

## **STAFF REPORT**

### **4006 STONE BROOKE PROPERTY OWNER CONCERNS**

**AUGUST 12, 2014**

On July 8, 2014, City Council referred to staff a request to investigate the issues related to storm water in Stone Brooke Subdivision as outlined in a letter from Dan Carter, resident of 4006 Stone Brooke Road (Attachment A).

#### **PREVIOUS AREA STUDY:**

In January 2013, staff presented a report to City Council in response to a request from Monte Parish, the Stone Brooke Home Owner's Association president at that time, about a settlement issue near an existing storm sewer pipe between 4002 and 1506 Stone Brooke Road. As a part of the investigation process for the report, the City had hired Bolton & Menk to review the drainage channel between the Kinyon-Clark Subdivision, The Reserve Subdivision, and Stone Brooke Subdivision. Bolton & Menk's final report is attached as Attachment B. An overall view of the area is shown in Attachment C.

During the Bolton and Menk study, Mr. Tedesco (4002 Stone Brooke Road) and his neighbor Mr. Mumm (1506 Stone Brooke Road) were asked if there had been property damage in the area due to flooding. They replied that they were not aware of any damage that occurred either in 2008 or 2010, the last major flooding events in the City. It was found that the settlement issue was not related to any stormwater created problem, but instead was likely due to poor compaction above/near the storm sewer trench during subdivision construction. As recommended in the report, the City now has an easement over the creek area and plans to fill in the low points on the subject properties with top soil and sod. This work is expected to be completed by early fall 2014.

#### **MR. CARTER'S CONCERNS:**

In talking with Mr. Carter on July 31, 2014, he stated that he has owned the property since 2005 and has needed to sand bag his property twice since that time, once in 2008 and once again in 2010. He did not sand bag during the rain events in May 2014. During this discussion, Mr. Carter voiced concern that development within the watershed had occurred without any stormwater management. Staff relayed the requirements of the stormwater ordinance at that time (run-off cannot exceed the pre-existing site run-off) and that the Northern Lights and church properties had met these requirements while going through the City's Development Review Committee (DRC) process. Staff pointed out the detention structure at the northwest corner of the Northern Lights area as an example. The Bolton and Menk report identified that a culvert had been installed with the Kinyon-Clark Subdivision (Hoover Avenue extension), which is upstream from the Stone Brooke area, noting the following:

“The developer of the (Kinyon-Clark Subdivision) agreed to place a culvert that will allow 5-year storms to pass through, but detain the 50-year storm. **This approach seems to be helping to keep the channel degradation below the culvert to a minimum.**”

In May 2014, staff was contacted by Mr. Carter regarding the issue related to water coming out of the banks of the creek and over the bridge. The bridge spans the creek located at the rear of the property and along the eastern boundary of the subdivision as shown in Attachment C. Staff members met with Mr. Carter on the site and discussed his concerns with him shortly after these rain events. He provided pictures of the area during the rain event of May 20, 2014 (Attachment E). During a subsequent field visit to the area by staff on July 23, 2014, no additional trees or logs were seen under the bridge and staff was informed that the residents cut and removed the second tree that was lodged under the bridge.

Staff verified with Parks and Recreation and the Stone Brooke Home Owner’s Association that the shared use path and the bridge are not publicly owned and Parks and Recreation does no maintenance on the path or the bridge. All maintenance of the path and bridge is the responsibility of the Stone Brooke Home Owner’s Association.

In the photographs from May 2014 the creek appears to be threatening the property. However, no known property damage has occurred to date; and the creek is functioning as an urban creek should, as identified on page 5 of the Bolton & Menk report:

“Although water outside the main channel can be seen as a concern, it is actually imperative to have overflow areas in order to reduce erosion. The main channel through this area shows almost no signs of major erosion except for some areas near woody vegetation. The channel in this area is generally acting as a two-stage channel. A two-stage channel is how a natural stream typically functions. In short, when storm water cannot be carried in the main channel, it overtops the banks into the low areas surrounding the main channel. This allows for more water to be carried within the stream corridor, and at a lower velocity, thus helping to reduce erosion. In other areas throughout town, the City has worked to re-create two-stage channels, including the College Creek Restoration project.”

The final report recommendations regarding area flooding concluded the following:

“To our knowledge, the flooding described to us in the areas near Stone Brooke Subdivision is not damaging any permanent structures in the area. This ‘flooding’ allows for storm water in excess of the channel capacity to overtop and recede slowly, limiting erosion in the area. We feel that this area could be a great educational tool to show residents how an urban channel can function well with surrounding uses.”

