8206 Sandalwood Cove

5-24-07

City Council
Agenda Item # 64

1. Variance Request Letter
2. Existing Structures and Topography
3. Photos: Condition of Existing Structures
4. Proposed Plot Plan
5. Rendering of Current and Proposed Structures
6. Rendering of 100-Year Flood Levels
7. Engineer's Floodplain Certification Letter
8. Flood Risk Summary
9. Neighborhood Association Letter of Support
10. Engineering Feasibility Statement

Jeff Russell
8206 Sandalwood Cv
Austin, TX 78757
JeffHouse@austin rr com
512-415-9809

January 9, 2007

Jay Baker
Watershed Protection and Review Dept, City of Austin
505 Barton Springs Road 4th Floor
Austin, TX 78704

Re BP-06-12261R (8206 Sandalwood Cove)

Dear Mr Baker,

I am requesting a variance from the City of Austin Land Development Code (LDC) related to construction in a floodplain for the proposed house that is the subject of Building Permit Number *BP-06-12261R* This project is essentially a demolish/rebuild approach to flood hazard mitigation in which I propose to demolish two residences below the 100-year flood elevation and build one residence appropriately elevated above the 100-year flood elevation I believe there is little precedent for this privately funded demolish/rebuild approach to flood hazard mitigation, and therefore this project warrants thoughtful consideration for a variance

Contents

This letter is organized into the following sections

- Applicable Code
- Proposed Project Summary
- Proposed Hardship Statement
- Proposed Findings
- Closing

Applicable Code

As suggested in our meeting on January 4, 2007, I request a variance from the following City Code sections

1 LDC Section 25-7-92 (Encroachment on Floodplain Prohibited) prohibits approval of a site plan if a proposed building encroaches on the 25-year floodplain

2 LDC Section 25-12-3 (Local Amendment to the Building Code), Section 1612 4 3 (Means of Egress) provides that normal access to the building shall be by direct connection with an area that is a minimum of one (1) foot above the design flood elevation

3 LDC Section 25-7-152 (Dedication of Easements and Rights-of-Way) requires that the owner of real property to be developed dedicate to the public an easement or right-of-way for a drainage facility, open or enclosed, and stormwater flow to the limits of the 100-year floodplain

Proposed Project Summary

Mr Jeff Russell and family, the owners of the property, propose to construct a new, flood-proof residence at 8206 Sandalwood Cove after demolition of two existing residential structures The property is in the Northwest quadrant of the City of Austin near the intersection of Steck Avenue and Shoal Creek

The proposed house is the subject of Building Permit Number BP-06-12261R The site lies entirely within the 25-year floodplain of Shoal Creek The project is a demolish/rebuild approach to mitigate the flood hazard risk to life and property arising from the existing structures The applicant seeks variances to the City of Austin's floodplain management regulations in order to obtain a building permit to construct a new four bedroom, two-story, single-family house on two adjacent lots following demolition of two existing, single-family houses (a three bedroom, two-story house at 8206 Sandalwood Cove and a four bedroom, two-story house at 8204 Sandalwood Cove)

According to a recent survey, both lots are completely within the 25-year floodplain (and hence the 100-year floodplain), and the finished floor elevations of the two existing houses lie below the elevation of a 100-year flood event The proposed new house is flood-proofed (based on technical building codes), the primary impact of which is a finished floor elevation above the 100-year flood elevation

Hardship summary

The hardship associated with this property is that the LDC prohibits substantial improvement or construction to the site that would mitigate the current flood hazard risk to life and property

The hardship is unique to the property configuration, since the project combines two residential lots platted prior to September 25, 1983 and proposes to mitigate flood hazard risk by (1) permanently removing one residence from the floodplain and (2) demolishing/rebuilding a second residence to flood proof standards

A failure to grant a variance results in an exceptional hardship arising from the risk to life and property due to the flood hazard at the site Additionally, without a variance to allow the proposed demolish/rebuild improvement to the site, the public will continue to subsidize insurance for the existing structures

The variance is the minimum necessary in that construction of a new residence reduces the need to deviate from the current Technical Building Code

Proposed Findings

The subsequent proposed findings are based on the following assumptions and definitions

1 The "combined lot" refers to a unified development agreement combining lots 3A and 4A of block N, first resubdivision of Northtowne Section 1, locally referred to as 8204 and 8206 Sandalwood Cove

2 The entire combined lot resides within the 25-year floodplain

3 The 100-year base flood elevation is 716 79 feet, as reported in our Jan 4, 2007 meeting

4 The combined lot is located approximately between 200 feet and 350 feet from the center of the creek channel in the SP 2006 model of Shoal Creek

5 The flow rate across the combined lot is less than 1ft/sec for a 100-year flood event

6 The elevation at the curb-side of the combined lots is approximately 714 feet, and the elevation along the curb of the city street is between 713 and 714 feet

7 Excluding any variances, the new residence will comply with all Technical Building Codes, thus resulting in a "flood proof" structure

8 The design criterion for finished floor elevation of the new residence is a minimum of two feet above the 100-year flood elevation

I proposed the following findings that support sufficient conditions for recommending approval of this variance request Furthermore, I request the opportunity to discuss these in more detail if they are determined to be insufficient by city staff

1) The proposed project will not will not have an adverse effect on the 100-year floodplain or surrounding properties, based on a pending study by a licensed engineer

2) The threat to public safety does not increase

   a) The anticipated water depth at the curb during a flood remains unchanged

   b) Fewer residences will exist in the floodplain, thus reducing the likelihood emergency officials would be required to respond during a flood

3) Occupancy in the floodplain is reduced

   a) Fewer people will reside in the floodplain, since once residence is eliminated

   b) The overall "bedroom count" decreases from seven to four, based on demolition of the four and three bedroom residences, and construction of a new four-bedroom, single family residence

4) Safe access at the house during a 100-year flood is improved

   a) During a flood, the normal accesses at doorways to the existing structures lie below the 100-year flood elevation The proposed residence will have normal access at doorways that are elevated above the 100-year flood elevation

5) Safe access at the curb during a 100-year flood remains unchanged

   a) The predicted water depth at the curb during a flood remains unchanged as a result of the proposed project

   b) Access during a 100-year flood is reasonably safe, assuming that (1) the water depth is less than four feet and (2) the predicted flow rate is less than 1 ft/sec

      i) This conclusion is supported by a detailed study that examined human stability during a high flood hazard The criterion for safe human traversal of flood water was based on the product of water depth (in feet) and flow rate (in feet/second) called a "product number " In the study, the smallest human test subject (5 feet tall weighing 90 pounds) remained stable up to product numbers ranging from 7 to 15, depending on the surface and slope she was walking upon (Reference R J Wittler, et al , Human Stability in a High Flood Hazard Zone, *Water Resources Bulletin*, v 25, n 4, Aug 1989)

      ii) A FEMA technical bulletin conservatively interpreted the result of the study to state that a product number of less than four will not "create a hazard for anyone attempting to escape from or gain access to the site" (Reference Wet Floodproofing Requirements, Technical Bulletin 7-93, FEMA, U S Department of Homeland Security)

iii) A newsletter published by the U S Forest Service interpreted the result to state that a product number of less than 10 is reasonable safe for wading in streams (Reference Stream Notes April 2001, Streams Systems Technology Center, Forest Service, U S Department of Agriculture)

6) No public nuisance is created

a) The proposed new residence will pay insurance rates based on actuary risk, and two existing residences that are currently eligible for publicly subsidized rates will be removed from the community

b) Austin's CRS rating will not be adversely affected by this demolish/rebuild approach, i e two residences without flood proofing are replaced by one flood proof residence (Source e-mail communication on 6/21/2006 with William Baker, ISO/CRS Specialist)

7) The demolish/rebuild approach is a legitimate and accepted method of flood hazard mitigation

a) The Association of State Flood Plain Managers, in June 2006, recommended adding a demolish/rebuild option to traditional techniques, such as acquisition and elevate in-place, for flood hazard mitigation of existing structures Three federally funded pilot studies were also described (Reference Expanding the Mitigation Toolbox the Demolish/Rebuild Option, ASFPM, White Paper, link at http //www floods org)

Closing

I look forward to feedback concerning both the requested variance and the proposed list of findings The explanations for my proposed findings are rather brief, so do not hesitate to request more information or to schedule a meeting so that we can discuss them I have spent several hours researching these issues, so more extensive details are available as needed

