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