## **SUMMARY:**

The evaluation of the creek channel done by Bolton and Menk in fall 2012 indicates that the creek is functioning as a two stage channel, which is how a natural stream typically functions. This may create the perception of localized flooding, but is how the watershed is intended to function and does not appear to damage property.

Mr. Carter bought his home in 2005 and constructed a below grade addition in late 2005/early 2006 on the property line adjacent to an area designed and designated for storm sewer and surface water flowage. The addition sits within 30 feet of the existing creek channel where normal water elevations are roughly the same elevation as the bottom of his addition.

## **SPECIAL NOTE:**

Since he resides in this subdivision, the City Manager is a member of the Stone Brooke Home Owners' Association. In order to eliminate any perception of a conflict of interest, however, he had no hand in the preparation of this report.

## **POSSIBLE OPTIONS:**

1. Accept this report from staff and take no further action
2. Accept this report and direct staff to investigate ways to protect the in-ground addition at 4006 Stone Brooke Road for overtopping of the adjacent creek.

## **STAFF COMMENTS:**

Mr. Carter's concerns related to stormwater over topping the banks of the creek and threatening his property are largely due to the situation created by Mr. Carter through adding the below grade building addition up to the property line. Mr. Carter states that he has "sand bagged the rear of our home twice since we've lived here." According to building permit records, in late 2005/early 2006, Mr. Carter constructed an addition to his home.

The zoning for this subdivision is F-PRD and there are no specified yard and setback requirements except that structures constructed adjacent to public right-of-way and adjacent to the exterior boundary of an area zoned PRD shall comply with the setback standards in the underlying base zone regulations unless there are physical features on the site that would justify a different setback than provided for in the base zone (Table 23.1203(5)). Therefore, in this case no setbacks were required for the Mr. Carter's building addition. The addition is below-grade and is approximately 30 feet from the creek edge. The normal creek water elevation appears to be approximately the floor elevation of the addition. The eastern edge of the addition currently sits on the property line and abuts "Outlot A" which is a storm sewer and surface water flowage easement over the entire outlot. Photos of the addition and entrance are in Attachment E.

## CITY MANAGER'S OFFICE

City of Ames  
515 Clark Ave  
AMES, IA 50510

JUL - 1 2014

July 2, 2014

Attn: Mayor and City Counsel

CITY OF AMES, IOWA

**Problem: Drainage Ditch overflowing**

My name is Dan Carter and I live at 4006 Stone Brooke Rd. I have voiced my concern with a drainage ditch behind our property on several occasions during the last 9 years. It seems to us that our complaints and concerns are falling on deaf ears. The problem is serious flooding in our back yards, coming close to flooding our homes. Two city workers came out, at my request, and looked at our problems. I gave them photos, recently taken, of the water going over the bridge and the flooding in our back yards. The City did send a crew to cut up the big tree that was lodged under the bridge. We now have another large tree lodged under the bridge and needs to be cut up and removed.

So far this year, the ditch has overflowed four times. There is a concrete bridge crossing the ditch behind our property and with a two inch rain, water flows over the bridge and is causing some serious erosion. A few years back, the bridge was jacked up and supported with a large rock base. This is now washing away and the bridge has dropped about an inch and has created a tripping hazard.

When the Stone Brooke Addition was created, the ditch served the community quite well. That's what it was designed for. It cannot handle all the water from Northern Lights parking lots, two new Churches with large parking lots and additional homes around the neighborhood. I know of several large tiles that empty into the ditch. It only takes two inches of rain to create havoc.

Something needs to be done! We have sand-bagged the rear of our home twice since we've lived here. The flooding begins at the bridge behind our home and spreads out over the lawns of the neighbors to the North. It looks like a lake in our back yards after a two inch rain. The only solution looks to be the creation of a couple large storm sewers, one from Northern Lights and the other from the two new Churches that would drain north to one of the holding ponds around Ada Hayden lake.

Please take this up at your next City Council Meeting. If you would like, I would attend and bring photos to share with the Council. Let me know when this will be discussed. My phone number is: 515 232 2361 home or 515 231 4129 cell.

Thank you,



Dan &amp; Bev Carter

**BOLTON & MENK, INC.****Consulting Engineers & Surveyors**

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**Stone Brooke Subdivision  
Drainage Channel Review**

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**DATE:** October 26, 2012**TO:** Eric Cowles, PE  
Civil Engineer II  
City of Ames  
515 Clark Avenue  
Ames, IA 50010**FROM:** Nathan Easter, PE

This memorandum is prepared in response to former Mayor Ted Tedesco's inquiry about possible erosion issues in the drainage channel through Stone Brooke Subdivision that drains into Ada Hayden Heritage Park. Our work concentrated on erosion of the drainage channel through Stone Brooke Subdivision near Mr. Tedesco's property, and not the entire watershed.