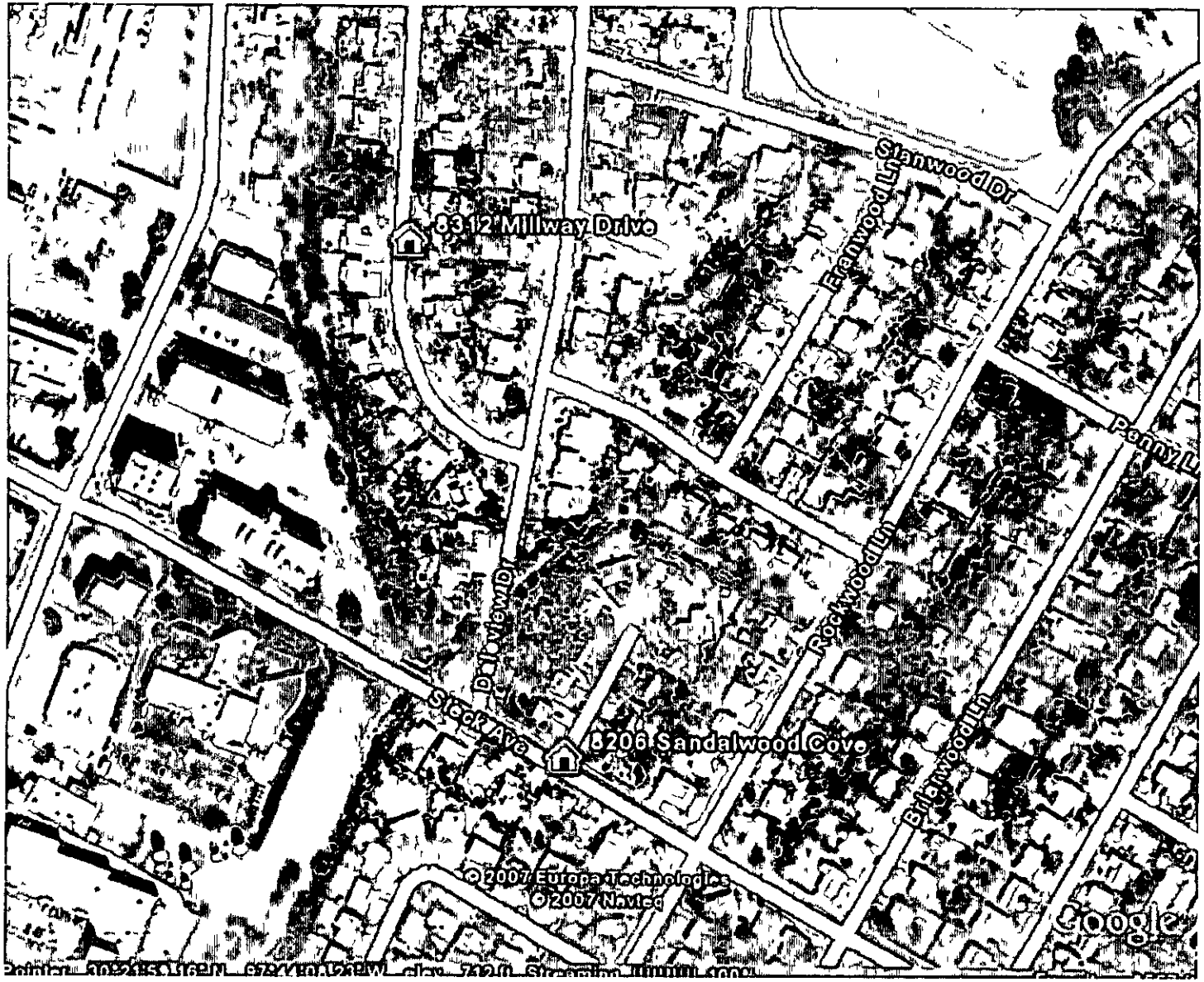
In the event that the Watershed Protection and Development Review Department staff cannot recommend approval of the requested variance, I would appreciate (1) the chance to further discuss the detailed findings that lead to such a conclusion and (2) suggestions on how my site plan can be modified to warrant a recommendation for approval

In addition to this printed letter, I am sending an electronic copy to facilitate communication

Sincerely,

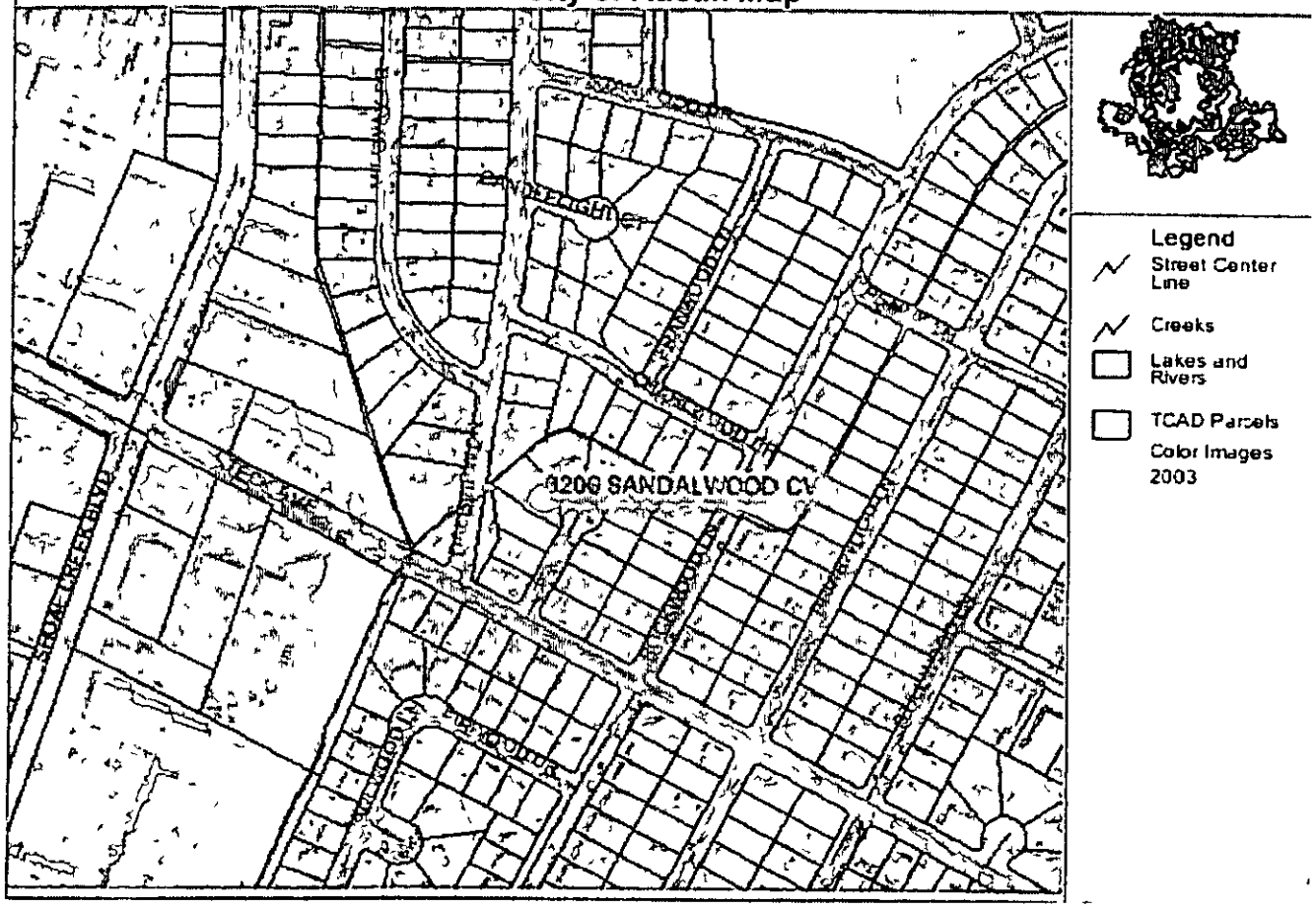
Jeffry T Russell

Daleview Dr
8206 Sandalwood Cove
© 2007 Europa Technologies
© 2007 Navteq
Google


3312 Millway Drive
Slanwood Dr
Eranwood Ln
Penny Ln
Rockwood Ln
Briarwood Ln
Slack Ave
3206 Sandalwood Cove
© 2007 Europa Technologies
© 2007 Navteq
Google

