Zilker Elementary Science Fair
February 1, 2007

ENTRY FORM

Title of Project

The Water Quality of my Creek

Student(s) Name(s):

1. Sofie Blankenship
2. _____
3. _____

Grade Level 5 **Teacher** Ms. Ogren

Type of Project

- ☐ Collection
- ☐ Demonstration
- ☑ Experiment

Electrical Outlet required?

- ☐ YES
- ☑ NO

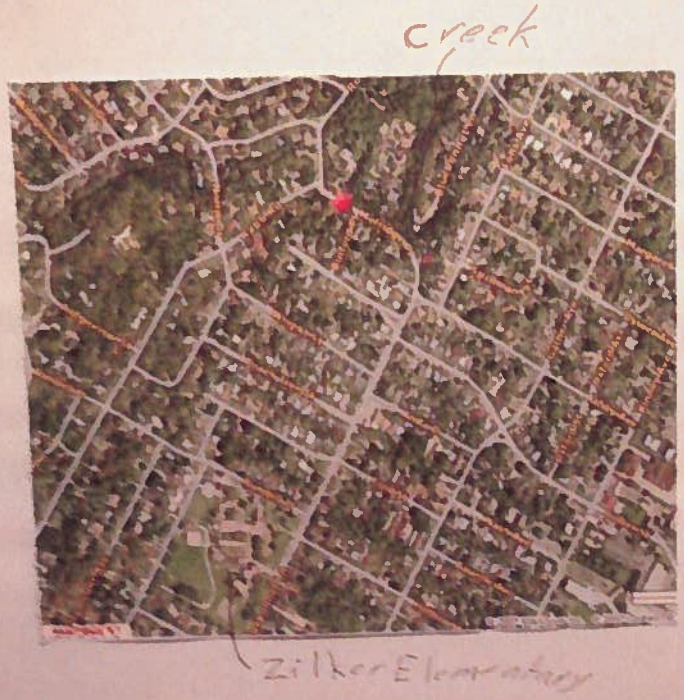
Exhibit D - 1

The Water Quality of my Creek
Problem
Hypothesis
Procedure
Results
Conclusion

Exhibit D - 2

Background Information

This is a picture of the creek near my house. The creek is behind my house about halfway between Zilker School and Zilker Park. The creek starts next to Melridge Place from a large pipe that comes out from under the road. The creek is not there on the other side of the road. Sometimes there isn't any water coming from the pipe but there was always water where I took measurements because the creek has a spring 50 meters upstream from where I sampled the water. The creek drains into Town Lake.



When I started this project I decided that I needed to do tests on the water in the creek. I tested the following each week from April to December to see how polluted the creek is.

Dissolved Oxygen: I tested the dissolved oxygen because there must be enough dissolved oxygen in the water to help the animals survive and the creek stay healthy.

Nitrates and Phosphates: Nitrates and Phosphates are indicators of runoff from when it rains. Nitrate indicates fertilizer and phosphate is found in fertilizer, cleaning solutions, sewage and also naturally occurs in rocks. This may be bad for the health of the creek.

pH: pH measures how acidic or basic the water is. If the water is too acidic or basic it can eat away at your skin.

Coliform: Coliform may indicate fecal bacteria in the water that can make you sick. Not all coliform indicates fecal bacteria, you can test for E. coli to find out if there is fecal bacteria.

Exhibit D - 3

acidic or basic it can eat away at your skin.

Coliform: Coliform may indicate fecal bacteria in the water that can make you sick. Not all coliform indicates fecal bacteria, you can test for E. coli to find out if there is fecal bacteria.

Other Dangers of the Creek

There are some dangers about our creek that have nothing to do with the quality of the water. One of them is poison ivy. My mother was sitting on the bank of the creek to help me test the water quality. With realizing it she sat near a three-leafed reddish plant that turned out to be poison ivy. Her arm was itchy for a couple of months.

Another danger is the garbage that comes with runoff. I have found coke bottles, broken glass, steel cans, plastic bags, a carpet and even an x-rated dvd in the creek. You could easily cut yourself on some of the trash if you were not careful.

The banks of the creek are made of clay. They are steep and can be very slippery, especially after a rain.

Acknowledgements

Thank you to my mom for all her help on my project. I enjoyed going down to the creek with her. Thanks to my dad for all his wonderful editing. Thanks to my little brother Jackson for being the inspiration for the project and for showing me how many things can go wrong when you go to make measurements at a creek. Finally, thanks to my friends Maddie, Miriam and Loren for going down to the creek with me when they came to visit.

References

LaMotte Water Monitoring Kit Manual (code 5848), LaMotte Company, PO Box 329, Chestertown, MD 21620

Washington State Department of Health, Division of Environmental Health, Office of Drinking Water *Coliform Bactena and Drinking Water*, http://www.doh.wa.gov/ehp/dw/Programs/coliform.htm

Wilkes University, Center for Environmental Quality, Environmental Engineering and Engineering Department, Phosphates and Water Quality *Total Phosphorus and Phosphate Impact on Surface Waters*, http://www.water-research.net/phosphate.htm

Southwest Florida Water Management District, *Water Quality Monitoring* http://www.swfwmd.state.fl.us/education/kids/watermonitoring/measuring.html

Exhibit D - 4

Conclusion

Overall the creek is pretty healthy. Only phosphate could be better. I found nothing in the water that would cause problems if you played in the water for awhile.

I was interested to see if the rainfall and temperature would affect the quality of the water in the creek. A couple of times when it rained a lot during the week I saw silt and bubbles on top of the water but this did not affect the results of the tests. Maybe if I had made the measurements immediately after the rain it would have changed the results.

The creek water is fine for me and my brother to play in.