**BACKGROUND INFORMATION**

This drainage channel conveys water from a large area south of Ada Hayden Heritage Park. There are numerous storm sewer outlets and waterways that eventually make their way through the drainage channel. Various storm sewer systems from areas south of Bloomington Road also make their way into the channel, including the Northern Lights area. The majority of this storm sewer outlets into the channel above Hoover Avenue/Edgewater Drive, into the Kinyon-Clark Subdivision.

We have attached Figure 1 to help illustrate the area near Stone Brooke Subdivision. Figure 1 shows the location of the drainage channel, as well as contour lines and public utility locations.

***Kinyon-Clark Subdivision***

The Kinyon-Clark development was planned in 2003. This report states that approximately 210 acres of land drains into the channel. This subdivision extended Hoover Avenue (Edgewater Drive) to the north, requiring installation of a culvert. The developer of the property agreed to place a culvert that will allow 5-year storms to pass through, but detain the 50-year storm. **This approach seems to be helping to keep the channel degradation below the culvert to a minimum.** There looked to be several areas of concern in the channel above this location, but our focus is on the area below Hoover Avenue/Edgewater Drive.



*Outlet of culvert downstream of Hoover Avenue/Edgewater Drive.*



*Channel degradation upstream of Hoover Avenue/Edgewater Drive.*

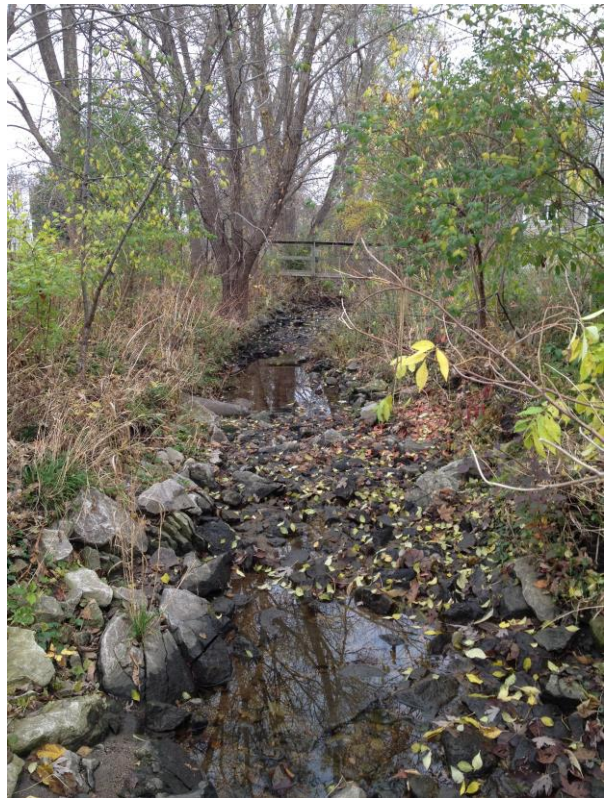
**Stone Brooke Subdivision**

Stone Brooke Subdivision was originally developed in 1980, with a major revision in 1989. Many of the houses built along the drainage channel were built in the early 1990's. As such, storm water management practices in Ames (and throughout Iowa) were in their infancy. There is an "Agreement for Stormwater Retention" on file that states "any run-off from Stonebrooke Subdivision in Ames, Iowa shall be permitted to run into and accumulate on the detention lake owned by Second Party, known as Hallett's Quarry". This document generally states that all storm water from the subdivision will flow into Ada Hayden Heritage Park.

The drainage channel lies in 'Private Open Space', as noted in the CDP/PUD Revision dated March 23, 1989. A note on that document states that 'The Stone Brooke Homeowners Association will maintain all private open space areas'. A review of the final plats shows no easement for maintaining the drainage channel. However, the plat does designate the area as a 'Utility Easement Area'.



*Drainage channel through Stone Brooke Subdivision.*



*Drainage channel through Stone Brooke Subdivision, near Mr. Tedesco's property.*

## **PROPERTY OWNER CONCERNS**

Mr. Tedesco and his neighbor are concerned that there is erosion taking place along their properties. They both agree that the rear of their lots have been 'sinking' lower year after year, and the related possibility of erosion. They also discussed the flooding that occurs in the area after rain events.