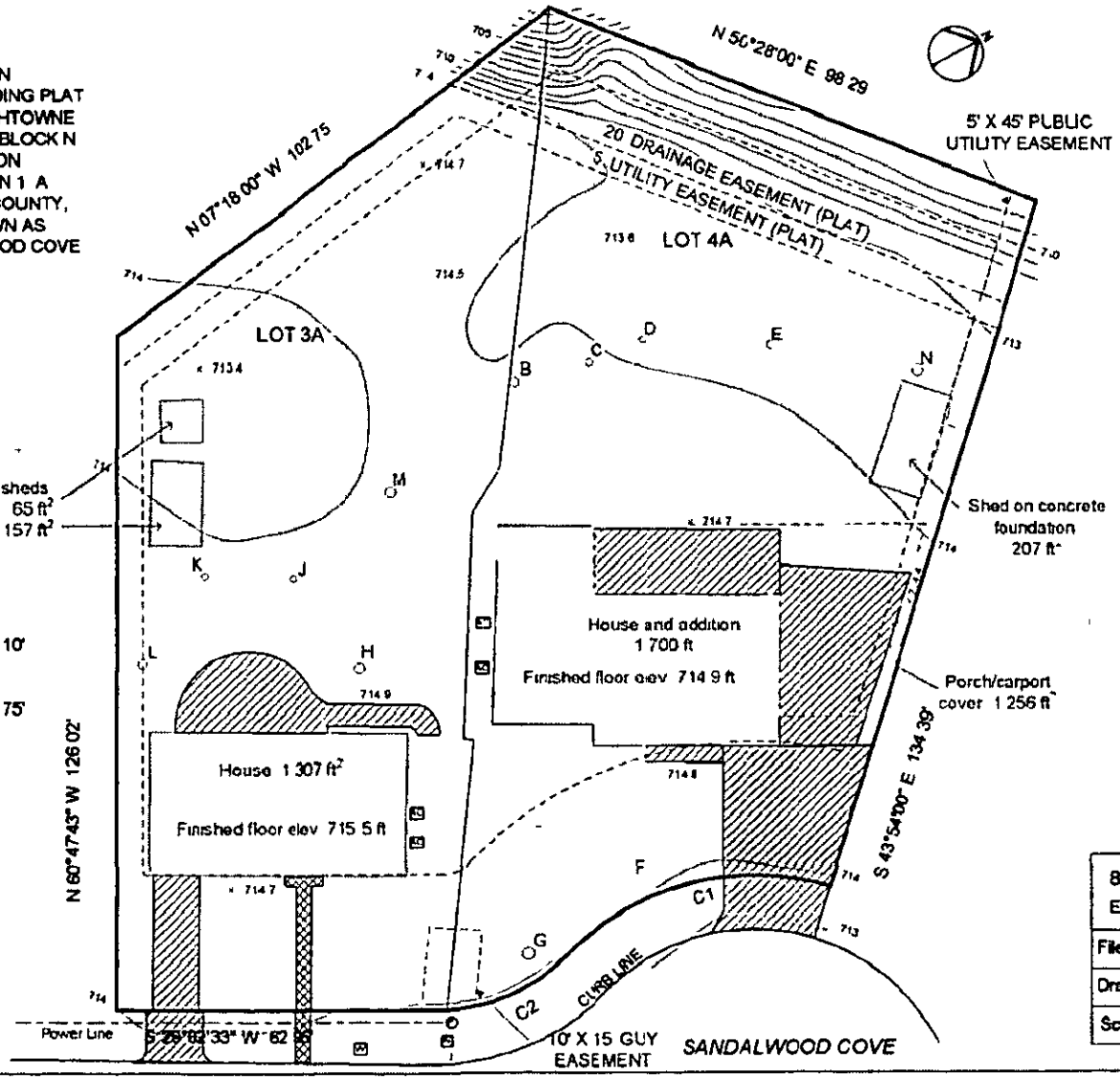
8312 Millway Drive
© 2007 Europa Technologies
© 2007 Navteq
Google

City of Austin Map



EXISTING STRUCTURES AND TOPOGRAPHY 8204 & 8206 Sandalwood Cove

LEGAL DESCRIPTION
LOT 3A AND LOT 4A AMENDING PLAT OF LOT 4 BLOCK N, NORTHTOWNE SECTION ONE AND LOT 3, BLOCK N FIRST RESUBDIVISION NORTHTOWNE SECTION 1 A SUBDIVISION IN TRAVIS COUNTY, TEXAS, LOCALLY KNOWN AS 8204 AND 8206 SANDALWOOD COVE AUSTIN TEXAS



Curve Table

C1
A=54 80' R=50 00'
CHORD= S 14°22'00" W 52 10'

C2
A=24 42' R=30 00'
CHORD= S 05°54'51" W 23 75'

LEGEND

- Brick pavers
- Concrete flatwork
- Tree with label
- Utility Pole
- Water Meter
- Air Conditioner

Area of Spaces

Total double-lot area 23,883 ft²

Impervious Cover (ft²)

Space	8204	8206
House	1,307	1,700
Rear Patio	435	430
Driveway/Carport	225	1,255
Walkway/Porch	80	38
A/C Pads	12	12
Sheds	225	210
(Total)	(2 284)	(3 643)
Total	5 927	
(% of lot)	(25%)	

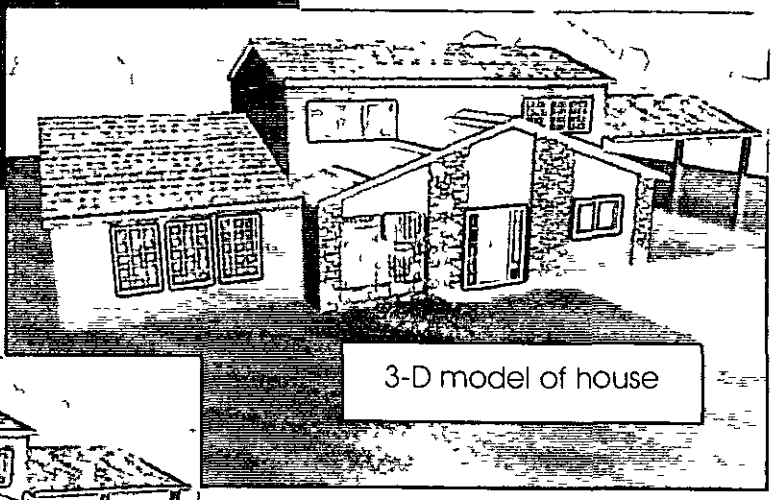
Major Tree List (DIA)

B Catalpa (22")
C Catalpa (16")
D Catalpa (15")
E Catalpa (17")
F Shumard Oak (5")
G Catalpa (27")
H Live Oak (23")
J Live Oak (14")
K Live Oak (15")
L Live Oak (21")
M Arizona Ash (23")
N American Elm (23")

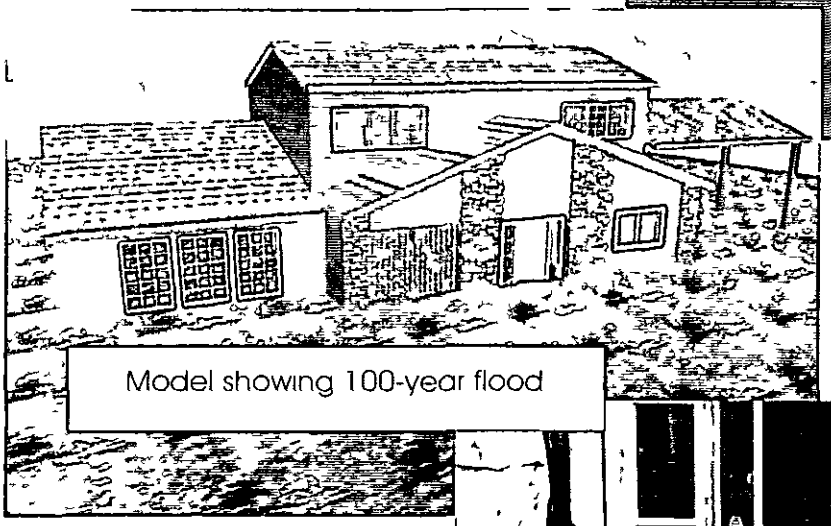
8206 Sandalwood Cove, Austin TX Existing structures and topography	
File site_plan vsd, Sheet Existing3	
Drawn By JTR	Revised 12/3/2006
Scale 1in = 20ft 0in	Printed 12/3/2006