Exhibit D - 5

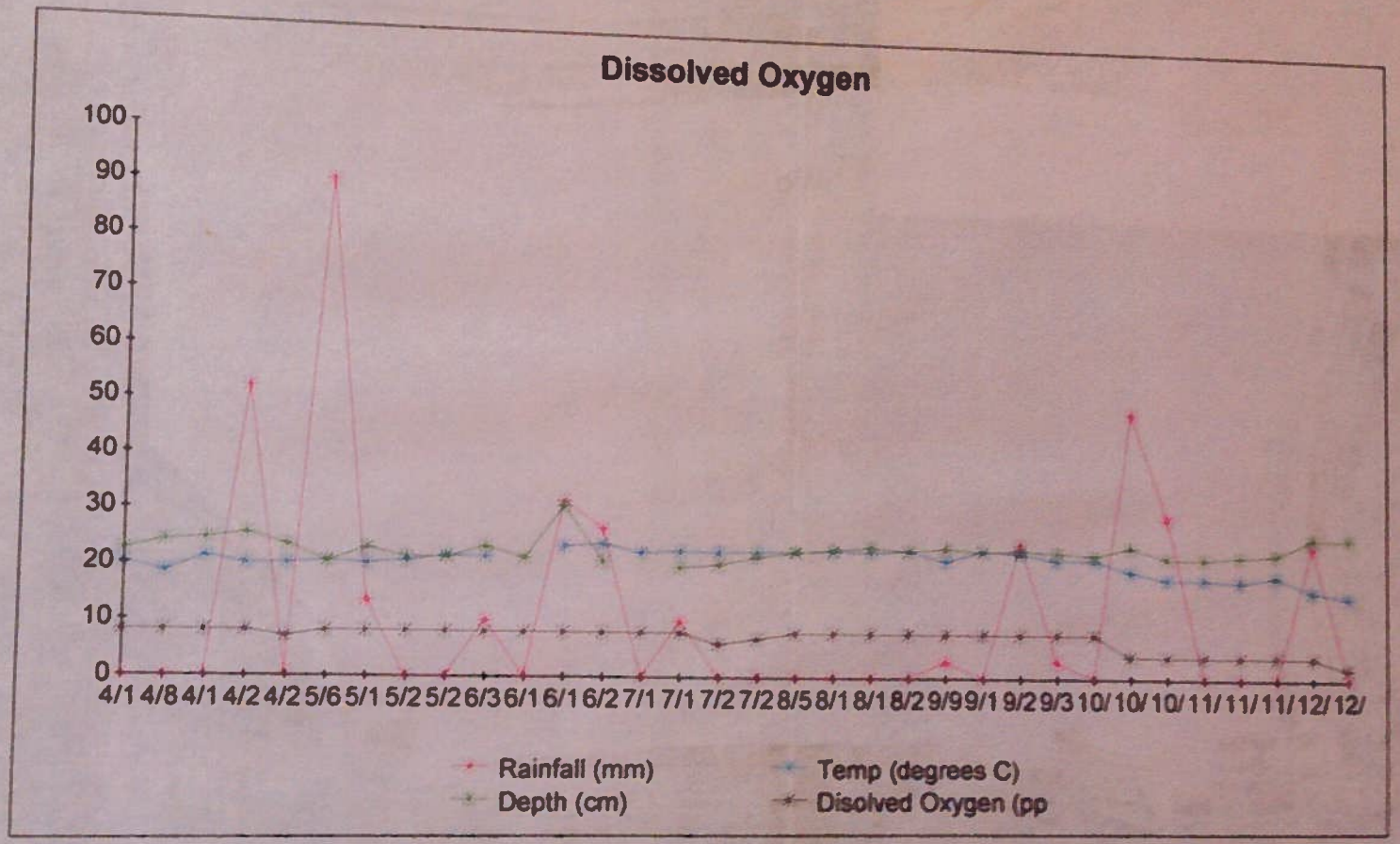
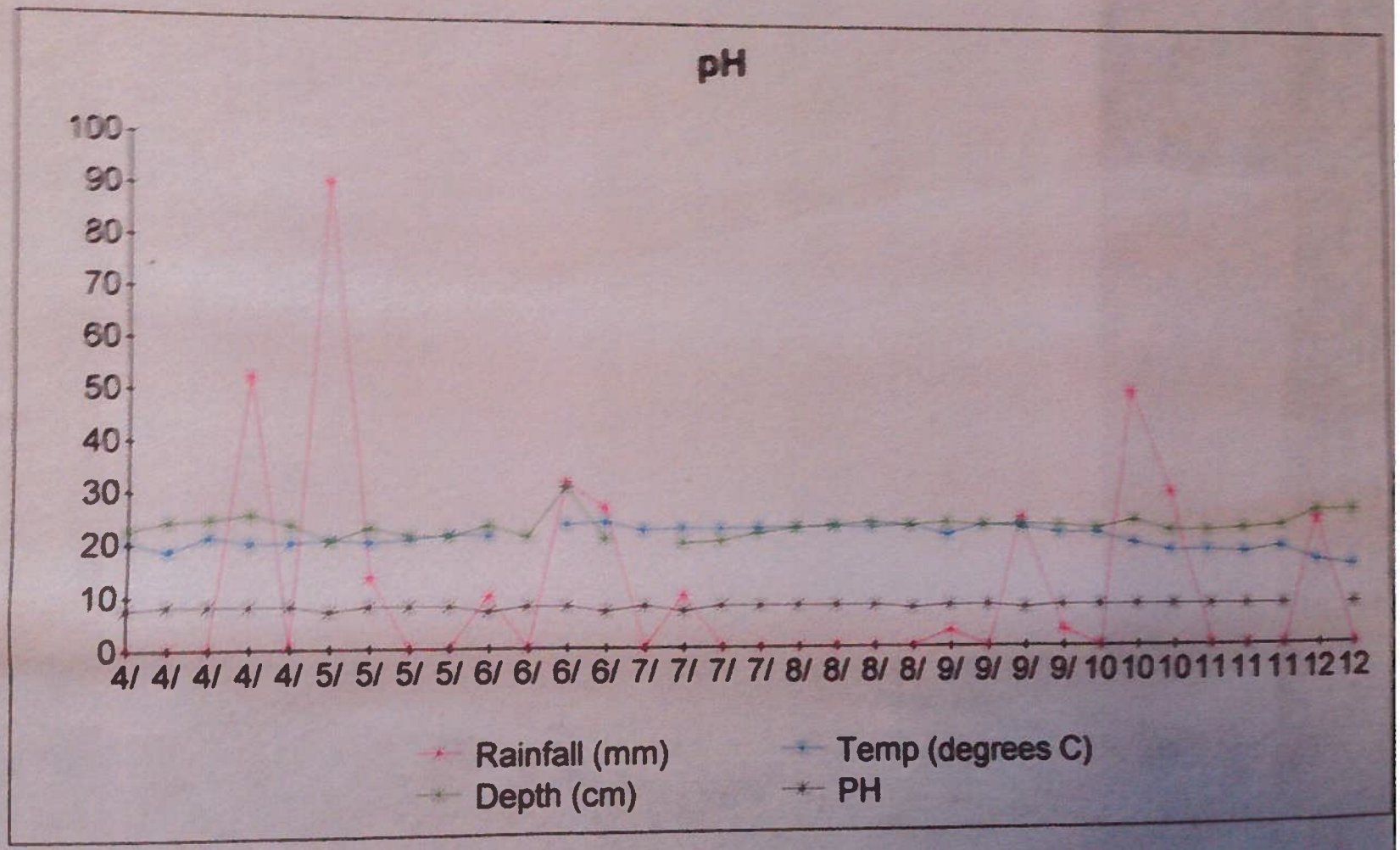

Dissolved Oxygen
100
90
80
70
60
50
40
30
20
10
0
4/1 4/8 4/1 4/2 4/2 5/6 5/1 5/2 5/2 6/3 6/1 6/1 6/2 7/1 7/1 7/2 7/2 8/5 8/1 8/1 8/2 9/9 9/1 9/2 9/3 10/ 10/ 10/ 11/ 11/ 11/ 12/ 12/
Rainfall (mm)
Depth (cm)
Temp (degrees C)
Disolved Oxygen (pp

Exhibit D - 6


pH
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4/ 4/ 4/ 4/ 4/ 5/ 5/ 5/ 5/ 6/ 6/ 6/ 6/ 7/ 7/ 7/ 7/ 8/ 8/ 8/ 8/ 9/ 9/ 9/ 9/ 10 10 10 11 11 11 12 12
Rainfall (mm)
Depth (cm)
Temp (degrees C)
PH

Exhibit D - 7

E. coli test colony comparison chart.
On my samples I saw lots of the pink coliform colonies but none of the purple E. coli colonies.