### ***Rear Yard Settling***

The main area of concern for these property owners is that their land is settling. They weren't sure why, but the elevation in their backyards continues to settle. Along Mr. Tedesco's property, there is a storm sewer pipe that outlets into the drainage channel. The land settlement is occurring above/near the storm sewer pipe installation. There are many reasons why the land could be settling including surface erosion, side slope sloughing along the channel, channel undercutting, poor compaction of utility trenches, and others.

City staff televised the section of storm sewer to determine if there were any irregularities in the storm sewer. The staff found no evidence of cracks, holes, or soil infiltration into the storm sewer.

The drainage channel through this area of the subdivision shows little evidence of significant erosion. There is sufficient channel armoring (Mr. Tedesco recalls the City had a contractor install the channel protection) along the sides of the channel in this area. In fact, some sediment is settling into the rip-rap armoring in some areas. We found no major bank erosion in this area that would lead to a settlement issue (undercutting or surface). In fact, this stretch of drainage channel is one of the better looking drainage channels throughout the City.

A likely culprit for the settlement is poor compaction above/near the storm sewer trench when the pipe was installed.



**Area Flooding**

The property owners were also concerned about water ponding/backing up into low spots in the area. These areas are illustrated in the attached Figure. The concern is that water should be kept within the channel banks.

Although water outside of a main channel can be seen as a concern, it is actually imperative to have overflow areas in order to reduce erosion. The main channel through this area shows almost no signs of major erosion, except for some areas near woody vegetation. The channel in this area is generally acting as a two-stage channel. A two-stage channel is how a natural stream typically functions. In short, when storm water cannot be carried in the main channel, it overtops the banks into the low areas surrounding the main channel. This allows for more water to be carried within the stream corridor, and at a lower velocity, thus helping to reduce erosion. In other areas throughout town, the City has worked to re-create two-stage channels, including the College Creek Restoration project.



*Storm water overflow area.*



*Storm water overflow area.*

## **RECOMMENDATIONS**

### ***Rear Yard Settlement***

We recommend that a survey benchmark be established in the vicinity of Mr. Tedesco's property, and perform annual monitoring to determine the amount of settlement. One immediate solution would be to place additional topsoil in the area of concern, with reseeding/sodding of the disturbed area.

### ***Area Flooding***

To our knowledge, the flooding described to us in the areas near Stone Brooke Subdivision is not damaging any permanent structures in the area. This 'flooding' allows for storm water in excess of the channel capacity to overtop and recede slowly, limiting erosion in the area. We feel that this area is could be a great educational tool to show residents how an urban channel can function well with surrounding uses.