Existing flood conditions at 8206 Sandalwood Cove

8206 Sandalwood Cove



3-D model of house

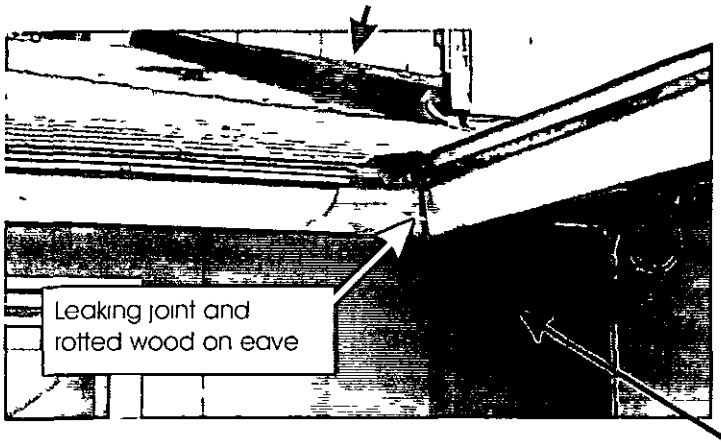


Model showing 100-year flood

The 100-year flood event is 24 inches deep

Existing conditions at 8206 Sandalwood Cove, front yard view

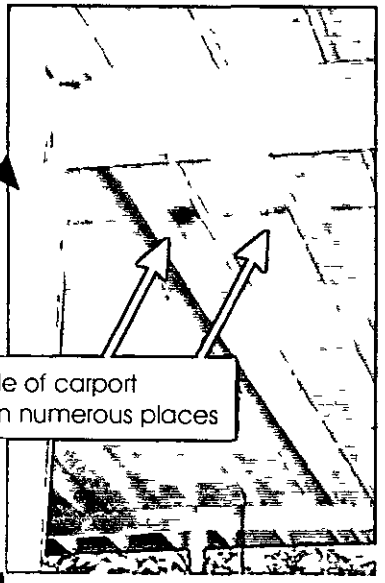
Expandable roof joint between main house and addition



Leaking joint and rotted wood on eave

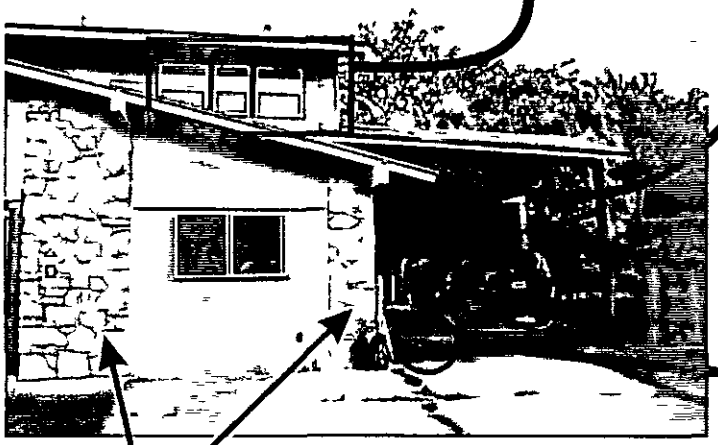
Siding needs replacement

New, code compliant and energy efficient windows needed

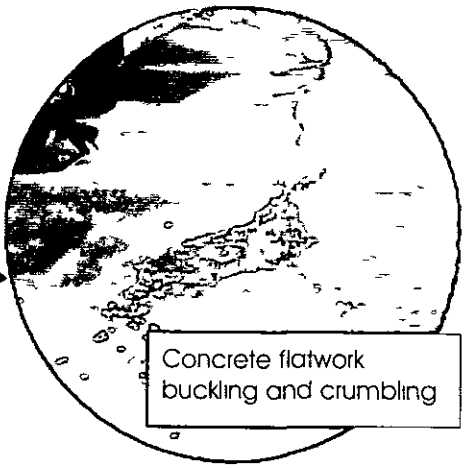


Underside of carport leaking in numerous places

Rotting wood

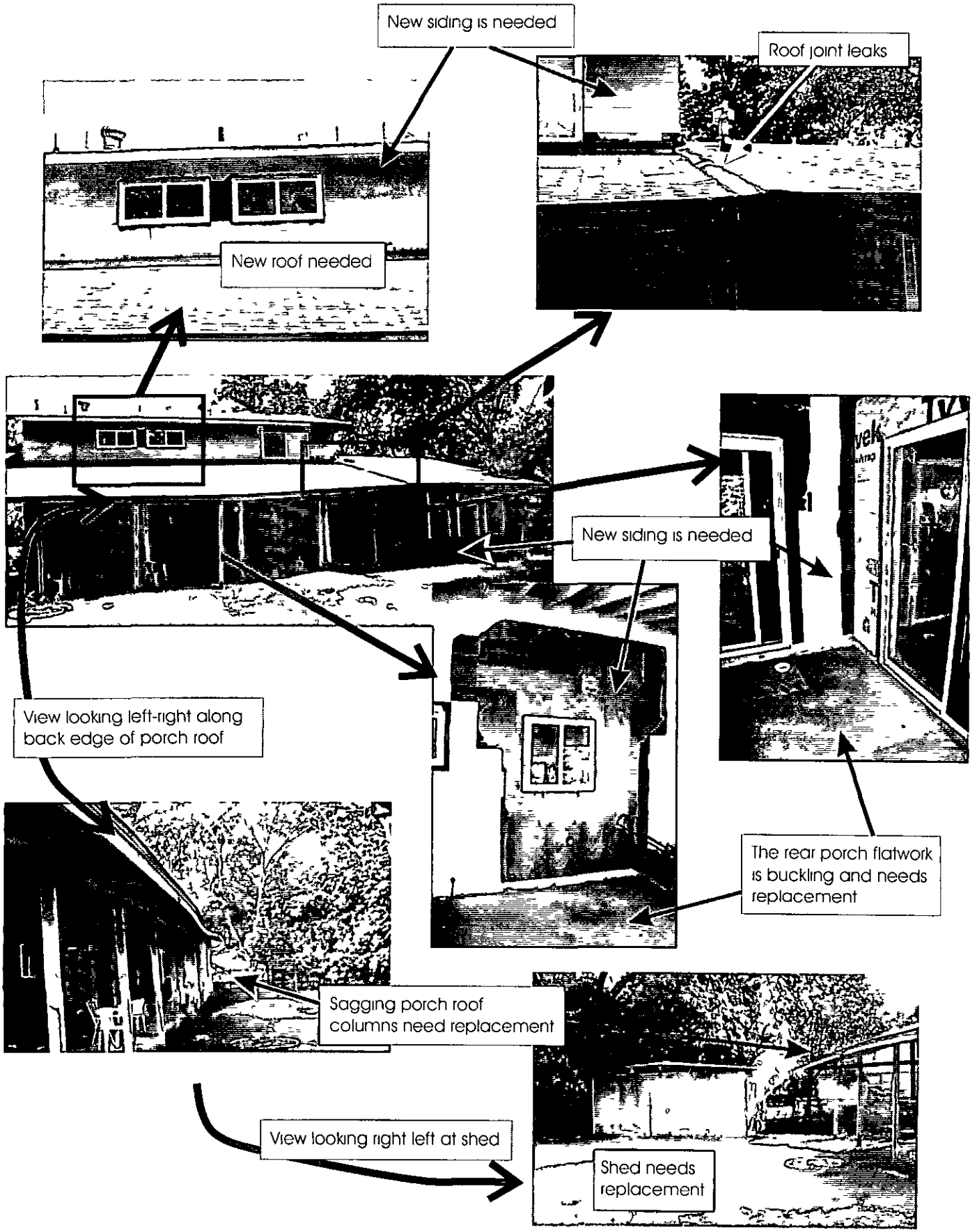


Stone veneer separating from house

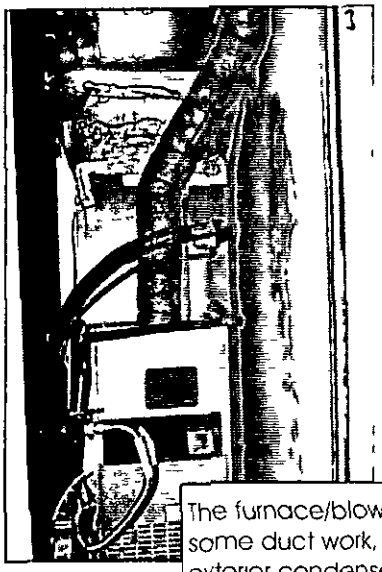


Concrete flatwork buckling and crumbling

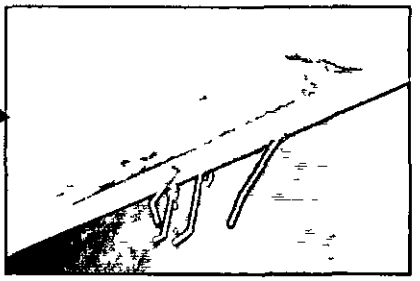
Existing conditions at 8206 Sandalwood Cove, back yard view