ColiQuant EZ Colony Color Guide

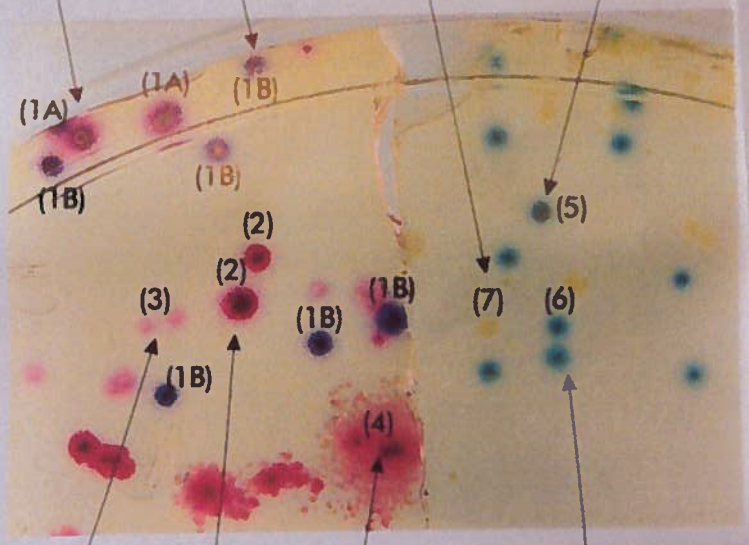
The left half of the photo (1-4) consists of colonies of *E. coli* (1A, 1B) and *Enterobacter aerogenes* (2, 3, 4) growing in/on Coliscan® Easygel® medium. The right half of the photo (5, 6, 7) represents the appearance of organisms other than *E. coli* or coliforms.

(1A) Two *E. coli* CFUs showing purple color with obvious pink diffused halos. Fecal coliform (Glucuronidase+, Galactosidase+)

(1B) *E. coli* CFUs blue/purple color with minimal pink halos. Fecal coliform (Glucuronidase+, Galactosidase+)

(7) Colorless CFU (indicates no Glucuronidase or Galactosidase activity). This colony type should not be counted as *E. coli* or coliform.*

(5) Teal green CFU growing on surface of medium. (Glucuronidase+) This colony type should not be counted as *E. coli* or coliform.*



(3) *Enterobacter aerogenes* CFUs as light pink color. Non-fecal coliform. (Glucuronidase-, Galactosidase+)

(4) *Enterobacter aerogenes* CFUs spread on surface of medium. (2 original colonies) Non-fecal coliform (Glucuronidase-, Galactosidase+)

(6) Teal green CFU growing in the medium. (Glucuronidase+) This colony type should not be counted as *E.coli* or coliform.*

(2) *Enterobacter aerogenes* CFUs as dark, solid pink color. Non-fecal coliform. (Contain no blue/purple) (Glucuronidase-, Galactosidase+)

*These teal or colorless types of colonies may be significant other types of bacteria (such as Salmonella spp. or Shigella spp.) or even rarely found atypical *E. coli* or coliforms, but should never be counted as *E. coli* or coliform without further biochemical testing.

Photo and information for Color Guide supplied by Micrology Laboratories, LLC.

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3-0034-cc.ai

TOTAL COLIFORM. FE
COLIFORM AND E. C

Exhibit D - 8

Results

Dissolved Oxygen

The dissolved oxygen tests showed that there were normal levels of dissolved oxygen throughout the year. Anything above 5 ppm is considered healthy for marine life, 2 ppm is needed to support fish. I did see dissolved oxygen go down as the water temperature decreased but this was within the normal range for dissolved oxygen.

Nitrate

I rarely saw any nitrate in the creek water. There were a couple of times when the nitrate levels were as high as 3 ppm, but water with nitrate levels of up to 40 ppm is considered drinkable so it was well within the safe range.

Phosphate

Sometimes the levels were a bit high on phosphate. Nitrate levels of 4 ppm are considered only fair, whereas 2 ppm is considered good. I do not know where the phosphate was coming from. Since I rarely saw nitrate I do not think there were many fertilizers washing into the creek. The phosphate could have been coming from a natural source such as rocks or from cleaning solutions washing into the creek. Since both the pH and the dissolved oxygen were good the phosphate did not appear to be affecting the health of the creek. The creek runs into Town Lake and the high phosphate levels could cause excessive plant growth in the lake but should not cause problems for playing in the creek.

pH

A pH level of 7.0 is considered neutral. A pH range of 6.5 to 8.2 is best for most organisms. The pH of the creek was always within this range.

Coliform

The coliform test always showed positive, which may be bad. Only some types of coliform are fecal coliform, the bad kind. I needed a better test for fecal coliform.

e. coli

Towards the end of our experiment I tested for e. coli because I were worried about the positive results of the coliform test. I never saw any e. coli growing in the petri dishes except for one time when I might have had 200 colonies per 100 mL. However in this case it was very difficult to judge if the colony was really the correct color for e.coli. It looked more like two colonies with different colors were growing one on top of the other. I do not believe I saw any e. coli.

Data collected from water samples from the creek. April - December 2006

Date	Rainfall (mm)	Temp (degrees C)	Depth (cm)	Phosphate (ppm)	pH	Dis. Oxygen (ppm)	Nitrate (ppm)	Coliform	e coli (cfu/100ml)
4/1/2006	0	20	22 5	1	7 5	8	0 5	TRUE	
4/8/2006	0	18 5	24 0	4	8	8	0	TRUE	
4/15/2006	0	21 2	24 5	2	8	8	0	TRUE	
4/22/2006	62 3								

Exhibit D - 9

From: Clamann, Andrew
Sent: Wednesday, October 24, 2012 9:34 AM
To: Heckman, Lee
Cc: Daniel, Leslie; McDougal, Mike
Subject: RE: C14-2012-0109 Water Quality Study

Mr. Heckman,

I have reviewed the documents. Sophie is clearly an outstanding student of science. Her presentation is both compelling and admirable. However, I am personally unable to use the data or conclusions because without detailed knowledge of procedures and QA/QC it would not be appropriate. Although this waterway has historically been marginalized, it is most certainly worthy of continued protection as a tributary to the surface water system and connection to an intensely utilized recreational area within a sensitive watershed.

If you want to provide this information to future boards/commissions/etc, my recommendation would be to compile the text and graphics in a single word doc or pdf and distribute accordingly.