### ***General Bank Stabilization***

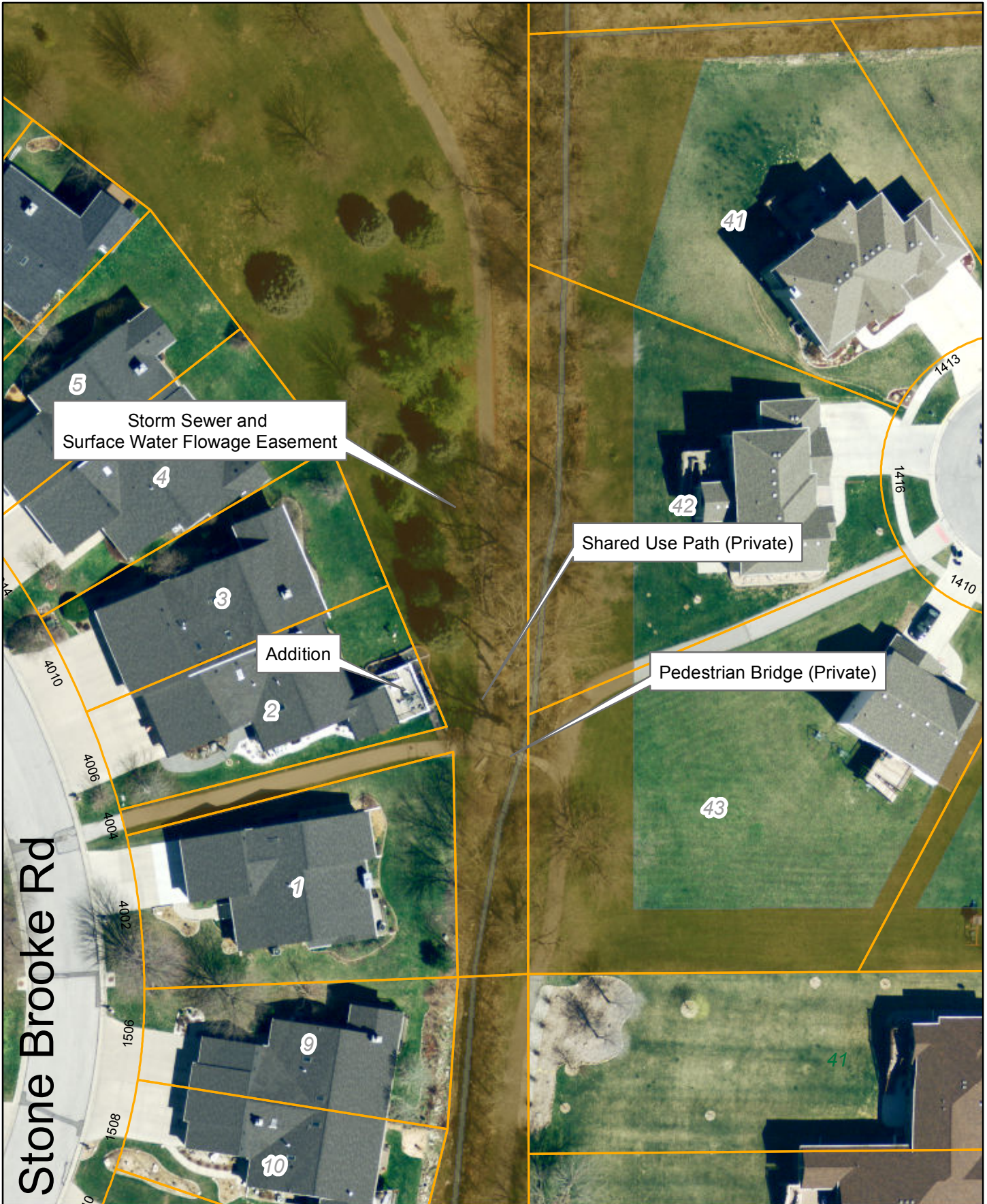
One area of concern in this vicinity is the overgrowth of woody vegetation. The channel is becoming overgrown with invasive woody species including numerous mulberry trees. Tree canopy restricts growth of grasses. Grass roots stabilize bank channels much better than most trees, as their roots form an intricate web with the soil. Much of the erosion in this area is along tree roots. To help minimize erosion in this area, the City could selectively remove much of the woody vegetation in this area to open up the canopy and allow grasses to re-establish.

As noted earlier in the memorandum, there are areas throughout the entire channel that are showing greater signs of erosion. There is an area between Kinyon-Clark Subdivision and Stone Brooke Subdivision that is lacking channel armoring, although no major erosion is occurring in this area. The areas upstream of Hoover Avenue/Edgewater Drive look to be in greater need of stabilization. We did not look at this area in detail, but recommend that the City be cognizant of any erosion issues within this additional area.

### ***Lack of Access Rights***

As the drainage channel extends through Stone Brooke Subdivision, there are no easements that specifically allow or require the City of Ames to maintain this channel. The only easement over these areas is designated a 'Utility Easement Area'. If the City moves forward with the desire to maintain this drainage channel, they will need to acquire easements from the Stone Brooke Homeowner's Association and possibly from individual property owners, or modify the existing easement.

An easement agreement should be the first step before the City makes any improvements in the area. The easement document should also spell out what the City's responsibilities, as well as what responsibilities will remain with the Homeowner's Association. Mr. Tedesco has offered to assist in obtaining the required easement(s).



Geographic Information System (GIS) Product Disclaimer: City of Ames GIS map data does not replace or modify land surveys, deeds, and/or other legal instruments defining land ownership & land use nor does it replace field surveys of utilities or other features contained in the data. All features represented in this product should be field verified. This Product is provided "as is" without warranty or any representation of accuracy, timeliness or completeness. The burden for determining accuracy, completeness, timeliness, merchantability and fitness for or the appropriateness for use rests solely on the User.



4006 Stone Brook Road  
Attachment B



Scale: 1 in = 50 ft  
Date: 7/24/2014

**Attachment D**

Photos from Mr. Carter



Shared Use Path Under Water

Looking North from Mr. Carter's Deck

05/20/2014 08:35



Out of Bank Flows on East Side of Creek and Over Bridge

Looking East - Behind Mr. Carter's Addition

05/20/2014 08:34



Shared Use Path Under Water

Looking East - Behind Mr. Carter's Addition

05/20/2014 08:34

**Attachment E**

Photos Taken By Staff



Bridge – Looking East



In Ground Addition Looking Northwest



In Ground Addition Looking North