Existing conditions inside 8206 Sandalwood Cove



The furnace/blower some duct work, and exterior condenser need replacement

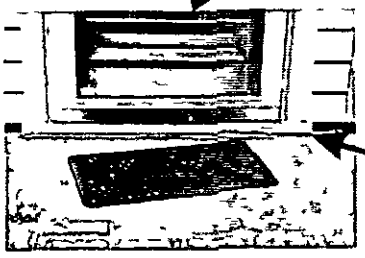


Leak in living room under exterior flexible joint Straws help water drain into bucket

Leak in kitchen ceiling from bath tub drain on second floor

Existing conditions at 8204 Sandalwood Cove

Manual drip irrigation system around foundation In the summer daily watering is needed in order to open and close the front door

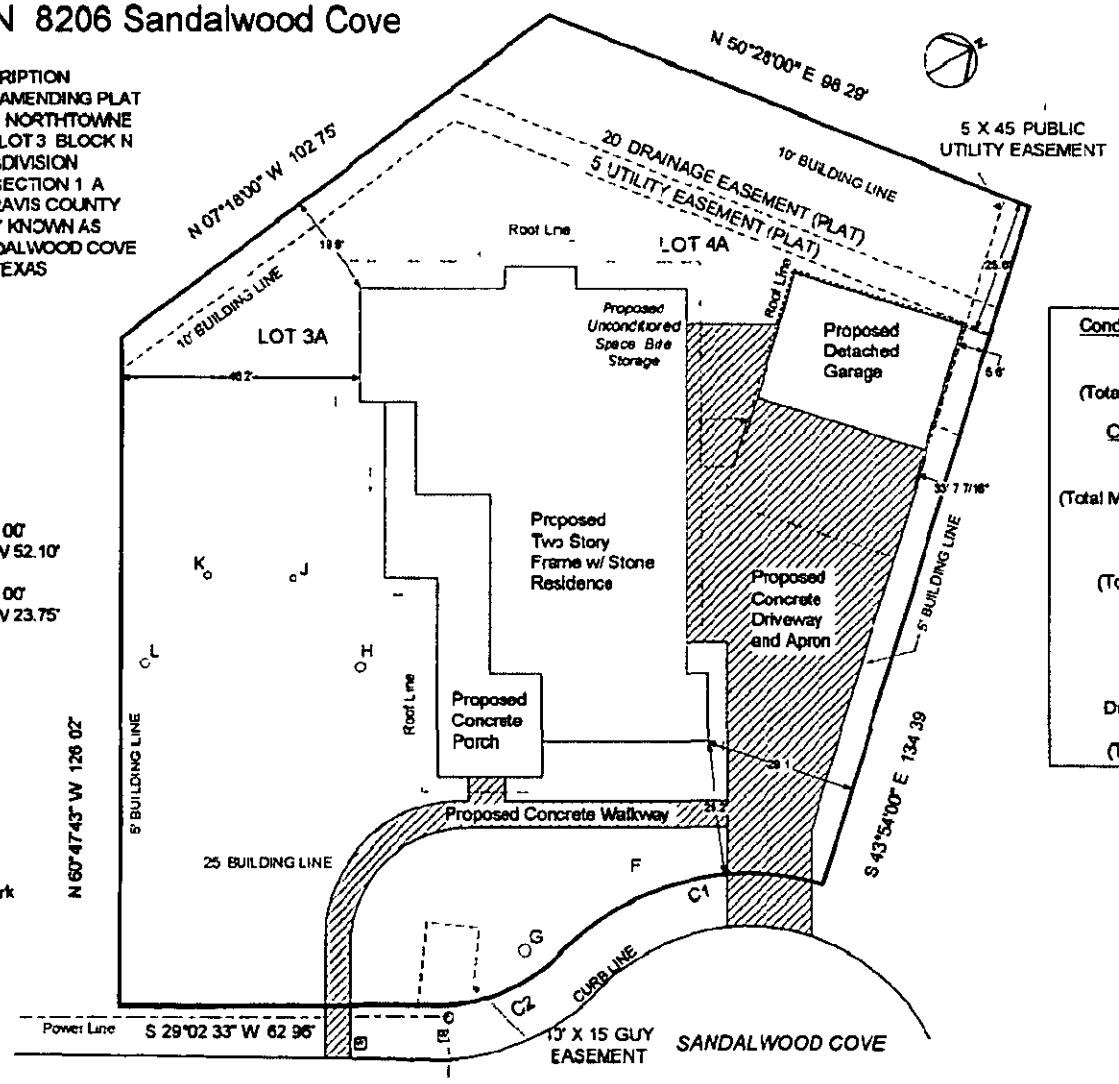


Rotting wood trim under vinyl siding

View of 8204 Sandalwood from back yard The new house will be located on the double lot such that these live oaks will be preserved

PLOT PLAN 8206 Sandalwood Cove

LEGAL DESCRIPTION
LOT 3A AND LOT 4A AMENDING PLAT OF LOT 4 BLOCK N NORTHTOWNE SECTION ONE, AND LOT 3 BLOCK N FIRST RESUBDIVISION NORTHTOWNE SECTION 1 A SUBDIVISION IN TRAVIS COUNTY TEXAS LOCALLY KNOWN AS 8204 AND 8206 SANDALWOOD COVE AUSTIN, TEXAS



Curve Table

C1
A=54.80' R=50.00'
CHORD= S 14°22'00" W 52.10'

C2
A=24.42' R=30.00'
CHORD= S 05°54'51" W 23.75'

Major Tree List (DIA)

F Shumard Oak (5")
G Catalpa (27")
H Live Oak (23")
J Live Oak (14")
K Live Oak (15")
L Live Oak (21")