Best wishes,

Andrew Clamann
Environmental Scientist
City of Austin, Watershed Protection
(512) 974-2694
andrew.clamann@austintexas.gov

Interested in information about our water quality monitoring?
Check out www.austintexas.gov/department/environmental-integrity-index

From: McDougal, Mike
Sent: Tuesday, October 23, 2012 4:25 PM
To: Heckman, Lee
Cc: Clamann, Andrew; Daniel, Leslie
Subject: FW: C14-2012-0109 Water Quality Study

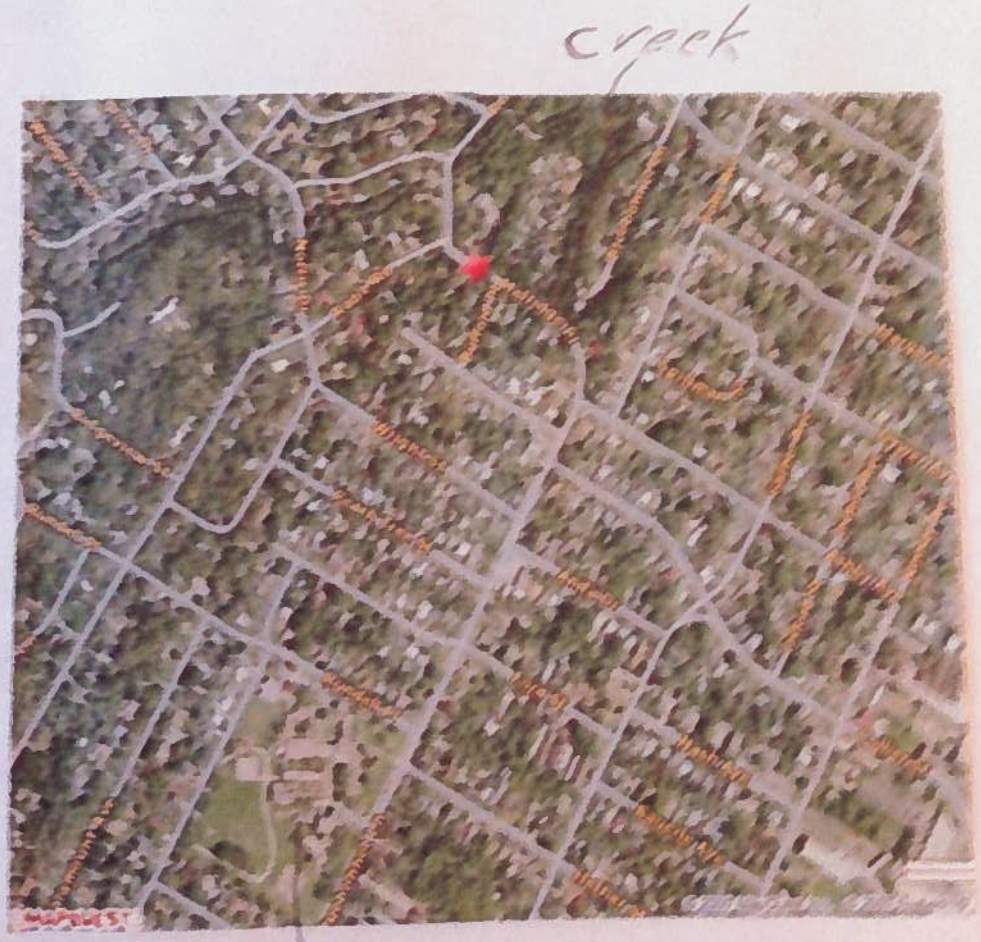
Lee,
This is interesting information. But I think it might be more applicable to a water quality / drainage review engineer like Leslie Daniel and also perhaps to Andrew Clamann for wetlands biology.

My review discipline consists of determining whether or not a proposed development complies with current Code.

Thanks,
Mike
Mike McDougal
Environmental Review Specialist Senior
Land Use Review
City of Austin
974-6380
Please note my email address has changed to: mike.mcdougal@austintexas.gov

Background Information

This is a picture of the creek near my house. The creek is behind my house about halfway between Zilker School and Zilker Park. The creek starts next to Melridge Place from a large pipe that comes out from under the road. The creek is not there on the other side of the road. Sometimes there isn't any water coming from the pipe but there was always water where I took measurements because the creek has a spring 50 meters upstream from where I sampled the water. The creek drains into Town Lake.



Data collected from water samples from the creek.
April - December 2006

Date	Rainfall (mm)	Temp (degrees C)	Depth (cm)	Phosphate (ppm)	pH	Dis. Oxygen (ppm)	Nitrate (ppm)	Coliform	e coli (cfu/100ml)
		20	22.5	1	7.5	8	0.5	TRUE	
4/1/2006	0	18.5	24.0	4	8	8	0	TRUE	
4/8/2006	0	21.2	24.5	2	8	8	0	TRUE	
4/15/2006	0	20.0	25.5	4	8	7	0	TRUE	
4/22/2006	32.1	20.1	23.5	1	8	8	0	TRUE	
4/29/2006	0.5	20.6	20.5	4	7	8	0	TRUE	
5/6/2006	20.4	20.2	23.0	2	8	8	0	TRUE	
5/13/2006	13.5	20.8	21.5	2	8	8	0	TRUE	
5/20/2006	0	21.8	21.5	2	8	8	0	TRUE	
5/27/2006	0	21.0	23.5	4	7	8	0	TRUE	
6/3/2006	10	error	21.5	2	8	8	0	TRUE	
6/10/2006	0	23.7	31.0	1	8	8	0	TRUE	
6/17/2006	32	24.2	21.0	4	7	8	0	TRUE	
6/24/2006	27	22.6	na	3	8	8	0	TRUE	
7/1/2006	0	22.9	20.0	error	7	8	0	TRUE	
7/15/2006	10	22.8	20.5	1	8	6	0	TRUE	
7/22/2006	0	23.0	22.0	4	8	7	0	TRUE	
7/29/2006	0	23.1	23.0	3	8	8	3	TRUE	
8/5/2006	0	23.2	23.5	2	8	8	0	TRUE	
8/12/2006	0	23.1	24.0	4	8	8	error	TRUE	
8/19/2006	0	23.4	23.5	2	7.5	8	0	TRUE	
8/26/2006	3	21.7	24.0	4	8	8	0	TRUE	
9/9/2006	0	23.6	23.5	4	8	8	0	TRUE	
9/16/2006	25	23.2	23.8	4	7.5	8	0	TRUE	0
9/23/2006	3	22.0	23.5	4	8	8	0	TRUE	2007
9/30/2006	0	22.1	23.0	4	8	8	0	TRUE	0
10/7/2006	50	20.0	24.5	4	8	4	0	TRUE	0
10/21/2006	30	18.5	22.5	2	8	4	0	TRUE	0
10/28/2006	0	18.6	22.5	4	8	4	0	TRUE	0
11/4/2006	0	18.2	23.0	4	8	4	0	TRUE	0
11/11/2006	0	19.3	23.5	2	8	4	0	TRUE	0
11/24/2006	25	16.5	26.5	1	error	4	0	TRUE	0
12/2/2006	0	15.5	26.5	1	8	2	0	TRUE	0

Exhibit D - 12

From: Donald Blankenship
Sent: Monday, March 18, 2013 11:04 AM
To: Heckman, Lee
Cc: Hauwert, Nico
Subject: Re: case C14-2012-0109 comments on the environmental context for the "sunflower" development on Robert E. Lee Rd. (1 of 2)

Hello Lee,

I have attached my comments for the upcoming hearing on March 26th as a presentation on the "Environmental Context for the proposed Sunflower Development at 1201 Robert E. Lee Road." (case # C14-2012-0109). My name is Donald Blankenship and I am a Senior Research Scientist at UT-Austin with a Ph.D. in Geophysics and a focus on geology and hydrology beneath the Antarctic ice sheet. I have been asked by my neighbors to take a clean look at the geological and hydrological context of the site and any ramifications from the proposed rezoning/development.