LEGEND

- Concrete flatwork
- Tree with label
- Utility Pole
- Water Meter

Area of Spaces

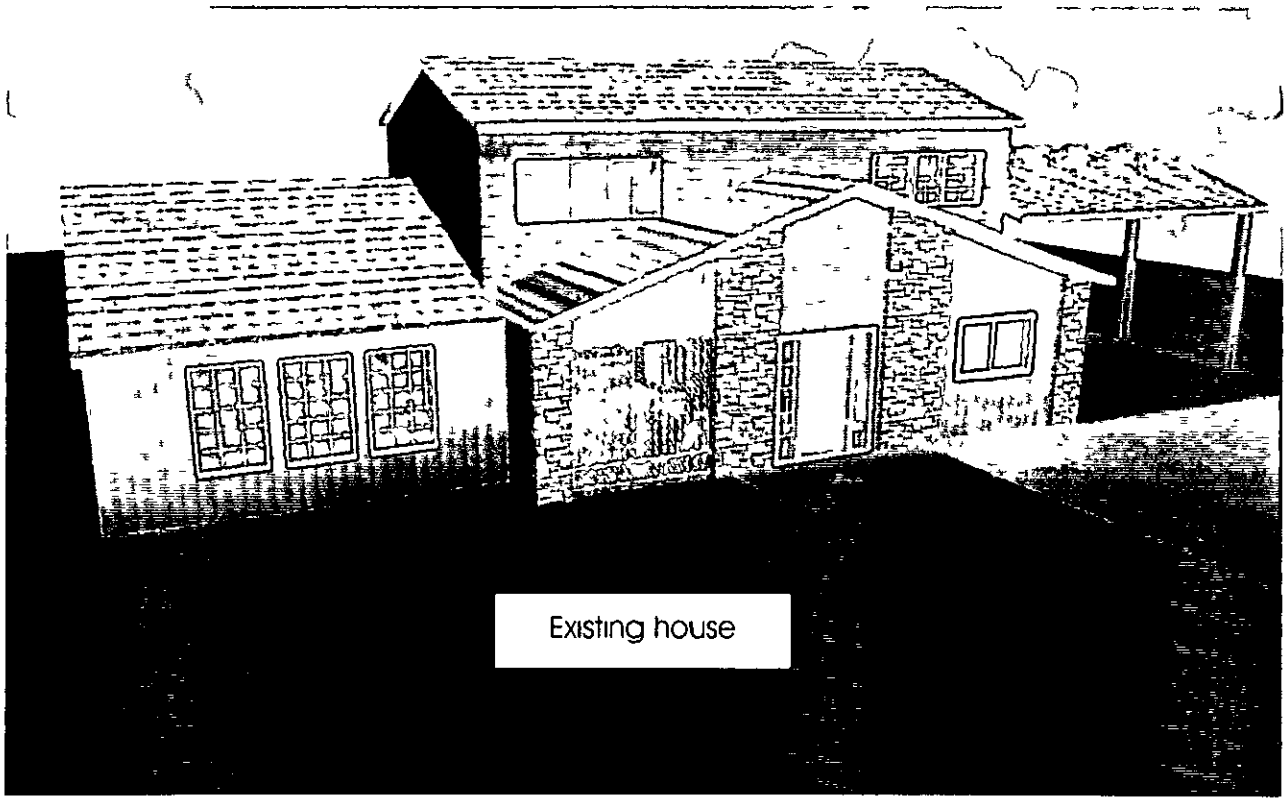
Total double-lot area 23 883 ft²

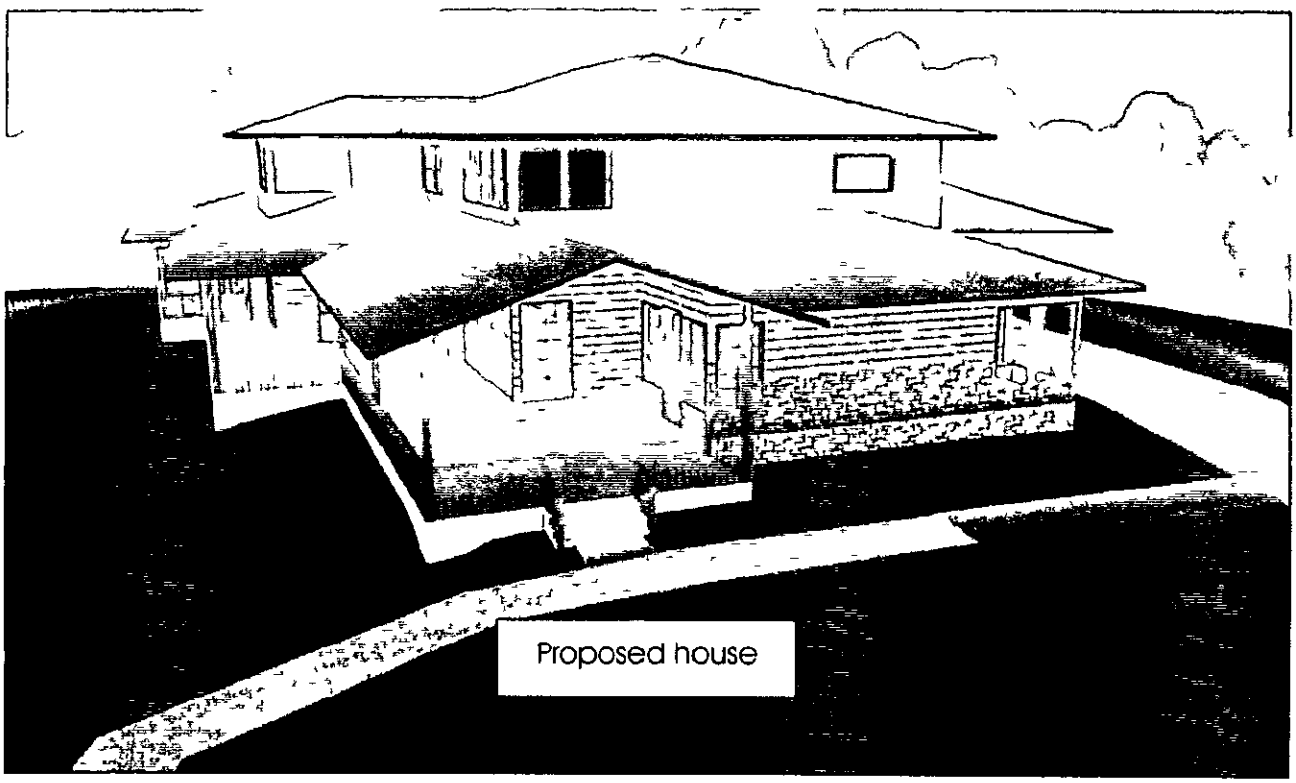
Conditioned Space	Area (sq ft)	Gross Floor Area	Impervious Cover
First Floor	3 560	3 560	3 560
Second Floor	2 200	2,200	
(Total Conditioned)	(5,760)		
Covered Space	**Area (sq ft)**		
Bike Storage	430	430	430
Porch	1,000		1,000
(Total Main Structure)	(1,430)		
Garage	830	830	830
Carport	715	715	[Driveway]
Breezeway	70		
(Total Detached)	(1,615)		
Flatwork	**Area (sq ft)**		
Walkway	560		560
+ R O W	50		
Driveway/Apron	2 880		2 880
+ R O W	160		
(Total Flatwork)	(3 650)		
Total		7,735	9,260
(% of lot)		(32%)	(39%)

8206 Sandalwood Cove, Austin TX Plot Plan	
File site_plan.vwd Sheet Plan1	
Drawn By JTR	Revised 1/3/2007
~~Scale 1in = 20ft 0in~~	Printed 1/29/2007

8206 Sandalwood Cove

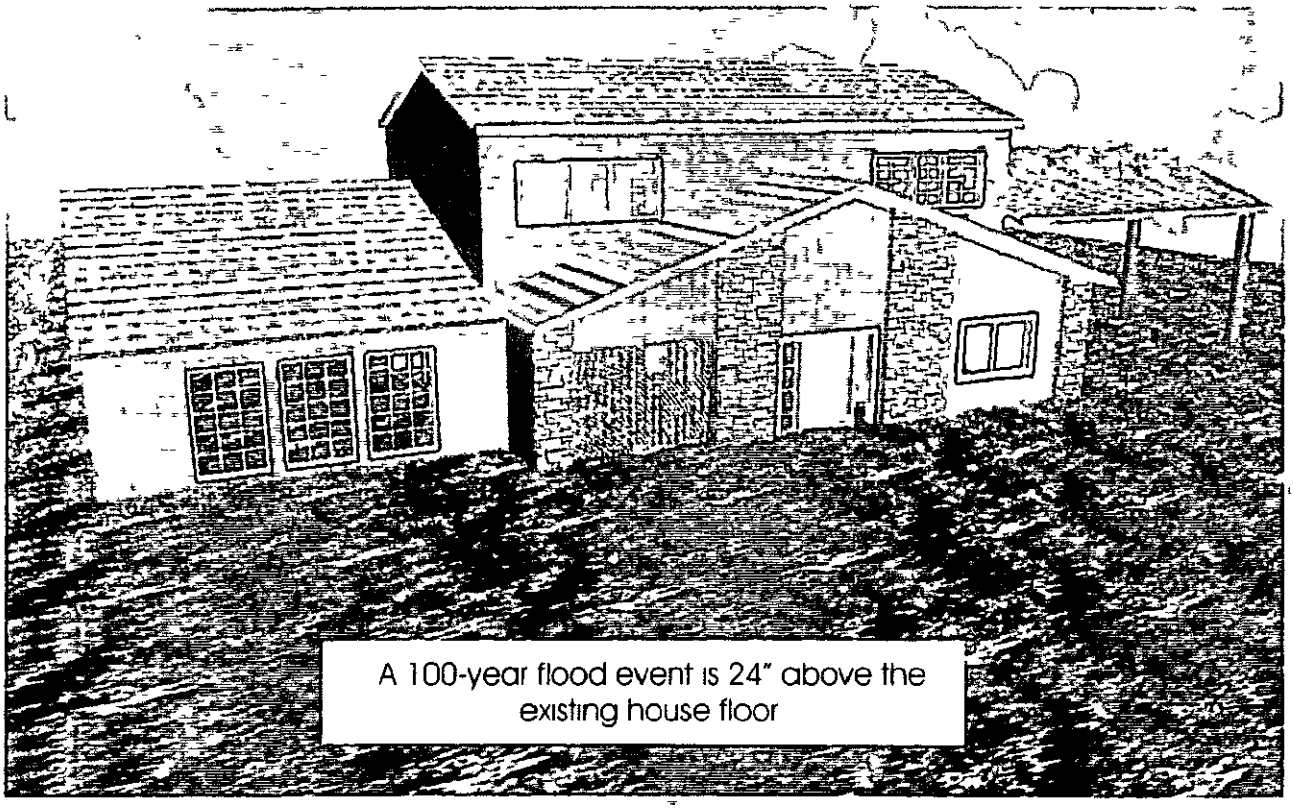
Rendering of current and proposed houses