As background, I live next to the proposed development and have been at this location for sixteen years. My daughter Sofie Blankenship is sixteen and a student at Austin's Liberal Arts and Sciences Academy; she has grown up in this house, so the creek adjacent to the proposed development has long been a focus for of interest for her. In particular, Sofie studied the site weekly for nine months in 2006 showing that the creek is quite healthy and sustained its flow throughout the year (and likely hosts a significant system of springs and seeps) . Because of her interest, there is a case to be made that our family probably has more long term data on the environmental status of the creek than anyone.

I obviously object to the rezoning of the property for the reasons laid out in my presentation. The main talk is 19Mbytes because of a suite of photos of the site and its environs but I would like to have it included in the draft report for the upcoming hearing on rezoning so please let me know if you are having any email/pdf problems. The second email is the summary slides for that talk and are much smaller in size just to be sure that something gets through the system. I will be present at the hearing and plan to speak. I have also cc'd my presentation to Nico Hauwert the COA hydrogeologist who was kind enough to answer my many background questions.

All the Best,
Don B.

Donald D. Blankenship
2132 Melridge Place
Austin TX, 78704
512-707-7323 (home)
512-809-3755 (cell)

Environmental Context for the Proposed "Sunflower" Development at 1201 Robert E. Lee, Austin TX (case C14-2012-0109)

Donald D. Blankenship, Ph.D.
Sofie L. Blankenship
(neighboring Zilker Skyline residents)

Summary (1)

Environmental Context for the Proposed "Sunflower" Development at 1201 Robert E. Lee, Austin TX (case C14-2012-0109)

* The proposed "Sunflower" development and Little Zilker Creek downslope of it lie entirely within the Edwards Aquifer Recharge Zone.
* The limestone grotto on Little Zilker Creek adjacent to the proposed development contains persistent springs lying within the Edwards Aquifer Recharge Zone and should be listed as a "Critical Environmental Feature" with appropriate development setbacks.

Summary (2)

Environmental Context for the Proposed "Sunflower" Development at 1201 Robert E. Lee, Austin TX (case C14-2012-0109)

* The spring-fed grotto and any spring/seep system along Little Zilker Creek needs to be understood both hydrologically and biologically (and properly protected) before any major upslope development; the entire system should be considered for listing as a "Critical Environmental Feature".
* The persistent flow of Little Zilker Creek leaves the surface system and enters the Edwards Aquifer only a few hundred yards from the Main Spring at Barton Springs Pool; the hydrological connection between Little Zilker Creek, the Robert E. Lee culvert and the springs in Zilker Park must be understood before any major development.

Summary (3)

Environmental Context for the Proposed "Sunflower" Development at 1201 Robert E. Lee, Austin TX (case C14-2012-0109)

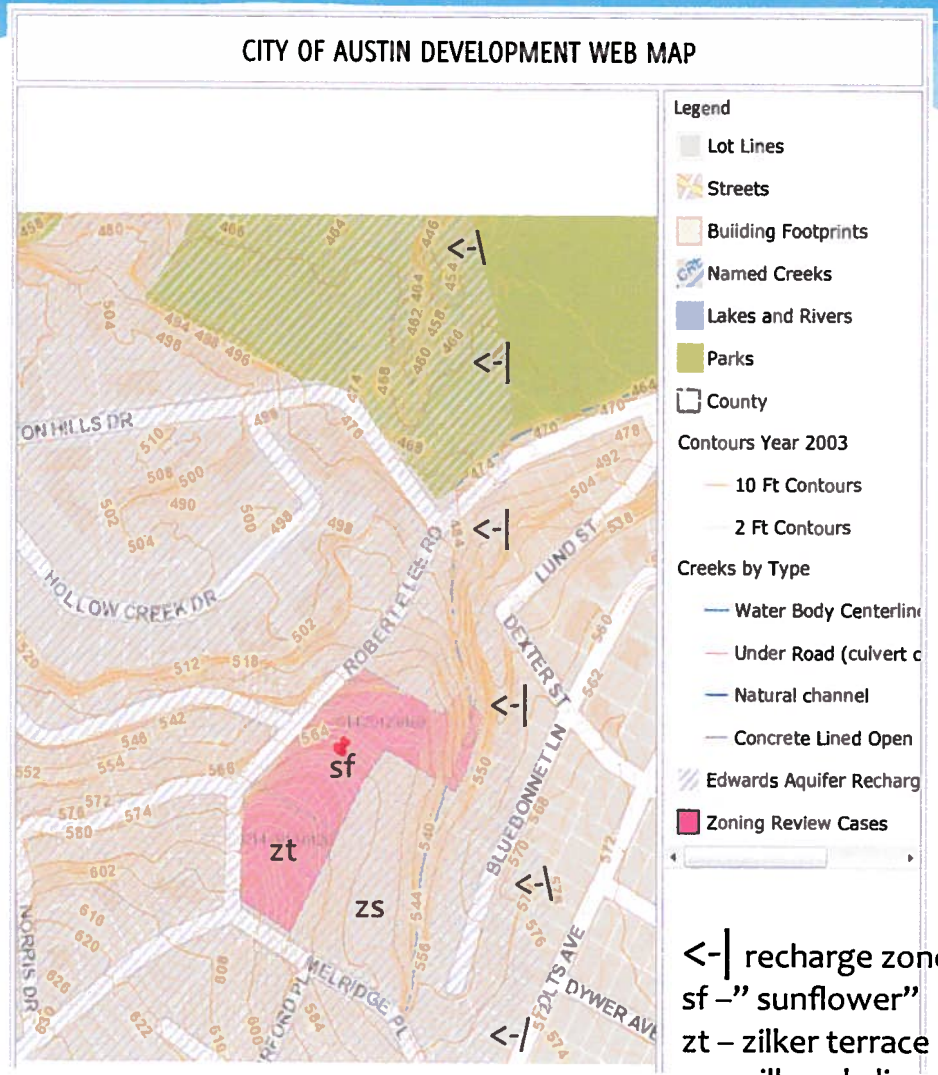
* The outlet of Little Zilker Creek at the Robert E. Lee culvert lies within the Critical Subsurface Habitat (CSH) proposed for the Austin Blind Salamander by the US Fish and Wildlife Service (USFWS).
* Note that any surface drainage down Robert E. Lee Rd. will enter the USFWS CSH at this culvert so hydrological connections between Little Zilker Creek, the Robert E. Lee culvert and Eliza, Main and Old Mill Springs in Zilker Park must be understood and accommodated before any major development along Little Zilker Creek or Robert E. Lee Rd..