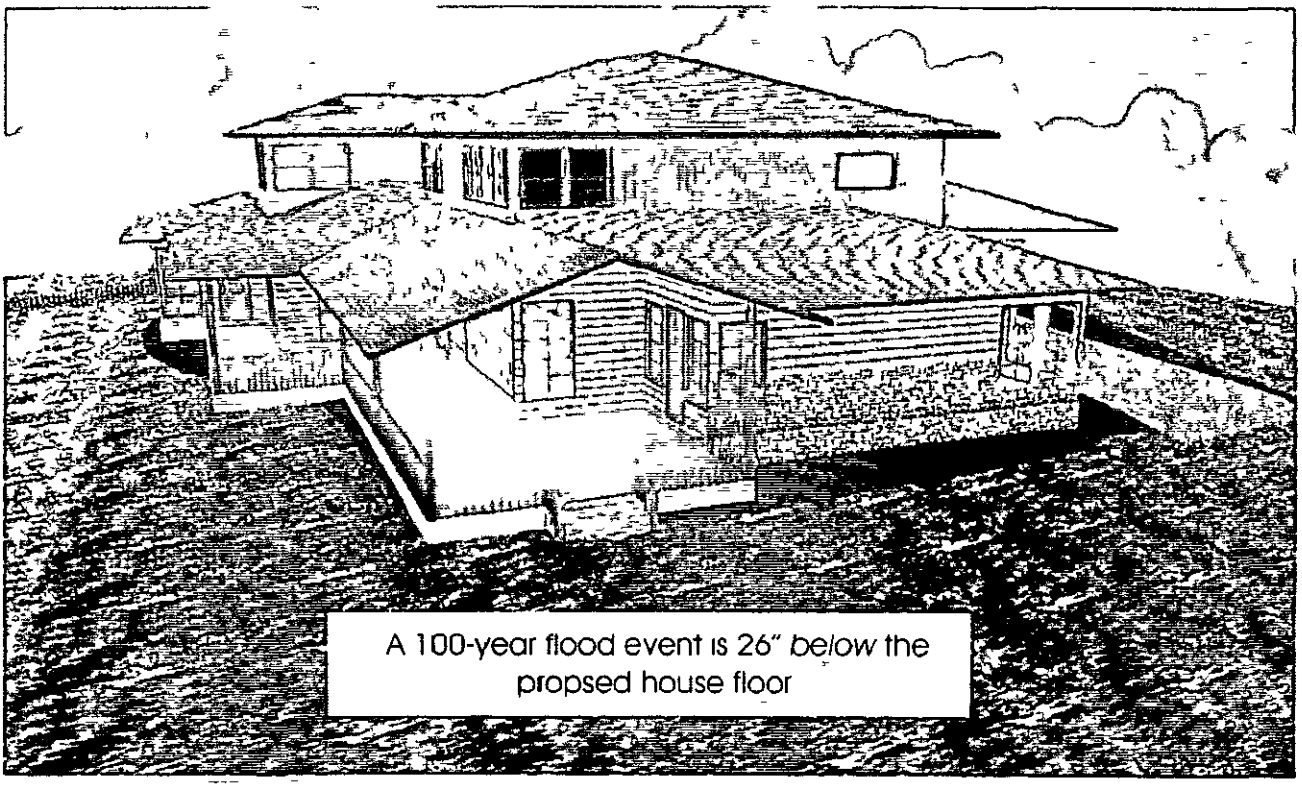


8206 Sandalwood Cove

100-year flood levels



A 100-year flood event is 24" above the existing house floor



A 100-year flood event is 26" *below* the propsed house floor

GARRETT-IHNEN
CIVIL ENGINEERS

3600 W Parmer Lane Ste 212
Austin, TX 78727

512 454 2400
fax 512 454 2420

February 6, 2007

Ms Victoria Hsu, P E , Director
Watershed Protection and Development Review Department
The City of Austin
P O Box 1088
505 Barton Springs Road
Austin, Texas 78767

Engineer's Floodplain Certification Letter for 8206 Sandalwood Cove

Dear Ms Hsu,

This letter is to certify that the improvements proposed by Mr Jeff Russell at the residence above, if built according to plans, will not adversely affect the surrounding property owners considering pre and post construction flood levels I understand the proposed improvements are to consist of demolishing and removing two existing residential structures located at 8204 and 8206 Sandalwood Cove respectively, and building a single residence on the combined lot at 8206 Sandalwood Cove

It is the opinion of this office that the improvements proposed by Mr Russell will not result in a significant increase in the Base Flood Elevation If you have any questions or comments, please feel free to contact us at (512)454-2400

Sincerely,

Stephen R. Zobal, Project Manager

Under Supervision of

STATE OF TEXAS
AARON B. PESEK
93959
LICENSED
PROFESSIONAL ENGINEER

Aaron Pesek, P E

02/06/07
Date

Flood Risk Summary

8206 Sandalwood Cove

Demolish/Rebuild Mitigation Approach

Criteria	Existing	Proposed	Change
Number of families residing in floodplain	2	1	IMPROVE
Finished floor Elevation of house	2 below 100-year flood	1 *above* 100-year flood	IMPROVE
Safe refuge	Second story of structure	Entire structure	IMPROVE
First responder access	Approx 3-4' at curb	Same	SAME
Likelihood first responders needed	2 households in flood susceptible structures	1 household in flood-proofed structure	IMPROVE
Subsidized flood insurance	2 pre-FIRM structures	None (Insurance based on actuary risk)	IMPROVE
Impact on flood levels	Existing conditions	No change	SAME
Potential for debris during a flood	Existing structures inundated during flood, potentially washing debris into creek	New structures elevated above flood levels	IMPROVE
Property at risk	2 structures expected to be damaged during 100-year flood	1 structure elevated above 100-year flood levels	IMPROVE
Energy efficient residences	2 built c 1970	1 home designed with green features and sustainable materials	IMPROVE

North Shoal Creek Neighborhood Association
P O Box 66443
Austin, TX 78766-0443
www nscna org

May 15, 2007

Mayor Will Wynn and City Council
301 W 2nd St 2nd Floor
Austin, TX 78701

Re Flood variances for 8206 Sandalwood Cove (BP-06-12261R)

Dear Mayor Will Wynn and City Council,

On behalf of the North Shoal Creek Neighborhood Association, the Board of Directors recommends granting the floodplain variances for the project at 8206 Sandalwood Cove (building permit BP-06-1261R) While the project involves demolition of two adjacent houses and the construction of one new residence on the two lots, there are several benefits to our neighborhood

- The project reduces the risk to life and property by removing two residences subject to flood damage and replacing them with one, flood proofed residence
- This type of new construction helps revitalize the neighborhood
- Owner-occupied remodeling efforts are preferred to investor speculation
- The proposed residence complies with the McMansion rules

In summary, the Board of Directors of the North Shoal Creek Neighborhood Association recommends granting the floodplain variances requested by Mr Jeffry Russell to allow construction of a single-family residence at 8206 Sandalwood Cove