Environmental Context for the Proposed "Sunflower" Development at 1201 Robert E. Lee, Austin TX (case C14-2012-0109)

Donald D. Blankenship, Ph.D.
Sofie L. Blankenship
(neighboring Zilker Skyline residents)

Exhibit E - 6

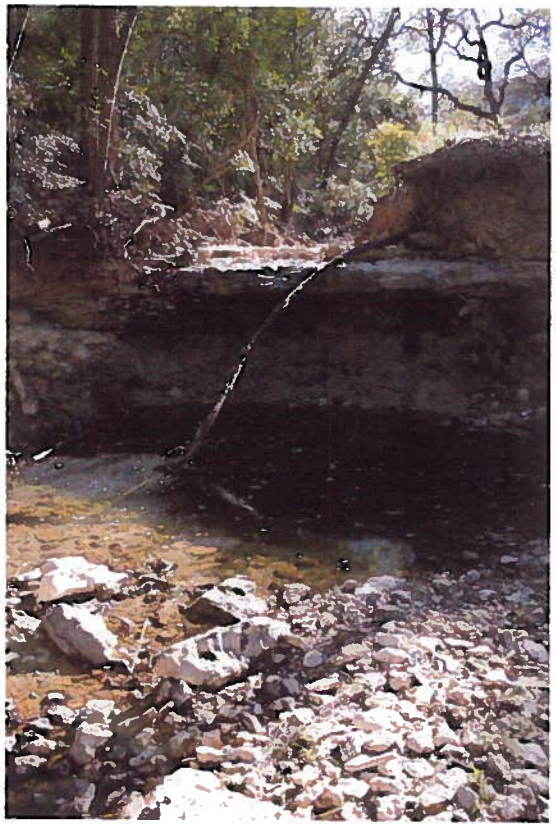
Sunflower Development in the Context of "little zilker creek" and Edwards Aquifer Recharge



<-| recharge zone
sf –" sunflower"
zt – zilker terrace
zs – zilker skyline

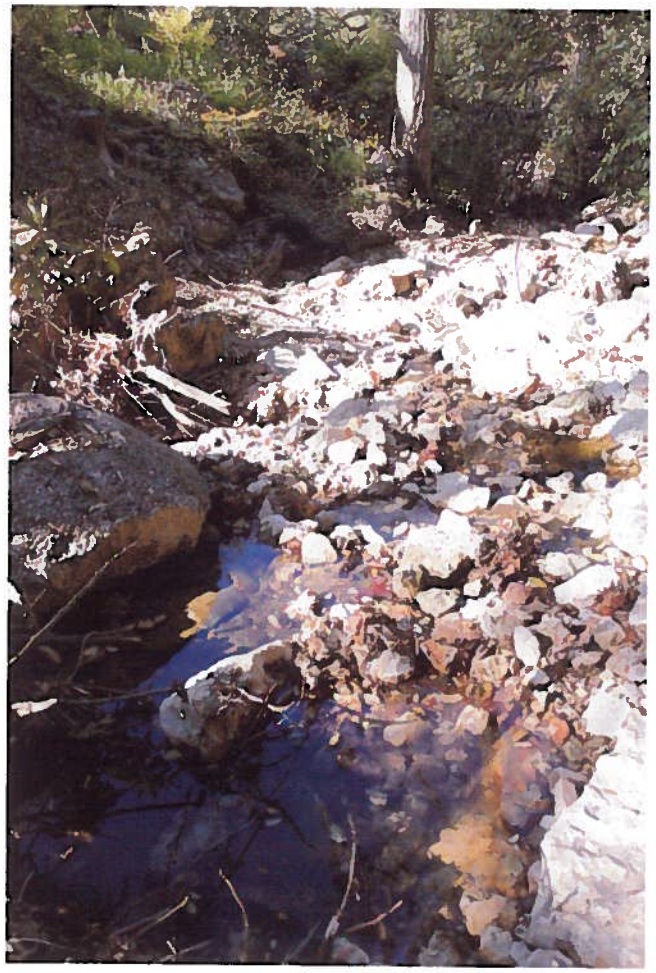
- A creek draining the Zilker neighborhood ("little zilker creek") lies on the east side of the proposed Sunflower development.
- Little Zilker Creek flows mostly within a COA Public Utility Easement and empties into the southern corner of Zilker park.
- The proposed "Sunflower" development and Little Zilker Creek downslope of it lie entirely within the Edwards Aquifer Recharge Zone.

Geological and Hydrological Context for Little Zilker Creek at the Proposed Sunflower Development



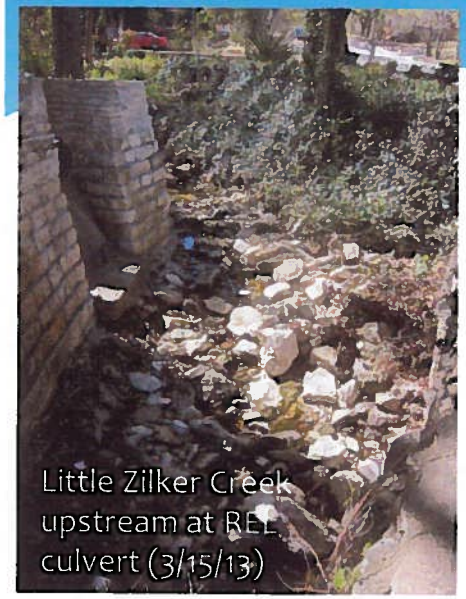
- The bed of Little Zilker Creek upstream of the proposed Sunflower development (along Zilker Skyline) is on Buda limestone (N.M. Hauwert, pers. comm., 2013) and its creek flow is intermittent until it reaches a *significant limestone grotto downslope of the proposed development* (see photo).
- Downstream of this grotto the *flow of Little Zilker Creek persists throughout the year* (S. L. Blankenship, Zilker School Science Fair, 2007).
- The limestone grotto on Little Zilker Creek adjacent to the proposed development contains persistent springs lying within the Edwards Aquifer Recharge Zone and should be listed as a "Critical Environmental Feature" with appropriate development setbacks.