Sincerely,

Malcom St Romain,

President, North Shoal Creek Neighborhood Association

May 22, 2007

Mayor Will Wynn and City Council
301 W 2nd St 2nd Floor
Austin, TX 78701

Re Flood variances for 8206 Sandalwood Cove (BP-06-12261R)

Dear Mayor Will Wynn and City Council,

We have lived on Sandalwood Cove for nearly five years, and we support the project Jeff and Liz are proposing This type of redevelopment benefits the neighborhood by encouraging owner-occupancy Increasingly houses in our neighborhood are being purchased by investors and converted into rental units

We support granting the floodplain variances requested by Mr Jeffry Russell to allow construction of a single-family residence at 8206 Sandalwood Cove

Sincerely,

Christopher R Griffin-Erickson
Katherine H. Griffin-Erickson

Christopher and Katherine Griffin-Erickson,

8200 Sandalwood Cove

Austin, TX 78757

May 19, 2007

Mayor Will Wynn and City Council
301 W 2nd St 2nd Floor
Austin TX 78701

Re Flood variances for 8206 Sandalwood Cove (BP-06-12261R)

Dear Mayor Will Wynn and City Council

I have lived on Sandalwood Cove since June 1966 and my wife experienced the Memorial Day Flood of 1981 first hand She observed the flood waters on Sandalwood Cove and the water did not reach the height of the slab of our house (8207), the Russell house (8206) and the neighboring property (8204)

I support the project that Jeff and Liz are proposing, this type of remodeling by owner-occupants promotes a strong, desirable neighborhood

I recommend granting the floodplain variances requested by Mr Jeffry Russell to allow construction of a single-family residence at 8206 Sandalwood Cove

Sincerely,

Wilbur "Poss" Holley

8207 Sandalwood Cove

Austin TX 78757

May 20, 2007

Mayor Will Wynn and City Council
301 W 2nd St 2nd Floor
Austin, TX 78701

Re Flood variances for 8206 Sandalwood Cove (BP-06-12261R)

Dear Mayor Will Wynn and City Council

I have lived on Sandalwood Cove for five years and I support the project Jeff and Liz are proposing My house is adjacent to the 8204 lot This type of investment in the neighborhood benefits all the residents

I support granting the floodplain variances requested by Mr Jeffry Russell to allow construction of a single-family residence at 8206 Sandalwood Cove

Sincerely,

Michael Lloyd

8202 Sandalwood Cove

Austin, TX 78757

May 21 2007

Mayor Will Wynn and City Council
301 W 2nd St 2nd Floor
Austin, TX 78701

Re Flood variances for 8206 Sandalwood Cove (3P-06-12261R)

Dear Mayor Will Wynn and City Council

We have lived on Sandalwood Cove since 1968 and we experienced the Memorial Day Flood of 1981 first hand We observed the flood waters at 8206 Sandalwood Cove, and the water did not reach the height of the slab

We support the project that Jeff and Liz are proposing, as this type of remodeling project is beneficial to the neighborhood Furthermore this project reduces the flood risk to life and property

We support granting the floodplain variances requested by Mr Jeffry Russell to allow construction of a single-family residence at 8206 Sandalwood Cove

Sincerely

Juan and Socorro Lujan

8210 Sandalwood Cove

Austin, TX 78757

Conrad Engineering

February 15, 2007

Mr Jay Baker
City of Austin Watershed Protection and Review Department
505 Barton Springs Road, 4th Floor
Austin, Texas 78704

RE BP-06-12261R (8206 Sandalwood Cove)

Dear Mr Baker

This letter is to certify that our firm has been retained to design the proposed residence that is the subject of Building Permit Number BP-06-12261R The project will be designed to withstand flood forces generated by a 100 year flood, as required by Austin City Code, Title 25 (Land Development), Chapter 25-12-3 (Technical Codes), Section 1612 (Flood Loads), which states that "the design and construction of buildings and structures shall be in accordance with ASCE 24" (Flood Resistant Design and Construction) I hope that this information is useful Please contact me with any questions or comments

Sincerely,

Steven M Conrad, P E
Principal Engineer

STATE OF TEXAS
STEVEN MICHAEL CONRAD
57746
REGISTERED PROFESSIONAL ENGINEER

February 15, 2007

Copy Barley & Pfeiffer Architects
Jeff Russell

8307 Doe Meadow Drive
Austin, Texas 78749

Telephone (512)301-2627
Fax (512)301-2681

Conrad Engineering

May 18, 2007

Mr Jeff Russell
8206 Sandalwood Cove
Austin, Texas 78757

RE Residence at 8206 Sandalwood Cove
Austin, Texas

Dear Mr Russell

You called today to ask my advice as to the feasibility of raising your existing residence by approximately four feet Your house is constructed on a concrete slab-on-grade foundation A pier-and-beam residence can be raised and even moved with relative ease Raising an existing residence constructed on a concrete slab-on-grade foundation is considerably more difficult and expensive I am not aware of any slab-on-grade foundation system that has been raised as high as four feet, so it is imperative to find an experienced and reputable contractor with experience in this type of work

A slab-on-grade foundation is sometimes referred to as a "floating" slab, i e it rests somewhat uniformly on the underlying ground surface If a portion of the system looses ground support, significant damage can occur This can be observed in thousands of concrete slabs in the Austin area that are constructed on expansive clays As the clays shrink and swell in response to changes in soil moisture content, the slab system heaves and subsides, often resulting in severe cracking and significant damage to the superstructure

No foundation system (even a pier-and-beam system) can be raised from the edges only The interior must be raised at the same time and at the same rate to avoid severe damage The process involves several steps

1 Reinforced concrete piers must be drilled and placed at relatively close intervals (approximately 8 feet on center) around the perimeter of the residence
2 Interior concrete piers must be placed at relatively close intervals beneath interior concrete beams A hole must be jack-hammered in the slab at each pier location A portable drilling rig is brought into the house to drill the piers
3 Interior concrete mushroom piers must be placed beneath the slab elements to provide support once provided by the soil A hole must be jack-hammered in the slab at each pier location as described above
4 The plumbing drain lines must be disconnected by tunneling beneath the slab or by other means
5 Hydraulic jacks must be placed at each pier The jacks must raise the entire slab uniformly The jacking procedure will probably take two or three days High

8307 Doe Meadow Drive
Austin, Texas 78749
Telephone (512)301-2627
Fax (512)301-2681

winds or inclement weather during this period could lead to unanticipated complications or even to collapse in extremely severe conditions

6 Once raised, the house becomes unstable and must be laterally braced

7 New concrete columns must be constructed on the tops of the concrete piers to support the existing beams and slabs At the perimeter of the residence, underpinning must be installed or fill material must be imported to bring the yard up to the new slab elevation If fill material is not imported, new stairs will be required to reach grade New railings will be required at porches Under the slab, new fill material must be placed Alternately, the jacking space can be maintained as a crawl space, but additional structural work may be required for lateral stability

8 After the structural work is completed, the holes in the slab must be repaired, the plumbing lines must be reinstalled and cosmetic repairs must be completed inside the residence Naturally, all floor finishes will need to be replaced due to the large number of holes jack-hammered into the slab It is certain that significant cosmetic damage will occur at the interior of the residence during the work Example large amounts of excavated material from the pier drilling process must be removed by wheelbarrow from the interior of the house

9 Landscaping and irrigation systems must be replaced

10 Fill material will need to be imported to ramp up to the carport A new driveway surface must be installed

11 Additional complications will almost certainly arise

The work will entail many dangerous man-hours of work beneath the temporarily supported house It is difficult to estimate the total cost of all of the work, but $75,000 to $100,000 is probably reasonable for planning purposes A much more detailed analysis is necessary to provide a reliable budget number As you can see raising an existing slab foundation is a complicated and expensive undertaking that is not without risk Based on my experience, I believe that demolition and replacement of the existing residence is a more practical and predictable solution to the problem of flood-proofing Please feel free to contact me with any questions or comments

Sincerely,

Steven M Conrad, P E
Principal Engineer

STATE OF TEXAS
STEVEN MICHAEL CONRAD
57745
REGISTERED
PROFESSIONAL ENGINEER

May 18, 2007

8307 Doe Meadow Drive
Austin, Texas 78749

Telephone (512)301-2627
Fax (512)301-2681