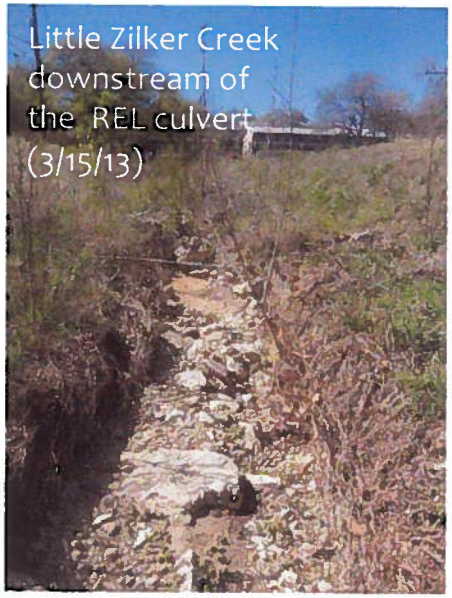
Hydrology and Biology of Little Zilker Creek Adjacent to the Proposed Sunflower Development



- The limestone grotto and the bed of Little Zilker Creek downstream of it (downslope of the proposed development) seem to be be controlled by a significant fault in the Buda limestone (Nico Hawert, pers. comm., 2013); *it is likely that additional springs and seeps* (see photo) *occur along this fault where it intersects Little Zilker Creek.*
- The spring-fed grotto and any spring/seep system along Little Zilker Creek needs to be understood both hydrologically and biologically (and properly protected) before any major upslope development; the entire system should be considered for listing as a "Critical Environmental Feature".

Little Zilker Creek and Barton Springs


Little Zilker Creek upstream at REL culvert (3/15/13)

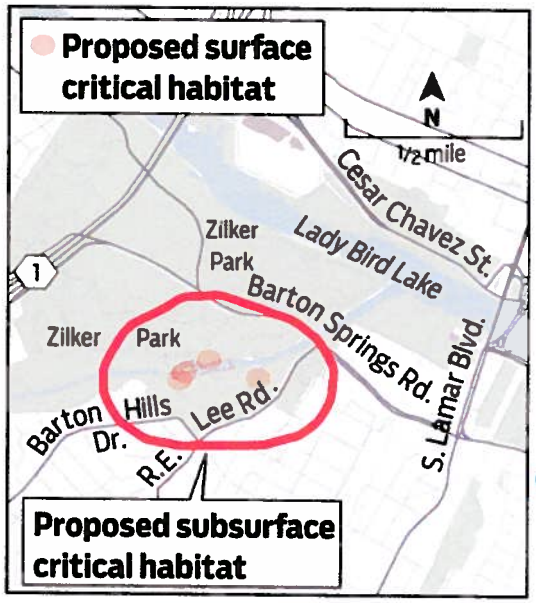

Little Zilker Creek downstream of the REL culvert (3/15/13)

- *The spring-fed grotto on Little Zilker Creek is about 500 yards from Main Spring in Barton Springs Pool*; about 250 yards from the grotto, the flow of the creek enters Zilker Park at a culvert beneath Robert E. Lee Rd. (see photo).
- The persistent flow of Little Zilker Creek ponds on the upstream side of the Robert E. Lee culvert and exits the downstream side in the Zilker park; *it then **disappears** into the aquifer about 25 yards downstream from the* culvert (see photo).
- The persistent flow of Little Zilker Creek leaves the surface system and enters the Edwards Aquifer only a few hundred yards from the Main Spring at Barton Springs Pool; the hydrological connection between Little Zilker Creek, the Robert E. Lee culvert and the springs in Zilker Park must be understood before any major development.

Robert E. Lee Road and Barton Springs

http://austintexas.gov/

AUSTIN BLIND SALAMANDER



Source: U.S. Fish and Wildlife Service

- The Austin Blind Salamander is proposed for listing as an endangered species by the US Fish and Wildlife Service (USFWS); *this salamander has been observed at only three springs in Zilker Park* (Eliza, Main and Old Mill) .
- The habitat of the Austin Blind Salamander is within the Edwards Aquifer so USFWS has proposed a "Critical Subsurface Habitat (CSH)" that extends approximately 330 yards from each of the three springs (see attached sketch); *the outlet of Little Zilker Creek at the Robert E. Lee culvert lies within this proposed Critical Subsurface Habitat.*
- Note that any surface drainage down Robert E. Lee Rd. will enter the USFWS CSH at the culvert so hydrological connections between Little Zilker Creek, the Robert E. Lee culvert and Eliza, Main and Old Mill Springs in Zilker Park must be understood before any major development.

From: Steven Radke
Sent: Monday, March 18, 2013 1:45 PM
To: Heckman, Lee
Subject: Re: Condition Response 1201 Robert E Lee

Lee,

Attached is the final set of conditions that I am willing to offer. All of these are based on feedback from neighbors on the petition and adjacent sites. These were offered March 5 and recently (March 16th) changed to 18 units max, all other conditions the same. The density change was in response to Mrs. DeFrese's email stating "neighbors are not happy with the density."

These were voluntary on my behalf given multiple meetings with those affected and feedback given on our project.

At this moment, I am not requesting a postponement of our 26th date. I simply asked Ms DeFrese that if the neighbors are "still considering my offer" by Tuesday March 19, I would like a letter of support in the request to postpone in hopes that the request would be granted at PC and I could still possibly work a deal. (Given your comments on neighbor/neighborhood support of postponement and willingness of PC to grant request second time around given this support.)

If they are not "still considering" the conditions offered and give me a no response or a negative by March 19, I don't see any reason to postpone and we will move forward.

In other words, and to answer your question, the postponement request will be determined in the next day or so.

Thanks

Steven

From: Steven Radke
Sent: Monday, March 18, 2013 7:59 AM
To: Heckman, Lee
Subject: Fwd: Condition Response 1201 Robert E Lee

Lee,

See below from my neighbor contact person. This was in response to the last set of conditions offered that were sent to you week before last.

In response to Mrs. DeFrese's email, I offered one last set of conditions as my final offer. **I offered to trim the density in a rezone to 18 stand-alone units.** Please document this as you prepare staff comments for our scheduled PC hearing date on the 26th of March. If I need to put this in a formal letter of offering, I will do so and send your way. I can summarize all of the conditions, including the 18 unit density max, in a 1 page doc, if you deem necessary.

I also requested that a response be given to me by Tues (tomorrow) of this week. If they are still "considering" I asked that they write a letter explaining the fact and support a PC postponement of 2 weeks. I have also asked that the ZNA sign off on this letter.

Thanks,

Steven Radke
Principal
VRI
512.626.8645
---------- Forwarded message ----------
From: **Jeannie Defrese**
Date: Sat, Mar 16, 2013 at 3:34 PM
Subject: Re: Condition Response
To: Steven Radke

Steven,

People are still considering and discussing and are generally unhappy with the density and creek set back.

Jeannie DeFrese
Triple Mint Real Estate
512-431-8016

Sent from iPhone - pls excuse any typos

On Mar 15, 2013, at 7:34 PM, Steven Radke wrote:

> Jeannie,
>
> Do we have a favorable response yet on the condition set offered in support for rezone? I would like to start gathering support letters so that I can address petition members/ with your help, with proof of support from those around us.
>
> Thanks and look forward to your response.
>
> Steven Radke
> Principal
> VRI
> 512.626.8645

1201 ROBERT E LEE: SUNFLOWER

CASE # C14-2012-0109

OWNER: Joe and Hazel Joseph

AGENT: Vinson Radke Investments, LLC (VRI, LLC)

PROPOSED CONDITIONS – MARCH 16, 2013

The conditions below have been offered in writing, and to be adopted in the ordinance for zoning, by VRI, LLC on March 6, 2013 in exchange for support and removal of the valid petition for the application to rezone the subject tract from SF3 to SF6 (Case # C14-2012-0109).

The conditions offered are based on a meeting and neighbor/petition member feedback that took place on March 4, 2013 at 1112 Bluebonnet Ln, residence of Mrs. Jeannie DeFrese (Petition Contact Person).

CONDITONS OFFERED FOR SUPPORT IN APPLICATION TO REZONE SUBJECT PROPERTY FROM SF3 to SF6:

(Zoning Ordinance)

- Maximum Number of Dwelling Units is 18.
- Maximum Height of any structure is 30ft.
- Maximum Impervious Cover for the entire site is 40%.
- Along the Southeast, East, and South property lines that adjoin property zoned SF6, the following apply:

    - No building may be built within 20ft of the property line.
    - No building in excess of 1 story or 15ft may be constructed with in 25 ft of the property line.
    - A fence, berm, or dense vegetation must be provided to screen adjoining properties from views of parking, mechanical equipment, storage, and refuse collection.

- Each dwelling unit will have a minimum of 2 parking spaces and access to an area in which a 3rd vehicle can park. This could be on their driveway or in a guest spot , somewhere on the property.

(Private Restrictive Covenant)

- All exterior lighting will be low-density and down screened. Exterior lighting must be hooded or shielded so that the light source is not directly visible from adjacent property.
- A highly reflective surface, including reflective glass will not be used on any buildings unless the surface is a solar panel.
- Metal Roofs may be used but must be painted or of a non-metallic finish.

VRI, LLC believes the conditions offered meet those demands of the neighbors while allowing enough flexibility in design to articulate buildings and create a more attractive Urban Community.

VRI has a specific goal of creating infill communities that are cohesive with their surroundings while offering a product that is not only attractive, but meets the needs of those who can contribute to the immediate neighborhood. We believe the stand-alone product class is a superior development plan to the alternative on larger sites when surrounded by like density.

Steven Radke
Principal
VRI, LLC
StevenRadke@VRIAustin.com
512.626.8645

-----Original Message-----
From: Jeannie Defrese
Sent: Tuesday, March 19, 2013 8:27 PM
To: Steven Radke
Cc: David Davis; Heckman, Lee, [others]
Subject: Neighbor's Conditions/1201 Robert E Lee/Case number C14-2012-0109

Steven,

Attached is the neighbor's response to the conditions you proposed. These are supported by a large group of the petition signers.

I did not include another attachment with your conditions as mentioned in this document since we all already have copies of that.

Thank you,

Jeannie DeFrese
1112 Bluebonnet Lane
431-8016

All the conditions that Mr. Radke has already offered (attached for reference) with the following changes and additions:

- 150 foot creek setback which is what is our understanding of the city requirement when there is a "critical environmental feature" present - the SPRING.
- Agreement to revegetate at least the first 50 feet off the creek(creek front) with native species and a commitment to leave the entire 150 foot setback natural from here out.
- A maximum density level of 7 units which would be in keeping with the neighboring SF-6 development, Zilker Skyline, which is 3.3 units per acre. This would be calculated on the acreage actually available for development so it would NOT include the area in the 150 foot creek setback. Rough calculations show the developable area to be just over 2 acres so a density level of 7 units.
- Impervious coverage maximum of 40% as agreed to by the developer to be calculated also on the developable area, not the 150 foot creek setback.

The impervious cover is contingent on a couple of things. From the topographical information the developer has provided, much of the developable area

drains toward Robert E Lee - the Barton Creek Watershed. A thorough study should be made here and if this is the case and drainage enters this watershed, then impervious cover levels in the developable area should be kept below 15%. And from the study of the creek, if it is as it appears that the flow goes below surface into the Edwards Aquifer above Barton Springs then the lesser impervious cover should apply to any portion of the property which drains to the creek including along Robert E Lee to the culvert containing the creek at the south corner of Zilker Park.

November 30, 2012

Dear Neighbors,

As you are aware, we are in the process of selling part of our property for the development of homes. My father purchased thirteen acres in the Zilker neighborhood in 1950, which included the 4 plus acres where the Zilker Syline Condo homes are now located, six acres across the drainage channel on the West side of Bluebonnet Lane, and the land where the home is located on 2000 Melridge Place. My father built our current home at 1201 Robert E Lee Rd in 1952. After both of my parents passed away, the 4.08 acres was sold to settle the Estate, which included six children, with only three of us living in Austin.

My wife and I purchased the family home in the 1980s from the Estate, at the same time the 4 acres were sold to the Skyline Developer. The land has set dormant, after the Skyline Community Condos were built, until last year, when I hired a State of Texas Certified Arborists to remove the non-native brush and trees from our property. This was to allow the large oak and elm trees to obtain proper sunlight and rain for survival and preservation. In 2011 one of the worst summer droughts in history took its toll on landscape in the area and our actions of vegetative clearing with intent to save the gorgeous heritage oaks worked!

At that time, we had no intentions of selling any of our property as we were working on putting in an extensive, and expensive, rainwater collection system, just off our front porch. VRI Austin approached us earlier this year with a comprehensive plan to develop the property in a peaceful and efficient manner. As we are in our early seventies, and our daughter is not interested in moving into the family home where we now reside, we listened to their offer, plans for the property, and decided, after negotiations, to accept. We may soon reach a point where we will not be able to navigate the hills and stairs in and around our home and will need to move to more "elderly-friendly" living quarters.

The rezoning is necessary to preserve all of the heritage trees and decrease the impervious cover as much as possible. VRI and its firm are "green" single family home builders. They have no interest in building dense developments that lend themselves to investor interest and depleted home values surrounding the project. They have a vision on our site to develop in a way that keeps integrity of the neighborhood in non-shared wall structures, limit the exclusivity central Austin has now obtained by making the homes affordable, and put a plan on the ground that will encourage a sense of community and allow families to move into the Zilker community. Their plans include solar energy, rainwater collection systems, and will provide for the use of environmentally friendly building materials.

I just wanted to attempt to bring some clarity to the situation, and I am hoping for your cooperation in getting this project to completion. As I understand, duplexes can be built on the property without any rezoning, which I do not want, since many are not owner-occupied, and would not maintain the stability our present neighborhood now enjoys. The duplex concept would increase impervious cover implications and require many more trees to be impacted on site.

Please feel free to contact me, if you have any further questions, or if I can provide additional information.

Joe & Hazel Joseph
1201 Robert E Lee Rd
Austin, Texas 78704
Phone: (512) 442-8467

Exhibit H